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Excavation at

## Tell Jemmeh, Israel, 1970-1990

Edited by<br>David Ben-Shlomo and Gus W. Van Beek

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Smithsonian Institution
Scholarly Press
WASHINGTON D.C.

Ben-Shlomo, David, and Gus W. Van Beek. The Smithsonian Institution Excavation at Tell Jemmeh, Israel, 1970-1990. Smithsonian Contributions to Anthropology, number 50, xxxiv +1087 pages, 941 figures, 77 tables, 2014.-This monograph describes the results of the archaeological excavation at the site of Tell Jemmeh, Israel, undertaken by the Smithsonian Institution and directed by Gus W. Van Beek during the years 1970-1990. All the artifacts from the excavations were shipped from Israel to Washington, D.C., and have been restored, studied, and analyzed in the National Museum of Natural History for the past four decades. The site is a strategic and large mound located near Gaza and the Mediterranean coast. It was inhabited continuously for at least 1,400 years during the Middle and Late Bronze Age, the Iron Age, and the Persian period. The highlights of this excavation are the findings of a large and affluent courtyard house from the Late Bronze Age, a sophisticated well-preserved pottery kiln from the early Iron Age, a complex of Assyrianrelated administrative buildings during the late Iron Age, and a complete granary of the Persian period. This is a detailed and final report on all of the excavation results, including the architectural remains, stratigraphy, pottery, and other finds. In addition, several more detailed and focused studies of certain aspects of the site's material include (among others) chapters on imported, decorated, Philistine, Assyrian-style and Greek pottery and chapters on figurines, sealings, jewelry, amulets, scarabs, cylinder seals, flint, coins, ostraca, and fauna. The volume is richly illustrated with nearly 1,000 figures showing field photographs, plans, sections, and drawings and photographs of artifacts. The significance of the results is summarized and discussed in the final chapter.

Cover images, from left to right: Tell Jemmeh from the south; Figure 3.63; Figure 13.1.

Published by SMITHSONIAN INSTITUTION SCHOLARLY PRESS
P.O. Box 37012, MRC 957

Washington, D.C. 20013-7012
www.scholarlypress.si.edu

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## Library of Congress Cataloging-in-Publication Data

The Smithsonian Institution excavation at Tell Jemmeh, Israel,1970-1990 / edited by David Ben-Shlomo and Gus W. Van Beek.
pages cm — (Smithsonian contributions to anthropology ; Number 50)
Includes bibliographical references and index.

1. Jemmeh Site (Israel) 2. Excavations (Archaeology)—Israel. I. Ben-Shlomo, David, editor. II. Van Beek, Gus W. (Gus Willard), 1922- editor.

DS110.J366S65 2014
933'.49—dc23
2014000790
ISSN: 0081-0223 (print); 1943-6661 (online)
© The paper used in this publication meets the minimum requirements of the American National Standard for Permanence of Paper for Printed Library Materials Z39.48-1992.

Dedicated to the memory of
Prof. Donald J. Ortner
(1939-2012).


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# Preface and Acknowledgments 

T his volume is the final excavation report, presenting the results of the archaeological excavation at Tell Jemmeh, conducted on behalf of the Smithsonian Institution and directed by Gus W. Van Beek.
Gus Willard Van Beek, born in Tulsa, Oklahoma, joined the Smithsonian Museum of Natural History as a curator of Old World Archaeology in 1959. Until then Gus had been a research associate at Johns Hopkins University, where he had previously studied archaeology and was mentored by William Foxwell Albright. Until 1969 he conducted research on pre-Islamic South Arabia, Yemen, and Ethiopia, but changing political conditions in the region during the 1960 s made further archaeological work there impossible. During 1969 the region of Gaza drew his attention as an end terminus of the Arabian trade route; Gus also found parallels for pottery he studied in Arabia in W. M. F. Petrie's publication of "Gerar." The next step of choosing the site of Tell Jemmeh near Gaza as an excavation site seemed natural, and during the summer of the 1970 the first season began, and the first squares were opened just north of Petrie's pit, roughly north of the center of the mound. The excavation continued for nine large-scale seasons every summer until 1978. In fact, the field work was planned to end by 1978, but it was resumed in 1982 and 1984 mainly to further investigate the earlier periods in the site in the step trenches on the slopes of the tell. Finally, a short season was initiated during 1990 to examine a southern trench (previously cut in 1987) possibly indicating Bronze Age fortifications.

Thus, the original research design was modified extensively through the 12 field seasons of excavations, becoming far more ambitious and diverse. The modifications were made in response to the ever-increasing knowledge of the site and its artifacts, which sparked new questions often raised by chance finds, such as the Philistine ceramic kiln and the two fine Late Bronze II vessels from the east slope. Eventually, rather than dealing with pre-Islamic Arabian trade, the site and its culture proved to be an important source of Bronze and Iron Age remains, contributing much data, some of it unique and surprising, to the archaeology of the Levant.

The expedition was housed during the entire period in the nearby Kibbutz Re'im; the kibbutz members were extremely helpful, and many participated in the excavations. In particular, we thank Greta Cymbalista, Amnon Gat, and Rami Sproukt from Kibbutz Re'im. During the course of the excavations hundreds of volunteers from the United States and other parts of the world worked in the field. It is impossible to list them all here, but we thank them all. Ora Van Beek and her three children, Amir, Dani, and Timna Pilch, also played an important part in the field work and afterward. We present here as many names of staff members who participated in the excavations as possible (with the assistance of Ron Gardiner; Figures P.1-P.4). They include dig architects Brian


FIGURE P.1. Season 1973 photo. In the front row, volunteer Art Bissell (in headdress), Gus Van Beek, Ora Van Beek, Amir Pilch, Dani Pilch, and Timna Pilch.


FIGURE P.2. Season 1976 photo. Standing in the back row, from left: Ron Gardiner, Jerry Schaeffer, unknown, unknown, Gary Rollefson; far right: Van Button. Sitting, from left: Diane Fenicle, Debbie Weinstein, Ora Van Beek, Gus Van Beek.


FIGURE P.3. Season 1977 photo. Standing in the back row, from left: Van Button, three unknown people, Jerry Schaeffer, and, one from the far right, Ron Gardiner. Second row from the back, second from right: Diane Fenicle. Sitting, from right: unknown, Brian Lalor (architect), Gus Van Beek, Roy Griffiths (photographer).


FIGURE P.4. Season 1978 photo (first half). Standing in the back row, from left: unknown, unknown, Ron Gardiner; far right: Egon Lass. Middle row, standing from left, middle: Jeannie Jasper (cook), unknown, Bonnie Magness, unknown, Brian Lalor. Front row, sitting, from left: Ted Sunderhaus, unknown, Ora Van Beek, Gus Van Beek, Gary Rollefson.

Lalor, David Sheehan, David Price Williams, and R. Seligman; photographers Victor Krantz and Roy Griffiths; and cook Jennie Jasper. Other staff members were Van Button, Diane Fenicle, Lucy Foley, Ron Gardiner, Alison Kraskey, Egon Lass, Linda B. Linsberg, Bonnie Magness (Gardiner), Lee Marfoe, W. S. Measday, John F. Merkel, W. Meyer, Wendy Nimer, W. T. Potts, Gary Rollefson, Ted Sunderhaus, Jerry Schaeffer, Jennifer Schmertz, Martin Shea, Roger Trick, David E. Weil, Deborah Weinstein, and Fran Weiss. The field photographs were taken by Victor Krantz, Roy Griffith, Gus Van Beek, and Donald Ortner.

Financial support for the excavation was given by the Smithsonian Institution, the Smithsonian's Bruce Hughes Endowment for the History of Religion, and the National Geographic Society. During the course of the field work and afterward all the finds from the excavation were transported to Washington, D.C. In the National Museum of Natural History (NMNH) a dedicated team of volunteers worked for over 30 years on the reconstruction and the treatment of the pottery vessels and other artifacts (Figure P.5). They include Marnie Akins, Art Bissell, Lucinda Conger, Elizabeth Craft, Betty Hays, BeBe Katim, Rosemary Monagan, Priscilla Williams, and Pamela Rogers (art work).

Names of other volunteers could not be retrieved at the time of the writing. Geological samples and soils were analyzed by Bill Melson, curator, Department of Mineral Science, and glass and metal finds were cleaned and analyzed by the Conservation Analytical Laboratory of the Smithsonian Institution, now the Museum Conservation Institute. In the final stage further treatment and cleaning of metal artifacts were carried out in the Israel Antiquities Authority (IAA) metal laboratory.

A number of people participated in the treatment of the artifacts and the preparation of various parts of this volume. Artifact drawings were made by Marcia Bakry, Olga Dubovsky, Gina Tibbott, Leonardo Pajarola (glyptics), and Pamela Rogers. Photographs of artifacts were taken by the NMNH photographic unit, including (but not limited to) Donald Hurlbert and James Di Loreto, Clara Amit of the IAA, Gabi Laron of the Hebrew University, and David Ben-Shlomo. Digitization of photographs and plans and graphic work was done by Jeremy Rosenberg, Janet T. Beck, Agnes I. Stix, and Liese Meier.

The publication project was funded generously by the Shelby White-Leon Levy Program, the Scholarly Studies Program of the Smithsonian Institution, and the Smithsonian


FIGURE P.5. The pottery reconstruction volunteers in the basement of the NMNH. From left to right: Elizabeth Craft, Rosemary Monagan, Betty Hays, Marnie Akins, Lee Hitchcock, BeBe Katim.

Women's Committee. The project was also supported financially by the NMNH Director's Office (under Robert Fry, 2001-2003, and under Cristián Samper, 2003-2012), the Mediterranean Archaeological Trust, and anonymous donors. We thank in particular the former director of the museum, Cristián Samper, and the staff of the Department of Anthropology, Mary Jo Arnoldi, David Hunt, Laurie Burgess, Deborah Hull-Walski, Daniel Rogers, Bruno Frohlich, Melinda Zeder, Dennis Stanford, and Zaborian Payne, for their support and volunteers, including Janet T. Beck, Agnes I. Stix, and Pamela Rogers. The Israel Antiquities Authority (formerly Department of Antiquities) is also thanked for its full cooperation at all times and support of the excavation, analysis of the finds, and their publication.

We thank all the contributors of chapters to this volume; some agreed to complete their contribution on relatively short notice. We also thank Amihai Mazar for carefully reviewing the manuscript and supplying numerous helpful comments, Joe Uziel for editing chapters $1-8$ and his helpful comments, and the staff and editors of the Smithsonian Institution Scholarly Press, Deborah Stultz,

Tshawna Byerly, Meredith McQuoid and Ginger Strader, for their advice and support and meticulous work on the manuscript.

The writing and concluding of this short preface come with mixed emotions. On the one hand, I have great satisfaction as this publication project of Tell Jemmeh is completed successfully, bringing this cycle of over 40 years, which started in the late 1960s, to a close. On the other hand, I feel great sorrow that I have to write these lines instead of the person who should probably be thanked the most on this occasion and who intended to write this preface himself, Donald Ortner.

Don, who was Gus's colleague and best friend, initiated the final stage of the publication project of Tell Jemmeh during 2008 and was the driving force behind this volume until his untimely and sudden passing on April 30, 2012. Several months afterward, Gus Van Beek passed away. Without Don's persistence, enthusiasm, and great skills this book would not have existed. This may not be the place to list all of Don's virtues as a person, a scientist, and a scholar, but they were many. I hope at least that this volume dedicated to him will serve his memory well.

## Introduction David Ben-Sblomo and Gus W. Van Beek

## LOCATION AND IDENTIFICATION OF THE SITE AND HISTORICAL-TEXTUAL BACKGROUND

The archaeological site of Tell Jemmeh (Tel Re'im) is a prominent mound located in the region of the northwestern Negev and the southern coastal plain of Israel, about 12 km south of Gaza and 9 km west of the Mediterranean coast (Figure 1.1, map references: New Israel Grid, 147.588, Old Israel Grid, 097.088). The site is situated in a strategic location on the southern fringe of a sedentary settlement, close to the important maritime gateway of Gaza and on the crossroads of the major coastal highway connecting Egypt and Asia and the route from Arabia to the main coastal gateways on the Mediterranean coast. Even today, it stands prominently overlooking the modern roadway, giving the junction its modern name (the Gemma Junction). Throughout the Bronze and Iron Ages the sites of the western Negev presented a unique combination of the material cultures of the regions surrounding it. A case in point is the Iron Age II (10th-7th centuries BCE), when the region witnessed the intensive political, military, cultural, and commercial activity of Egypt and Assyria as well as settlement of Arabs, Phoenicians, and perhaps also Greeks. This region became pivotal in the administration of the spice trade network ("Sahar Arav") that commenced at the Gaza, Ashkelon, and Ruqeish headquarters.

The site of Tell Jemmeh is a hill located on the southern bank of the Besor River (Wadi Ghazzeh, Figures 1.2-1.4). The natural hill is about 45 m high, with the accumulation of layers representing human activity, spanning from the Chalcolithic through the Persian periods, adding about 18 m to the height of the hill. Later periods are not represented on the tell, indicating that the location of the site (especially during the Byzantine and Mamluk period) likely shifted to the lower city south of the tell (see Schaefer, 1979, 1989, "site 1"). The tell suffers from continuous erosion due to the flooding of the Besor River located on the north side of the mound (see also Petrie, 1928:2, pls. II:2, III:2). This phenomenon is intensified because of the brittle character of the local loess soil. The area


FIGURE 1.1. Map of southern Israel and location of Tell Jemmeh ( $31^{\circ}$ $23^{\prime} 15^{\prime \prime} \mathrm{N}, 34^{\circ} 26^{\prime} 41^{\prime \prime} \mathrm{E}$ ).


FIGURE 1.2. Aerial photo of Tell Jemmeh.


FIGURE 1.3. The dry Besor River and eroded side of Tell Jemmeh.


FIGURE 1.4. Tell Jemmeh during the early 20th century.
of the hill originally consisted of 4.9 hectares (see below, according to the 48 m height contour estimation), yet during the late 20th century only 3.3 hectares remained. Excavations indicate that during the Bronze and Iron Ages the entire area of the hill, or most of it, was probably settled.
W. J. Pythian-Adams (1923:146), who was the first to excavate the site, proposed to identify Tell Jemmeh with ancient Gerar, a town mentioned in the Bible in passages primarily dealing with the Patriarchs (Gen. 10:19, 20:1-2, 26:1-26; 2 Chron. 14:13-14). The Byzantine site of Umm Gerar, some 3.6 km down the Nahal Besor from Tell Jemmeh, helped support this claim, as according to Pythian-Adams, the name drifted there from the biblical town of Gerar, which must have been nearby. Petrie (1928:2) followed Pythian-Adams in also identifying Jemmeh with Gerar: "That the mound of Tell Gemmeh is the site of the ancient Gerar is indicated by the name of the district El Jura around it, and by the name of a daughter town Umm Jerar, entirely of Roman age, at a couple of miles downstream." This identification was accepted by virtually all scholars and was assumed in most archeological publications from 1929 until 1952.

In 1952, B. Maisler (Mazar) argued that Tell Jemmeh should be identified with Yurza (Yurtza), a Canaanite town mentioned in the annals of Thutmose III, in his cities list of the southern Levant, and in the Tell el Amarna correspondence (Maisler, 1952:48-51). Today, most scholars accept this identification. The association of Tell Jemmeh to Yurza is based on the site's prominence and strategic positing, controlling the coastal route on the very southern edge of the Canaanite territory. This identification is further substantiated by the petrographic provenancing of two el Amarna letters written from Yurza's governor Pû-Ba'lu (see below) to the king of Egypt to Tell Jemmeh (Goren et al., 2004:300).

As noted above, Yurza (or Yursa) is mentioned in several Late Bronze Age Egyptian sources (e.g., Pritchard, 1950:483490; Maisler, 1952; Aharoni, 1987:130,140). In the Thutmosis III conquest list it is mentioned together with Sharuhen on the southwest border of Canaan. This passage appears in the telling of the Pharaoh's Asiatic Campaign (ca. 1468 BCE), in the justification of events that culminated in the battle of Megiddo: "but it happened in later times that the garrison which were there in the town of Sharuhen, while from Yurza to the outer ends of the earth had become rebellious against his majesty" (Pritchard, 1969:235). Here, Yurza (Yurtza) clearly represents the southern border of Palestine. A similar location is also indicated by the geographical list of Thutmosis III, where Yurza (number 60 in the list, "Yrd") follows three names: Ngb (presumably Negeb), Shshhn, and Rnm; Yurza is followed by a series of towns listed from south to north along the major north-south coastal route, the via maris, and its branches. In the el Amarna letters (Knudtzon, 1910:916-921, nos. 314-316, 1915:1350-1351) Yurza is mentioned in two letters from the governor of the town ("the man-ruler of Yurza," Maisler, 1952:49). The governor, Pû-Ba'lu or Pû-Haddu, refers to an Egyptian official (Riapana) appointed over him. From these documents it seems that the town was the capital of the Canaanite kingdom on the southern coast on the
way to Egypt and that it was important to the Egyptians during the New Kingdom.

During the late Iron Age the town of Arzâ (Arşa) is mentioned in various Neo-Assyrian texts (see, e.g., Bagg, 2007:2930). In the Esarhaddon and Ashurbanipal texts (680-627 BCE), several campaigns to Philistia are described (see Tadmor, 1966:97). It seems Esarhaddon favored a more aggressive military policy as a means of maintaining economic and political control of Phoenicia and Philistia. In 679 BCE, approximately a year and a half after his accession, he undertook his first campaign to Philistia, plundered Arzâ, a hitherto unknown place on the Egyptian border, and took its king, Asuhili, captive. In the records of Esarhaddon there is a mention of Asuhili, the king of Arzâ, and his courtiers, who were taken in chains to Assyria (Oded, 1979:34).

Na'aman (1979) suggested in a detailed article that the Besor River is the "Brook of Egypt" mentioned in the Bible ("Nahal Mizraim," נחל מצרים) and in various Assyrian texts (mostly royal inscriptions). The identification of the Brook of Egypt was often linked with Wadi El 'Arish (e.g., Aharoni, 1987), yet Na'aman (1979:76) suggests this location is too remote and void of nearby settlements to fit the biblical descriptions. If the identification of the Brook of Egypt is correct, then "Yurza" of the Late Bronze Age and "Arza" of the Neo-Assyrian and later texts, lying on the Brook of Egypt, are likely to be the same town, both located at Tell Jemmeh. The town is mentioned in Esarhaddon texts (681669 BCE ) as "[Ar]zani which is on the Brook of Egypt" (BM K8523, 13 obverse, Pritchard, 1969:292). This is in contrast to other sites, such as the mention of "Rapihu in the region adjacent to the Brook of Egypt" [emphasis added in quotes]. Thus, if one links between [Ar]zani and Tell Jemmeh, which is actually on the Besor River, this strengthens the identification of the Besor River as the Brook of Egypt during this period, as Na'aman suggested.

Therefore, it seems highly probable that Sargon's campaign to the city of the Brook of Egypt in 716 BCE and Esarhaddon's conquest of Arsa around 679 BCE (mentioned in several inscriptions: Oppenheim, 1969:290, 292; Tadmor, 1966:97-98) refer to Tell Jemmeh and that during the subsequent Assyrian occupation, the site played an important role in Esarhaddon's and Ashurbanipal's conquest of Egypt. Nevertheless, such an identification would suggest the appearance of a destruction level dated to the early 7th century BCE at the site (corresponding to the 679 BCE campaign). Although this matter will be discussed following the presentation of the excavation results (see chapter 34), it is clear that the continued settlement of the site and its name further demonstrate the importance of this strategic town. The Egyptian expression "from Yurza to the outer ends of the earth" (see Maisler, 1952:50) vividly reflects its status as a border town.

Arzâ is also mentioned in two documents found at Nimrud, in possible relation to deportees that were possibly settled there by the Assyrians (Na'aman and Zadok, 1988; Bagg, 2007:2930). One of the fragmentary texts (ND 2767, reverse, Saggs, 2001:163-164) mentions the anxiety of the writer (who is writing to the Assyrian king and may be an Assyrian official of a deportee aiding the Assyrians) from the raids of the local men of Ezai (a seemingly local west Semitic clan). ${ }^{1}$

Regarding later periods, B. Mazar suggested that Yurtza was pronounced "Yarda" in later times (possibly in earlier times as well). Thus, by the 1st century CE, Yurtza was apparently known as Yardan, a town mentioned by Josephus as being near the border of Arabia. Linguistically, the transition from Yardan to Ordon (Orda) in Greek is by no means difficult. Thus, we have the equation Yurtza (Yurza) $=$ Yardan $=$ Orda. The location of Orda, therefore, became a major part of the discussion. In 1954, Avi Yonah (1954:73, no. 105 and pl. 9) agreed with Maisler's proposed identification and with his suggestion that Orda was to be sought in the vicinity of Tell Jemmeh. Schaefer's $(1979,1989)$ research has shown that a large Byzantine town was located in a site adjacent to Tell Jemmeh to the south during the 4th-7th centuries CE, with an estimated size of no less than 25 hectares ( 61.78 acres). A Mamluk level was also found there. Of the town, only traces and scattered artifacts remain because of weathering, the robbing of building materials, and destruction by the plow and erosion. The town possibly contained a large pottery industry concentrating on the production of storage jars; one or more churches, as shown by a large piece of a marble chancel screen with a Greek inscription; a number of important buildings and dwellings, indicated by quantities of tesserae from mosaic floors seen and destroyed in our time; the torso of a draped marble statue; and, finally, a cemetery now partially cut by the Kissufim road; it also participated in international trade with Syria, Asia Minor, North Africa, and Cyprus. Thus, the derivation of the name "Orda" from "Yurza" and the proximity of this large Byzantine site to Tell Jemmeh suggest that this Byzantine town was, indeed, Orda. Other Byzantine and medieval sites were also recorded in the vicinity of Tell Jemmeh, as well as in the survey of the northwest Negev (Schaefer, 1989:52-54, fig. 13).

## PREVIOUS EXCAVATIONS AT TELL JEMMEH

During the early 20th century CE, Tell Jemmeh was a wellknown site with ancient mud brick walls and structures standing several meters high (Figure 1.4; see Titolo). ${ }^{2}$ The first short excavation of Jemmeh was undertaken from October 20 to 23, 1922, by W. J. Pythian-Adams (1923:140-146). Initially, he selected an area labeled " $Y$ " on the edge of the tell's narrow section overlooking the southern eroded bay. Upon finding what he described as "a number of well built stone house walls," he abandoned this area. The second area, designated " X " on his plan, was on the opposite side of the "waist" descending into the northern eroded bay, probably about $25-30 \mathrm{~m}$ north of "Base Point A" (Pythian-Adams, 1923: pl. II). There he excavated a narrow step trench, apparently no more than $1.0-1.5 \mathrm{~m}$ wide, to a depth of 11.2 m , leaving another 4 or 5 m of debris above virgin soil unexcavated. He identified 10 strata in the trench, which he dated between the Late Bronze II and Persian periods. The excavation came to an abrupt end as during the night, a battle broke out between salt-smuggling Bedouin and government police along the nearby route between Khan Yunis and Beer-Sheba. Pythian-Adams returned to Gaza the following day; he never came back to complete this initial probe.

A more substantial excavation was conducted at the site by W. M. F. Petrie in an excavation season the lasted from December 17, 1926, until May 15, 1927 (with up to 380 Bedouin workers), and the findings were published in a final report (Petrie, 1928). With Petrie's main interest in the site being Egyptian influence on Palestine (and creating a comparable seriation of the pottery vessels), Jemmeh provided him with a border site, exposed to both Egyptian culture and the Philistine culture of the early Iron Age. Petrie excavated about $2,300 \mathrm{~m}^{2}$ in a single area on the top of the mound (Petrie, 1928: pl. IV).

Six strata or "town" plans were defined by Petrie in his excavation, dating from the Late Bronze Age to the Persian period. The excavation reached a depth of about 4.5-9.0 m below the surface, and in the northwestern corner of the area, he excavated an additional probe 6 m deep, down to virgin soil. Of the latter, no plans or artifacts were published. As it is not the aim of this report to analyze the previous excavations at the site, these are represented only in a short descriptive manner. Nevertheless, the six plans published by Petrie are presented in this report for comparison and for the convenience of the readers (Figures 1.51.10). Petrie's dates for the individual levels is often problematic as a certain degree of mixing occurred between them and some of the structures shown on the same plans apparently belong to different phases. Moreover, finds allocated to specific units or rooms may not come from the floor levels but rather from previous or subsequent phases in the same location. ${ }^{3}$

Several MBIIB-C vessels are illustrated from Cemetery I (Petrie, 1928:22, pl. LXII, top left). The earliest level described in Petrie's report is denoted "the town of the XVIIIth Dynasty" (Figure 1.5; Petrie, 1928:5-6, pl. VI), also termed the J-K layer following the names of the structures from this level. This level is dated to LBII-Iron IA (Petrie attributed it to Thutmose III) and includes at least two multiroom (courtyard?) houses. Several kilns, denoted by Petrie as "iron" or "sword furnaces," were also associated with this level (Petrie, 1928:14, pl. VI, bottom), although they are isolated from each other and have various suggested datings. Above this level, the "town of the XXth Dynasty" (Figure 1.6; Petrie, 1928:6, pl. VII), or Level G-H, was uncovered, associated with Philistine Bichrome pottery (Petrie, 1928: pls. XLIII-XLIV) and the Iron IB or 12th century BCE (related to the time of Ramesses III). The plan for this level, which apparently is a combination of several phases, included at least seven domestic structures, although all are fragmentary, and thus a coherent town plan from this period is difficult to reconstruct.

The next level, "the XXIInd Dynasty town," Level E-F (Figure 1.7; Petrie, 1928:6,7, pl. IX), is characterized by extensive rebuilding with deep brick wall foundations. The plan of this level illustrates several similar buildings or complexes that are composed of elongated parallel rooms; the walls are massive and well built of standardized bricks. Petrie dated this level to the day of Shoshenq, or Iron IIA (10th-9th centuries BCE); this level was cut by the rounded Persian period granaries (Figure 1.10). Some Assyrian-style pottery was associated with this level. The "town of the XXIIIrd Dynasty," or Level C-D (Figure 1.8; Petrie 1928:7, pl. X), is also denoted as the


FIGURE 1.5. Petrie Level J-K (Petrie, 1928: pl. VI).


FIGURE 1.6. Petrie Level G-H (Petrie, 1928: pl. VII).
gERAR. TOWN OF XXIIND DYNASTY.


FIGURE 1.7. Petrie Level E-F (Petrie, 1928: pl. IX).

GERAR. TOWN OF XXIIIRD DYNASTY.


FIGURE 1.8. Petrie Level C-D (Petrie, 1928: pl. X).

GERAR. TOWN OF XXVITH DYNASTY. XI


FIGURE 1.9. Petrie Level A-B (Petrie, 1928: pl. XI).


FIGURE 1.10. Petrie granaries plan (Petrie, 1928: pl. XIII).
"town of Amaziah" and thus was dated to the 9th century BCE. Generally, this plan somewhat resembles Level E-F in its general layout and structure type (showing the reuse of walls and similar building technique; Petrie, 1928: pl. XII), although those in Level C-D are more fragmentary. Most Assyrian-style pottery was associated with this level (Petrie, 1928:7, 22-24, pl. LXV), especially in grain pit DZ.

The most substantial and complete architectural exposure occurred in the uppermost level, denoted the "town of the XXVIth Dynasty," Level A-B (Figure 1.9; Petrie, 1928:7-8, pls. XI, XII:4,5). The main structure is a large, nearly square fort measuring about $45 \times 37 \mathrm{~m}$; it is composed of parallel elongated and small square rooms, similar to the structures in Levels E-F and C-D, yet this structure is much larger with much thicker walls ( $2.5-3.0 \mathrm{~m}$ thick in some places). To the west another large complex is recorded, with a different orientation; it is composed of a series of elongated and square rooms, many of them surrounding a large courtyard. Despite the different orientations, Petrie dates this structure as a residency of the same level yet notes that its orientation is aligned with the structures of the previous levels. Petrie dates the construction of Level A-B to the late 7th century BCE (compared to the sites of Defenneh and Naukratis in Egypt), denoted also "the fort of Psamtek," but as Attic pottery was also found here,
he suggests it was destroyed only in the Persian period during the 5th century BCE (Petrie, 1928:7). Reich (1996) related these structures to the Neo-Assyrian period, especially because of their plan but also because of stratigraphical considerations (see also chapter 8).

The latest occupation level excavated by Petrie is characterized by a series of rounded granaries dispersed all over the site and cutting previous layers (Figure 1.10; Petrie, 1928:8-10, pls. XIII-XIV, XV:1). This level is dated to the Persian period and also included some fragmentary structures composed of thinwalled storage rooms. The granaries are reconstructed by Petrie as having tall, domed roofs (Petrie, 1928: pl. XIV:2), and they were seemingly constructed in some cases on top of thick constructional fills leveling the area beneath them. Petrie interpreted these granaries as large storage facilities built by the Persian Empire to supply their army in relation to their campaigns in Egypt (Petrie, 1928:9).

Although in Petrie's report only a representative fraction of the vessels and finds are illustrated, the reports still present a rich pottery assemblage mostly from the LBII, Iron I, I Iron II, and Persian periods, including Cypriot and Mycenaean pottery, Philistine Bichrome pottery, and cast quantities of Assyrian-style pottery, as well as a large number of small finds. Especially notable is the large collection of clay figurines and terra-cottas,
mostly zoomorphic (Petrie, 1928: pls. XXXV-XXXIX), including chariot models. Most of these probably date to the late Iron Age and Persian period. Also presented are a large collection of decorated limestone altars (Petrie, 1928: pls. XL-XLII), metal weapons and tools (Petrie, 1928: pls. XXIII, XXIV, XXVIXXXII), jewelry (Petrie, 1928: pls. XVII, XVIII, XX-XXII), and scarabs and seals (Petrie, 1928: pls. XIX, XX).

## THE SMITHSONIAN INSTITUTION EXCAVATIONS AT TELL JEMMEH: METHODS AND OVERVIEW

This work is a final report on the results of the excavations at Tell Jemmeh carried out by Gus Van Beek on behalf of the National Museum of Natural History of the Smithsonian Institution during the years 1970-1990. Altogether 12 excavation seasons took place, with the nine major seasons occurring between 1970 and 1978 and smaller problem-solving excavations undertaken during 1982, 1984, 1987, and 1990.

The Smithsonian Institution excavations at Tell Jemmeh were conducted in two main excavation areas focused on a large horizontal exposure: Fields I and IV. In addition, two stepped trenches were located on the slopes of the Tell: Fields II and III (Figure 1.11). A general grid for the entire site was not used; rather, each area had its own local grid of $5 \times 5 \mathrm{~m}$ squares, with 1 -m-thick balks, which were occasionally removed. Squares were usually labeled using a numeral and a letter (such as $1 \mathrm{~A}, 1 \mathrm{~B}, \ldots$, $2 \mathrm{~A}, 2 \mathrm{~B}, \ldots$ in Fields I and IV and A1, A2, .. , B1, B2, ... in the trench areas in Fields II and III). The first area excavated was Field IV, which was not given a field number during the excavation and was denoted as Field GM. Subsequently, Field I (GMI), Field II (step trench GMII), and Field III (GMIII) were excavated. Smaller trenches included the southern trench (ST1) and a narrow trench on the northern edge of the tell. Trench SS1 or SST (Figure 1.12) is a narrow trench that was dug in order to clarify the depth of the archaeological remains on the mound but did not yield any architectural remains.

Methods of excavation and recording in this project were somewhat different than customary in most excavations carried out in Israel. The layer of soil excavated in a certain excavation square of an architectural unit is the basic unit of excavation. However, rather than using a universal running numbering system to number each of these layers (basically equivalent to what is commonly called a locus), the layers are denoted on a "local" numbering system (reoccurring in each excavation square), which aims to readily supply their sequence of deposition. Thus, these context or layer names replace locus numbers. Nevertheless, the term locus is used as well, usually denoting a relatively well defined architectural unit, and thus, the layer number can reoccur within each locus as well.

The context label (or "provenience" code) is assembled from the field name, square, layer, or feature and locus (which denotes in this case a supposed architectural unit), with the latter numbers repeating in every square). The provenience code provides the following information in this order: site name, field
designation, square designation, test trench/feature/pit/wall, layer, and locus. Not all of these categories are necessarily used in every instance. For example, the squares in Field IV ("the roofed area") never have a field. In some instances, in open areas where excavation involved the removal of successive defined layers, there may be no test trench/feature/pit/wall noted, and frequently, there is no locus noted.

The following abbreviations and geometric symbols are employed throughout the marking of the contexts and finds in the excavation:

- GM indicates Tell Jemmeh Field IV (or general Tell Jemmeh).
- Roman numerals I-III indicate field designation.
- Cardinal number and capital letter indicate square designation.
- FUR indicates furnace and is used only for areas in Field I. When followed by Roman numeral II or III, this refers to remnants of Petrie's iron furnaces.
- TT indicates test trench (these test trenches, usually 1 m wide, were extensively used especially in the early seasons in every newly opened square). Trenches or smaller probes were routinely employed to ascertain depths of layers and features and to clarify specific relationships such as layers to walls, foundation trenches, building phases in walls, and other unknowns.
- NBR indicates north balk removal.
- EBR indicates east balk removal.
- SBR indicated south balk removal.
- WBR indicated west balk removal.
- A square enclosing a number designates a wall number (replaced by a $W$ before the number in this report).
- A triangle enclosing a number designates the number of a feature (replaced by an $F$ before the number in this report). A feature is anything that is not immediately definable, which represents what appears to be a different, distinct unit, usually referring to installations.
- P indicates pit, followed by a number designating the number of the pit.
- FT indicates foundation trench and is always followed by a number designating the number of the foundation trench.
- A circle surrounding a number designates a layer number (replaced in this report by parentheses). An intrusive layer subsequently discovered while excavating is expressed by the layer number followed by a letter of the alphabet, such as $a, b, c$, or $d$ (e.g., Layer 1b). Layer (0) is routinely used for the surface layer of a square, which almost always consists of topsoil mixed debris.
- The symbol (+) (a plus sign surrounded by a circle) indicates unstratified material such as that recovered from balk cleaning, square cleanup, or the general surface of the tell; all such material was saved at Jemmeh and has proven to be useful on many occasions in reconstructing artifacts.
- A cardinal number standing alone indicates a locus.


FIGURE 1.11. The Tell and the Smithsonian excavations fields.


FIGURE 1.12. Trench SS1.

The following examples illustrate the provenience code:

- GM 1B TT2 (3) represents Tell Jemmeh, Field IV, Square 1B, Test Trench 2, Layer 3.
- GM 2C (6) 1 represents Tell Jemmeh, Field IV, Square 2C, Layer 6, Locus 1.
- GMI 4F P3 represents Tell Jemmeh, Field I, Square 4F, Pit 3.
- GMII 2A W4 represents Tell Jemmeh, Field II, Square 2A, Wall 4.
- GMIII F1 F7 represents Tell Jemmeh, Field III, Square 1F, Feature 7.

A "total retrieval" strategy was employed in this excavation, and thus, rather than discarding most nonindicative sherds, as is common practice in Bronze and Iron Age excavations, all sherds, even from the topsoil, were saved. All debris layers excavated, including brick debris, were dry sifted through a 0.5 cm mesh. This resulted in a high proportion of very small finds being retrieved. Wet sifting or floatation was carried out on select ashy
hearth and tabun deposits. Nevertheless, basket numbers were not used, and in the excavation there was no individual labeling of pottery or finds coming from the same layer or context from a certain day. At a later stage, all reconstructed vessels were given running numbers, pottery bags or boxes were given running numbers (bag or box numbers used in this report), and small finds were given running registration numbers. Some additional abbreviations that apply to labeling the pottery and other finds are as follows:

- RV indicates the number of a reconstructed vessel.
- SI Cat. No. indicates the number given to a vessel or other find in the Smithsonian Institution's running catalog.
- Cat. No. without the abbreviation SI is used to refer to the catalog numbers appearing in individual chapters throughout this volume.
- Reg. No. indicates the number given to small finds in the Smithsonian Institution's running catalog.
- SCI numbers denote scientific samples (soils, plaster, slag, etc.).
- FL numbers denote flint numbers.

A "maximum reconstruction" strategy was also employed, and each recovered sherd was examined for reconstruction, yielding several hundred reconstructed or partial vessels over the course of over three decades of work by a team of volunteers.

## THE STRUCTURE OF THIS REPORT

This book presents the final excavation report and attempts to include the results of the excavation, their coherent description and classification, and, when possible, their interpretation. This report comprises six parts and 34 chapters. Part I includes the introduction and background studies. Part II is the major part of the report and includes the results of the excavations according to the different fields. The order of the presentation of the excavation fields deviates from the original numbering of the fields, as we attempt to discuss results from the earliest levels up to the later ones. Thus, Field III is presented first. Moreover, this field is a step trench representing almost all periods appearingttested to at the site and is therefore most suitable for opening the report. Then Fields II, ST1, and I are presented, representing LB and early Iron Age remains. Subsequently, Field IV is presented with the main Iron Age II, Persian period, and later remains. In this part, a complete architectural and stratigraphical presentation is included, as well as a discussion of the pottery and a basic discussion of small finds per excavation field. The finds are presented according to their stratigraphical and architectural context. The pottery is discussed according to periods and typology as well. However, because of the numerous periods appearing at the site and the paucity of material from certain periods, a formal typology (i.e., discrete type numbers) was only partially employed for the Iron II period and was not employed for the Chalcolithic, Middle and Late Bronze Ages, Iron Age I, and the later periods.

Certain difficulties arose from the fact that most of this excavation was conducted 30 years ago or more. Furthermore, the
documentation of different areas and seasons of excavation vary greatly; some include marked plans, photos, sections, and detailed notebooks with elevations and a graphic diary, whereas others have only a few partially marked photographs and plans. One of the main problems facing the publication of such excavations is what information should be included and presented. Should only the analysis of the material for which optimal recording was at hand be presented, or should all the possible evidence that is available from any source be presented? In this report, emphasis is placed on more documented segments of the excavation, albeit with a maximalist view, noting any data on the excavations and cross-checking between different types of data (such as plans, sections, and photographs). As this is the final
report of the excavation, it was felt that any thread of information should be examined.

Altogether about 23 archaeological strata were identified in the four major excavation fields at Tell Jemmeh (Table 1.1). The site was continuously inhabited for at least 1,400 years, with the earliest remains from the Chalcolithic (only ceramic remains and possibly pits in Field III). Evidence from the Early Bronze Age and the Middle Bronze Age I and IIA is thus far missing in the archaeological sequence; Middle Bronze Age IIB-C remains were exposed in Fields I and III and the south trench, and Late Bronze Age II remains are evident in Fields I, II, and III (as well as in Petrie's lowermost phase). In a small area near Field I, a wellpreserved pottery kiln dated to the Iron Age I was excavated.

TABLE 1.1. Suggested comparative phasing of the different fields of excavation. Here $\mathrm{c} .=$ century; mill. $=$ millennium.


No general strata were defined in this report, and the stratigraphy in each field is represented by a series of local phases. Table 1.1 presents a comparative stratigraphic and chronological sequencing of the various fields in the site, together with a suggested relative and absolute dating and comparison to Petrie's levels. Absolute dates generally conform with the "traditional" high chronology (e.g., Stern et al., 1993).

Part III of the report includes several pottery studies that focus on specific groups of pottery (usually culturally and/or chronologically defined), such as decorated Canaanite pottery, imported Cypriot pottery, Philistine pottery, or Assyrian-style pottery. This part also includes scientific studies of pottery: petrographic analysis and computational analysis of pottery forms. Part IV includes small-find studies, which are divided according to classes of finds: terra-cottas, metals, scarabs, stone, flint, etc. All the small finds, and samples taken from Tell Jemmeh are itemized and described in the registry lists. These list are available for the public on demand in the IAA archives. Part V includes subsistence studies of faunal remains and lists of shells. Finally, part VI includes a summary and synthesis of the results with a short discussion and conclusions.

## AUTHOR NOTE

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## NOTES

1. I thank N. Na'aman for bringing this text to my attention.
2. L. Titolo, "Excavations. Tell Jemmeh (Gerar). Searching for Relics," posted May 13, 2010, http://irapl.altervista.org/nit/viewpics.php.
3. A number of scholars have contributed to the revision of Petrie's strata assignments and chronology, especially Amiran (1939), Albright (1943:23, 24, 144), and Kenyon (private notes made available to G. Van Beek in 1970). A summary of these advances appeared in the in the encyclopedia entries by Amiran and Van Beek (1976:545-549) and by Van Beek (1993a).

# Environmental Background of Tell Jemmeh 

Gus W. Van Beek

## SOILS AND ROCKS

This chapter will discuss the environmental background of Tell Jemmeh and the estimated settlement size in ancient times. It is well known that the setting of a site in terms of both location and land routes and environment (soil, water resources, climate, and vegetation) often dictates its cultural history throughout ages (see, e.g., Evans, 2003; Ackerman et al., 2005).

The plains of the northwestern Negev are formed of unconsolidated sediments, specifically loess, which covers a broad band oriented west-northwest to east-southeast, reaching a maximum width of about 43 km from just north of Dorot to just south of Gevulot and extending almost to Arad on the east (see Melson and Van Beek, 1992:128-131). The site itself originally consisted of a flat-topped mesa rising about 12 m above the Besor River wadi, which only flows in the high-rainfall seasons of the winter and spring (Figures 2.1 and 2.2; Melson and Van Beek, 1992:126). The loess soils erode easily, and this characteristic is responsible for the creation of badlands along most of the course of Nahal Besor, from southeast of Gevulot to the Gaza Strip. The major erosional processes seem to result from several reasons: (1) surface runoff water that easily cuts channels in low places, (2) flash flood waters that undercut the banks of the wadi, and (3) insect and small-animal burrowing activity, with the resulting tunnels becoming passages for water during rains, which dissolves soil along the passages. With the cessation of the rains, the soil dries and shrinks, opening vertical fissures that with repeated wetting drying cycles, widen, deepen, and eventually detach vertical sections. Nowhere is this more clearly illustrated than the north side of the tell, where the mound continues to collapse far above the upper reaches of even the highest flood waters (see Figures 1.1-1.3). Apart from the tumbled stones and gravel in the wadi bed, the only rock exposed in the vicinity is kurkar, a calcareous sandstone, with the nearest ridge being about 2.5 km east of Tell Jemmeh.

According to a controlled sample count by Melson (unpublished manuscript, 1972), stones in the wadi bed consist of about $70 \%$ limestone and about $30 \%$ chert; those recovered during excavations on the tell yielded reverse percentages, i.e., $70 \%$ chert and $30 \%$ limestone, indicating selection of specific types of stones to meet certain needs. Chert, which is much harder and more workable than limestone, was primarily used for making blades and other tools, which were found in considerable numbers in all periods of occupation


FIGURE 2.1. The Besor River during winter as seen from the tell.


FIGURE 2.2. The Besor River flowing during winter.
at the site (see chapter 26), yet it was also used for large cobbled areas (as in Field I). Limestone cobbles were primarily used for flooring open areas, such as courtyards and entrance patios or walks, for lining dry wells or sumps, for drains, and, with mud, for filling the interstices of mud brick arches and vaults.

## MINERAL RESOURCES

The sole mineral of value in the Jemmeh vicinity is natural sulfur, which is found 2 km to the northeast in the fields of Kibbutz Be'eri. Commercially quarried in the British Mandate period, this sulfur deposit was exhausted during World War II; whether it was used in antiquity it is not known.

## SEISMIC ACTIVITY

David Amiran succinctly discussed the physical structure of the southern Levant as it relates to seismic activity and compiled an earthquake catalog based on historical evidence (Amiran, 1951:223-246, 1952:48-65). This provides a framework for inquiring about seismic activity in the vicinity of Jemmeh.

Historical records obviously lack the precision of modern instrument measurements because (1) they are almost certainly skewed in reporting seismic activity, stressing the importance of the place rather than the strength of the activity itself, and (2) they are incomplete, with significant gaps. However, they are useful in roughly approximating the amount, frequency, and areas of activity. Amiran notes that an epicenter of medium frequency can be assumed from historical evidence in the Deir el-Balah/Gaza area. In his revised earthquake catalog, historical records specifically mention the Gaza area in the following years (CE): 362, 672, 1032, 1033/1034, 1293+, 1546, 1834, 1870, 1903, 1940, 1942, 1951. Although no records exist for earthquakes during the long historic and prehistoric periods before 362 CE , such activity can be assumed. Owing to the proximity of Tell Jemmeh to this area, it seems likely that earth tremors occurred spasmodically at Jemmeh with a minimum frequency of 300-400 years.

## CLIMATE

The Jemmeh area falls in an Irano-Turanian Asiatic steppe environment, as defined by temperature, rainfall, plant geography, and other factors. The summer is hot and dry hot $\left(18^{\circ} \mathrm{C}-24^{\circ} \mathrm{C}\right.$;
mean annual temperature of over $18^{\circ} \mathrm{C}$ ). This environmental zone in southern Israel extends southeastward from the coast, reaching a maximum north-south width of about 43 km ; it narrows eastward and then turns northward, forming a narrow strip along the "rain-shadowed" east slope of the mountains paralleling the Jordan Valley. As such, it is a marginal zone between the Mediterranean zone prevailing over most of Israel and the desert zone of the central Negev and the deeper areas of the Jordan Valley. The marginal character of the Jemmeh area and its influence on human settlement and land utilization will be discussed below.

## VEGETATION

The Nahal Besor drainage contains a number of habitats, many of which host particular and specific plant communities. Overall, the flora of this southernmost Irano-Turanian steppe region is chiefly characterized by the following: Artemisia monosperma, Ziziphus lotus, Tamarix articulata and Tamarix nilotica, Lycium europeum (attad), Haloxylon articulatum (jointed saltwood), and a number of grasses such as Aristida scoparia (poverty grass) and Lolium gaudini (ryegrass; Zohary, 1970; Evenari et al., 1971:43-49). Also, a list for the region between Ein Besor and Tell Farah (S), 10 km upstream from Jemmeh, is given by Price-Williams (1973:201-205; 1975:132-133), much of which is relevant to the slightly wetter Tell Jemmeh area. It is important to note that the present-day vegetation is not the primary vegetation of these loessial plains (Evenari et al., 1971:49); agricultural practices in both antiquity and since 1948, together with the overgrazing of livestock and the collection of firewood by Bedouin, have destroyed some plant species and introduced others (Price-Williams, 1975:133).

## FAUNA

The position of Israel between Asia and Africa, together with its different environmental zones, results not only in a great diversity of animals but also in ever-changing populations as they respond to varying climatic conditions and human activities. The only source for ancient fauna and relic populations of the Tell Jemmeh vicinity will be the faunal remains from the site (Wapnish, in press; chapter 33). Although their effects may be difficult if not impossible to measure, insect plagues, disease vectors, and other faunal plagues surely played a significant role in the ancient subsistence economy of the area. When not controlled, locust outbreaks take place once every 13-15 years and must have frequently devastated the landscape in antiquity.

## WATER RESOURCES

## Rainfall

The Tell Jemmeh vicinity falls within the 300 mm isohyet, which prevails over much of the Irano-Turanian zone. This is close to the aridity limit for dry farming of the main cereals in

Israel, a mean annual rainfall of 250 mm or more, although Kibbutz Re'im regards the minimum for wheat production to be 200-250 mm, depending on the pattern of distribution.

Table 2.1 illustrates the variability in both the amount and distribution of rainfall at Re'im and the Tell Jemmeh vicinity over a 43 year period. Note that there is no measurable rainfall from late June through September. The average annual rainfall is 339.77 mm , ranging from a low of 87 mm in 1962-1963 to a high of 740 mm in 1991-1992. This contrasts with an average precipitation of 560 mm in Jerusalem (Rosenan, 1955:152) and of less than 100 mm at Avdat in the central Negev highlands, although neither measurement duplicates the time period of the Re'im measurements. During 10 of the 43 years, rainfall fell below 250 mm , about the minimum amount required for winter wheat, indicating drought years.

Another consideration is the number of rain days per year. To a certain extent, the number of rainy days is suggestive of the frequency and types of rains; the more rainy days there are and the greater the spread of these days is during the rainy seasons, the better the distribution is. For the 32 years for which there are data in Table 2.1, the average number of rain days, i.e., those with 1 mm or more per year, was 32.25 at Re'im, in contrast to 12.1 days in the Negev highlands (Evenari et al., 1971:33). The rather wide swinging alternation between below-average rainfall per rain day during the 1950s and 1960s and above-average rainfall per rain day during the 1970s and 1980s illustrates the precarious history of dry farming in this marginal environment.

The pattern of monthly distribution of rain is as crucial for the cultivation of the Tell Jemmeh fields as the amount of rainfall. The normal rainy season extends from October through May; the Tell Jemmeh area normally receives $25 \%$ of its annual total rainfall by December 5, $50 \%$ by January 15 , and $75 \%$ by February 15 (Zohary, 1970: maps G, H, and I). The dry season lasts from June through September. Whether rainfall is slow and gentle or falls in torrents is also of major importance. Although loess soil has good water-retaining capacity, it absorbs water slowly. During brief heavy rains, water tends to remain on the surface or to run off, carrying particles of soil with it. This primarily accounts for the severe erosion of Tell Jemmeh, which has left it among the most heavily eroded major sites, if not the worst eroded site, in Israel. During rains and immediately after, the ground surface is very slippery because of the surface characteristics of wet loess. Heavy rains therefore tend to run off

TABLE 2.1. Average rainfall at Tell Jemmeh area by decade.

| Decade | Average rainfall (mm) |
| :--- | :---: |
| $1949 / 1950-1958 / 1959$ | 315.4 |
| $1959 / 1960-1968 / 1969$ | 283.1 |
| $1969 / 1970-1978 / 1979$ | 338.3 |
| $1979 / 1980-1988 / 1989$ | 377.4 |
| $1989 / 1990-1991 / 1992^{\text {a }}$ | $489.3^{\mathrm{a}}$ |

[^0]rapidly without being absorbed while contributing to erosion. Light rains falling at intervals spaced every few days are better absorbed and produce the best crops.

At Kibbutz Re'im, where wheat and fodder are the only dryfarmed crops (A. Gat, kibbutz resident, personal communication), a minimum of $200-250 \mathrm{~mm}$ of well-distributed rainfall per year yields from 400 to 500 kg of wheat per dunam (1000 $\mathrm{m}^{2}$ ). Thus, for example, during 1985-1986, 223 mm of rain with a very poor monthly distribution produced no grain, and not a single acre could be harvested. In 1984-1985, 259 mm of rain, with fewer rain days ( 12 versus 18) but with a much better monthly distribution than during 1985-1986, yielded between 480 and 720 kg per dunam. A heavy rainfall one year may leave a significant surplus of water stored in the soil for plant growth the following year. In 1983-1984, with only 228 mm of rainfall favorably distributed, the fields produced an average of 600 kg of wheat per dunam. This unusually high yield for so little rainfall was primarily due to the heavy rains of the previous year, 1982-1983, when 544 mm fell, yielding a harvest of 1,000$1,400 \mathrm{~kg}$ per dunam. In spite of this abundant yield, enough surplus water remained in the soil to supplement the meager rainfall of the following year. Rainfall agriculture in this marginal region therefore depends on a combination of factors: the amount of rainfall, its characteristics such as fast or slow and heavy or light, its timed distribution throughout the months and year, and the influence of successive annual rainfall patterns.

## Groundwater

The Tell Jemmeh area is within the Nahal Besor catchment, the largest catchment in Israel, with an area of $3,390 \mathrm{~km}^{2}$ (Stern and Goldschmidt, 1970: V/1); it slopes to the west and ultimately drains into the Mediterranean Sea some 7 km south of Gaza. The basin has considerable geological age, having been stabilized in the Neogene era. Nahal Besor is classified as a seasonal stream. It carries a large amount of runoff in the form of flash floods from the western slopes of the Judean hill country during the rainy season. The gradient of the bed of Nahal Besor is $0.5 \%$ over most of its course, with a few places upstream, i.e., to the southeast of Jemmeh, increasing to $0.5 \%-1.0 \%$. Except for a few springs, it is dry throughout the remainder of the year. During some years, the wadi still contained a few small pools of water from the spring runoff at the beginning of fieldwork in mid-June. There is no evidence, however, that attempts were made in antiquity to utilize the runoff water in Besor River by means of diversion irrigation systems.

## Springs

The nearest perennial spring to Tell Jemmeh is Ein Besor (Ein Shallala), located 10 km upstream from the mound. The total annual flow of this spring (average $1,044 \mathrm{~m}^{3}$ ) fluctuates between 477 and $1,417 \mathrm{~m}^{3}$ (during years 1969-1981; R. Hevron, personal communication). This fluctuation relates to natural replenishment, as the flow is considerably reduced in drought years. It also varies during the year, with a rise occurring during the rainy season and a decline thereafter.

## Wells

Before 1948, a number of locally dug, wide-mouth wells dotted the plains in the vicinity of Tell Jemmeh, in addition to more elaborate installations developed under the auspices of the British Mandate government. Prior to mechanized cultivation of the Byzantine field immediately south of the Tell, there was at least one such well on the south side of the site. The evidence for its existence is several large rocks at the base of the site near the asphalt parking area and adjacent to the main path to the top of the tell; these rocks once served as the curbing around a well mouth, each scarred with many deep rope cuts on the top edge. Apart from supplying domestic water requirements, well water was also drawn to irrigate garden plots containing such plants as could tolerate the salinity of the water (in modern times, local well water is quite saline, with chloride ranging from 1,200 to $2,500 \mathrm{mg} / \mathrm{L}$ ), as indicated by small catchment basins adjacent to some well mouths. The water table in the area ranges in depth from 30 to 40 m , as shown by several old Arab wells. A well recently drilled in the Re'im fields near Nahal Gerar reached water at a depth of 44 m below the surface.

Is it possible to estimate the domestic water requirements of the Jemmeh inhabitants and their livestock in antiquity? If an average of $4 \mathrm{~L} /$ day for drinking and another liter for bathing, laundry, and cooking is assumed, we have a total domestic water requirement of 5 L per person per day, or $1.825 \mathrm{~m}^{3}$ per person per year. A human population of, say, 1,000 would have consumed about $1,825 \mathrm{~m}^{3}$ of water. Assuming such a town would have had 200 heavy animals, camels, asses, and cattle, each consuming an average of $3 \mathrm{~L} /$ day, or $2.2 \mathrm{~m}^{3} / \mathrm{year}$, for a total of 220 $\mathrm{m}^{3} / \mathrm{year}$, and 500 sheep, goats, and dogs, each consuming about $0.5 \mathrm{~m}^{3} /$ year, for a total of $250 \mathrm{~m}^{3} / y e a r$, the total water requirements for such a settlement per year would be around $2,500 \mathrm{~m}^{3}$. Note that such an estimate does not include irrigation at all.

Most of this water probably came from springs and wells. It is possible that there were one or more springs in Nahal Besor near the site that have subsequently dried up, although we have no direct evidence for this. However, even if a spring with a discharge equal to that of Ein Besor of $1,044.5 \mathrm{~m}^{3}$ per year were close to the site, it would have met no more than about $40 \%$ of the annual water requirements. The burden, then, must have fallen on the wells and other modes of water collection.

## CLIMATE AND HUMAN SETTLEMENT HISTORY

Tell Jemmeh is located in a transitional environmental zone between the Mediterranean zone to the north and the desert zone to the south and east but is more proximate to the latter. At present, the Jemmeh area is marginal for rainfall agriculture, with nearby settlements suffering a crop failure rate of about one year in four. This situation may suggest that the region may have been more richly endowed with increased amounts and more consistent distribution of rainfall in the past. The fact that there are no remains of post-Byzantine towns in the vicinity probably indicates that a

TABLE 2.2. Estimated size of the tell, area excavated by Petrie and the Smithsonian Institution, and estimated settlement population for different periods. The settlement area has been estimated according to the situation in the field in 1971 and according to a reconstructed completion of the contours on a map.

| Period | Tell area (dunam) | Area excavated $\left(\mathrm{m}^{2}\right)$ | Area as a percentage of the tell | Estimated no. of houses | Estimated population |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Persian |  |  |  |  |  |
| 60 m (1971) | 0.5 | 2,528 | 118\% ${ }^{\text {a }}$ |  |  |
| Reconstructed | 6.88 |  | 9\% | Unknown | Unknown |
| Iron II |  |  |  |  |  |
| 58 m (1971) | 1.38 | 2,274 | 41\% |  |  |
| Reconstructed | 7.45 |  | 7.5\% | Unknown | Unknown |
| Iron I |  |  |  |  |  |
| 55 m (1971) | 3.53 | 1,076 | 7.6\% |  |  |
| Reconstructed | 8.78 |  | 3\% | 214 | 1,070 |
| LBII |  |  |  |  |  |
| 50 m (1971) | 5.91 | 400 | 1.7\% |  |  |
| Reconstructed | 9.75 |  | 1\% | 240 | 1,200 |
| MBII |  |  |  |  |  |
| 48 m (1971) | 6.87 | 130 | 0.04\% |  |  |
| Reconstructed | 10.92 |  | 0.03\% | 266 | 1,330 |

${ }^{\mathrm{a}} \mathrm{A}$ value higher than $100 \%$ results because much of the Persian period remains were eroded between 1926 (Petrie's excavations) and 1971.
semisedentary nomadic lifestyle prevailed in the area throughout the Islamic period. Although this situation may be due in part to the fact that marginal areas were not settled when the regional population was considerably smaller and agricultural land in the Mediterranean zone was sufficient to meet food requirements, it is also possible that vagaries of climate played a role.

When rainfall is marginal in the best of times, any decrease for an extended period in areas lacking highly developed irrigation systems would necessarily result in the collapse of agriculture, the onset of famine, and the abandonment of towns, such as the biblical tradition on the migrations to Lower Egypt by the Patriarchs (Gen. 12:10-20, 41:42-45, 47:13).

Table 2.2 presents the tell area and estimated settlement area and estimated populations in the different periods. These figures are very schematic. The settlement area in each period is calculated according to the reconstructed tell area in relative elevation contours that fit roughly each period at the site, both according to the situation in the field in 1971 and according to a reconstructed completion of the contours on a map. This is an extremely rough estimate of the settlement area. As can be seen, erosion destroyed much of the later periods. The area excavated by Petrie and the Smithsonian Institution is a small percentage of the estimated settlement area.

One would expect tell settlements to have a higher density of buildings than villages and towns situated in open country because the area for habitation is restricted to that of the plateau on which the site stands, yet as no clear fortification was identified in most periods, it is difficult to know whether the built area was limited to the tell area at any point. In any case it is
quite difficult to estimate densities of ancient sites, but a calculation based on a previous ethnographic study of the deserted tell town of Marib in northern Yemen was used (see Van Beek, 1982) where 161 houses (mostly two-storied) were counted in an area of about 6.26 dunams. A census of northern Yemen conducted in 1975 gave a ratio of 5:1 inhabitants per house (Steffen, 1979:63). The population at Tell Jemmeh is thus calculated according to an estimation of about $50 \%$ built area; thus, assuming each house was around $80 \mathrm{~m}^{2}$ (larger and more dense houses are also possible), an estimation of five people per house is used. Regarding the Iron II and Persian periods, figures are not given (Table 2.2) because most structures excavated were either public or storage buildings, and thus, it is not reasonable to use a residential village population density model in these cases. In regard to the earlier periods, as noted above, such figures, if they reflect any reality, indicate diversified and rather sophisticated exploitation of water resources in this region (wells and reservoirs) or possibly a more favorable climate in ancient times. However, it is possible that a smaller percentage of the tell plateau was settled at any given time, which would result in quite smaller figures.

## AUTHOR NOTE

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# Field III: The Southeastern Step Trench 

David Ben-Shlomo

## INTRODUCTION

Field III is located in the southern part of the tell (Figure 1.2) and constituted the main step trench, in which the archaeological remains represent nearly all the occupation levels at the site. Initially, the area was opened in the 1977 season (Figure 3.1), when an elaborately decorated Late Bronze Age vessel was found on the surface (see Figure 10.1a), high along the slope. Thus, this area was selected as a stratigraphic trench as early levels could be reached with less excavation and an entire sequence of the site could be achieved in a single location. Subsequently, the area was further excavated during 1978, 1982, and the short 1984 season. The area was supervised by Ted Sunderhaus (Square [Sq.] A, 1978), Ron Gardiner (Sqs. B, 1977; C, 1978; and C, F, 1982), and Egon Lass (Sq. J, 1982); small-scale excavations were carried out in 1984 in Sqs. C1 and J1 (supervisor, Egon Lass). Brian Lalor and David Sheehan served as surveyors.

The main trench of Field III (GMIII) is oriented northwest-southeast and is 24.5 m long and 3 m wide in most locations (Figure 3.2): Sqs. A1, A2, A3, C1, C2, and C3 are $3 \times 3 \mathrm{~m}$, whereas Sq. B in the middle was expanded and was a $6 \times 6 \mathrm{~m}$ square (Figures 3.3, 3.4). In 1982, the area was expanded to the northeast according to the natural topography of the hill (but not in the same alignment as the Field III grid); the expansion included Sqs. F1, F2, J1, and J2 (about $2-3 \times 2-3 \mathrm{~m}$ each; Figure 3.2). The aim of this season was to expand the exposure of the lower Middle Bronze Age (MBII) layers (i.e., from Phase 14 or 15 to lower phases). Altogether, a total area of about $115 \mathrm{~m}^{2}$ was excavated here. A difference in elevation of about 12 m separated the upper layer in Sq. A1 in the northwestern edge of the trench and the lower ones in Sq. C3 on the southeastern edge (and Sq. J2 in the east), with a range of 59.5047.50 m (throughout, all elevations are above sea level). Virgin soil was reached at approximately 47.50 m in Sqs. C3 and J2 (Figure 3.5).

Generally, almost all of the occupation phases evident in other areas of the site, as well as periods represented in the pottery collected from the site's surface, are represented in Field III (Table 1.1). These include remains from the Chalcolithic and MBII through to the Persian periods. For this reason, Field III is presented at the beginning of this report. However, not all periods are represented to the same extent. Although the earliest Chalcolithic period is represented mostly by pottery and the Early Bronze Age is absent, the


FIGURE 3.1. Tell Jemmeh from the south, with Field III seen on the right.


FIGURE 3.2. Plan of Field III.

MBII is represented by four to five building phases (Table 3.1). The Late Bronze Age is represented by six to eight occupation or building phases. The Iron I is represented by two or three phases, whereas the Iron IIA, Iron IIB-C, and Persian periods are represented by only one phase each.

Altogether, 19 occupation phases were identified in this area; the different phases and their finds will be presented and discussed from the earliest to the latest. Virgin soil was reached in Square C3 at elevations of $47.70-47.50 \mathrm{~m}$ in Test Trench 2, Layers 4 and 5 and Sq. J2 at elevations of $48.09-47.49 \mathrm{~m}$ in a probe in Layer 26 (Figure 3.5).


FIGURE 3.3. Field III and the extension of the 1982 season under the tent on right.


FIGURE 3.4. Field III at the end of the 1982 season, looking north.


FIGURE 3.5. Virgin soil in Sq. C3.

TABLE 3.1. Occupation phases in Field III.

| Phase | Squares | Remains | Approximate elevation (m) | Date | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | A1 | Grave | 59.10-59.00 | Islamic/modern |  |
| 2 | A1, A3 | Granary, pits | 58.80-57.90 | Persian |  |
| 3 | A1 | Walls, pits | 59.40-58.60 | Iron Age IIB-C | Subphases A, B |
| 4 | A1, A2 | Walls?, pits? | 58.00-57.60 | Iron Age IIA |  |
| 5 | A1, A2 | Walls | 57.65-57.00 | Iron Age I/II? |  |
| 6 | A2, A3 | Unit 1?, plastered floor | 56.20-55.80 | Iron Age IB | Destruction level? |
| 7(A?) | A2, A3 | Unit 1, walls, pits | 55.80-55.00 | Iron Age IA ? | Subphases A, B? |
| 7B | A3 | Tabun | Unknown | Iron Age IA? |  |
| 8 | A3, | Units 1, 2 | 55.20-54.70 | LBII |  |
| 9 | A3, B | Room A, Units 1, 2 | 55.20-54.15 | LBII |  |
| 10 | B | Unit 6, Rooms B, C, D | 54.20-53.50 | LBII | Same outline as Phase 11 |
| 11 | B | Unit 7, Rooms B, C, D | 53.60-52.90 | LBII | Subphases A, B |
| 12 | B | Units 8, 9, Room E | 52.95-52.10 | LBII | Subphases A, B |
| 13 | B, C1 | Units 10, 11, paving | 52.50-51.90 | LBII |  |
| 14 | C1, F1, J1, B(?) | Units 12, 13, 14, Room F | 51.80-50.70 | LBI-II/MBII | Subphases A, B (in Sq. F1) |
| 15 | C1, F1, J1 | Room G, Unit 15 | 50.86-50.10 | MBIIB-C |  |
| 16 | C1, C2, F1, F2, J1, J2 | Open area, pits | 50.59-50.05 | MBIIB-C | Complete vessels (in C1 (81), F1, Pit 1) |
| 17 | C1, C2, F2, J1, J2 | Walls, floors, Unit 16, Rooms I, H | 50.37-49.08 | MBIIB-C | Complete vessels (in J2 (17), Locus 1) |
| 18 | C2, C3, F2, J2 | Pits, installations, tabuns | 49.18-48.60 | MBIIB-C |  |
| 19 | C2, C3, F2, J2 | Layers with pottery, pits? | 48.76(?)-47.12 | Chalcolithic |  |
|  | C3, J2 | Virgin soil | 47.70-47.49 | Virgin soil |  |

## REMAINS OF PHASE 19

Phase 19 is mainly composed of the lower levels of the trench, rich in Chalcolithic sherds (Sqs. C2, C3, F2, and J2). The main feature seems to be a $2.3 \times 2 \mathrm{~m}$ pit (Figures 3.6-3.10, Feature 22 in Sq. C2), which was possibly dug into mud brick debris or was lined with bricks (Feature 25 in Sq. C3, Figure 3.15; Feature 22 A is the brick lining, and the respective layer is denoted as Feature 23). The bottom of the pit is plastered with fine white plaster, and the sides of the pit are dug into or lined with lumps of brick material. The pit, 1.3 m deep, was likely dug from a level of 48.35 m (and into virgin soil layers some 0.7 m lower; see Figure 3.15) and may represent activities of the Chalcolithic occupation (Figures 3.11, 3.12). It is not likely that the pit was used as a dwelling because of its small dimensions. It should be noted, moreover, that along with Chalcolithic material, the pit contained a considerable amount of MBII pottery. Thus, either the pit was dug during the Chalcolithic period and was disturbed by an MBII pit or debris, or the pit is an MBII feature of Phase 18, which penetrates through the Chalcolithic levels.

In any case, it is clear that the Chalcolithic remains in this area are not sporadic but represent an in situ occupation layer, even though no architecture from this phase may have been identified in this small section. This assumption is based on the fact that several layers contained large amounts of Chalcolithic
pottery, including some large sherds, with no other periods represented (Figures. 3.13, 3.14). These include Layers 2 and 3 in Test Trench 2, Feature 23, and Pit 2 in Sq. C2; Test Trench 2, Layers $1-3$, and Pits 2 and 3 (which are located in the lower part of Feature 22; Figure 3.15) in Sq. C3; Layer 22, Locus 1 in Sq. F2; and Layers 23-26 in Sq. J2. Some plaster fragments found in the lower part of Feature 22 (SCI 156) may indicate the pit had a plaster floor. Layers that have mixed Chalcolithic-MBII pottery include Layers 90 and 91 in Sq. C2, Pit 1 in Sq. C3, Layers 20 and 21 and Wall 12 in Sq. F2, and Layers 11, Locus 2, 18, Locus 1 , and Pit 2 in Sq. J2 (an at least 0.7 -m-deep pit filled with ashy material).

## Chalcolithic Pottery from Field III

The Chalcolithic pottery from Field III includes a variety of forms: V-shaped bowls of various sizes, kraters, chalices, holemouth jars, other jars, and churns (Figures 3.13, 3.14); basalt chalice fragments also occur. Several items redeposited in later phases or from the topsoil that typologically can be dated to the Chalcolithic period were also included in this analysis. Most of the Chalcolithic pottery is made of coarse clay with large dark grits (usually of loess-type clay; see chapter 15); often, the surface is smoothed by wet clay, with the grits protruding from the surface, creating a distinct typical texture for this pottery. Thus,


FIGURE 3.6. Plan of Sq. C2, Phase 19.


FIGURE 3.7. Square C2 with Features 22-24 and Test Trenches 1 and 2.


FIGURE 3.8. Phase 19, Feature 22 and Feature 21, an oven, above it (note animal bone at the pit's base).


FIGURE 3.9. Feature 22 from the inside.


FIGURE 3.10. Feature 22 after its excavation.


FIGURE 3.11. A V-shaped bowl in Sq. C2, Layer 90.


FIGURE 3.12. A churn in Feature 23, Sq. C2.



in many cases Chalcolithic pottery at Tell Jemmeh can be readily identified by its fabric.

The most common form is the V-shaped bowl (Figures $3.13 \mathrm{a}-\mathrm{p}, 3.14 \mathrm{q}$ ), which has straight or slightly rounded sides (Figure 3.13d-f,k,l), a simple rim, and a flat (Figure 3.13g,o,p) or slightly concave (Figure 3.13c) base. The bowls vary in size; smaller bowls have a diameter of $12-15 \mathrm{~cm}$, whereas larger ones, which also have thicker walls (Figure 3.131,n), can reach a diameter of $25-30 \mathrm{~cm}$ or more. Many of the smaller bowls have a thin, painted band on the exterior and/or interior of the rim (Figures 3.13b,d,h, 3.14q), whereas larger bowls have a thicker rim band in red (Figure 3.13i,1,n). The bases often show mat or straw impressions. Similar bowls are common in Chalcolithic-Ghassulian levels in the southern Levant (see, e.g., Garfinkel, 1999:210-214, figs. 127,128 , and many references therein). Note that, in principal, small rim sherds, especially of larger diameter, may also belong to chalices (see Garfinkel, 1999:222-224, fig. 134), yet this type is rare. One example (Figure 3.13 m ) has a thicker rim with thumbing on its exterior (these are also defined as basins; see Garfinkel, 1999: figs. 125:2, 131:1).

Hole-mouth shapes or jars have globular bodies and incurving rims (Figure 3.13q,r and Figure 3.14r,s from Phase 17) and are made of coarse, gritty clay with soot marks (see Garfinkel, 1999:237-240, fig. 144); these include hole-mouth cooking vessels. Large hole-mouth kraters also appear (Figure $3.13 \mathrm{~s}, \mathrm{t}, \mathrm{w}$ ). The rim sherds are either thinner at the top or widening (as in Figure 3.13s), and all have outer rim bands in red paint (see

Garfinkel, 1999:226-231, figs. 138:6,7, 144:3-6, for parallels). Several kraters or jars with everted rims also appear (Figure $3.13 \mathrm{u}, \mathrm{v}, \mathrm{x}$ ): one example has a thumbed rim decoration (Figure 3.13 x ). Figure 3.13 v is a smaller, more delicate example, probably of a jar. Another smaller everted rim (Figure 3.13u) may be of a small krater or a jar (for similar forms, see Garfinkel, 1999: fig. 129:6-10 or fig. 147:1-3, for jars). Two or three examples of tall-necked jars occur (Figure 3.14a-c); they have a rounded, "swollen" profile, and a red band is decorated on the connection to the shoulder. This type of jar is rare during the late Chalcolithic and is more common in earlier periods (see, e.g., Garfinkel, 1999: fig. 108, for the "Middle Chalcolithic" period).

Churns are represented in several fragments of the body, handle, or neck, some of which are quite large, although no complete examples were found. They originate in Phase 19 or are redeposited from later phases (Figures 3.12, 3.14d-i). Churns can be identified by the tall swollen necks with thin everted rims (Figure 3.14d,e), thick triangular handles (Figure 3.14h,i,t), or flat sides (Figure $3.14 \mathrm{f}, \mathrm{g}$ ). Pottery churns imitate animal skin containers used for churning milk (Garfinkel, 1999:254-258, figs. 158,159 , and references therein). These are often decorated with wide red bands on the body, imitating the ropes holding the churn (see, e.g., Garfinkel, 1999: photo 143). A decorated body sherd (Figure 3.14 p) is possibly an example of such a churn. In fact, the churns are the form that can date the assemblage from Field III more precisely within the Chalcolithic period to the Late (Ghassulian) Chalcolithic phase, as they do not appear in other periods.

FIGURE 3.13. Chalcolithic pottery from Phase 19. (opposite)

| Part | Description | RV/Bag/Box No. | Provenance |
| :---: | :---: | :---: | :---: |
| a | Bowl | 5249/4 | GMIII J2 (25) |
| b | Bowl | 5249/5 | GMIII J2 (25) |
| c | Bowl | RV 644 (SI Cat 971) | GMIII C2 (90) |
| d | Bowl | 5314/3 | GMIII J2 (26) |
| e | Bowl | 5249/6 | GMIII J2 (25) |
| f | Bowl | 5314/2 | GMIII J2 (26) |
| g | Bowl | 5300/1 | GMIII J2 (24) |
| h | Bowl | \#2 | GMIII C2 F23 |
| i | Bowl | \#1 | GMIII C2 F23 |
| j | Bowl | 5314/5 | GMIII J2 (26) |
| k | Bowl | 5289/2 | GMIII J2 (26) |
| 1 | Bowl; red decoration |  | GMIII J2 (24) |
| m | Bowl; red decoration |  | GMIII C2 (90) |
| n | Bowl; red decoration |  | GMIII C2 TT2 (4) |
| o | Bowl | 5288/1 | GMIII J2 (26) |
| p | Bowl | \#2 | GMIII J2 (26) |
| q | Hole-mouth jar | 5249/1 | GMIII J2 (25) |
| r | Hole-mouth jar | 2138/1 | GMIII C3 TT1 |
| S | Hole-mouth jar; red decoration |  | GMIII C3 TT2 |
| t | Krater; red decoration |  | GMIII J2 (26) |
| u | Krater(?); decoration | 5314/4 | GMIII J2 (26) |
| v | Jar | 5289/1 | GMIII J2 (26) |
| w | Hole-mouth jar/krater; red decoration |  | GMIII J2 (26) |
| x | Krater/jar; red decoration |  | GMIII C2 F22A |



In addition, several sherds with attached, unpierced handles with a triangular section were found in Phase 19 (Figure 3.14j$\mathrm{l}, \mathrm{n}, \mathrm{p})$. These handles are nonfunctional and probably fragments of decorated jars or kraters (see, e.g., Garfinkel, 1999: figs. 139, $142: 8,9$, for examples). These handles are often attached to the body of the vessel with a very narrow opening, if any (see Figure $3.14 \mathrm{k}, \mathrm{p}$ ) and thus are probably purely decorative in their function (for a decoration similar to the one shown in Figure 3.14j, see a krater from Abu Matar in Garfinkel, 1999: fig. 139:5). In addition, a fragment of a polished rim of a limestone vessel was found also in Phase 19 (see chapter 23, Figure 23.5j); a fragment of a basalt fenestrated chalice/stand from this period was found in Phase 6 (Figure 23.9i).

Notably, cornets (or horn-shaped goblets; see, e.g., Garfinkel, 1999:219-221, fig. 133:1-14) do not appear in this assemblage, although, in principle, small, thin rims attributed to bowls could belong to cornets. The typical pointed bases of these items do not appear at Tell Jemmeh. Decorated creamware (e.g., Amiran, 1955) is also absent or very rare. This absence possibly indicates that the assemblage may be of a later phase of the Late Chalcolithic period (see, e.g., Golden, 2010:85-86), or this may be a regional phenomenon, as these vessels are quite rare in some of the Beer-Sheba sites and are lacking in northern sites (see Garfinkel, 1999:219).

## REMAINS OF PHASE 18

Only several pits and features were excavated from Phase 18 in Sqs. C2, C3, F2, and J2 (Figure 3.16). This is probably
the earliest MBIIB-C level in Field III. Apparently, at least in the area excavated at Tell Jemmeh, a long occupational gap exists during the entire Early Bronze Age, the Intermediate Bronze Age (or MBI), and the MBIIA (and probably the earlier part of the MBIIB), with a total duration of about 1,800-2,000 years. In Sq. C 2 two winding, parallel, thin brick walls, 1.3 m long (Installation Feature 20, about 0.3 m apart, 48.95 m at base, Figure 3.17), may be the remains of a drainage channel of a Phase 17 structure (related to Wall 82; see below) or an installation of Phase 18. If these walls belong to Phase 18 , they may be associated with Feature 21, a tabun or an oven (Figure 3.17, right), which abuts the tip of or possibly blocks Feature 20. This installation is 0.6 m in diameter and may be a tabun/bread oven or a furnace (see chapter 9, Cat. No. 1; for more details on the structure and history and a discussion on the function of these cooking installations or ovens, see chapter 9). A concentration of large flat stones surrounded by upright standing stones (Feature 19, Figure 3.18: right center) at an elevation of 48.74 m may be a posthole. Several smaller holes were also found nearby (Sq. C2, Feature 18, although this may possibly be a later disturbance; Figures 3.19-3.22). Layer 86 is possibly a mud floor associated with the posthole. In Sq. F2 to the north two small pits lined with clay and filled with some stones belong to this phase (Features 18, 18A, Figure 3.23); these can be seen in the western section of the square (Figure 3.22). The diameter of these pits (about 0.3 m ) and the fact they were filled or lined with stones may indicate these pits were also postholes. In between these pits, a patch of brick material was noticed, possibly a floor at a level of 48.95 m . In the north of Sq. F2, Pit 2 (Figure 3.26, top) was dug from Phase 16 or 17 , possibly from an elevation of 49.53 m

FIGURE 3.14. Chalcolithic pottery from Phase 19 and later phases. (opposite)

| Part | Description | RV/SI Cat./Bag/Box No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Jar | 5314/1 | GMIII J2 (26) | 19 |
| b | Jar | 2131/1 | GMIII C2 TT2 (2) | 19 |
| c | Jar; red decoration | \#2 | GMIII C1-C2 TT1 | 19 |
| d | Churn | 1164/1 | GMIII C1 (+) | us |
| e | Churn/jar | 2148/1 | GMIII C3 TT1 (3) | 19 |
| f | Churn | 1122/1 | GMIII C2 F23 | 19 |
| g | Churn? | 1122/2 | GMIII C2 F23 | 19 |
| h | Churn | 5288/2 | GMIII J2 (26) | 19 |
| . | Churn | 5275/1 | GMIII J2 (23) | 19 |
| j | Jar handle; red decoration |  | GMIII C1-C2 TT1 | 19 |
| k | Jar handle |  | GMIII C3 TT1 | 19 |
| 1 | Jar handle; red decoration |  | GMIII C3 TT2 (2) | 19 |
| m | Handle; red decoration | 5249/3 | GMIII J2 (25) | 19 |
| n | Handle; red decoration | 5249/2 | GMIII J2 (25) | 19 |
| o | Sherd; red decoration | 5314/6 | GMIII J2 (26) | 19 |
| p | Churn(?); red decoration | 5314/7 | GMIII J2 (26) | 19 |
| q | Bowl | 5594b/2 | GMIII J2 (22) | 17-18 |
| r | Hole-mouth jar | 5594b/1 | GMIII J2 (22) | 17-18 |
| s | Hole-mouth jar | 5281/1 | GMIII J2 (21) 2 | 17 |
| t | Churn | 5573/6 | GMIII J1 (11) 2 | 15 |



FIGURE 3.15. Square C3, western section.


FIGURE 3.16. Plan of Phase 18.


FIGURE 3.17. Features 20 and 21 in Sq. C2, looking south.


FIGURE 3.18. Square C2, looking north: Feature 20 on the lower left, Feature 19 in right center, and the tabun, Feature 17 , on the far left.


FIGURE 3.19. South balk of Sq. C2.


FIGURE 3.20. West balk of Sq. C2.


FIGURE 3.21. West section of Sq. J2.


FIGURE 3.22. Square F2, western section.


FIGURE 3.23. Feature 18 in Sq. F2.


FIGURE 3.24. Square F2, northern balk.


FIGURE 3.25. Square F2, western balk.
(Figure 3.24, north section), cutting the layers of Phase 18 in this area (down to an elevation of 48.33 m ), as well as an ash layer (Feature 17), which may have been remnants of a tabun.In Sq. J2, Layers 22 and 23 of the probe probably belong to Phase 18, along with Layers 87-89 in Sq. C2 and Test Trench 1 in Sq. C3. According to the finds preserved, the section excavated in this phase was probably an open area (Figures 3.25 and 3.26).

The pottery of this phase dates to the MBIIB (Figures 3.27, 3.28) and includes a small assemblage of mainly typical MBIIB forms, such as platters or open bowls (Figure 3.27a-e), carinated bowls (Figure 3.27f-j), as well as a jar (Figure 3.271), jugs/juglets (Figure $3.27 \mathrm{~m}, \mathrm{r}$ ), Tell el-Yahudiyeh jugs/juglets (Figure $3.27 \mathrm{n}-\mathrm{q}$ ), and several examples of imported Cypriot White Painted (WP) pottery (Figure 3.28a-c; several fragments, including a base


FIGURE 3.26. Pit 2 in Sq. F2.
possibly belong to one jug; see chapter 11 and discussion of the MBII pottery below).

A handle of a small jug or juglet (Figure 3.27s) was incised after firing, with a long vertical line crossing at least four short horizontal lines. Note also a "ledge" handle (Figure 3.27t), folded upright and attached to a body sherd of a closed vessel (it is made of grayish clay with white grits). Similar jar ledge handles are known from the MBI (or Early Bronze IV), and thus, this fragment may be residual (although this period is not represented elsewhere in the site). A worked sherd perforated in the center (Figure 3.27 v ), possibly used as a weight, is also illustrated. A decorated body sherd (Figure 3.27 u ) is probably a part of a Cypriot juglet (see chapter 11, Cat. No. 40).

Small finds from Phase 18 in Field III include a clay "plug" (Reg. No. 1667), a worked sherd (Reg. No. 3706), and a possible figurine horn (Reg. No. 4077; all of which are not illustrated). More significant is a nearly complete bronze spear butt (Figure 3.28 d ; see chapter 21) from Sq. C2, Pit 1; a bone tool fragment was also found (Figure 25.5h).

## REMAINS OF PHASE 17

Phase 17 (Figures 3.29-3.31) is the lowermost MBIIB-C phase yielding any substantial remains, in terms of both architecture and finds (especially pottery in Sqs. J1-J2, Layer 17, Figures
3.32-3.35, 3.38-3.39). Remains come from Sqs. C1 and C2 as well as F2 and J2 excavated during 1982 (Figures 3.29-3.51). Remains of several walls were found in Sqs. C1 and C2. A brick wall was excavated in the SW corner of Sq. C2 (Wall 82) and probably makes a corner with a nearly $5-\mathrm{m}$-long east-west wall (Wall 81; see Figure 3.42) in Sqs. C1 and C2. The upper levels of this wall may indicate a natural slope declining from west to east at about 0.5 m , while its base in the east lies at a level of 49.29 m . In the eastern part of Wall 81, a doorway about 0.6 m wide can be clearly seen (Figure 3.42); the base of the doorway constitutes exactly two stretcher-oriented bricks at an elevation of 49.52 m ; to the south a single laid brick might have been a step in front of the entrance. This feature was denoted as the entrance to Room I (Locus 1, Figure 3.29), oriented from the south and lying to the north of Wall 81 and east of Wall 82. Regarding Wall 82, only its eastern face was exposed, and it continues into the west and south balks; it is at least 0.8 m thick and 2 m long, and its base is at an elevation of 49.17 m . It is possible that below Feature 20 a drainage channel was related to Wall 82 (see Figure 3.18). To the south of Wall 81 there seems to be an additional north-south wall (Wall 80) in alignment with Wall 82, continuing into the balk; this could have been a later addition, as seen in the south balk (Figures 3.19, 3.40), as Wall 80 seems to overlie Wall 82. The tabun in the northwestern corner of the square (Feature 17, Figure 3.53) has its base at a level of 49.55 m and is more likely to belong to the next level, Phase 16 (Figure 3.52).

b

n


In Sq. F2 (Figures 3.30, 3.31), two fragmentary walls (Walls 11 and 12 and Wall 14, Figure 3.43) create a right angle and define a space (Locus 2, Room H, Figures 3.29-3.31) to the east; here a floor level paved with pebbles was found (Layer 16, Locus 1 at 49.39 m , Figures 3.30, 3.44); however, less than 1 m to the east, the area is already eroded in this square. To the south of Wall 12 there were possibly remains of another parallel brick wall (Wall 9), mostly in the southern balk of the square. To the west of Wall 11 (Locus 1 ) or Feature 13 is a small ( 0.25 m in diameter) circular depressed clay-lined patch, possibly a posthole 1 m from the wall. North of Feature 13, a rectangular clay strip (Feature 14, Figure 3.36) may be the remains of a brick wall connecting to Wall 11 ; to the north of it, Locus 3 was defined, where in the north balk the edge of a tabun (Feature 15, Figure 3.24) is visible; to the north this whole area is cut by Pit 2 (Figure 3.26). The unit denoted as Room H possibly continues to the north into Sq. J2. However, in the balk between Sqs. F2 and J2 remains of a possible eroded north-south brick wall were found (Sq. F2, Wall 10 and Sq. J2, Wall 8); the area to the north in Sq. J2 was either a continuation of Room H ( 2.9 m wide) or another unit (Locus 2, Unit 16?).

Pottery from Room H (Figure 3.46) includes open and carinated bowls, cooking pots, jar fragments and handles (Figure $3.46 \mathrm{a}-\mathrm{n}$ ), the string cut base of a miniature bowl (Figure 3.46i ), a cylindrical clay tube or a spout (Figure 3.46q), and a juglet neck or spout (black burnished; Figure 3.46r).

About 1.5 m to the north, remains of wall fragments may belong to this phase or to Phase 16 , as there seems to be a 0.7 to $0.8-\mathrm{m}$-wide passage through this wall (Sq. J2, Walls 6 and 7, Figure 3.29; these seem to be parts of the same north-south
wall, possibly blocked in a later stage by bricks, Feature 7, at an elevation of 49.89 m ). A brick frame ( 30 cm thick), creating a sort of a box, may be related to Feature 7 (Figure 3.36). This area is eroded in the east. To the north of Walls 6, 7, and Feature 7, Locus 1 was defined. Here a floor level contained numerous smashed vessels (subsequently restored, Figures 3.32-3.35), mostly large jars (Figures 3.48, 3.49; Sq. J1, Layer 17, Locus 1). The bottom of this floor level (defined as Unit 16?) was at an elevation of 49.49 m in Sq. J2, yet restored vessels from this floor were also restored from Layer 18 (and probably Layers 19 and 20) below and Layers 16 and 16A above. Thus, the debris layer containing the pottery populated elevations between 49.66 and 49.25 m . This floor continues to the west to Sq. J1 in Layers 16-17 (this area was also expanded about 1.5 m to the north during the short 1984 season in order to complete the excavation of this floor level; Figures 3.3, 3.32).

Although the architectural remains of Phase 17 are somewhat fragmentary, it seems at least three rooms or units can be defined by several fragments of brick walls. The northern unit in Sqs. J1-J2 contained a floor level with scores of restorable vessels, mostly jars (Figures 3.48, 3.49), which compose a substantial component of the MBIIB assemblage from the site. Considering the vessels, it seems probable that this space was a storage room; some of the jars are adorned with plaster applications (see Figure 3.49a,f). In one case a nearly complete, large, single-handled jar (Figure 3.49a) had at least four perforations arranged in a triangles; these perforations were made after firing and were subsequently covered by a thick layer of white plaster (see also Figure 3.49f). Another option is that the jars were

FIGURE 3.27. Pottery from Phase 18. TEY = Tell el-Yahudiyeh ware; Cyp. WP = Cypriot White Painted ware. (opposite)

| Part | Description | RV/SI Cat./Bag/Box No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl (platter); red decoration, burnish | $1130 / 2$ | GMIII C2 F22 (2) |
| b | Bowl; red slip, burnish | $1130 / 1$ | GMIII C2 F22 (2) |
| c | Bowl (platter) | $926 / 3$ | GMII C2 F22 |
| d | Bowl (platter); red slip, burnish | $1130 / 3$ | GMII C2 F22 (2) |
| e | Bowl (platter) | $1372 / 2$ | GMIII C2 (86) 1 |
| f | Bowl; red slip | $2245 / 1$ | GMIII F2 F18 |
| g | Bowl | $1356 / 6$ | GMIII C2 (87) |
| h | Bowl | RV 648 | GMII C2 F22 |
| i | Bowl; red slip, burnish | $1356 / 1$ | GMIII C2 (87) |
| j | Bowl; red slip | $1356 / 2$ | GMIII C2 (87) |
| k | Bowl | $1356 / 3$ | GMIII C2 (87) |
| l | Jug/jar; dark slip | $1130 / 5$ | GMIII C2 F22 (2) |
| m | Jug/juglet; red slip | $1130 / 4$ | GMIII C2 F22 (2) |
| n | Jug/juglet (TEY) | Box 797/1 | GMIII C2 F22 2 |
| o | Juglet (TEY?); slip | $1356 / 4$ | GMII C2 (87) |
| p | Jug/juglet (TEY) | Box 795/2 | GMIII C2 (87) |
| q | Jug/juglet (TEY) | Box 795/3 | GMIII C2 (87) |
| r | Jug/juglet | $1130 / 6$ | GMIII C2 F22 (2) |
| s | Jug/juglet | $1356 / 5$ | GMIII C2 (87) |
| t | Ledge handle? | $1372 / 1$ | GMIII C2 (86) 1 |
| u | Sherd (Cyp. WP); decoration | $1141 / 1$ | GMIII C2 F22 (2) |
| v | Worked sherd | $1372 / 3$ | GMIII C2 (86) 1 |



FIGURE 3.28. Pottery and finds from Phase 18. Cyp. WP = Cypriot White Painted ware.

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jug (Cyp. WP); red/brown decoration | Box 796/1 | GMIII C2 F22 |
| b | Jug (Cyp. WP); red decoration (two shades) | Box 795/1 | GMIII C2 (87) |
| c | Bronze spear head/butt | Reg. No. 1307 (SI Cat. 1001) | GMIII C2 P1 |

deliberately smashed and the large sherds were used as flooring in Sqs. J1-J2, Locus 1, Layer 17; however, this seems less probable because of the full reconstruction of many of the vessels. At least two clay sealings with impressions were found in Phase 17 (Figure 3.51 p, Reg. Nos. 1210, 1213). An important and rare find from Sq. J2, Locus 1, Layer 16 is a clay cylinder seal (Figure 3.50 ) with cuneiform signs and a geometric pattern on it (see chapter 28). This object indicates this region may have had certain connections with Syria or Mesopotamia.

The pottery assemblage from Phase 17 (Figures 3.46-3.49) dates to MBII B-C when compared to other sites with similar pottery (see below). The assemblage includes platters, open bowls (Figure 3.46a,b), carinated bowls (Figure 3.47h-j; including a thin "eggshell" bowl in Figure 3.47h), cooking pots (Figure $3.47 \mathrm{n}-\mathrm{q}$ ), a very large assemblage of storage jars and pithoi (Figures $3.48,3.49$ ), of which 20 are complete or nearly complete, jugs, juglets, fragments of Tell el-Yahudiyeh ware (e.g., Figure $3.51 \mathrm{a}, \mathrm{b}$ ), and imported Cypriot WP ware (Figure 3.51c-m; see
chapter 11). Also notable is the rim of a rounded bowl with external perforations near the rim (Figure 3.47 p ) and a jar base with a perforation made after firing (Figure 3.47 r ). A thick body sherd with a horizontal applied ridge (Figure 3.47 q ) seems to be a fragment of a handmade cooking pot; a rim with a brown band (Figure 3.47 t ) is probably from a large jar.

Other finds from Phase 17 include an impressed jar handle (Figure 51n; see chapter 20), a group of worked sherds (e.g., Figure 3.51o, Reg. Nos. 3890-3892, 3908, and 1929 and 1929A, which are also perforated), a possible sealing (Figure 3.51p), a bronze tool (Figure 3.51q), a worked pebble (Figure 23.41), and a basalt handstone (Figure 23.2n).

## REMAINS OF PHASE 16

Hardly any architectural units were identified in Phase 16 (Figure 3.52), and in fact, it can be seen as an intermediate level


FIGURE 3.29. Plan of Phase 17.


FIGURE 3.30. Square F2, Phase 17, pebbled floor in Room H, looking south.


FIGURE 3.31. Square F2, Wall 11 and pebbled floor.


FIGURE 3.32. Squares J1-J2, Floor Layer 17, looking north.


FIGURE 3.33. Squares J1-J2, Layer 17 with broken vessels exposed.


FIGURE 3.34. Layer 17, close-up of vessels in Sqs. J2 and J1.


FIGURE 3.35. Squares J1-J2, Layer 17, after removal.


FIGURE 3.36. Brick frame related to Feature 7(?) in Sq. J2, looking north.


FIGURE 3.37. Feature 8 in Sq. J2.


FIGURE 3.39. Square J1 of the 1984 extension, looking south, with (ash filled) Pit 3 in the background.



FIGURE 3.41. South balk of Square C2 with a close up on ash Layer 87.


FIGURE 3.42. Walls $80-82$ with doorway in Sq. C2, looking east.
between Phases 17 and 15, both having discernible architectural units. Nevertheless, the ceramic assemblage from this phase is very rich, especially because of the finds of Layer 81 in Sq. C1 (Figures 3.53-3.57). In Sq. C1 a thick ash layer rich with restorable pottery vessels, labeled Layer 81 (Figures 3.58-3.64), seems to cover Wall 81, as seen in the south balk (Figures 3.55, 3.100, elevation of $50.05-50.59 \mathrm{~m}$ ); this layer also clearly lies beneath Wall 79 of Phase 15 (Figure 3.75); Layer 81 was excavated to
an extent of $12 \mathrm{~m}^{2}$ and is at least 60 cm thick. Within this layer a tumble of bricks was excavated (Feature 16, Figure 3.54); this tumble is oriented northeast-southwest and is probably the remains of a wall of this phase. Both the tumble and Layer 81 slope to the east. It is possible that this represents remains of a structure not preserved, and the pottery assemblage of Layer 81 may relate to. Layer 81 was very rich in restorable vessels, and Layers 80 and 81 A probably represent the same context. In the northwest corner of Sq. C2 and into the balk adjoining with Sq. C1, a tabun, Feature 17, was excavated (Figure 3.53). Thus, in both Sqs. C1 and C2 the space excavated in Phase 16 seems to be an open area or at least part of a larger unit (its delimiting walls were not found). About 1 m to the south of Sq. C1 a nearly complete zoomorphic vessel of Tell el-Yahudiyeh ware (Figure 3.63) was found at an elevation of 50.59 m ; it was mended with a fragment from Layer 81 of Sq. C1 and thus belongs to the same level (see below).

In Sq. F1, the remains from this phase consist of Pit 1 (49.99$49.21 \mathrm{~m})$, located in the NW corner of the square, about 1.3 m in diameter (its edges lie in balks), which seems to have been dug from Layer 7 (Figure 3.67). A possible wall (denoted as Wall 7 but not further recorded) was excavated under Wall 6 of Phase 15, Room G. In the same spot, fragmentary tabuns, Features 5 and 7 (Figures 3.65-3.67), are cut by the Phase 15 wall and thus belong to Phase 16. The lower part of Pit 2 in Sq. F2 may also belong to Phase 16, as well as Layers 8-12. In Sq. F2, a pit with pebbles (Feature 8) and the Feature 9 pit (Figure 3.68) with an equid burial at its bottom (Feature 10, Figure 3.68, $0.5 \times 0.5 \mathrm{~m}$ in size, with a donkey skull and leg preserved) may also belong to Phase 16 or Phase 17 (see Wapnish and Hesse, 1988; Van Beek, 1989a:25*; Wapnish, 1997:343-349, figs. 12.6-12.9; see chapter 33). This burial could belong to the type of donkey burials found beneath walls (Wapnish, 1997; Way, 2010:215),


FIGURE 3.43. Walls 11 and 14 in Sq. F2, Phase 17, looking east.

FIGURE 3.44. Floor with pebbles and sherds in Sq. F2 (Layer 16, Locus 1) and Wall 11 behind, looking east.
interpreted by Wapnish as remains of a sacrificial offering, but it could represent a trash deposit (see Way, 2010:214). Several MBIIB-C donkey burials were uncovered at nearby Tell el-‘Ajjul (see Wapnish, 1997:349-352; Way, 2010:213-214, for further references), three in association with human burials, and others were found in Tel Haror (Oren, 1997: fig. 18.6; for a study and survey of Bronze Age donkey burials and their significance, see Wapnish, 1997; Way, 2010.)

As noted above, fragmentary Walls 6, 7, and 8 and Features 6 and 7 in Sq. J2 (see Figure 3.52) may belong to Phase 16 or may have continued to be in use in this phase. Feature 6 is a shallow pit paved with pebbles, about 0.4 m wide, probably a posthole. Layers 13-15 (see Figure 3.45) from Sq. J2 also belong to this phase. Note that the balks between Sqs. C2 and F2 and J2
were not removed (Figures 3.69, 3.70). In the northern 1984 extension of Sq. J1, two wall fragments making a right corner were excavated (Walls 11 and 12, Figure 3.43). These two walls define a room or a space to the northeast, but no floor level seems to have been excavated here. Wall 12 underlies Feature 9, a tabun, and Wall 11 underlies Wall 10, both from Phase 15.

The rich pottery assemblage from Layer 81 in Sq. C1 is very diverse, including various open and closed bowls, jugs, juglets, jars, and other vessels (Figure 3.58-3.61; two plates of this pottery were previously published in Van Beek, 1989a:24*-29*, ills. 11,12 ). This seems to be a domestic assemblage (although it contains some luxury items), consisting of a large amount of tableware. It may have been excavated in situ, but its architectural context is not clear because of the small scale of the excavation


area. This was possibly a courtyard (see Van Beek, 1989a:24*), with the vessels disposed of here from the nearby rooms.

The assemblage from Layer 81 includes a large variety of open and rounded bowls (Figure 3.58a-g); carinated bowls in various sizes and forms are numerous too (Figures $3.58 \mathrm{~h}-\mathrm{x}$, 3.62a); some are finer and thinner, with higher ring bases (Figures $3.58 \mathrm{t}, \mathrm{w}, 3.62 \mathrm{~b}$ ). Cooking pots are usually globular, with everted or ledge rims (Figure $3.59 \mathrm{~h}-\mathrm{k}$ ). Several jar fragments appear, but not many are complete (Figure 3.60d-k); other common forms are large jugs and cylindrical and pyriform juglets (Figure $3.61 \mathrm{~d}, \mathrm{e})$. Several Red, White, and Blue ware (RWB) sherds also appear (Figure 3.601-p). Other forms include a miniature open bowl (or a lamp; Figure 3.59b), a string-cut base (Figure 3.59e),
and a complete chalice or bowl on trumpet base (Figures 3.59 m , 3.62c). In this last vessel, the bowl is carinated (see parallels, e.g., at Batash [Panitz-Cohen, 2006a:53, Type Ch3] and Tel Nagila [Uziel, 2008: fig. 55: CL1]). A platter with handles (Figure 3.60c) was also found; one lamp is also illustrated (Figure 3.61n). A complete closed globular vessel with a high handle (Figure 3.591) may be a cooking pot of uncommon form (see Batash, Stratum XI [Panitz-Cohen and Mazar, 2006: pl. 7:7] and Megiddo, Stratum X [Loud, 1948: pl. 46:9]). A miniature closed vessel was nearly completely preserved (Figure 3.611). A heavy base (Figure 3.60f) may belong to a small jar. Also notable is the rim of a krater(?) with thumbing "rope" decoration (Figure 3.60b; see, e.g., Hazor, MBII, Yadin et al., 1958: pl. CXII:13, 1961: pl.

FIGURE 3.46. Pottery from Phase 17, Room H. (opposite)

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :---: | :---: | :---: | :---: |
| a | Bowl | 2260/1 | GMIII F2 (17) 2 |
| b | Bowl | 2241/1 | GMIII F2 (17) 2 |
| c | Bowl | 2241/2 | GMIII F2 (17) 2 |
| d | Bowl; red slip, burnish | 2247/2 | GMIII F2 (16) 2 |
| e | Bowl, red slip | 2260/3 | GMIII F2 (17) 2 |
| f | Bowl; burnish | 2260/2 | GMIII F2 (17) 2 |
| g | Bowl | 2247/1 | GMIII F2 (16) 2 |
| h | Bowl | 2260/4 | GMIII F2 (17) 2 |
| i | Bowl (string cut) | 2241/3 | GMIII F2 (17) 2 |
| j | Cooking pot | 2247/3 | GMIII F2 (16) 2 |
| k | Jar/jug | 2247/4 | GMIII F2 (16) 2 |
| 1 | Jar | 2260/5 | GMIII F2 (17) 2 |
| m | Jug/juglet | 2260/6 | GMIII F2 (17) 2 |
| n | Jug(?) | 2260/7 | GMIII F2 (17) 2 |
| o | Jar | 2247/5 | GMIII F2 (16) 2 |
| p | Juglet | 2247/6 | GMIII F2 (16) 2 |
| q | Tube/spout(?) | 2260/8 | GMIII F2 (17) 2 |
| r | Spout/juglet(?) | 2241/4 | GMIII F2 (17) 2 |

CCXXXIX:16), and a ridged, white-slipped body sherd (Figure 3.61 m ), possibly belonging to a pithos.

Other pottery from Phase 16 illustrates a similar repertoire (Figures 3.71, 3.72), including open and rounded bowls (Figure 3.71a-i), carinated bowls (Figure 3.71j-n), hole-mouth-shaped rims (Figure 3.71q,r), cooking pots that might originate from an Egyptian tradition (see below), jars, jugs, and juglets (Figures 3.71s, 3.72a-d,g). Decorated Tell el-Yahudiyeh ware (Figure $3.72 \mathrm{~h}-\mathrm{m}$ ) and White Painted Cypriot imports also appear (Figure $3.72 \mathrm{e}, \mathrm{f}, \mathrm{o}-\mathrm{u})$. Unique items illustrated are a bowl(?) handle with perforations (Figure 3.72n; see, possibly, Hazor, LBII, Yadin et al., 1961: pl. CLIX:25) and a small bowl with inner decoration (Figure 3.72v). The assemblage from Phase 16 can be compared to MBIIB-C assemblages at Tell Nagila (see Uziel, 2008; Uziel et al., 2009), Ashkelon, "Calf Temple Phase" (e.g., Stager, 2002: fig. 22, 2005), and other sites; it does not seem to indicate a different ceramic horizon than the assemblage of Phase 17.

Other finds from Phase 16 include at least nine clay sealings with scarab seal impressions also discovered in Sq. C1, Layer 81 (Figure 3.64a-h; see chapter 20). Figure 3.72 y is another sealing fragment without an impression. Other ceramic finds are at least three worked sherds of various shapes (Reg. Nos. 1728, 3909, 3910; see chapter 18), a "gaming piece" (Reg. No. 2057; see chapter 19), and perforated clay or mud loom weights (Figure $3.72 \mathrm{w}-\mathrm{x}$ ). A thin bronze sheet from Sq. C1, Layer 81 should also be noted (Reg. No. 2028) along with several flint sickle blades (FL 608; see chapter 26). A worked pebble and a hammerstone were also found in the layer (Figure 23.3b). A large number of plaster fragments came from Layer 81 (SCI 147, SCI 198, SCI 273, SCI 378 ); some may be related to the jars with drilled perforation and plaster attachments (see Figure 3.49a); about 100 tabun fragments were also recorded from Layer 81 (SCI 1177). Other small finds from Phase 16 include bone tools (Figure 25.5f).

## REMAINS OF PHASE 15

Phase 15 includes few remains in Sq. C1, and most architectural remains come from Sqs. F1 and J1 (Figures 3.73-3.79). This phase was already eroded in Sqs. C2, F2, and J2 and thus was not represented there. In Sq. C1 a thin wall made of a single line of bricks (Wall 79, Figure 3.74) is in the same line as Wall 77 from Phase 14 and can be seen clearly under it in the south balk (Figures 3.75, 3.100). Wall 79 extends to the south balk and in 1982 the excavation was extended to the south of Sq. C1 about 1 m ; the zoomorphic vessel from Phase 16 (Figure 3.63) was found under it. It also continues to the north (and to the unexcavated area to the west, under Sq. B remains) and might have made a right angle with Wall 6 in Sq. F1, but the balk was not removed. Generally, the elevations of Phase 15 in Sq. C1 (e.g., Wall 79 at a 50.77 m lower level) are about 0.5 m higher than those in Sqs. F1-J1 (e.g., Wall 6 at a lower level of 50.22 $\mathrm{m})$; this could be explained by the sloping of the mound to the north, and thus, the same levels at Sq. F1 are $0.3-0.5 \mathrm{~m}$ lower than in Sq. C1.

In Sqs. F1 and J1, a series of walls and other features were excavated in Phase 15 (Figure 3.73). Walls 4-6 in Sq. F1 and Wall 3 of J1 comprise three walls of a room 4 m long and at least 2 m wide, denoted as Room G (Locus 5 in Sq. F1, Locus 2 in Sq. J1; Figure 3.73, possibly Figure 3.76; the floor is probably Sq. J1, Layer 9, Locus 2 at an elevation of 50.19 m ). Wall 6 in Sq. F1 is the south wall of the room, showing evidence of plastering and mortar bedding; Wall 5 is the eastern wall (equal to Wall 4 of Sq. J1), completely excavated; only a small portion of the northern wall, Wall 3 in Sq. J1, was exposed (Figure 3.77). The western part of the room lay in the unexcavated area. The SE corner of Walls 5 and 6 in Sq. F1 has additional bricks and mortar filling and is probably disturbed from stones of Feature 3 from Phase 14

(Figures 3.80 and 3.81). In Sq. J1 in the northern part of the room a jar was sunk into the floor (Feature 3, Figure 3.79p, from Layer 9 at 50.19 m to Layer 11); the jar is about 50 cm high, with its top part shaved and another jar base placed inside it. Note that the balk between Sqs. F1 and J1 in the middle of Room G was not removed. Nearby, three bricks were located under the west face of Wall 4 (Sq. J1, Feature 5), possibly a lower phase of the wall or a buttress (the wall might have been thinner at that phase). From the outside of the NE corner of Room G in Wall 4 a possible door jamb was visible in this area. A brick tumble (Feature 4) may be remains of steps, but it is difficult to substantiate this reconstruction. Pottery from Room G (Figure 3.78) includes open and carinated bowls (Figure 3.78a-g), various cooking pot fragments (Figure $3.78 \mathrm{~h}-\mathrm{m}$ ), several jugs and Tell el-Yahudiyeh fragments (Figure 3.78n-q), and WP Cypriot sherds (Figure 3.78r,s). Three worked sherds (Figure 3.78s and Reg. Nos. 3693, 3694) and a figurine (Figure 3.78t) were also found in Room G.

The area to the south of Wall 6 of Room G was denoted as Unit 15; to the east a brick tumble continuing Wall 5 to the south was recorded, but it is not possible to reconstruct the architecture in this area in detail. Toward the north of Room G, in the 1984 extension of Sq. J1, an additional wall fragment (Wall 10) and a tabun fragment (Feature 9, Figure 3.73) were excavated from Phase 15; these belong to an additional architectural unit, unnumbered.

The pottery and finds from Phase 15 (Figures 3.78, 3.79) are not as rich as those from Phases 17-16. These include typical open, rounded and carinated bowls, including thin eggshell examples (Figure 3.79i), various cooking pots, jars, and jug and juglet fragments (Figure 3.791-q; see discussion below); Figure 3.79 j is a lamp or a thick bowl. A complete strainer bowl was found in the phase in Sq. J1 (Figure 3.79k); this is a small, slightly
carinated bowl with a deep rounded base, completely perforated with holes before firing; a handle springs from the inner part, possibly attached to the rim. Parallels are more common in LBII and early Iron Ages (Tell el-‘Ajjul [Ernest et al., 1952:67Z], Lachish, LBII Fosse Temple [Tufnell et al., 1940: pl. LIV:337], Megiddo, Stratum VIII [Loud, 1948: pl. 61:26; Arie, 2006: Type ST1], Beth Shean, Stratum S-3 [Panitz-Cohen and Mazar, 2009: pl. 63:8], and Tell es-Safi, Phase A5 [Zukerman, 2012:297, pl. 13.6:14], as well as Iron IIA, Safi Phase A3 [Shai and Maeir, 2012: pls. 14.4:2, 14.7:2]); bronze strainers of somewhat similar form are also common (e.g., LBII Deir el-Balah [Dothan, 1979:20, fig.37] and Tell es-Saidiyeh [Pritchard, 1980: fig. 4:17]).

A decorated sherd (Figure 3.79r) is probably of the RWB ware (see below); two bases of miniature/votive vessels (see Figure $19.5 \mathrm{~b}, \mathrm{c}$ ) were found in contexts probably attributed to Phase 15. This pottery assemblage could be dated to the end of the MBIIB-C period, similar to Phase 16. A miniature bull figurine (Figure 3.78t), a zoomorphic figurine head (Reg. No. 2138), and a curved horn (Figure 3.79 s) from a zoomorphic figurine or vessel depicting a goat or a ram are also illustrated and are discussed in chapter 17. A worked pebble (Figure 23.4 m ), a perforated basalt item (Figure 23.4n; see chapter 23), a complete bone awl (Reg. No. 1368), and a fragment of an inlay (Figure 25.2c) were also found in this phase.

## DISCUSSION OF THE MBIIB-C POTTERY OF PHASES 18-15

The pottery of Phases 18-15 does not seem to vary considerably and thus will be typologically discussed together as a single

FIGURE 3.47. Pottery from Phase 17. Cyp. = Cypriot; af = after firing. (opposite $)$

| Part | Description | Bag/Box/Reg. No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl; soot | 905 | GMIII J1 (17) 1 | 17 |
| b | Bowl | 5281/4 | GMIII J2 (21) 2 | 17 |
| c | Bowl; stripe burnish | 854/1 | GMIII J1 (16) 1 | 17 |
| d | Bowl | NA | GMIII C2 P2 | 17? |
| e | Bowl (fine) | NA | GMIII J1 (16) 1 | 17 |
| f | Bowl | 854/2 | GMIII J1 (17) 1 | 17 |
| g | Base | 2287/1 | GMIII F2 (16) 1 | 17 |
| h | Bowl (fine/eggshell); burnish, soot | 887 | GMIII J1 (17) 1 | 17 |
| i | Bowl; white slip | 5290/1 | GMIII J2 (19) 2 | 17 |
| j | Bowl/krater; white wash, burnish | 898 | GMIII J1 (17) 1 | 17 |
| k | Bowl; wheel burnish | 888/1 | GMIII J1 (17) 1 | 17 |
| 1 | Bowl | 888/2 | GMIII J1 (17) 1 | 17 |
| m | Bowl (fine) | 931 | GMIII J1 (18) 1 | 17 |
| n | Cooking pot | 854/4 | GMIII J1 (17) 1 | 17 |
| o | Krater/cooking pot | 886 | GMIII J1 (17) 1 | 17 |
| p | Perforated sherd (bowl) | 5281/2 | GMIII J2 (21) 2 | 17 |
| q | Cooking pot(?); handmade | 854/5 | GMIII J1 (17) 1 | 17 |
| r | Jar; perforated af | 2285/1 | GMIII F2 (15) | 17 |
| s | Juglet; burnish | 891 | GMIII J1 (17) 1 | 17 |
| t | Juglet (Cyp.?); brown decoration | 854/3 | GMIII J1 (17) 1 | 17 |



FIGURE 3.48. Storage jars from Sqs. J1-J2, Layer 17.

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jar/pithos | RV 538 (SI Cat. 1045) | GMIII J1 (17) 1 |
| b | Jar/pithos | RV 1063 | GMII J1//22 (17) 1 |
| c | Jar/jug | RV 1056 | GMIII J2 (18) 1 |
| d | Jar/pithos | RV 1036 | GMII J1/J2 (17) 1 |
| e | Jar/pithos | RV 1060 | GMIII J2 (16-17) 1 |
| f | Jar/pithos | RV 1037 | GMIII J2 (27) 1 |

MBII assemblage. Emphasis will be given to the more common forms, which will refer to more exhaustive recent studies (such as those of Batash, Lachish, and Nagila), referencing previously published parallels; this discussion is complemented by selected parallels from more recently published relevant excavations. Comparative discussion and parallels are thus only selective and far from exhaustive; parallels are made mostly to MBIIB-C sites in southern Israel.

## Bowls and Kraters

Bowls are very common in the MBII assemblage, including mostly open, rounded and carinated bowls. Open bowls include mainly bowls with a rounded or straight profile or platters, which are flatter (e.g., Figures $3.27 \mathrm{~d}, 3.47 \mathrm{~b}, \mathrm{c}$ ). Bowls with straight sides
and wide rim diameters appear in Phases 17 (Figure 3.46a,b), 16 (Figure 3.58a-e), and 15 (Figure 3.79a) and continue into the LB phases (see below). According to the more complete examples (such as from Phase 16 shown in Figure 3.58b,d,e), these bowls can be $25-35 \mathrm{~cm}$ in diameter and have a simple rim and a flat or a disk base (Figure 3.58d). See parallels, for example, in Beit Mirsim Tomb 2 (Ben-Arieh, 2004: fig. 2.75:1) and Nagila, Stratum X (Uziel, 2008: fig. 67:10).

Open bowls with slightly rounded sides are also common in the MBIIB-C, appearing in Phases 18 (Figure 3.27a-c,e), 17 (Figure $3.47 \mathrm{a}-\mathrm{c}$ ), 16 (Figures 3.58f, 3.71a-d,f), and 15 (Figure $3.78 \mathrm{a}-\mathrm{c})$. These have a wide range of sizes, from 15 to 35 cm ; very shallow bowls of this type can be termed platters (e.g., Figure $3.27 \mathrm{~d}, \mathrm{e}$ ). These bowls have a simple (Figures 3.27a, 3.58f) or slightly thickened rim (such as in Figure 3.71b from Phase


FIGURE 3.49. Storage jars from Sqs. J1-J2, Layer 17. af = after firing.

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jar/pithos; perforations (af), plaster | RV 1050 | GMIII J1/J2 (17) 1 |
| b | Jar | RV 1070 | GMIII J2 (17) 1 |
| c | Jar | RV 1048 | GMIII J1/J2 (17) 1 |
| d | Jar/pithos | RV 1047 | GMIII J1/J2 (17) 1 |
| e | Jar/pithos | RV 1053 | GMIII J1/J2 (17) 1 |
| f | Jar; drilled holes, plaster | 909 | GMIII J1 (17) 1 |



FIGURE 3.50. Cylinder seal, Reg. No. 1234 from Phase 17.

FIGURE 3.51. Pottery and finds from Phase 17. TEY = Tell el-Yahudiyeh ware; Cyp. WP = Cypriot White Painted ware; NA = not applicable. (opposite)

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :---: | :---: | :---: | :---: |
| a | Jug/juglet (TEY) | Box 825/1 | GMIII J2 (16) 2 |
| b | Jug/juglet (TEY) | Box 815/1 | GMIII J1 (16) 1 |
| c | Jug (Cyp. WP); brown decoration | Box 824/1 | GMIII J1 (17) 1 |
| d | Sherd (Cyp. WP); red/decoration | Box 824/2 | GMIII J2 (17) 1 |
|  | Sherd (Cyp. WP); decoration | Box 824/3 | GMIII J2 (17) 1 |
| f | Sherd (Cyp. WP); red decoration | Box 824/4 | GMIII J2 (17) 1 |
| g | Jug (Cyp. WP); brown decoration | Box 807/1 | GMIII F2 (13) |
| h | Jug (Cyp. WP); brown decoration | Box $809 / 1$ | GMIII F2 (16) 1 |
| i | Sherd (Cyp. WP); decoration | Box 818/1 | GMIII J1 (17) 1 |
| j | Sherd (Cyp. WP); decoration | Box 818/1 | GMIII J1 (17) 1 |
| k | Sherd (Cyp. WP); decoration | Box 819/1 | GMIII J1 (17) 1 |
| 1 | Decorated sherd (Cyp.?) | 5285/1 | GMIII J2 (16) 2 |
| m | Sherd (Cyp. WP); decoration | 2285/2 | GMIII F2 (15) |
| n | Jar handle with impression | Reg. No. 1231 | GMIII F2 F12 |
| o | Perforated sherd/spindle | Reg. No. 1929 | GMIII J1 (17) 1 |
| p | Sealing(?) | NA | GMIII J1 (17) 1 |
| q | Bronze tool | Reg. No. 2126 | GMIII F2 (16) |



## 1



n

C1
$C 2$

FIGURE 3.52. Plan of Phase 16.


FIGURE 3.53. Square C2 with Feature 17, a tabun, looking north.


FIGURE 3.54. Brick tumble, Feature 16 in Sq. C1, in relation to Layer 81, looking east.


FIGURE 3.55. Layer 81 in Sq. C1, as seen in seen in the western balk.


FIGURE 3.56. Layer 81 in Sq. C 1 section, with complete bowl in situ.


FIGURE 3.57. Layer 80 (and Layers 77-79 above in the balk) in Sq. C1 with animal bone in situ.

FIGURE 3.58. Bowls from Sq. C1, Layer 81. (opposite)

| Part | Description | Bag/Box/Reg. No. |
| :--- | :--- | :--- |
| a | Bowl | SI Cat. No. 1026 |
| b | Bowl | SI Cat. No. 1036 |
| c | Bowl | $1166 / 2$ |
| d | Bowl | RV 665 |
| e | Bowl | RV 666 |
| f | Bowl; soot | $1166 / 1$ |
| g | Bowl | SI Cat. No. 1031 |
| h | Bowl | SI Cat. No. 1041 |
| p | Bowl | SI Cat. No. 1006 |
| j | Bowl | RV 645 (SI Cat. 1029) |
| k | Bowl | SI Cat. No. 1033 |
| l | Bowl | RV 655 (SI Cat. 1038) |
| m | Bowl; red slip | 1176/2 |
| n | Bowl | SI Cat. No. 1018 |
| o | Bowl | SI Cat. No. 1025 |
| p | Bowl | SI Cat. No. 1028 |
| q | Bowl | RV 652 |
| r | Bowl | RV656 (SI Cat. 1037?) |
| s | Bowl; red slip | RV 657 (SI Cat. 1039) |
| t | Bowl | SI Cat. No. 1035 |
| u | Bowl | RV 660 |
| v | Bowl | RV 659 |
| w | Bowl | SI Cat. No. 1030 |
| x | Bowl | RV 650 (SI Cat. 1034) |



16) or, more common, a slightly inverted rim (such as examples from Phases 18-15 above). Generally, open bowls have a low ring base (e.g., Figure 3.58b,e). Several examples are red slipped and/or burnished, especially platter-like examples from Phase 18 (Figure 3.27a,b). Radial burnish appears on a similar bowl from Phase 17 (Figure 3.47c), as well as an example from Phase 16/17 (Figure 3.71 g ); radial burnish occurs on similar bowls at Batash, Stratum XI (Panitz-Cohen and Mazar, 2006: pl. 6:10,11). An example from Phase 15 (Figure 3.79a) has white slip on its inner upper part (this may also be a chalice). Open bowls with inverted rims are very common in MBIIB-C strata of the southern Levant, e.g., Tel Haror (Oren et al., 1986b: fig. 13:1,4), Nagila (Uziel, 2008:139, fig. 53:4, BL1.4), Lachish (Singer-Avitz, 2004: fig. 16.4:7-9), Shechem (Cole, 1984: pl. 2i,j), Gezer (Dever et al., 1974: pl. 17:21), Yavne-Yam (Uziel, 2008: fig. 17:11), Batash (Panitz-Cohen, 2006a:27, Types BL44, BL47), Beit Mirsim tombs (Ben-Arieh, 2004: figs. 2.1:1, 2.7:1-5), and Tell el-Dab'a (Aston, 2004: pl. 70:230).

A simple rim from Phase 18 (Figure 3.27e) is of a very thickwalled open bowl or platter; possibly, this vessel is residual from the Chalcolithic, as these are not common in the MBII. A small example from Phase 16 (Figure 3.58f) has soot marks and might have been used as a lamp. A more complete example of an open, small, soot-covered bowl with a rounded base, probably used as a lamp, was also found in Phase 16 (Figure 3.59b; possibly similar to a simple lamp from Beit Mirsim Tomb 24; Ben-Arieh, 2004: fig. 2.16:81). A more unusual example from Phase 16 is an open bowl or a platter that has a vertical handle and a cross incised on its interior (Figure 3.60c), which was made before firing; a good parallel comes from Tel Nagila, Stratum VIII (Uziel, 2008: fig. 75:7). Similar bowls with handles, although somewhat deeper, come from Tel Nagila (Uziel, 2008:139, fig. 53:6, Type BL1.6) as well as from other MBIIB assemblages (e.g., Aphek [Beck, 2000: fig. 10.16:10] and Lachish [Singer-Avitz, 2004: fig.
17.8:6]); a somewhat similar form is also defined as frying bowl or pan (Ilan and Marcus, In press).

Rounded or hemispherical bowls are not as common as open bowls but appear in Phases 17 through 16 and possibly later (Figures 3.47a, 3.71a). These have a rounded or hemispherical (rarely, as in Figure 3.58c from Phase 16) profile and simple or slightly inverted rim; according to complete examples (such as from Phase 17, Figure 3.47a), they have a low ring base or a disk base (Figure 3.71a from Phase 16). They differ from the open bowls as their profile is more rounded and less open, sized mostly $20-35 \mathrm{~cm}$ in diameter. Basically, these rounded bowls are common throughout the MBII (e.g., Lachish [Singer-Avitz, 2004: fig. 16.9:5,6], Aphek [Beck, 2000: fig. 10.4:8,9], and Batash [Panitz-Cohen and Mazar, 2006: pl. 38:3]) and continued to be even more popular during the LBII (see below and Uziel, 2008:139, Type BL2, fig. 53:7-9).

Carinated bowls and kraters of various types are probably the most common MBIIB-C bowls at Tell Jemmeh and appear in Phases 18 through 15 (e.g., Figures 3.27h, 3.46c-f, 3.47d$1,3.58 \mathrm{~h}-\mathrm{x}, 3.79 \mathrm{e}-\mathrm{h})$. They are considered the hallmark of the MBIIB-C and continue in the LBI and early LBII. The carinated bowls can be roughly be divided into high carinated bowls (e.g., Figures $3.27 \mathrm{~h}, 3.47 \mathrm{~d}, \mathrm{j}, 3.58 \mathrm{~h}, \mathrm{i}$ ), low carinated bowls (more globular; e.g., Figure $3.58 \mathrm{w}-\mathrm{x}$ ), and fine carinated bowls (or eggshell bowls; e.g., Figure 3.47h). The typical high carinated rim bowls appear already in Phase 18 (Figure 3.27h) and are $15-20 \mathrm{~cm}$ in diameter in most cases. The rim is usually slightly everted (Figure 3.27h) or triangular (Figure 3.27j); sharply everted rims also appear (e.g., Phase 17, Figure 3.47i; Phase 16, Figure $3.58 \mathrm{q}, \mathrm{s}$ ). The carination can be sharper (as Figure 3.581) or more rounded (many examples in Phase 16, as in Figure $3.58 \mathrm{~h}, \mathrm{i}$ ); bases are either ring (e.g., Figure 3.58 p,s) or concave disk bases (Figure 3.58h-j). Several examples have red slip and/or burnish outside and/or inside (mostly only partial slip, e.g., Phase 18, Figure 3.27j; Phase 17, Figure 3.46e; Phase 16,

FIGURE 3.59. Pottery from Sq. C1, Layer 81. (opposite)

| Part | Description | Bag/Box/Reg. No. |
| :--- | :--- | :--- |
| a | Bowl | $1176 / 1$ |
| b | Bowl/lamp; soot | $2079 / 1$ |
| c | Bowl | $556 / 1$ |
| d | Base | $1158 / 1$ |
| e | Bowl | $1158 / 2$ |
| f | Jar/chalice? | $556 / 2$ |
| g | Bowl | 583 |
| h | Cooking pot | 468 |
| i | Cooking pot | 450 |
| j | Krater(?)/cooking pot | $1175 / 1$ |
| k | Cooking pot | 459 |
| l | Cooking pot | 460 |
| m | Chalice/bowl | RV 642 (SI Cat. 1027) |
| n | Bowl | Box 211/1 |



Figure 3.58 m ); Figure 3.47 i has a thick white slip on the outside. Note that these bowls are less common in Phase 15 and become more open in their shape (Figures $3.78 \mathrm{~d}, \mathrm{e}, 3.79 \mathrm{~g}$, also termed S-shaped bowls), similar to LBII carinated bowls (see below). Similar bowls appear at Gezer (Dever et al., 1974: pls. 26:19, 28:10) and Tel Nagila (Uziel, 2008: fig. 54:4, Type BL3.4, and references therein).

Globular and/or low carinated rim bowls (Figure 3.58w, x) are more typical of MBIIB-C assemblages not continuing into LBII. They appear already in Phase 18 (Figure 3.27i). A large example (may be defined as a krater) comes from Phase 17 (Figure 3.47j; this example also has white wash and burnish). These bowls are characteristically $25-40 \mathrm{~cm}$ tall, with a simple, closed body form, everted or thickened rim, a globular lower body, rounded, emphasized carination, and an everted or vertical "neck" above the carination (e.g., Figure 3.58x). Bases are either low (Figure $3.58 \mathrm{~s}, \mathrm{t}, \mathrm{w}$ ) or high ring base (Figures $3.59 \mathrm{~m}, 3.62 \mathrm{c}$; note these are sometimes termed goblets [see Uziel, 2008:141, fig. 55] or pedestal bowls [see Ben-Arieh, 2004: fig. 2.6:5,6]); red-slipped and burnished examples come from Phase 16 (Figure 3.71 n ). This is a typical MBIIB-C form with examples from many sites in the region (e.g., Aphek [Beck, 2000: fig. 18.6:2], Tel Nagila [Uziel, 2008:139-140, Type BL3.1-3.2, fig. 54:1,2], Lachish [Singer-Avitz, 2004: fig. 16.11:6], Gezer [Panitz-Cohen and Maeir, 2004: Pl. 3:1,3], Shechem [Cole, 1984: pl. 18f], Yavne-Yam [Uziel, 2008: fig. 19:1], and Batash, Stratum X [Panitz-Cohen, 2006a: Type BL56, pl. 10:1]).

As noted, a few examples of very thin and delicate bowls (eggshell) also appear, with the best example from Phase 17 (Figure 3.47 h ): the simple rim is very thin and sharply everted, and the low carination is very pronounced; there is a low ring base. This bowl also has burnish and soot marks, and its diameter
is 10 cm . Other fragmentary examples come from Phases 16 (Figure 3.71n) and 15 (Figure 3.79i). Thin eggshell bowls are typical of the final phase of the MBIIB-C and the LBI (see, e.g., Amiran, 1969:110, pl. 27; Cole, 1984: pls. 17, 18, and references therein).

Votive or miniature bowls appear rarely; one fine complete example comes from Phase 15, Room G (Figure 3.78g). This open bowl is very thin walled (V-shaped profile), has a knifesharp rim(?) and a high disk base; it could possibly be described as a very low foot miniature chalice (see, e.g., Megiddo, Stratum X in Loud, 1948: pl. 129:14, but this example is thicker walled). As most of the rim is not preserved, it is possible this is the lower part of an eggshell carinated bowl.

Larger bowls with thickened rims are termed kraters; no complete example was found in the MBII, although some of the carinated bowls can be defined as carinated kraters with ring bases; Figure 3.78 m from Phase 15 is a rim with two handles belonging either to a cooking pot or small krater.

## Cooking Pots

Several types of cooking pots appear in MBII Phases 17-15 (e.g., Figures $3.47 \mathrm{n}, \mathrm{o}, 3.59 \mathrm{~h}, \mathrm{i}, 3.78 \mathrm{~h}-\mathrm{l}$ ); none, however, are complete, and their quantity is small (none are illustrated in Phase 18). The cooking pots are all wheel made, with a rounded to globular body shape (smaller rim sherds may have had either a globular or carinated body; thus, further typology is according to rim shape). It should be noted that no handmade straightsided cooking pots, typical of the MBIIA, appear (see Amiran, 1969:126, pl. 30:1,3; Maeir, 2007:258-260), except a possible fragment from Phase 17 (Figure 3.47q). Also, apparently, no baking trays (see, e.g., Uziel, 2008:144, fig. 59) appear in the

FIGURE 3.60. Pottery from Sq. C1, Layer 81. (opposite)

| Part | Description | Bag/Box/Reg. No. |
| :--- | :--- | :--- |
| a | Bowl(?); red/white/blue decoration | Box 211/2 |
| b | Krater | $1152 / 1$ |
| c | Bowl; incised decoration | $2067 / 1$ (SI Cat. 1042) |
| d | Jar/pithos | RV 639 (SI Cat. 1044) |
| e | Jar/jug | 566 |
| f | Jar | 448 |
| g | Jar | RV 651 (SI Cat. 1032) |
| h | Jar, white band slip | RV 664 |
| i | Jar | $576 / 1$ |
| j | Jar | $576 / 2$ |
| k | Jar | $576 / 3$ |
| l | Jar(?); red/white/blue decoration | Box 211/3 |
| m | Sherd; red/white/blue decoration | Box 211/4 |
| n | Sherd; red/white/blue decoration | Box 211/5 |
| o | Sherd; red/white/blue decoration | Box 211/6 |
| p | Jar; red/white/blue decoration | Box 211/7 |
| q | Jar; red/white/blue decoration | Box 211/8 |



0

FIGURE 3.61. Pottery from Sq. C1, Layer 81.

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jar | $1176 / 4$ | GMIII C1 (81) |
| b | Jar/jug | $1176 / 3$ | GMII C1 (81) |
| c | Jug | RV 661 | GMII C1 (81) |
| d | Jug/juglet | RV 654 | GMII C1 (81) |
| e | Jug | 447 | GMII C1 (81) |
| f | Cooking pot(?) | RV 824 (SI Cat. 1043) | GMII C1 (81) |
| g | Juglet | RV 653 (SI Cat. 1040) | GMII C1 (81A) |
| h | Juglet; burnish | 590 | GMII C1 (81) |
| i | Juglet | $1162 / 2$ | GMIII C1 (81) |
| j | Juglet | $1136 / 1$ | GMII C1 (81) |
| k | Jug/spout | 477 | GMIII C1 (81) |
| l | Miniature vessel | RV 658 | GMIII C1 (81) |
| m | Sherd | $1162 / 1$ | GMIII C1 (81) |
| n | Lamp | $1176 / 5$ | GMIII C1 (81) |



FIGURE 3.62. Pottery vessels from Sq. C1, Layer 81: (a) SI Cat. No. 1018 (see Figure 3.58n), (b) SI Cat. No. 1030 (see Figure 3.58w), and (c) SI Cat. No. 1027 (see Figure 3.59m).

MBII assemblage, and only a few come from LBII and unstratified contexts (possibly Figure 3.112s).

Cooking pots with thickened, out-turned rims appear in Phases 17 (Figure 3.46j), 16 (Figure 3.61f), and 15 (Figure 3.78 j ). No complete examples were found, but the body is probably globular (Figure 3.47o); one example at least shows handles (Phase 16, Figure 3.61f, possibly also Figure 3.591). This is a common MBIIB-C form (see, e.g., Batash [PanitzCohen and Mazar, 2006: pl. 5:16], Lachish [Singer-Avitz, 2004: fig. 16.25:5], and Tel Nagila [Uziel, 2008:143 fig. 58:1-2, Type CP3.1]). Cooking pots with simple everted rims appear in Phase 16 (Figure 3.59i,j) and Phase 15 (Figure 3.791). This is a common MBII type as well (see, e.g., Aphek [Beck, 2000: fig. 8.10:6], Lachish [Singer-Avitz, 2004: fig. 16.31:1], Batash, Stratum XI [Panitz-Cohen, 2006a: pl. 7:2, Type CP17], and Tel Nagila [Uziel, 2008: Type CP1.1]).

A typical MBIIB-C rim type is the everted gutter rim, belonging to either a globular or slightly carinated body, appearing in Phases 16 (Figure 3.59h) and 15 (Figures 3.781, 3.79m,o). Notably, this type does not appear in Phases 18-17 and is seemingly more common in Phase 15. This form is usually found in earlier MBIIB assemblages but also continues into the LBI and is possibly the most common MBIIB-C cooking pot type in this region (e.g., Aphek [Beck, 2000: pl. 8.10:8], Batash [Panitz-Cohen and Mazar, 2006: pl. 7:11], Tel Nagila [Uziel, 2008:143, Type CP1.2, fig. 58:4], Yavne-Yam [Uziel, 2008: fig. 21:11, and references therein]). An example of a cooking pot from Phase 15 (Figure 3.791) has a more vertical rim, with a
possible parallel from Batash, Stratum XI (Panitz-Cohen and Mazar, 2006: pl. 7:15).

Another type of cooking pot represented by several rims from Phases $17-15$ (Figures 3.47 n , possibly $3.47 \mathrm{o}, 3.78 \mathrm{~h}, \mathrm{i}$ ) is a folded, inverted rim, possibly of a hole-mouth-type vessel. The sherds are made of coarse clay with large grits, and this type may be related to Egyptian-style hole-mouth cooking pots appearing in northern Egypt and the southern Levant during the MBIIB (see, e.g., Tell el-Maskhuta [Holladay, 1997: pl. 7.6], possibly Tell el-Dab’a [Aston, 2004: pls. 296-297], Aphek, Stratum X16 [Gadot and Yadin, 2009: figs. 7.16:10,11, 7.18:7-9], possibly Megiddo, Strata XIII-X [Loud, 1948: pl. 30:3], and Ashkelon Phases 11-10, gate area, the sanctuary of the calf [Stager, 2002: fig. 22; Stager and Voss, 2011:123*, pl. 2:6-8]). Note that these are different from the hole-mouth pots with simple rims that can appear in the MBII as a continuance of the third millennium cooking ware tradition (see, e.g., Uziel, 2008:67, fig. 21:1-6).

## Jars and Pithoi

Although in Phases 18, 16, and 15 storage jars are represented by only a few rims and some larger fragments, Phase 17 yielded a large assemblage of reconstructed storage jars (mainly from Sqs. J1-J2, Layer 16-17, Locus 1; see Figures 3.32-3.35, $3.48,3.49$ ). Only one example is entirely complete (Figure 3.48a); this one has no handles. Most of these large jars or small pithoi have a similar form characterized by a large ovoid (or pyriform) body, a height up to 90 cm , a very wide shoulder (up to 40-45


FIGURE 3.63. Zoomorphic vessel from near Sq. C1, Layer 81.
cm ), a short, narrow neck, a flaring rim (folded or simple), and a slightly pointed to rounded (e.g., Figure 3.48a) or flat (Figure 3.49 e ) base. In some cases the rims can be molded, folded, or profiled (Phase 17, Figures 3.461, 3.48a; Phase 16, Figure 3.71s) or gutter shaped (Figure 3.60j). Some of the jars have no handles (Figure 3.48a,d), whereas others have one handle (Figures 3.48c, 3.49a; technically, smaller jars, as in Figure 3.48c, with one handle can be defined as large jugs; see, e.g., Panitz-Cohen, 2006a: Types JG1-JG2; Maeir, 2007: Type SJ23; Uziel, 2008: Type J1.1) or two handles (e.g., Figure 3.48b). About 15 complete or nearly complete reconstructed jars come from Phase 17 (Figures 3.48, 3.49; most were partially restored; note not all are illustrated), with similar forms appearing in Phase 16 as well (Figures 3.60d, 61a, 3.71 s), but they seem to be lacking in Phase 15.

This generic jar type (sometimes defined as a pithos) is common throughout the MBIIB-C in the southern Levant (e.g., Gezer [Dever et al., 1974: pl. 23:1-3], Tel Haror [Oren et al., 1986b: fig. 13:20,21], Lachish [Singer-Avitz, 2004: fig. 16.14],

Beit Mirsim, Tomb 33 [Ben-Arieh, 2004: fig.25], Batash [PanitzCohen, 2006a:73-77, Type SJ1, "molded rim"], Nagila, Stratum IX [Uziel, 2008:144, Type SJ2, fig. 72:8], Yavne-Yam [Uziel, 2008: fig. 23:1], and Tell el-Dab'a [Aston, 2004: pls. 164, 167, 168, 173, 287]). Larger and thicker forms with no handles are often defined as pithoi (e.g., Batash [Panitz-Cohen, 2006a:8890] and Beth Shean [Maeir, 2007:269-270, Type PT23, photo 4.44]). These may also be dated to earlier stages of the MBIIB (see Uziel, 2008:144, Type SJ1.1; also see, for the Late Bronze, Beth Shean, Mullins, 2007:428, fig. 5.10, Type PT1) but appear in the MBIIB-C as well.

The storage jars or pithoi of this type at Tell Jemmeh carry a few additional characteristics: several examples have large areas with chalky white slip or wash (Figure 3.49a,f). This slip was smeared on the body as wide vertical bands (Figure 3.60h; see also Field I, Figure 6.24a). Possible parallels for this surface treatment on jars come from Batash, Stratum X (Panitz-Cohen, 2006a:75-76, pl. 12:5-7) and Megiddo, Stratum X (Loud, 1948:


FIGURE 3.64. Finds from Sq. C1, Layer 81.

| Part | Description | Bag/Box/Reg. No. | SI Cat. No. |
| :--- | :--- | :--- | :--- |
| a | Sealing; impression | Reg. No. 1203 | 953 |
| b | Sealing | Reg. No. 1211 | 1010 |
| c | Sealing | Reg. No. 1212 | 1024 |
| d | Sealing; impression | Reg. No. 1214 | 1020 |
| e | Sealing | Reg. No. 1221 | 1015 |
| f | Sealing | Reg. No. 1225 | 1016 |
| g | Sealing | Reg. No. 1225A |  |
| h | Sealing | Reg. No. 1226 | 1008 |
| i | Gaming piece(?) | Reg. No. 2057 |  |
| j | Bronze sheet | Reg. No. 2128 |  |

pl. 129:1). A nearly complete jar/pithos (Figure 3.48d) has a series of incisions made on the upper body part before firing. This group of marks may have a certain meaning or may derive simply from carelessness of the potter. Other examples from Phase 17 (Figure 3.49a,f) have a series of two or more holes in the body, carefully drilled after firing; this area was subsequently covered by a thick layer of lime plaster. The reason for this phenomenon is not clear; it is possibly an effort to mend the jar (with ropes) after breakage or to attach the jar to another object, maybe one made of perishable material. Another option may be that the plaster-covered holes may have served as a kind of a safety valve
that would release pressure and save the jar from cracking in case of pressure building up in the vessel. This could have happened if the jars were used, for example, for fermenting wine or beer. Parallels found for this treatment come from an MBIIB tomb at Akko (Tomb 601, an infant burial in a jar/pithos, where six holes were made on both sides of an apparent crack in the vessel and covered with a plaster layer; see Beeri, 2003:38, pl. 8:1; see also Artzy and Beeri, 2006: fig. 1, pl. 2, for the MBIIA) and Tell Farah (N) (Mallet, 1987: fig. 38:2, pl. LXXXIX:3). Drilled holes in similar MBII jars or pithoi were also found in City of David Stratum 17B (Eisenberg, 2012: fig. 7.14:1,3,5). The clay


FIGURE 3.65. Tabun, Feature 5, under Wall 6 in Sq. F1, Phase 16.


FIGURE 3.66. Feature 7 in Sq. F1, under Wall 6.


FIGURE 3.67. Pit 1 in Sq. F1, looking NE.


FIGURE 3.68. Equid burial, Features 9-10, in Sq. F2.


FIGURE 3.69. Feature 6 (posthole) in Sq. J2, looking south, Layer 13 in rear.


FIGURE 3.70. Squares J2 and J1, looking west.

j

$0 \quad 10 \mathrm{~cm}$
sealings found in the same context as these jars in Phases 17 and, especially, 16 (see Figure 3.63 and chapter 20) may also relate to some of these jars.

Other jar types are represented by several rim and neck fragments; these include examples from Phase 18 (Figure 3.271) and Phase 16 (Figure 3.61b) with a ridge under the rim; this rim can also belong to large jugs (see Uziel, 2008: fig. 62:5, Type J4). A somewhat similar rim, with more flaring, comes from Phase 17 (Figure 3.46k). Several jar handles are also illustrated (Figure $3.46 \mathrm{~m}-\mathrm{o}$ ). A rim and neck from Phase 16 (Figure 3.61b) can belong to either a jar or a large jug (as in, e.g., Panitz-Cohen, 2006a: fig. 7, Type JG1). A smaller jar from Phase 16 (Figure 3.60 g ) with two handles is almost complete and can be defined as a "jarlet" (possibly comparable to examples from Tel Nagila [Uziel, 2008: fig. 60:2, Type SJ1.2] and Yavne-Yam [Uziel, 2008: fig. 23:1]).

## Jugs and Juglets

No entirely complete jugs or juglets were found in Field GMIII Phases $18-15$, yet quite a few fragments are illustrated; most are typical MBIIB-C forms. A red-slipped body sherd from Phase 18 (Figure 3.27 m ) may belong to a small jug (possibly similar to an example from Beit Mirsim, Tomb 24, Ben-Arieh, 2004: fig. 2.10:49). A neck fragment from Phase 16 (Figure 3.61c) has a trefoil-spouted vertical rim and is made of light greenish clay. A juglet from Phase 16 (Figure 3.72c) has a gutter trefoil rim and biconical body; it is made of whitish clay. Two body fragments with double handles (Phase 16, Figure 3.61i,j) are of jugs/juglets with a carinated or biconical body (see a similar example from

Batash, Stratum XI, Panitz-Cohen and Mazar, 2006: pl. 8:10). A handle fragment from Phase 15 (Figure 3.78o) may also belong to a similar type. Trefoil rim jugs are common in the MBII and appear in various sizes (see, e.g., Panitz-Cohen and Mazar, 2006: Type JG1; Uziel, 2008: Types J3, J5, and J7, figs. 62:4,6, 63:3); some are described as larger versions of dipper juglets (see also Lachish, Singer-Avitz, 2004: fig.16.29:2), and biconical jugs with a shoulder handle also are known (e.g., Uziel, 2008: Type J4). From Phase 16, Figure 3.60e may be the lower part of a globular jug or a small jar; it is made of a fine whitish clay.

Several typical MBII dipper juglets were found, including examples from Phase 17 (Figures 3.46p, 3.47s), Phase 16 (Figures $3.61 \mathrm{~g}, \mathrm{~h}, 3.72 \mathrm{~d}$; Figure 3.61 k is probably also a neck of a large dipper juglet), and Phase 15 (Figure 3.79q ). These juglets have a long wasp-like body, tall neck, and spouted simple rim with a handle attached to it; the base is usually pointed (as in Figure 3.72d). This is a typical MBIIB-C form that continues, with some changes, into the LBII (see, e.g., Lachish [Singer-Avitz, 2004: fig. 16.30:5], Ashdod [Dothan and Porath, 1993: fig. 1:21], Shechem [Cole, 1984: pl. 27c], Gezer [Dever et al., 1974: pl. 14:31], Beit Mirsim tombs [Ben-Arieh, 2004: figs. 2.6:10, 2.11:57-58], Batash, Stratum XI [Panitz-Cohen, 2006a:110, Type JT1, pl. 8:12-13, and references therein], Tel Nagila, Tell es-Safi/Gath, and Yavne-Yam [Uziel, 2008:145, Type JL1, figs. 24:1, 61:1, 70:8-10]).

Cylindrical jugs or juglets are rare and represented by a base fragment from Phase 16 (Figure 3.61d,e). Another, possibly similar, example is the complete upper part of a jug (Figure 3.72b) with a strap handle applied to the neck. Cylindrical juglets appear exclusively during the MBII (see, e.g., Amiran, 1969:137,

FIGURE 3.71. Pottery from Phase 16. (opposite)

| Part | Description | Bag/Box/Reg. No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | RV 687 | GMIII C2 (84) 1 | 16 |
| b | Bowl | $1368 / 1$ | GMIII C2 (85) | 16 |
| c | Bowl; burnish | $2292 / 1$ | GMIII F2 (12) | 16 |
| d | Bowl | $5594 / 1$ | GMIII J1 (13) | 16 |
| e | Bowl | RV 692 | GMIII F2 P2 | $16-17$ |
| f | Bowl | $5298 / 2$ | GMIII J1 (13) | 16 |
| g | Bowl; radial burnish | $1020 / 1$ | GMIII F2 P2 | 16 |
| h | Bowl | $5298 / 1$ | GMIII J1 (13) | 16 |
| i | Bowl | $2192 / 1$ | GMIII F1 (6) 5 | 16 |
| j | Bowl | $5298 / 3$ | GMIII J1 (13) | 16 |
| k | Bowl | RV 671 | GMIII F2 (11) | 16 ? |
| l | Bowl; red slip, burnish | $5298 / 4$ | GMIII J1 (13) | 16 |
| m | Bowl | $2265 / 1$ | GMIII F2 (10) | 16 |
| n | Bowl (fine); red slip, burnish | $2265 / 2$ | GMIII F2 P2 | 16 |
| o | Bowl | $1026 / 2$ | GMIII F2 P2 | $16-17$ |
| p | Krater/bowl | $1026 / 1$ | GMIII F2 P2 | $16-17$ |
| q | Hole-mouth cooking pot | $1020 / 2$ | GMIII F2 P2 | 16 |
| r | Hole-mouth cooking pot | $1020 / 3$ | GMIII F2 P2 | $16-17$ |
| s | Jar/pithos |  |  |  |


pl. 34:17,18; Lachish [Singer-Avitz, 2004: fig. 16.22:10], Shechem [Cole, 1984: pl. 28u], Beit Mirsim [Ben-Arieh, 2004: figs. 2.6:9, 2.11:52-56], Tel Nagila [Uziel, 2008:145, Type JL2], Yavne-Yam [Uziel, 2008: fig. 24:4], and Tell el-Dab'a [Aston, 2004: pl. 145:573]).

Several fragments of pyriform juglets are illustrated, including a burnished base from Phase 18 (Figure 3.27o) and a larger black burnished base from Phase 16 (Figure 3.72h), which probably belongs to a Tell el-Yahudiyeh ware juglet (see below). These juglets have a pyriform-globular body, thick ring or "button" base, and one thick or two strand (applied) handles applied to the upper neck or rim. Several fragments of such double handles were found (e.g., Figure 3.78o). The fragment of a long neck with an attached handle from Phase 18 (Figure 3.27r) may belong to a pyriform juglet as well. Pyriform juglets are another typical MBII form, which also appears almost exclusively in the MBII (e.g., Lachish [Singer-Avitz, 2004: fig. 17.8:10], Shechem [Cole, 1984: pl. 28h-k], Beit Mirsim, Tombs 7, 24 [Ben-Arieh, 2004: figs. 2.1:10, 2.10:38-47], Tel Nagila [Uziel, 2008:147, Type JL3, fig. 61:3,4], and Yavne-Yam [Uziel, 2008: fig. 24:3]).

Of special interest is a nearly complete miniature vessel, probably a juglet, from Phase 16 (Figure 3.611); its height is merely 5 cm . The vessel is coarsely handmade and not smoothed from the outside; the base is roughly rounded. This was probably a votive vessel (see a similar vessel, but with a flat base, from Tel Nagila described by Uziel, 2008:146, Type JL8, fig.

61:9, and an example from Lachish described by Singer-Avitz, 2004: fig. 16.3:16-20; see further discussion on votive vessels in chapter 19).

## Tell el-Yahudiyeh Ware

Tell el-Yahudiyeh ware vessels (denoted TEY) are probably mostly pyriform juglets and appear in Phases 18 through 15 (Figures $3.27 \mathrm{n}, \mathrm{p}, \mathrm{q}, 3.51 \mathrm{a}, \mathrm{b}, 3.72 \mathrm{i}-\mathrm{m}, 3.78 \mathrm{p}, \mathrm{q})$. Most examples are body fragment with a dark black burnished surface, decorated by a delimited area of puncturing, filled with chalky whitish material. Examples from Phase 18 include three body fragments with parallel punctured lines (Figure 3.27 p) or chevron/arrows design (Figure 3.27 n ). A similar design appears on two fragments from Phase 17 (Figure 3.51a,b). In Phase 16 several additional fragments include a grayish body fragment with a handle (Figure 3.72i) and another four fragments (Figure 3.72j-m); one shows a zigzag punctured pattern (Figure 3.721). Figure 3.78p from Phase 15 is characterized by a very dark and shiny black polish. According to petrographic analysis of two examples (Samples Jemmeh 81 and Jemmeh 82, chapter 15), the vessels were produced from various clay sources either in the Jemmeh region or the Shephelah (similar results come from analysis of this ware from Tel Nagila and Tell es-Safi).

The Tell el-Yahudiyeh ware appears in the Levant and Egypt throughout the Middle Bronze Age (see, e.g., Amiran,

FIGURE 3.72. Pottery and finds from Phase 16. TEY = Tell el-Yahudiyeh ware; Cyp. WP = Cypriot White Painted ware. (opposite)

| Part | Description | Bag/Box/Reg. No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Jar | 2252/1 | GMIII F2 F11 | 16 |
| b | Juglet/jug | RV 691 | GMIII F2 P2 | 16-17 |
| c | Juglet | 2059/1 | GMIII C1 (80) | 16 |
| d | Juglet | 2292/3 | GMIII F2 (12) | 16 |
| e | Sherd (Cyp.?); decorated | 1358/1 | GMIII C2 (82) | 16 |
| f | Sherd (Cyp.?); decorated | 1358/2 | GMIII C2 (82) | 16 |
| g | Jug(?); decorated | 2281/1 | GMIII F2 (12) | 16 |
| h | Jug/juglet (TEY) | Box 224/1 | GMIII F1 P1 | 16 |
| i | Jug/juglet (TEY) | Box 546/1 | GMIII F2 P2 | 16-17 |
| j | Jug/juglet (TEY) | Box 546/2 | GMIII F2 P2 | 16-17 |
| k | Jug/juglet (TEY) | Box 826/1 | GMIII J2 P2 | 16-17 |
| 1 | Jug/juglet (TEY) | Box 826/2 | GMIII J2 P2 | 16-17 |
| m | Sherd (TEY?) | 2290/1 | GMIII F2 W11 | 16 |
| n | Perforated rim | 2292/2 | GMIII F2 (12) | 16 |
| o | Sherd (Cyp. WP); brown decoration | Box 803/1 | GMIII F1 (6) 5 | 16 |
| p | Sherd (Cyp. WP); brown decoration | Box 813/1 | GMIII J1 (14) | 16 ? |
| q | Sherd (Cyp. WP); brown decoration | 2058/1 | GMIII F2 (11) | 16 |
| r | Sherd (Cyp. WP?); brown decoration | 2265/3 | GMIII F2 (10) | 16 |
| s | Sherd (Cyp. WP); brown decoration | 2058/2 | GMIII F2 (11) | 16 |
| t | Sherd (Cyp. WP?); brown decoration | 2236/1 | GMIII F2 (9) | 16 |
| u | Sherd (Cyp. WP?); brown decoration | 2217/1 | GMIII F1 (6) 5 | 16 |
| v | Rim sherd (Cyp. WP?); brown decoration | 2281/2 | GMIII F2 (12) | 16 |
| w | Mud weight, perforated | Reg. No. 1596 | GMIII C2 (84) 1 | 16 |
| x | Mud weight, perforated | Reg. No. 1597 | GMIII C2 (84) 1 | 16 |
| y | Sealing; impression | Bag 5262 | GMIII J1 (11) 3 | 16 |



FIGURE 3.73. Plan of Phase 15.


FIGURE 3.74. Wall 79 in Sq. C1, looking east.


FIGURE 3.75. South balk of Sq. C1.


FIGURE 3.76. Square F1, Wall 6, with Room G in front, from the north(?).


FIGURE 3.77. Wall 3 of Room G in Sq. J1 and west balk, looking west.

FIGURE 3.78. Pottery from Phase 15, Room G. TEY = Tell el-Yahudiyeh ware; Cyp. WP = Cypriot White Painted ware. (opposite)

| Part | Description | Bag/Box/Reg. No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 5573/3 | GMIII J1 (11) 2 | 15 |
| b | Bowl | 5322/3 | GMIII J1 (11) 2 | 15 |
| c | Bowl | 5575/1 | GMIII J1 (11) 2 | 15 |
| d | Bowl | 2177/2 | GMIII F1 (7) 5 | 15 |
| e | Bowl | 5274/1 | GMIII J1 (9) 2 | 15 |
| f | Bowl | 5573/1 | GMIII J1 (11) 2 | 15 |
| g | Bowl (fine) | SI Cat. No. 1046 | GMIII J1 (11) 1 | 15 |
| h | Krater/cooking pot | 5322/2 | GMIII J1 (11) 2 | 15 |
| i | Cooking pot | 2198/1 | GMIII F1 W5 | 15 |
| j | Cooking pot | 5573/5 | GMIII J1 (11) 2 | 15 |
| k | Cooking pot(?) | 5573/4 | GMIII J1 (11) 2 | 15 |
| 1 | Cooking pot | 2177/4 | GMIII F1 (7) 5 | 15 |
| m | Krater/cooking pot | 2198/2 | GMIII F1 W5 | 15 |
| n | Jug | 5322/1 | GMIII J1 (11) 2 | 15 |
| o | Jug handle | 5573/2 | GMIII J1 (11) 2 | 15 |
| p | Black polished sherd (TEY/lischt) | Box 804/1 | GMIII F1 (7) 5 | 15 |
| q | Jug(?) (TEY) | 5320/1 | GMIII J1 (10) 2 | 15 |
| r | Jug (Cyp. WP) | Box 801/1 | GMIII F1 (5) | 15 ? |
| s | Worked sherd (Cyp. WP) | Box 805/1 | GMIII F1 W5 | 15 |
| t | Figurine | Reg. No. 1273 (SI Cat. 1013) | GMIII F1 (7) 5 | 15 |

1969:144-147, pl. 36; Kaplan, 1980; Bietak, 1989; Zevulun, 1990; Maeir, 2007:289-291) and includes various closed forms, mostly jugs, juglets, and figurative vessels. The earlier MBIIA examples are usually more elaborate in their decoration and have a dark brown surface color; the later examples, dated to the MBIIB-C, are made of gray or black burnished ware (see Bietak, 1989; Maeir, 2007:289). Most, if not all, fragments from Tell Jemmeh are juglets; in addition, a nearly complete zoomorphic vessel of Tell el-Yahudiyeh ware was found in Phase 16 (Figure 3.63) and is discussed separately below. The Tell el-Yahudiyeh pyriform juglets (Kaplan's Group 2a; Kaplan, 1980:21-22) are found in the later stages of the MBIIB in the southern Levant (see also the juglets from a workshop at Afula; Zevulun, 1990). This also coincides with Bietak's Piriform 2 group (Bietak,

1989:15-16). This type has been found at Tel el-Daba from E1 onward, dating to the later stages of the MBII (Bietak, 1989:20, 1997:94, fig. 4.5; see also, e.g., Batash [Panitz-Cohen, 2006a:11, pl. 8:14-17] and Tel Nagila [Uziel, 2008:147, Type JL7]).

## Zoomorphic Vessel

A nearly complete cup or chalice in the form of a zoomorphic head (Figure 3.63) was reconstructed from fragments from the topsoil in the vicinity of Sq. C1 just outside the excavated area and from Sq. C1, Layers 80 and 81. It is thus quite safely attributed to Phase 16. The vessel is actually a cup or goblet composed of a high foot (its base is missing), a body, which is its widest and thickest part, shaped like a hollowed zoomorphic



FIGURE 3.79. Pottery from Phase 15. NA = not available. (opposite)

| Part | Description | Bag/Box/Reg. No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl/chalice; white slip | 1087/1 | GMIII C1 (78) | 15 |
| b | Bowl; incised | 1085/1 | GMIII C1 (79) | 15 |
| c | Bowl | 5589/1 | GMIII J1 (8) 1 | 15 |
| d | Bowl | RV 827/3 | GMIII F1 (6) 4 | 15? |
| e | Bowl | 5318/2 | GMIII J1 P3 | 15 |
| $f$ | Krater | 1085/3 | GMIII C1 (79) | 15 |
| g | Bowl | RV 646 | GMIII C1 (77) | 15 |
| h | Bowl | RV 827/4 | GMIII F1 (6) 4 | 15? |
| i | Bowl (eggshell) | 1085/2 | GMIII C1 (79) | 15 |
| J | lamp/bowl; soot | RV 670 | GMIII C1 (77) | 15 |
| k | Strainer bowl | RV 689 (SI Cat. 1101) | GMIII J1 P3 (8) 1 | 15 |
| 1 | Cooking pot | 5592/1 | GMIII J1 P3 | 15 |
| m | Cooking pot | 1087/2 | GMIII C1 (78) | 15 |
| n | Cooking pot | 1087/3 | GMIII C1 (78) | 15 |
| o | Cooking pot | 5299/1 | GMIII J1 (8) 1 | 15 |
| p | Jar | RV 1068 | GMIII J1 F3 | 15 |
| q | Juglet; burnish | 934 | GMIII J1 (11) 2 | 15 |
| r | Sherd; red/white/blue decoration | NA | GMIII C1 F15 | 15 |
| s | Horn (figurine) | $5318 / 3$ | GMIII J1 P3 | 15 |



FIGURE 3.80. Plan of Phase 14B.


FIGURE 3.81. Plan of Phase 14A.
(probably bull) head, and a high bulging neck with a simple rim. The preserved dimensions of the vessel are a height of 25 cm , a length of 15.5 cm , and a width of 9.5 cm . There is no aperture other than the upper one, and thus, this is not a rhyton or libation vessel. The neck and probably the base are wheel made, whereas the head itself, according to the wheel marks, was made as a juglet, then turned $90^{\circ}$, and the facial details were modeled on its surface; the three parts were probably made separately and then applied to each other. The vessel is made of a grayish ware that is burnished, especially around the body, and decorated (on top of the facial features) by puncturing and incising, filled with white chalk. This fabric and technique relates this vessel to the Tell el-Yahudiyeh ware.

The head is roughly a squat pyriform shape. The facial attributes include a long protruding snout, a horizontally incised, wide mouth (its opening continues to the sides of the snout) with very deep punctured nostrils (although not penetrating the wall of the vessel), and two rows of puncturing emphasizing the lips; another row of puncturing and a ridge also emphasizing the nose. The eyes are two large discs, probably applied; eyelashes are illustrated by white-filled incisions below the eyes, and another unclear pattern is incised between the eyes, with white filling. The cheeks are decorated by at least five long, curving, white-filled parallel incisions (these continue also below, under the chin). A ridge and breakage marks are found on the top, indicating two ears and two horns in between them. This feature indicates that the vessel depicts a horned animal, probably a bull,
yet its depiction is far from naturalistic (and may even be considered grotesque because of the emphasized eye lashes). According to petrographic analysis (chapter 15, Sample Jemmeh 11), this vessel was produced in the central coastal plain (thus not local to Tell Jemmeh).

Zoomorphic cups or vessels are well known from the Tell el-Yahudiyeh repertoire (see also Maeir, 2007:284-285, Beth Shean). The known examples come from Megiddo (duck shaped; Loud, 1948: pl. 247:1), Tel Poleg (shaped as a fish; Kaplan, 1980:324, fig. 125b), Ashkelon (falcon/Egyptian Horus shaped; Stager, 2002: fig. 16), and Jericho (bird shaped; Garstang et al., 1935:127, pls. 8.26, 44; see also, Amiran, 1969: pl. 36; Gershuny, 1991:13-17, figs. 1, 2, and references therein). These are often found in tombs (like the Ashkelon and Jericho examples). The aquatic and bird-shaped vessels have good Egyptian parallels (Gershuny, 1991:14-18), but bovine or other horned zoomorphic vessels in this style are rare. The vessel from Tell Jemmeh is made in a different iconographic style than the above vessels, and a parallel to it is still unknown.
Red, White, and Blue Ware

Few RWB sherds (see, e.g., Maeir, 2002), mostly from jars but occasionally on bowls, are included in the assemblage. Fragments of RWB appear especially in Phases 16-15 (Phase 16, Figure $3.601-\mathrm{q}$; Phase 15, Figure 3.79 r; examples out of context include a sherd redeposited in Phase 12, Figure 3.113c, and two
from topsoil, Figure 3.182b,c). A fragment of an open bowl with a thickened rim (the presence of decoration on the interior indicate this is an open vessel) has red bands over a white slip on the interior and exterior (Figure 3.60a). Other examples include jar body fragments with horizontal red and blue bands over a white slip (as Figure 3.601,o); one example (Figure 3.60m) shows red bands and blue circles, and two examples show horizontal and vertical lines (Figures 3.60q, 3.79s). Petrographic analysis of three examples (see chapter 15, Samples Jemmeh 78, Jemmeh 80) indicates these vessels are probably locally made in the Tell Jemmeh region.

The RWB ware on storage jars and amphorae is common in the MBIIA-B (e.g., Tel Haror [Oren et al., 1986b: figs. 13:24, 14], Batash [Panitz-Cohen and Mazar, 2006: pl. 5:21], Aphek [Beck, 2000: fig. 10.20:10], Ashkelon [Stager, 2002:355, figs. 4,5], Lachish [Singer-Avitz, 2004: fig. 16.17:4], Tel Nagila [Uziel, 2008:206, Type SJ3], and Yavne-Yam [Uziel, 2008: fig. 23:9]). The red, white, and blue decoration is unique to the MBII material culture in the Levant. This decoration appears in the early stages of the MBIIA (Stager, 2002:355) and continues into the MBIIB (until it is possibly replaced by the Chocolate-on-White ware in the terminal phases of the MBIIC). The blue paint is perhaps an indication of ties with Egypt during the period, where cobalt was used for blue designs (Maeir, 2002).

Also to be noted is an open bowl with a herringbone-type incised decoration on the rim (Figure 3.59n); this decoration style appears on baking trays of the Bronze Age (see below; e.g., Dan, Stratum VII, Ben-Dov, 2011a:164, 235, fig. 134:17).

## Cypriot Pottery

Imported MBII Cypriot pottery, especially decorated jugs, appears in relatively large numbers at Tell Jemmeh in Phases 18-14 (e.g., Figures $3.27 \mathrm{u}, 3.28 \mathrm{a}, \mathrm{b}$, Phase 18; Figure $3.51 \mathrm{c}-\mathrm{m}$, Phase 17; Figure 3.72o-v, Phase 16; Figure 3.78r,s, Phase 15; and Figure 3.92r-u, Phase 14); some are even large fragments (Figure 3.28a,b). These include Cypriot Middle Bronze Age ware, such as WP (White-Painted) IV-WPV and Red-on-Red, and are discussed separately in chapter 11. A rim fragment of a jar from Phase 17 (Figure 3.47t) is also possibly imported.

## Summary

The pottery assemblage of Phases $18-15$ in Field III can be dated according to ceramic parallels to the end of the MBII, as most forms belong to the MBIIB-C horizon; this assemblage is roughly similar to that of Ashkelon's late MBIIB phases (Phases 11-10, "the Calf Sanctuary"; Stager, 2002: fig. 22, 2005; Voss, 2002; Stager et al., 2008; Stager and Voss, 2011), Batash Strata XI-X (Panitz-Cohen and Mazar, 2006), Tel Nagila, Strata IXVII (Uziel, 2008), and Tell es-Safi, Local Phases F8-7 (Uziel, 2008). Generally, the pottery from Phases $18-15$ seems quite similar, and most forms appear in all phases, indicating there was not a big time difference between them (maybe not more than a generation). Nevertheless, notwithstanding the small sample for some of the phases (especially 18 and 15), there may be some
differences between them: red slip seems to be more common in Phase 18 and is hardly found in Phases 15-16; gutter rim cooking pots and RWB ware appear only in Phases 16-15 and not earlier. There also seems to be a rise in TEY and Cypriot WP in Phases 16-15. Thus, it seems that Phase 18 and maybe Phase 17 could represent a somewhat earlier ceramic horizon. As will be noted below, Phase 14 pottery already combines MBIIB-C and LBII pottery forms, whereas Phase 13 clearly belongs to the LBII horizon with new types, including Cypriot White Shaved and Base Ring wares (see below, e.g., Figure 3.101).

## REMAINS OF PHASE 14

Remains of Phase 14, with its two subphases (14A and 14B), were exposed in Sqs. C1, F1, and J1, as well as possibly in the lower levels of Sq. B (Figures 3.80-3.93); however, the eastern $1-1.5 \mathrm{~m}$ of these squares is already eroded in this phase (Figures $3.80,3.81)$. In Sq. B, Wall 76 may have been initially built in Phase 14, although it was revealed higher in levels of Phase 13; this could be true for several other features in the square, such as a stone pavement (Feature 9, Figure 3.98), a tabun (Feature 11, Figure 3.94), and an area with a cobblestone feature (Feature 12, Figure 3.99; see below).

In Square C1, Wall 77 overlies Wall 79 of Phase 15 (Figure 3.82 and section in Figure 3.100); it is one brick wide, 0.7 m thick, and very well preserved, standing up to 10 courses high (see all three sections in Figure 3.100). A short east-west wall abuts Wall 77 from the east (Wall 78). It is cut off by erosion to the east, although it is possible that there was an entrance there. The southern corner of Walls 77 and 78 is covered with thick plaster (Figure 3.82); the small area, which continues into the unexcavated area to the south, is denoted as Unit 13 (Locus 2). The heavy plastering, not seen elsewhere in Field III, could indicate this was a more elaborate architectural unit.

The area north of Wall 78 and east of Wall 77 was denoted as Unit 12 (Locus 1). Here a large oval/polygonal installation, probably a bin, made of bricks was excavated (Feature 13, Figures 3.83, 3.84); this installation continues northward to Sq. F1 and is cut by erosion in the east. Feature 13 is 1.8 m wide and at least 2 m long (probably even $2.5-3 \mathrm{~m}$ long). The installation was probably built by first digging a shallow pit and then lining it with bricks. The lining wall, made of thin upright standing bricks, was preserved to a height of 0.5 m , two bricks high; the floor was made of stone slabs at a level of 50.87 m (Figure 3.83). The ash-filled foundation trench of the bin (Feature 13A) penetrates Phase 15 below (Figure 3.84). A $1 \times 0.5 \mathrm{~m}$ bench or shelf was constructed in between Wall 77 and Feature 13, abutting Wall 77 (Feature 14); at its northern edge, a conglomerate slab was placed.

Wall 77 continues to the northwest, unexcavated. To the north in Sq. F1 another unit was defined, possibly abutting Unit 12. This was denoted as Room F (Locus 1 in Sq. F1, Locus 2 in Sq. J1), delineated by Sq. F1, Wall 1 (equals Wall 2 of Sq. J1) from the west (a wall combining bricks and stones, of which only the eastern face was exposed) and Wall 3 from the south. It is
possible Wall 77 and Sq. F1, Wall 1 were bonded, forming a narrow space between them, or that these were two parallel walls of separate units. Here again the Sq. F1 walls are about 30-60 cm lower in elevation than the Sq. C1 walls of the same phase. Two construction phases were identified in Room F in Sqs. F1J1 (Figures 3.80-3.81). In the lower phase (Phase 14B, Figure 3.80 ), the room is 3.9 m wide (quite similar to Room $G$ of Phase 15), delimited by Wall 1 in Sq. J1. Only the western $0.5-1.0$ m of the room was preserved, as the eastern part was eroded (Figure 3.76). In the lower phase of Room F, a narrow 2-m-long partition wall made of thin brick abuts the western face of Wall 1 , creating a 0.3 -m-wide niche (Wall 4A or Feature 14, Figures $3.85,3.86$ ). In the upper phase of Room F (Phase 14A, Figure 3.81 ), the room was considerably smaller, only 1.5 wide, delimited in the north by Wall 2. Half of this room is occupied in this phase by a complete tabun, Feature 1 (Figures 3.87-3.91, 0.6 m in diameter). To the northeast everything has eroded away (the area was defined as Unit(?) 14).

It is difficult to date Phase 14, which clearly overlies the MBIIB-C horizon and underlies an LBII horizon, because of the relatively small quantity of pottery from floor levels. Moreover, the pottery from Phase 14 includes not only MBIIB-C forms similar to those of Phases $18-15$ but also some forms more related to the LBII; thus, it may be defined as a transition phase between the MBIIC and the LBII. It is notable, however, that no typical Late Bronze I forms appear (as Bichrome or Chocolate-on-White wares, which appear at the nearby site of Tell el-‘Ajjul, for example), and therefore, there could have been a certain occupational gap in this site (or at least in the excavated areas) during the LBI (the 16 th and early 15 th centuries BCE).

Phase 14 pottery includes typical MBII forms, such as open bowls (Figure 3.92b-h) and carinated bowls (Figure 3.92i-m); these types were discussed above in the MBII assemblage. A complete open bowl with straight sides (Figure 3.92a) can also be dated to the MBII but appears in the LB as well (see below). A red-slipped handle of a large jug (Figure 3.92q) is also typical


FIGURE 3.82. Wall 77 in balk of Sq. C1, looking west.


FIGURE 3.83. Phase 14, Sq. C1, Feature 13, a bin.


FIGURE 3.84. Stones from the bin, Feature 13, in the balk between Sqs. C1 and F1, with Wall 77 on the left, looking north.
of the MBII (see, e.g., Panitz-Cohen, 2006a:89-90, JG2; Uziel, 2008:147, Type J2, large globular jugs), as well as a fragment of WP and other Cypriot wares (Figure 3.92r-u). However, an everted triangular rim of a cooking pot (Figure 3.92p) typical of the LBII (Panitz-Cohen, 2006a:65-66, Type CP1) but appearing already in the final stages of the MBII was also found in this phase. A high carinated bowl (Figure 3.92j) is also more typical of the LBII (Panitz-Cohen, 2006a:40-42, Type BL56; see below). Also illustrated from Phase 14 is the ring base of a bowl (Figure 3.92 n ) worked and perforated, possibly a sherd reused as a lid; a dark-colored, thick modeled base(?) with a pronounced ridge (Figure 3.92o), possibly of a krater, is illustrated as well. Other finds include a worked sherd (Reg. No. 3617) and a bronze point (Figure 3.92v). Small finds include a clay sealing (Figure 3.93a) and a bone inlay of a MBII style (Figure 3.93b; see chapter 25).

## REMAINS OF PHASE 13

Phase 13 (Figures 3.94-3.102) was only exposed in Sq. B, eroded in Sq. C1 except possibly for Feature 12 (see Figure 3.99). However, this phase was exposed in the entire $6 \times 6 \mathrm{~m}$ area of Sq. B (Figures 3.94-3.95), making it one of the largest exposures of a single phase in Field III. Even so, this layer is relatively very thin in its accumulation. The main walls are Walls 73 and 74 , which are aligned at a right angle but do not meet (Figure 3.94). The two walls delineate two open areas: the area west of Wall 73 and north of Wall 74 is denoted Unit 10, whereas the area south of Wall 74 is denoted Unit 11 (Figure 3.95, right). Unit 10 is part of an elongated room, a courtyard or an open area at least $4 \times 3.5$ m in size. Several large chunks of mud or brick with wide reed imprints were found in Unit 10 (SCI 407, SCI 408, Figure 3.102); these may represent evidence of roofing or possibly some type of floor (see similar fragments from Tel Qiri, Stratum VII-IX, the Iron I, Portugali, 1987:133-134, photo 61 and reconstruction in plan 60). East of Wall 74 there was possibly a passage into Unit 10 (Figure 3.95, left). A rectangular area paved by stones, Feature 9 (Figures 3.96, 3.98, see below), from Unit 11 extends to this area, and in the eastern corner a short 1.3 m wall (Wall 76 Figure 3.96) could have defined the entrance. Wall 73 makes a corner with Wall 76 and seems to continue to the south of it, yet the paving seems to overlie the wall in certain places. In the center of this unit lies a tabun, Feature 8 (Figures 3.97, 3.95, front); it is well preserved, stands about 0.35 m high, and is 0.7 m in diameter. The tabun (oven) was lined with clay and possibly dug to some extent into the floor. No clear floor levels were detected in this area, however, and the debris is relatively thin; the walls are preserved to a mere height of 0.2 m .

In Unit 11, which was defined as the area outside of Unit 10, several elements were exposed. A rectangular area paved by stones of various sizes (Feature 9, Figure 3.98) is at least $2 \times 3 \mathrm{~m}$ in size, with the floor level at 52.35 m . This paving abuts Wall 76 from the south; within the paving there was a tabun, partly preserved (Feature 11, Figure 3.95, rear; remains of another tabun lie near it, Feature 11A). The area of the tabun seems to have been surrounded by bricks. To the east in the western part of


FIGURE 3.85. Room F and Feature 14/Wall 4 in Phase 14B, looking north.


FIGURE 3.86. Wall 1 and Feature 14/Wall 4 in Room F, Phase 14B, looking west.


FIGURE 3.87. Room F, Phase 14A, Feature 1, a tabun.


FIGURE 3.88. West balk of Sq. F1 with Wall 1 and Walls 5 and 6 of Room G (Phase 15) below, looking west.


FIGURE 3.89. Tabun, Feature 1 in Sq. F1, during excavation, Phase 14A.

Sq. C1 a patch of a similarly paved area was recorded (Sq. C1, Feature 12, Figure 3.99); it is slightly lower at $51.96-52.12 \mathrm{~m}$ but is most likely part of the same paving. Another part of the paving lies to the east of Wall 73, where another part of a tabun was preserved (Feature 10, Figure 3.94).

Because of the thin accumulation of Phase 13 in Sq. B the pottery from this phase is quite meager (Figure 3.101). Nevertheless, it seems that most forms are forms typical of the MBIIB-C and LBII (such as open and rounded bowls, Figure 3.101a-e), but a few exclusive LBII types (such as Cypriot White Shaved and Base Ring fragments, Figure 3.101n-r) indicate this phase already belongs to the Late Bronze Age. Carinated kraters with handles (Figure 3.101e) are also more typical of the LBII (see below). Also illustrated is a carinated krater or cooking pot (Figure 3.101d). A ring base (Figure 3.101f) may be a local imitation of a Base Ring "bilbil" jug. Also illustrated are the gutter of a rim krater or cooking pot (Figure 3.101 g ), an everted-rim cooking pot (Figure 3.101i), a jar rim (Figure 3.101j), a pithos rim (Figure 3.101 k ; see, e.g., Batash, Stratum VI, Panitz-Cohen and Mazar, 2006: pl. 57:10), and a rim and handle of a dipper juglet (Figure 3.101i). Figure 3.101 m is a rim of a small carinated bowl with at least two perforations under the rim made before firing; this may have been a strainer or a strainer bowl (see also Figure 3.132o from Phase 10 below). Note that a scarab found in Phase 13 is dated to the late 15 th or early 14th century BCE (Figure 27.5a, chapter 27, Gamma No. 151). The LBII pottery of Phases 13-8 will be discussed together according to type below. A bone spatula was also found in Phase 13 (Unit 10, Figure 25.4j), the earliest example of this type of object at the site.

## REMAINS OF PHASE 12

Phase 12 remains (Figures 3.103-3.114) were exposed in most of Sq. B, and the remains may be a portion of a specific


FIGURE 3.90. Tabun, Feature 1 of Phase 14A, after excavation, looking west.
building represented in two local subphases (Phases 12B and 12A; Figures 3.103, 3.104). The architectural remains include a rectangular room in the east (Room E, Locus 11), a larger space, Unit 8, facing it to the west, and a segment of another space, Unit 9, to the north. The space defined as Room E (Figure 3.105, rear) is a rather narrow rectangular space, measuring $1.3 \times 3.5 \mathrm{~m}$ (internally); it is delimited by Wall 70 in the east, Wall 66 in the north (lying in the northern balk; Figure 3.116), Wall 69 in the west, and Wall 75 in the south. Walls 69 and 70 are narrow walls defined by the length of a single brick and were only preserved to 20 cm high; Wall 66, seen in the north balk (Figure 3.106), seems to be preserved to 0.6 m higher. Wall 75 (Figure 3.107) is thicker and built of stretcher bricks flanked by upright standing bricks. It possibly included a small bench/seat on its eastern face. The southeast corner of Room E (where Wall 75 should have abutted Wall 70) is probably eroded, but this area could have included an entrance as well. Thus, Room E is not a completely confined room: in the western part there is a 2 -m-wide opening in Wall 69. This space, connecting Room E to Unit 8, is filled by an installation, Feature 7, in the lower phase (Figures 3.103, 3.105, front; Phase 12B) and a tabun, Feature 5, in the upper phase (Figures 3.104, 3.110, 3.111; Phase 12A). Pottery from Room E includes open and carinated bowls (Figure 3.112a-c), a possible cooking pot (Figure 3.112d), a jar/jug neck (Figure 3.112e), and Cypriot Base Ring bowl and jug fragments (Figure 3.112f,g).

Unit 8 (Loci 8,9) is defined by Wall 69 in the east (and Room E), Wall 68 in the north, Wall 71 in the west (seen in western balk under Wall 59; Figures 3.108, 3.110), and a stone feature, Feature 6 (Figure 3.109), in the south (which is possibly not a wall or possibly the stone foundation of a brick wall). According to the levels of the walls, there seems to be a downward slope of about $0.4-0.6 \mathrm{~m}$ to the east in the square, a similar inclination to that seen in Sqs. C1-C2 in the MBIIB-C levels (see above). In the southeast corner, a few larger flat slabs in the stone feature, Feature 6 (Figure 3.109), may be the threshold of


FIGURE 3.91. West section of Sq. F1.
an entrance. Wall 68 is a thin wall similar to Walls 69 and 70, whereas Wall 71 seems to have a stone foundation (or part of Wall 72). To the north of Wall 68 lies Unit 9 (Locus 10), which continues into the unexcavated area to the north and west. In the eastern part of Unit 8 lies an installation, Feature 7 (Figures $3.105,3.110$ ). This is a fragmentary structure that is 1 m wide (and possibly about 1 m long). The structure is made of thin bricks standing upright and is probably a bin, similar to Feature 13 from Phase 14 (Figures 3.83, 3.84), but smaller in size. Another suggestion is that these walls are part of the tabun, Feature 5, located below (see chapter 9, Cat. No. 12). Feature 7 is cut by Feature 5 (Figures 3.110, 3.111), which reflects a later phase in the same architectural unit. This is a large complete tabun, or oven, that is 0.65 m in diameter, cutting Feature 7 and underlying Wall 61 of Phase 11 (Figure 3.119). The tabun was relatively well preserved, which allows an understanding of its method of
construction: the body of the tabun is made of thick, hard clay in two layers, it is mud plastered on the outer surface (this mud layer can be very thick, possibly because of continuous replastering), and the bottom is supported by a rounded line of stones from the inside (see chapter 9).

Phase 12 is probably the first substantial LBII phase that may include preserved fragments of a building with narrow rooms in the east and larger ones in the west (maybe casemate units); this plan continues in Phases 11 and 10 (see Figures 3.115, 3.126). Although most walls are only preserved to 0.2 m high, the debris in the rooms is about 0.4 m high and contains a significant amount of pottery and other finds (Figures 3.112, 3.113). The pottery of this phase includes open, rounded (Figure 3.112a,h-k) and carinated bowls (Figure 3.112b,l-p), a decorated carinated krater (Figure 3.113a), everted cooking pots (Figure 3.112q,r), a possible baking tray (Figure 3.112s), a decorated bowl (Figure

$0 \quad 1 \mathrm{~cm}$

FIGURE 3.92. Pottery from Phase 14. Cyp. WP = Cypriot White Painted ware. (opposite)

| Part | Description | Bag/Box/Reg. No. | Provenance | Architectural unit |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl | RV 668 | GMIII C1 (72-74) |  |
| b | Bowl | 1093/1 | GMIII C1 (72-74) |  |
| c | Bowl | 2121/2 | GMIII C1 (3) 1 | Unit 12 |
| d | Bowl | 2200/1 | GMIII C1 (3) 1 | Unit 12 |
| e | Bowl | 2056/1 | GMIII F1 (2) 1 | Room F |
| $f$ | Bowl | 2121/1 | GMIII C1 (3) 1 | Unit 12 |
| g | Bowl | 2209/1 | GMIII F1 (2) 2 | Unit 14 |
| h | Bowl(?) | 2209/2 | GMIII F1 (2) 2 | Unit 14 |
| i | Bowl | RV 669 | GMIII C1 (72-74) |  |
| j | Bowl | 1098/1 | GMIII C1 (67-70) |  |
| k | Bowl | 2121/4 | GMIII C1 (3) 1 | Unit 12 |
| 1 | Bowl | 2099/1 | GMIII C1 F13 (2) 1 | Unit 12 |
| m | Bowl | 2121/3 | GMIII C1 (3) 1 | Unit 12 |
| n | Worked base | 1110/1 | GMIII C1 (76) |  |
| o | Base(?) | 1093/2 | GMIII C1 (72-74) |  |
| p | Cooking pot | 1098/2 | GMIII C1 (67-70) |  |
| q | Jar/jug handle; red slip | 1109/1 | GMIII C1 (72-74) |  |
|  | Decorated sherd (Cyp.?) | 2209/3 | GMIII F1 (2) 2 | Unit 14 |
| s | Jug (Cyp. WP); decorated | Box 814/1 | GMIII J1 (5) 1 |  |
| * | Jug (Cyp. WP); decorated | Box 802/1 | GMIII F1 (2) 2 | Unit 14 |
| u | Jug (Cyp. WP); decorated | Box 802/2 | GMIII F1 (2) 2 | Unit 14 |
| v | Bronze point; charcoal | Reg. No. 2123 | GMIII C1 (67)-(70) |  |


a b

FIGURE 3.93. Finds from Phase 14: (a) clay sealing, Bag 5296, GMIII J1 (5)1 and (b) bone inlay, Reg. No. 1387, GMIII C1 (75).
3.113b), and Cypriot Base Ring and White Slip (WS) imports (Figures 3.112f,g, 3.113d-k); a fragment of an open bowl or a chalice (Figure 3.113c) is decorated with crisscrossing stripes of red and gray/blue over white slip and may be a redeposited RWB MBII sherd (see above).

Other finds from Phase 12 include a fragment of a horned figurine (Figure 3.1131), a horn of a Base Ring II bovine vessel (Reg. No. 1252), and a bronze point (Reg. No. 159). Two scarabs from Phase 12 (Unit 8) are also illustrated; the first dated to the MBIIA (Figure 3.114a), and the second is a more typical MBIIC scarab (Figure 3.114b; see chapter 27, Figures 27.4e, 27.6c). A large concentration of flint blades was also found in this phase and may represent a knapping area (FL 589, FL 591; see chapter 26 ).

## REMAINS OF PHASE 11

Phase 11 was exposed in the western 4.5 m of Sq . B; it was probably eroded to the east of that line (Figures 3.115, 3.116). This phase includes two or three narrow spaces (denoted Rooms B, C, and D) that are quite similar in shape to Room E of Phase 12 (Figure 3.104) but are better preserved and located several meters to the west. The plan of the next level, Phase 10 (Figure 3.126; see below), is very similar and shows a high degree of


FIGURE 3.94. Plan of Phase 13.
continuity. Room C was completely exposed, and its inner dimensions are $2.2 \times 1.3 \mathrm{~m}$ (Figure 3.117); it is enclosed by Wall 61 in the east, Wall 63 in the north (shared with Room E), Wall 57 in the west, and Wall 62 in the south. Walls 61 and 63 are one lengthwise brick wide, about 0.5 m ; Wall 63 was preserved to a height of five courses. Wall 62 is thicker and is two bricks wide (and preserved possibly seven courses high; see Figure 3.116, south balk, possibly seen in Figure 3.122), whereas Wall 57, preserved three courses high, is thinner as it is composed of a single row of lengthwise bricks, about 0.35 m thick (Figure 3.117). The outer southeastern corner of Room C was heavily eroded (Figure 3.117, rear). No entrance to Room C was identified in Phase 11, but in the southern part of Wall 57 near Wall 62 wide mortar joints were visible (although there is seemingly an opening in the northwestern corner that is visible in Figure
3.117; this gap is, in fact, higher than the Phase 11 walls, especially Wall 63). Note that as the bases of Walls 61 and 63 are lower than that of Wall 57 , there could have been an earlier subphase, Phase 11B, in which the space was open to the west (as seen in the excavation in Figure 3.121; thus, Wall 57 would belong to subphase 11A).

The small and narrow dimensions of Room C (Figure 3.118), the fact it may not have an entrance at floor level (at least in a certain stage), and the thin wall in the side facing the tell may indicate this was a storage room (with the thin wall possibly a temporary closing wall). Note also the inner contour of the room is more carefully rectilinear, whereas the outer contour has a more irregular shape, thus possibly indicating its use for bulk storage. Another possibility is it was part of a casemate structure together with Room D (see below). Pottery from Room C


FIGURE 3.95. Phase 13: Units 10 and 11, looking east (after removal of Walls 73 and 74); tabun feature in the lower left with adjacent probe on the left.


FIGURE 3.96. Wall 76 and Feature 9, a rectangular area paved by stones, looking southeast.


FIGURE 3.97. Tabun, Feature 8 in Unit 10.


FIGURE 3.98. Feature 9, paved area, looking northeast.
includes open and rounded bowls (Figure 3.124h), kraters (Figure $3.124 \mathrm{j}, \mathrm{k}$ ), jars (Figure $3.1241, \mathrm{~m}$ ), a scoop/strainer(?) handle (Figure 3.124n), and imported sherds (Figure 3.124o,p).

East of Wall 61 a nearly complete tabun was excavated (Feature 1, Figures 3.119, 3.120), with its western side leaning on Wall 61. The tabun or oven is 0.9 m in diameter, preserved to 0.3 m high, and has elevations of $52.68-52.96 \mathrm{~m}$; this was possibly an earth oven buried in the ground with clay lining or a mud-plastered tabun supported by stones from below (Figure 3.120); the curved top was preserved, covered with cobbles; its base is lined with a circle of stones and sherds with mud on them from the outside (Figures 3.119, 3.120). This area was defined as Unit 7 and was eroded in Phase 10.

Room D (Locus 7, Figures 3.121, 3.122), abutting Room C from the north, is defined by Wall 64 in the east, Wall 63 in the south, and Wall 65 in the west; the northern wall of the


FIGURE 3.99. Cobble feature, Feature 12 in Sq. C1, looking southwest.
room lies in the unexcavated area to the north. Although it is not completely excavated, it seems that Room D was similar in size and shape (and maybe function) to Room C; it is 1.2 m wide and at least 1.8 m long. However, in the north, in or above Room D, a floor level with pebbles and animal bones was excavated (Figure 3.122, Layer 62). Walls 64 and 65 are the width of one lengthwise brick, whereas Wall 63 is somewhat thinner, built of smaller, more square bricks (Figure $3.121,3.123)$. Here, again, no entrance was detected. The pottery from Room D (Figure 3.124) includes open and carinated bowls (Figure 3.125a-e), kraters (Figure 3.125f,g), and a jug rim (Figure 3.125h).

In the western part of Sq. B, Room B is better defined in Phase 10 above (Figures 3.126, 3.128; see below), yet this room possibly existed in Phase 11 as well (at an elevation of 53.14-53.34 m ; several sherds are attributed to this phase; Figure 3.124a-d),



FIGURE 3.101. Pottery from Phase 13. Cyp. BR = Cypriot Base Ring ware; Cyp. WSh = Cypriot White Shaved ware. (opposite)

| Part | Description | Bag/Box/Reg. No. | Provenance | Phase | Architectural unit |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 4491/1 | GMIII B (1) 12 | 13 | Unit 11 |
| b | Bowl | 4477/1 | GMIII B F8 | 13 | Unit 10 |
| c | Bowl | 4452/1 | GMIII B (67) | 13 | Unit 10 |
| d | Krater/cooking pot | 4491/2 | GMIII B (1) 12 | 13 | Unit 11 |
| e | Krater | 4452/2 | GMIII B (67) | 13 | Unit 10 |
| f | Ring base (Cyp. BR imitation?) | 4452/4 | GMIII B (67) | 13 | Unit 10 |
| g | Krater/chalice(?) | 4477/3 | GMIII B F8 | 13 | Unit 10 |
| h | Cooking pot | 4477/2 | GMIII B F8 | 13 | Unit 10 |
| . | Cooking pot | 4477/4 | GMIII B F8 | 13 | Unit 10 |
| j | Jar/jug | 4477/5 | GMIII B F8 | 13 | Unit 10 |
| k | Pithos | 4456/1 | GMIII B (65) 9 | 12-13 |  |
| 1 | Juglet | 4452/3 | GMIII B (67) | 13 | Unit 10 |
| m | Bowl; perforations | 4518/1 | GMIII B (3) 15 | 13 | Unit 11 |
| n | Bowl (Cyp. BRII) | Box 544/1 | GMIII B (66) 14 | 13 | Unit 11 |
| o | Base (Cyp. BRII) | Box 544/2 | GMIII B (66) 14 | 13 | Unit 11 |
| p | Bilbil jug (Cyp. BRII) | 4452/5 | GMIII B (67) | 13 | Unit 10 |
| q | Juglet (Cyp. WSh) | $4417 / 1$ | GMIII B F9 | 13 | Unit 11 |
| r | Juglet (Cyp. WSh) | 4680/2 | GMIII B (2) 15 | 13 | Unit 10 |



FIGURE 3.102. Bricks with reed imprints.
or this may have been an open area or a corridor. This space is defined by Wall 59 in the west (continuing into the western balk), which was preserved to over 1 m high and continued to be used in Phase 10; Wall 57 may have served as its eastern wall. Some plaster fragments found here (SCI 151, SCI 153) may indicate remains of a plaster floor. The pottery and other finds from Phase 11 can be dated to the LBII, with typical forms including various open and rounded bowls (Figure 3.124a,e,g,h), carinated kraters, everted cooking pots (Figure 3.124j,k), and jars (Figure $3.1241, \mathrm{~m}$ ), as well as Mycenaean and Cypriot imported pottery sherds (Figures 3.124o,p, 3.125i-k). A jar handle with an incised mark (see chapter 19.1f) was also found in this phase.

## REMAINS OF PHASE 10

Phase 10 , preserved only in the western 3.5 m of Sq. B, shows a very similar plan to that of Phase 11 (Figure 3.126); at least Rooms B and C, though heavily eroded, continued to be used with certain modifications (Figures 3.126-3.129), although several Phase 10 walls were built over Phase 11 ones (see Figure 3.116). Nevertheless, the differences between the wall and floor levels of the two phases are between 0.5 and 1.0 m ; this is also due to the good preservation of the brick architecture here. Room C was widened slightly, as Wall 56 replaced Wall 63 to the north (Figure 3.118). To the east, Wall 57A was built over and slightly to the east of Wall 57 (Figure 3.117); in the south part of Wall 57A there seems to be a passage connecting Rooms C and B (Figures 3.117, 3.128). The upper eastern and southern walls of Room C were completely eroded in Phase 10. Note, however, that in the southern balk (Figure 3.116) an additional wall (Wall 60) can be seen, adjoining Wall 58 to the south, probably part of an additional


FIGURE 3.103. Plan of Phase 12B.
unexcavated unit. To the west Room B (Locus 3) is now well defined, measuring $2.9 \times 1.5 \mathrm{~m}$ (inner dimensions). It is delimited by Wall 57A in the east (three courses high), Wall 56A in the north, Wall 59 in the west, and Wall 58 in the south (Figure 3.129). A clear entrance to the room from the north is present in Wall 56A (Figure 3.128), about $0.7-0.8 \mathrm{~m}$ wide. To the north of Wall 56A and Wall 56 , Unit 6 (Locus 2) was defined; this may have been an open area. Here a 0.6 -m-wide circular installation made of flat-lying pebbles (Feature 3, Figure 3.130) is possibly a hearth (elevation of $53.60 \mathrm{~m})$. Pottery from Unit 6 includes rounded bowls, cooking pots, and a jar neck (Figures 3.131s-v, 3.132); an unclear handmade ceramic fragment was found here as well (Figure 3.131w). It is box shaped and may be a redeposited Chalcolithic ossuary(?). Two faience amulets were also found in this unit (Figure 3.133). Pottery from Room B includes open and rounded bowls (Figure 3.131a-c), carinated kraters (Figure 3.131e,f), everted-rim cooking pots (Figure 3.131g,h), and a bowl with one handle (Figure
3.131d); also illustrated are a jar base and flask and lamp fragments (Figure 3.131i-k). A crude figurine (female?; Figure 17.4c) was also found here. Room C contained similar pottery forms, such as open, rounded and carinated bowls and a krater (Figure $3.1311-\mathrm{o}$ ) and cooking pots and jar fragments (Figure 3.131p-r). The pottery from Phase 10 also includes decorated biconical kraters and jugs (Figure 3.132e-1), a ware introduced in this phase, appearing also in Phases 9-6 (see chapter 10), decorated and having thumbed handles (Figure 3.132m-n), a strainer bowl (Figure 3.132 o ), and several lamps (Figure 3.132q). This pottery probably dates the phase to a later stage of the LBII (see below).

Other finds from Phase 10 include a perforated worked sherd (Figure 3.132r, Room C), a bronze point (Figure 3.132s), two stone spindle whorls (Reg. Nos. 1040, 1041), a large stone vessel(?) leg (Reg. No. 1009), and a flint rubber and a limestone bifacial object (possibly a door socket; (Reg. Nos. 856, 1000; see chapter 23, Figures 23.4o, 23.8a). Two faience amulets from


FIGURE 3.104. Plan of Phase 12A.

GMIII B (58) 2 (Unit 6) are also illustrated. The first (Figure 3.133a; see chapter 24, Cat. No. 12) depicts a snake and is a unique find in the Levant with only parallels from Egypt; the other is a Bes amulet (Figure 3.133b; see chapter 24, Cat. No. 7).

## REMAINS OF PHASE 9

Phase 9 (Figures 3.134-3.145) was exposed in the western 2.5 m of Sqs. B and A3; three architectural units were defined (Figure 3.134). The preservation of the walls was good, sometimes as high as 1 m (see Figure 3.108, Wall 50, for example). Note that several walls here (such as Wall 50 in Sq. B and Walls 6 and 7 in Sq. A3) that are built from header-lying bricks also combine upright standing bricks occasionally (see, e.g., Figures 3.138, 3.142). In Sq. B a square room was nearly completely excavated (Room A, Locus 1, Figures 3.135, 3.136), with inner
dimensions of $2.7 \times 2.4 \mathrm{~m}$. Room A is delineated by Wall 55 in the east, Wall 54 in the north (continued by Wall 6 in Sq. A3), Wall 50 in the west, and Wall 53 in the south. The western corner of the room lies in Sq. A3, although the eastern corner in Sq. B was eroded. All walls are about $0.5-0.6 \mathrm{~m}$ wide, the length of one brick. Wall 50, overlying Wall 59 (see Figure 3.108), was very well preserved up to a height of $1 \mathrm{~m}(54.19-55.16 \mathrm{~m}$; Figure 3.116 , on south and west balks). Wall 54 was also preserved to a similar height and stood seven courses high (elevations of $54.15-55.10 \mathrm{~m}$; Figure 3.139). In the northern part of Wall 54 there are two bricks lying higher in the wall surrounded by gaps (mortar filled?) above the floor (Figure 3.140); this was possibly a blocking of an opening to the room, 1 m wide, at a level of 54.27 m ; otherwise, the entrance could have been from the east (which was eroded). Walls 53 and 55 were highly eroded. In the eastern part of Room A, a cobbled floor level was excavated (Feature 1 \{77\}, Figure 3.136) at a level of $54.22-54.08$ m, which


FIGURE 3.105. Phase 12B, looking southeast: in the rear, Room E, with Walls 70 (rear), 69 (front), and lower Wall 73 of Phase 13 (in between); in front, Unit 8, with Wall 68 on the left, Feature 7 (a bin) in the center, and Wall 75 on the right.


FIGURE 3.106. Wall 66 in the north balk of Sq. B.


FIGURE 3.107. Wall 75 lying on the paved area, Feature 9, from Phase 13, looking east.


FIGURE 3.108. Wall 71 under Wall 50 in the western balk of Sq. B.


FIGURE 3.109. Feature 6 (stone feature) looking southwest.
was embedded in an ash layer (Feature 1A \{77\}, Figures 3.139, 3.140). The cobbles were of various sizes and not closely set. In the western part of the room a beaten earth floor (54.28-54.31 m ) and a debris level were excavated at an elevation of 54.2854.40 m (Layers 53 and 54, Locus 1).

Pottery from Room A includes open and rounded bowls (Figure 3.143a-e), a complete straight-sided open bowl (Figure 3.143 f ), carinated bowls and kraters (Figure 3.143g-j), cooking pots (Figure $3.143 \mathrm{k}, \mathrm{l}$ ), jar and jug rims and fragments (Figure $3.143 \mathrm{~m}-\mathrm{o}$; Figure 3.143 o is a handle with a horizontal incision under it that was made before firing), decorated biconical kraters (Figure 3.144a-c), a beer bottle (Figure 3.143q), a flask (Figure 3.143 p), and a lamp (Figure 3.143r). A Mycenaean sherd (Figure 3.144e), a Cypriot milk bowl (Figure 3.144d), and two clay balls (see Figure $19.5 \mathrm{k}, \mathrm{l}$ ) were also found here.

To the north of Wall 54 in Sq. B and east of Wall 7 in Sq. A3, part of another space was excavated, defined as Unit 2 (Figure 3.141, Locus 1 in Sq. A3). The western Wall 7 in Sq. A3 continues Wall 50 from Sq. B. Near the corner of Walls 6 and 7 in Sq. A3, a complete tabun was uncovered (Feature 5, Figures 3.137, 3.141). It is a well-preserved tabun, 0.7 m in diameter, built on a circular stone foundation (Figure 3.137), and plastered with
mud from the outside (typical tabun or oven construction; see below). Near the northern balk, another tabun was identified (Feature 6), lying mostly within the northern unexcavated area. Adjacent to the Feature 5 tabun from the north, small bricks were set in the floor, creating a small brick floor about 0.7 m wide (Feature 7, Figure 3.138, to the left of the tabun); this floor seems to connect the tabuns in Features 5 and 6. The area around the tabun was very ashy and dark (Figures 3.138, 3.139), and a debris and floor level was defined here at an elevation of $54.20-54.37 \mathrm{~m}$ (Layer 54 in Sq. B, Locus 3; Layer 4 in Sq. A3). It is suggested that these two installations comprise a hearth for cooking and heating (Feature 5) and a tabun or oven for bread baking (Feature 7; see chapter 9, Cat. Nos. 14, 15 and discussion on this phenomenon and parallels therein).

In Sq. B the ash layer above the floor of Unit 2 was very thick, reaching an accumulation of 0.7 m , and was excavated in five separate levels (Features 1A-1E, Figure 3.140), each one $12-14 \mathrm{~cm}$ thick, showing certain laminations (Figure 3.139; maybe indicating phases of use of the tabun). Unit 2 continued to be in use with modification in Phase 8.

To the west of Wall 7, Unit 1 was defined. This space is defined in the south by Wall 5 (Figure 3.142; Wall 5 continued


FIGURE 3.110. Unit 8 in Phase 12A, Feature 5, a tabun, cutting Feature 7 in the center, looking southeast.


FIGURE 3.111. Tabun, Feature 5 of Phase 12A.


FIGURE 3.112. Pottery from Phase 12. Cyp. BRII = Cypriot Base Ring II ware.

| Part | Description | Bag/Box/Reg. No. | Provenance | Architectural unit |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $4418 / 1$ | GMIII B (1) 11 | Room E |
| b | Bowl | $4418 / 2$ | GMIII B (1) 11 | Room E |
| c | Bowl | $4418 / 3$ | GMIII B (1) 11 | Room E |
| d | Cooking pot? | $4418 / 4$ | GMIII B (1) 11 | Room E |
| e | Jar/jug | $4418 / 5$ | GMIII B (1) 11 | Room E |
| f | Bowl (Cyp. BRII) | $4418 / 6$ | GMIII B (1) 11 | Room E |
| g | Bilbil jug (Cyp. BRII) | $4418 / 7$ | GMIII B (1) 11 | Room E |
| h | Bowl | $4415 / 1$ | GMIII B (5) 6 |  |
| i | Bowl | $4458 / 2$ | GMIII B (64) 5 |  |
| j | Bowl | $4458 / 1$ | GMIII B (64) 5 |  |
| k | Bowl | $4474 / 1$ | GMIII B (63A) 5 |  |
| l | Bowl (5) 6 |  |  |  |
| m | Bowl | $4415 / 2$ | GMIII B (63A) 5 |  |
| n | Bowl | $4474 / 2$ | GMII B (64) 5 |  |
| o | Bowl | $4458 / 4$ | GMIII B (64) 5 |  |
| p | Bowl 5 |  |  |  |
| q | Cooking pot | $4458 / 3$ | GMIII B (5) 6 |  |
| r | Cooking pot | $4474 / 3$ | GMIII B (64) 5 (66) 13 |  |
| s | Baking tray? | $4415 / 3$ |  |  |



FIGURE 3.113. Pottery and finds from Phase 12. Cyp. BR = Cypriot Base Ring ware; Cyp. WS = Cypriot White Slip ware.

| Part | Description | Bag/Box/Reg. No. | SI Cat. No. | Provenance | Phase | Architectural unit |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| a | Krater; decoration | Box 203/1 |  | GMIII B (64) 5 | 12 |  |
| b | Bowl(?); inner red, black (and white?) decoration | 4457/1 |  | GMIII B (64) 5 | 12 |  |
| c | Chalice(?); white slip, red/black-blue decoration | 4447/1 |  | GMIII B (63A) 5 | 12 |  |
| d | Milk bowl (Cyp. WS) | 4683/1 |  | GMIII B (3) 6 | 12 |  |
| e | Jug | 4474/4 |  | GMIII B (63A) 5 | 12 |  |
| f | Sherd (Cyp. BR) | 4474/5 |  | GMIII B (63A) 5 | 12 |  |
| g | Bilbil jug (Cyp. BRII) | Box 540/1 |  | GMIII B (64) 5 | 12 | Unit 8? |
| h | Jug (Cyp. BRII) | Box 24/1 |  | GMIII B (66) 13 and (65) 9 | 12/13 | Unit 10 |
| i | Bilbil jug (Cyp. BRII) | Box 24/2 |  | GMIII B (66) 13 and (65) 9 | 12/13 | Unit 10 |
| j | Bilbil jug (Cyp. BRII) | Box 24/3 |  | GMIII B (66) 13 and (65) 9 | 12/13 | Unit 10 |
| k | Bilbil jug (Cyp. BRII) | Box 24/4 |  | GMIII B (66) 13 and (65) 9 | 12/13 | Unit 10 |
| 1 | Figurine | Reg. No. 1253 | 854 | GMIII B (5) 6 | 12 |  |



FIGURE 3.114. Two scarabs from Phase 12 (GMIII B (64) 5): (a) Reg. No. 1170 (length 2 cm ) and (b) Reg. No. 1177 (length 1.6 cm ).


FIGURE 3.115. Plan of Phase 11.



FIGURE 3.117. Room C in Phase 11, looking east. Wall 56 of Phase 10 is on the left, with Wall 63 of Phase 11 below it; Wall 57A on Wall 57 is in front.


FIGURE 3.118. Wall 56 (left, higher) and Wall 63 (right) of Room C, looking east.


FIGURE 3.119. Tabun, Feature 1, with Wall 61 behind it, looking west.


FIGURE 3.120. Stone foundation of the tabun, Feature 1 in Unit 7, looking east.


FIGURE 3.121. Phase 11, Room D on the left and Room B on the right, looking east.


FIGURE 3.122. Floor level with pebbles and animal bones in or above Room D, looking northeast.


FIGURE 3.123. Mat imprint(?) in Sq. B, Phase 11(?).
to be used in Phase 8), continuing into the eastern balk and the unexcavated area to the south. Unit 1 continued to be in use with modifications in Phases 8 and 7A (Figures 3.146-3.149).

The fragmentary plan revealed from the exposure of Phase 9 possibly reflects several square spaces or rooms, possibly lined up in a grid; the same plan was probably maintained in the subsequent phases, Phases 8 and 7 . However, this layout is completely different from the one of the previous phases, Phases $10-13$, indicating a significant break in the planning of the site. The question is, however, if this break coincides with a cultural break and a new "archaeological horizon," which should be evident from the pottery and finds from this phase. Interestingly, the architecture shows a continuity between the final LBII phases (Phases $8-9$ ) and the seemingly early Iron I phase (Phase 7; see below).

Phase 9 yielded a relatively rich pottery assemblage that is typologically quite similar to the Phase 10 pottery (Figures 3.143-3.145). The pottery includes various typical LBIIB forms (probably dated to the 13 th century BCE; see below), including
rounded, open, and hemispherical bowls (e.g., Figure 3.145ag ), carinated bowls and kraters (Figure $3.145 \mathrm{f}-\mathrm{m}$ ), everted-triangular-rim cooking pots (e.g., Figure 3.145n), jars rims (Figure 3.145o), lamps (Figure 3.145q,r), and a cup and saucer (Figure 3.145p). Several items may indicate Egyptian influence, such as the V-shaped bowls (Figure $3.143 \mathrm{f}, \mathrm{g}$ ) and a beer bottle (Figure 3.143q). Several Mycenaean and Cypriot imports appear as well (Figure 3.144d,e).

Small finds include a zoomorphic vessel fragment (Reg. No. 3427, Unit 1), a marked jar handle (Figure 19.1a, Unit 2), a conical gaming piece made of burnt clay, 2.8 cm high (Figure 3.145 s , Unit 2), and a stone/calcite bowl (Reg. No. 1048, Unit 2). A concentration of flint blades from this phase may represent an area of knapping (FL 567; see chapter 26).

## REMAINS OF PHASE 8

Phase 8 shows much continuity from Phase 9 in terms of the plan in Sq. A3; however, it was completely eroded in Sq. B. Units 1 and 2 continued to be in use (Figure 3.146). Although Wall 5 continues from Phase 9 (Figure 3.147), Wall 7 is replaced by Wall 4, which is thicker (about 1 m wide) and built differently from squarer bricks (Figure 3.147). A $0.85-\mathrm{m}$-deep foundation trench was also identified for this wall (Feature 3, Figure 3.150; see also Figure 3.151). In the western balk an additional wall was defined (Wall 7; see sections in Figures 3.152-3.154), which probably belongs to Phase 8. The wall replacing Wall 6 in the southeast was probably eroded, yet an unconnected wall fragment seen in the west balk of Sq. B, Wall 52 (Figure 3.152) may be this wall. Unit 1 includes debris and fills of Layers 6-15. The area in Unit 1 was cut by Pit 3, probably from Phase 2 (the Persian period, cutting though Iron Age levels); thus, not much material was found here in situ. Nevertheless, some pottery below Pit 3 may belong to Phase 8 (Figure 3.148). The bases of the walls here are at an elevation of $54.54-54.70 \mathrm{~m}$. A floor layer in Unit 2 (Locus 3, Figure 3.152, north balk) was identified in Layer 3, Locus 3 at 54.54 m , just covering the tabuns in Features 5 and 6 from Phase 9 (Figure 3.141).

The few indicative forms appearing in Phase 8 suggest a late LBII date; these include open, rounded and carinated bowls (Figure 3.148a-f,h-j), kraters (Figure 3.148k,l), and decorated sherds and a lamp fragment (Figure $3.148 n-$ p). A wide button base of a globular shape (Figure 3.148 m ) probably belongs to a jar (see, possibly, Deir el-Balah, Stratum VI, Dothan and Brandl, 2010: pl. 53:9), but it has a wider base than the regular Canaanite jars. Two perforated worked sherds (Figure 3.148q and Reg. No. 1708) and a possible clay sealing (Bag 5038) were also attributed to this phase.

## TYPOLOGICAL DISCUSSION OF THE LBII POTTERY FROM PHASES 13-8

The pottery of Phases 13-8 will be typologically discussed together as one Late Bronze II assemblage. Emphasis will be given


FIGURE 3.124. Pottery from Phase 11, Room C. Cyp. BRII = Cypriot Base Ring II ware.

| Part | Description | Bag/Box/Reg. No. | Provenance | Architectural unit |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $4525 / 1$ | GMIII B (61) 3 | Room B |
| b | Krater | $1012 / 1$ | GMIII B (59) 3 | Room B |
| c | Jar; decoration | $1012 / 2$ | GMIII B (59) 3 | Room B |
| d | Bilbil jug (Cyp. BRII) | $1012 / 3$ | GMII B (59) 3 | Room B |
| e | Bowl | GMIII B (62) 4 | Room C |  |
| f | Bowl (fine; MBII?) | RV 693 | GMIII B (61) 4 | Room C |
| g | Bowl | $4479 / 2$ | GMIII B (61) 2 | Room C |
| h | Bowl | $4479 / 1$ | GMIII B (61) 2 | Room C |
| i | Bowl | $4482 / 1$ | GMIII B (62) 5 | Room C |
| j | Krater | $4482 / 2$ | GMIII B (62) 5 | Room C |
| k | Krater/jug | $1010 / 1$ | GMIII B B (59) 4 52) 5 | Room C |
| l | Jar | $4482 / 4$ | GMIII B (62) 5 | Room C |
| m | Jar | $4482 / 5$ | GMIII B (62) 5 | Room C |
| n | Scoop? | $4482 / 6$ | GMIII B (62) 5 | Room C |
| o (62) 5 | Room C |  |  |  |
| p | Sherd (imported?) | $4482 / 8$ | $4482 / 7$ |  |



FIGURE 3.125. Pottery from Phase 11. Cyp. BRII = Cypriot Base Ring II ware; Cyp. WS = Cypriot White Slip ware.

| Part | Description | Bag/Box/Reg. No. | Provenance | Phase | Architectural unit |
| :--- | :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $4492 / 2$ | GMIII B (63) 2 | 11 | Room D |
| b | Bowl | $1007 / 2$ | GMIII B (62) 2 | 11 | Room D |
| c | Bowl | $1007 / 1$ | GMIII B (62) 2 | 11 | Room D |
| d | Bowl | $1007 / 3$ | GMIII B (62) 2 | 11 | Room D |
| e | Bowl | $4492 / 3$ | GMIII B (63) 2 | 11 | Room D |
| f | Krater(?); coarse | $4492 / 4$ | GMIII B (63) 2 | 11 | Room D |
| g | Krater/jar(?) | $1007 / 4$ | GMIII B (62) 2 | 11 | Room D |
| h | Jug(?) | $4492 / 5$ | GMIII B (63) 2 | 11 | Room D |
| i | Sherd (Cyp. BRII) | $4492 / 6$ | GMIII B (63) 2 | 11 | Room D |
| j | Milk bowl (Cyp. WS) | Box 536/1 | GMIII B (61) 3 | 11 ? | Room B? |
| k | Milk bowl (Cyp. WS) | Box 535/1 | GMIII B (60) 3 | 11 | Room B? |
| l | Jug(?): red slip, burnish, white decoration | Box 195/1 | GMIII B (61) 2 | 11 |  |

on the more common forms, which will refer to more exhaustive recent studies (such as those of Batash and Aphek, referring there to all previously published parallels), complemented by selected parallels from more recently published relevant excavations. Because of the relatively small scale of this assemblage (especially if broken up into individual types per phase), no quantitative analysis was undertaken.

## Bowls

Again, the bowls are the most common form in the LBII assemblage of Phases 13-8; main types include various open bowls, rounded, hemispherical bowls, and carinated bowls. Open bowls
with straight (Figure 3.124e) or slightly rounded sides continue the tradition of the MBIIB-C and appear in large quantities in Phase 13 (Figure 3.101a-c), Phase 12 (Figure 3.112a,h-k), Phase 11 (Figure 3.125a-d), Phase 10 (Figure 3.131a), Phase 9 (Figures 3.143a,b, 145a), and Phase 8 (Figure 3.148a,c). The straightsided bowls are usually more shallow and open (e.g., Figures 3.101c, 3.131a); the rims are either simple (e.g., Figure 3.101b), slightly inverted (e.g., Figure 3.112k), or thickened (e.g., Figure 3.112 j ); the bases are usually ring bases (see, e.g., Figure $3.58 \mathrm{a}, \mathrm{b})$, but several disk bases may also belong to this type (e.g., Figures 3.131c, 3.143i) or to the type reflecting Egyptian influence described below. Although these open shallow simple bowls are common in the MBIIB-C (see above), they appear in


FIGURE 3.126. Plan of Phase 10.
the LBII as well (see, e.g., Batash, Strata VIII-VI [Panitz-Cohen, 2006a:29-35, especially Type BL53a], Aphek, Strata X14-X12 [Gadot and Yadin, 2009:192-193, Type BO3, and references therein; also Type BO1, e.g., figs. 8.23-8.25, 8.29:1-3], and also Beit Mirsim, Tomb 1 [Ben-Arieh, 2004: fig. 2.67:1-14]).

A group of the open bowls appearing from Phase 11 onward has wide, open, straight-sided, V-shaped walls, a flat or disk base, and straw inclusions indicated by a coarse porous fabric, especially on the base and outer surface (Figure 3.145b; petrographic analysis also shows laminated voids, indicating organic temper; see chapter 15, Samples Jemmeh 65, Jemmeh 68, Figure 3.143f). These include Figure 3.124e from Phase 11, Figure 3.131 c , l from Phase 10 (Figure 3.1311 with reddish clay; see petrographic analysis in chapter 15, Sample Jemmeh 68, indicating local production), a bowl from phase 9 (Figure 3.143f), and a flat base from Phase 8 (Figure 3.148e; also possibly Figure 3.92a
from Phase 14). These bowls continue to appear in Phase 6 of the Iron I (Figure 3.160a,b; see below). The bowls are similar to Type BO1 from Aphek (Gadot and Yadin, 2009:190-191, and references therein) and may be inspired by Egyptian-type bowls (such as those at Tel Mor [Martin and Barako, 2007:135, figs. 4.4-4.6]; see also Type EgB1-EgB2 from Aphek [Martin et al., 2009:362-363], Beth-Shean [Martin, 2009:444, and references therein], and Deir el-Balah [Gould, 2010:15-17, bowl type E]).

Rounded to hemispherical bowls start to appear in Phase 11 and continue into the Iron Age I (see below). Examples come from Phase 11 (Figure 3.124a,h) and Phase 10 (Figure 3.131m,s); usually, this type has a simple rim and a concave disk or ring base (some examples have a red band painted on the rim, as in Figure 3.131s). Examples from Tell Jemmeh Field III are relatively small, $15-20 \mathrm{~cm}$ in diameter, yet this type can appear in larger sizes. Parallels are very common, for example, Batash, Strata


FIGURE 3.127. Room C in Phase 10, looking southeast.


FIGURE 3.128. Room B in Phase 10, looking east. The entrance to the room is on the left, in Wall 56A; Wall 57A is on the right, with Wall 57 below it and slightly to the front.

VIII-VI (Panitz-Cohen, 2006a:31-32, Type BL50, and references therein), Aphek, Stratum X12 (Gadot and Yadin, 2009:194, Type BH1, and many parallels therein; in addition, see examples from Beit Mirsim tombs [Ben-Arieh, 2004: fig. 2.67:15-19], Tel Mor, Strata XII-X [Barako, 2007: fig. 3.1:1,14,15], and Tell esSafi [Gadot et al., 2012:243, Type BL1.2]).

Another type of rounded bowl has an everted rim (Phase 10, Figure 3.131b; Phase 9, Figure 3.145d). Parallels can be found at Tell es-Safi (Gadot et al., 2012: pl. 12.2:6) and Batash (PanitzCohen, 2006a: Type BL46, although dated earlier).

Carinated bowls appear in several examples in Phases 13-8; most are quite different from the MBIIB-C carinated bowls and seem to mark a different tradition. Examples come from Phase 12 (Figure 3.112b,d,l-p), Phase 11 (Figure 3.124i), Phase 10 (Figure 3.132b), Phase 9 (Figures $3.143 \mathrm{e}, \mathrm{g}, \mathrm{h}, \mathrm{j}, 3.145 \mathrm{e}-\mathrm{h}$ ), and


FIGURE 3.129. Room B, with Wall 58 on the right and the west balk of Sq. B on the left, with Wall 59 and Wall 50 above it, standing about 12 courses, looking southwest.


FIGURE 3.130. Hearth, Feature 3 of Phase 10, looking east, with Walls 56A and 57A behind it.

Phase 8 (Figure $3.148 \mathrm{~d}, \mathrm{f}, \mathrm{i}-\mathrm{k}$ ). These bowls usually have simple everted rims (Figures 3.112n, 3.148f), vertical rims (Figure 3.112 p, Phase 12), or thickened rims (Figures 3.143e, 3.145h); a large example with an everted rim from Phase 13 (Figure 3.101 g ) may belong to the same type or to a chalice (possibly like Panitz-Cohen, 2006a:53, Type CH3). Sizes of these bowls vary; some small examples have a diameter of 12-15 cm (Figure $3.112 \mathrm{o}, \mathrm{p}$ ), whereas larger rims may reflect a $30-35 \mathrm{~cm}$ diameter (Figure $3.131 \mathrm{n}, \mathrm{o}$ ), although they may be defined as kraters because of their large size (see carinated kraters below, which are defined here also according to their distinguished rim shape and thickness and by the presence of handles). The carination is in the upper third of the bowl's height and varies in its sharpness. Some examples are made of whitish clay (Figure 3.145 d ), although none were found with decoration. Most of these bowls


FIGURE 3.131. Pottery from Phase 10. (opposite)

| Part | Description | Bag/Box/Reg. No. | Provenance | Architectural unit |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 4494/2 | GMIII B (56) 3 | Room B |
| b | Bowl | 4494/1 | GMIII B (56) 3 | Room B |
| c | Bowl? | 4494/5 | GMIII B (56) 3 | Room B |
| d | Bowl; white slip | RV 685 | GMIII B (56) 3 | Room B |
| e | Krater | 4494/3 | GMIII B (56) 3 | Room B |
| f | Krater | 4437/1 | GMIII B (57) 3 | Room B |
| g | Cooking pot | 1009/1 | GMIII B (58) 3 | Room B |
| h | Cooking pot | 4494/4 | GMIII B (56) 3 | Room B |
| i | Jar | 4494/6 | GMIII B (56) 3 | Room B |
| j | Flask/jug | 4494/8 | GMIII B (56) 3 | Room B |
| k | Lamp | 4494/7 | GMIII B (56) 3 | Room B |
| 1 | Bowl | 4496/1 | GMIII B (58) 4 | Room C |
| m | Bowl | 4508/1 | GMIII B (56) 4 | Room C |
| n | Krater | 1013/1 | GMIII B (57) 4 | Room C |
| o | Krater | 1013/2 | GMIII B (57) 4 | Room C |
| p | Cooking pot | 4508/2 | GMIII B (56) 4 | Room C |
| q | Jar/jug | 4508/4 | GMIII B (56) 4 | Room C |
| r | Jar | 4508/3 | GMIII B (56) 4 | Room C |
| s | Bowl; red decoration | 1006/1 | GMIII B (58) 2 | Unit 6 |
| t | Cooking pot | 1014 | GMIII B (59) 2 | Unit 6 |
| u | Base | 4429/2 | GMIII B (57) 2 | Unit 6 |
| v | Jar; white slip, red decoration | 1006/2 | GMIII B (58) 2 | Unit 6 |
| w | Body sherd | 1006/3 | GMIII B (58) 2 | Unit 6 |

probably belong to variants of the family of carinated profile vessels common in the LBII and Iron I (developing into the S-shaped or cyma bowls in the Iron I; Panitz-Cohen, 2006a: Type BL59). Note that these bowls are not as common in the LBII at Tell Jemmeh as they are in other sites in the southern Levant, where they are often decorated as well (see Batash, Strata XIVII [Panitz-Cohen, 2006a:40-42, Type BL56, and more discussion and references therein], Aphek, Strata X13-X10 [Gadot and Yadin, 2009:203-204, Types BC3, BC4], Tel Mor [Barako, 2007: fig. 3.3:1-6], and Deir el-Balah, Strata VI-IV [Dothan and Brandl, 2010: pl. 42:14-19]). Another subtype appears in Phase 8 (Figure 3.148d), with slight carination, possibly similar to that at Batash (Panitz-Cohen, 2006a: Type BL58).

A small closed carinated bowl or krater from Phase 13 (Figure 3.101e) has a high handle attached to the simple rim; the handle is possibly thumb impressed. The vessel is made of clay darkened, possibly, by soot.

A nearly complete large open bowl from Phase 10, Room B (Figure 3.131d) has a slightly thickened rim, round base, and at least one handle attached to the rim; the outer surface has prominent wheel marks and has some white slip. Somewhat similar bowls, although with a ring base, come from Beit Mirsim, Tomb 100 (Ben-Arieh, 2004: fig. 2.32:57-61; also, possibly, Tel Mor, Barako, 2007: fig. 3.1:18); however, the rounded base of the vessel may relate this form to scoops from the LBII (as Figure 3.124n; see Zuckerman, 2007).

## Kraters

A variety of krater types appears in the LBII phases. Carinated deep kraters with folded slanted rims seem to make their appearance in Phase 11 (Figure 3.124b,j,k), and several examples come from Phase 10 (Figure 3.131e,f,n,o) and Phase 9 (Figure $3.145 \mathrm{j}, \mathrm{k}$ ). According to more complete examples from Field I, somewhat similar kraters can be quite large (see Figures $6.124 \mathrm{~b}, 6.157$ ), $35-40 \mathrm{~cm}$ in diameter at their widest point, and have two vertical loop handles attached to the rim and a ring base. A thick ring base from Phase 8 (Figure 3.1481) may belong to such a krater and would represent a large and heavy example; see also a handle with a thumb impression ("thumbed") attached to a thickened rim (Phase 10, Figure 3.132 n). The carinated kraters are common in the LBII in southern Israel, for example, at Lachish, Levels VII-VI (Clamer, 2004:1178; Yannai, 2004:1041, fig. 19.16:4, Krater K-1), Aphek, Stratum X12 (Gadot and Yadin, 2009:209, Type KR2, and references therein), and Deir el-Balah, Strata VIIIVI (Killebrew, 2010: fig. 4.2:6; Dothan and Brandl, 2010: pls. 19:4, 21:3, 26:4). This type continues into the Iron I (e.g., here, Phase 7, Figure 3.155 d ; see also Ashdod, Stratum XIII, Dothan and Ben-Shlomo, 2005: fig. 3.5:11). A hammerhead rim version of this krater also appears (Batash, Panitz-Cohen, 2006a: Type KR1) and becomes more common in the Iron I (see below).


FIGURE 3.132. Pottery and finds from Phase 10. (opposite)

| Part | Description | Bag/Box/Reg. No. |  |  |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $4497 / 2$ | Grovenance | Architectural unit |
| b | Bowl | $4497 / 1$ | GMIII B (55) |  |
| c (55) |  |  |  |  |
| d | Cooking pot | $4497 / 4$ | GMIII B (55) |  |
| e | Jar (MBIIB?) | Krater/jug; decoration | Box 192/1 | GMIII B (56) 4 |
| f | Krater (3 sherds); decoration | Box 193/1 | GMIII B (55) |  |
| g | Krater; decoration | Box 193/2 | GMIII B (56) |  |
| h | Krater; decoration | Box 193/3 | GMIII B (56) |  |
| i | Krater (2 sherds); decoration | $4499 / 1$ | GMII B (56) |  |
| j | Krater/jug; decoration | Box 192/2 | GMIII B (56) |  |
| k | Krater/jug; decoration | Box 192/3 | GMII B (55) |  |
| l | Sherd; red decoration | Box 192/3A | GMIII B (55) (55) |  |
| m | Decorated handle | Box 192/4 | GMIII B (55) |  |
| n | Krater; impression | $4497 / 3$ | GMIII B (55) |  |
| o | Strainer bowl | Box 241 /1 | GMII B (56) |  |
| p | Pyxis/amphoriskos | $4497 / 5$ | GMIII B (55) 1 |  |
| q | Lamp; soot | $4497 / 6$ | GMIII B (56) 4 |  |
| r | Perforated sherd | Reg. No. 1802 | GMII B (57) 4 | Room C |
| s | Bronze point | Reg. No. 1323 (Cat. No. 852) |  |  |


a

b

FIGURE 3.133. Amulets from Phase 10 (GMIII B (58) 2): (a) Reg. No. 1142 (length 1.9 cm ) and (b) Reg. No. 1143 (length 1.2 cm ).

A sherd with a carinated shape and slightly thickened rim (Phase 13, Figure 3.101d) may belong to a biconical krater. A thickened rim of a krater from Phase 12 (Figure 3.113a) is decorated by red stripes along the rim. Another thickened/hammerhead rim, probably from a carinated krater (Phase 11, Figure
3.124 j ), has three grooves incised along the top of the rim. Several examples of coarse kraters include a wide, thickened gutter rim from Phase 13 (Figure 3.101h); another example with a "ledge rim" comes from Phase 11 (Figure 3.125f). Decorated biconical kraters are discussed separately in chapter 10.

## Cooking Pots

Most of the cooking pots from Phases 13-8 have an everted neck and thickened rim (Phases 13, 12, Figures 3.101i, 3.112q; Phase 9, Figure 3.1431), a triangular rim (Phase 12, Figure 3.112r; Phase 10, Figure 3.131g,h; Phase 9, Figures 3.132c, 3.143 k ), or a wedge-shaped rim (Phase 10, Figure $3.131 \mathrm{p}, \mathrm{t}$; Phase 9, Figure 3.145 n). No complete bodies of cooking pots were preserved, but according to parallels, the body is carinated with a lower globular part, a diameter of 30 cm , and a capacity of 6-12 L in most cases. This is a generic LBII cooking pot type (see, e.g., Deir el-Balah [Killebrew, 1999, 2010: Type C], Batash, Strata IX-VI [Panitz-Cohen, 2006a:68-70, Type CP1, and references therein], Tel Mor [Barako, 2007: fig. 3.17], and Aphek [Gadot and Yadin, 2009:212-216, CP1]). Simple everted-rim cooking pots slowly replaced gutter rim cooking pots in the southern Levant already in the LBI or the 16th century BCE (Seger, 2011). Note that in Field III the everted and triangular rims appear throughout the LBII phases, whereas the wedge-shaped-rim cooking pots appear only in the later phases of the LBII, Phases 10-9; this subtype also appears in later phases of the LBII at other sites (such as Batash, Strata VI-V [PanitzCohen, 2006a: Type CP4a], Aphek [Gadot and Yadin, 2009: Type CP1b], and Deir el-Balah, Stratum VI [Dothan and Brandl, 2010: pl. 32:3; Killebrew, 2010: fig. 4.2:16,17]) and continues in the early Iron Age I (see Killebrew, 1999).


FIGURE 3.134. Plan of Phase 9.


FIGURE 3.135. Room A at the beginning of excavation, Wall 54 in the rear, looking north.


FIGURE 3.136. Square B: cobbled floor level, Feature 1 in Room A, Phase 9, looking northeast.


FIGURE 3.137. Tabun, Feature 5 in Unit 2, after excavations, looking west; on the right edge of another tabun, Feature 6.


FIGURE 3.138. Phases 8 and 9 in Sq. A3, looking east. Wall 4 and the upper part of Wall 7 are in front, with a tabun (Feature 5; before excavation) below and a small brick floor (Feature 7) to the left of the tabun; to its right, note the ashy dark layer.


FIGURE 3.139. Phase 9, Sq. B: close up on ash layer, Features 1A-1E of Unit 2, in the balk in the rear, looking west.


FIGURE 3.140. Phase 9, Sq. B: ash layer, Features 1A-1E, in the balk in the rear after excavation of the complete sequence; note well-preserved Wall 54 to the left of the ashy layers, looking northwest.


FIGURE 3.141. Tabun, Feature 5, and ash layers in Sq. A3 from the section; Wall 4 in the rear (Phase 8).

FIGURE 3.142. Unit 1 in Sq. A3 in Phase 9, Walls 6 (far left, cut), 7 (left), and 5 (rear), looking south.


10 cm

FIGURE 3.143. Pottery from Phase 9, Room A.

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl | $4439 / 1$ | GMIII B (52) |
| b | Bowl | $4439 / 3$ | GMII B (52) |
| c | Bowl | $4488 / 1$ | GMIII B (53) 1 |
| d | Bowl | $4442 / 2$ | GMIII B (51A) |
| e | Bowl | $4488 / 2$ | GMIII B (53) 1 |
| f | Bowl | $4442 / 1$ | GMII B (51A) |
| g | Bowl | $4439 / 6$ | GMIII B (52) |
| h | Krater | $4439 / 5$ | GMIII B (52) |
| i | Bowl? | $4488 / 4$ | GMIII B (53) 1 |
| j | Bowl | $4439 / 4$ | GMIII B (52) |
| k | Cooking pot | $4439 / 7$ | GMIII B (52) |
| l | Cooking pot | $4439 / 8$ | GMIII B (52) |
| m | Jar | $4439 / 10$ | GMIII B (52) |
| n | Jar/jug | $4488 / 5$ | GMIII B (53) 1 |
| o | Jar handle; incised | $4439 / 9$ | GMII B (52) |
| p | Flask/jug | $4439 / 11$ | GMIII B (54) 1 |
| q | Beer bottle | $4478 / 1$ | GMIII B (52) |
| r | Lamp; soot | $4439 / 12$ |  |



FIGURE 3.144. Pottery from Phase 9. Cyp. WS = Cypriot White Slip ware; Myc. = Mycenaean.

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Closed vessel; white slip, red decoration | Box 190/1 | GMIII B (51A) |
| b | Krater/jug; decoration | Box 191/1 | GMIII B (52) |
| c | Krater/jug; decoration | $4498 / 1$ | GMIII B (51A) |
| d | Milk bowl (Cyp. WSS) | Box 532/1 | GMIII B (50) |
| e | Bowl (Myc.); decoration | Box 533/1 | GMIII B (52) |

## JARS

In contrast to the MBII not many storage jars come from the LBII levels, and no complete examples were found. Several rim and neck fragments include thickened or folded rims from Phase 13 (Figure 3.101j), Phase 12 (Figure 3.112e), Phase 11 (Figure 3.124 m ), Phase 10 (Figure 3.131v, white slipped), and Phase 9 (Figure 3.143m). Everted rims come from Phase 11 (Figure 3.1241), Phase 10 (Figure 3.131q, with a ridge under the rim), and Phase 9 (Figure 3.143n); jar bases from Phase 10 (Figure 3.131i) and a wide lower portion with a button base from Phase 8 (Figure 3.148 m ) are illustrated, as well as several jar handles (Phase 10, Figure 3.131r; Phase 9, Figure 3.143o). All these examples most likely belong to the common LBII storage jar type with an ovoid body, slightly everted and/or thickened rim, and stump or button
base (see, e.g., Batash, Strata IX-VI [Panitz-Cohen, 2006a:77-81, Type SJ2], Tel Mor, Strata VIII-VII [Barako, 2007: fig. 3.23:6-8], Aphek, Stratum X12 [Gadot and Yadin, 2009:229-231, Type SJ2], and Deir el-Balah [Killebrew, 2010:88-91, and references therein]). These jars are usually $50-80 \mathrm{~cm}$ high and have a capacity of 25-30 L (see Panitz-Cohen and Mazar, 2006: table 47). Some of these jars have painted decoration on the neck (e.g., Figure 3.124 c, Phase 11, with a red band on the neck), handles, or body, but only a few examples of these were found in Field III, such as a handle decorated with a tree design from Phase 10 (Figure 3.132 m ). Also notable is a pithos rim from Phase 13 (Figure 3.101 k ) with a thickened, slightly flaring rim (see e.g., Batash, Stratum VI, Panitz-Cohen and Mazar, 2006: pl. 57:10). A finely ridged body sherd from Phase 8 (Figure 3.148o) may also belong to a large closed vessel.


FIGURE 3.145. Pottery and finds from Phase 9.

| Part | Description | Bag/Box/Reg. No. | Provenance | Architectural unit |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 1487/1 | GMIII A3 (14) 1 | Unit 1 |
| b | Bowl; straw impression | 5044/1 | GMIII A3 (4) 3 | Unit 2 |
| c | Bowl base? | 4425/3 | GMIII B F1 (1) | Unit 2 |
| d | Bowl | 4486/1 | GMIII B (54) | Unit 2 |
| e | Bowl | 1487/2 | GMIII A3 (14) 1 | Unit 1 |
| f | Bowl | 4502/2 | GMIII B (52) 2 | Unit 2 |
| g | Bowl; red slip(?) | 4416/1 | GMIII B F1D | Unit 2 |
| h | Krater | 5044/2 | GMIII A3 (4) 3 | Unit 2 |
| i | Krater | 1487/3 | GMIII A3 (14) 1 | Unit 1 |
| j | Krater | 4425/2 | GMIII B F1 (1) | Unit 2 |
| k | Krater | 1487/4 | GMIII A3 (14) 1 | Unit 1 |
| 1 | Bowl | 4502/1 | GMIII B (52) 2 | Unit 2 |
| m | Krater | 1568/1 | GMIII A3 (4) 3 |  |
| n | Cooking pot | 4502/3 | GMIII B (52) 2 | Unit 2 |
| o | Jar? | 1487/5 | GMIII A3 (14) 1 | Unit 1 |
| p | Cup and saucer | 4502/4 | GMIII B (52) 2 | Unit 2 |
| q | Lamp; soot | 1560/1 | GMIII A3 (4) 3 |  |
| r | Lamp | 1487/6 | GMIII A3 (14) 1 | Unit 1 |
| s | Gaming piece | Reg. No. 3964 | GMIII B F1B | Unit 2 |



FIGURE 3.146. Plan of Phase 8.


FIGURE 3.147. Phase 8 in Sq. A3: Wall 5 is on the left, and Wall 4 is in the center, with upper Phase 9 behind it, looking east.


FIGURE 3.148. Pottery from Phase 8.

| Part | Description | Bag/Box/Reg. No. | Provenance | Architectural unit |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $5066 / 1$ | GMIII A3 (13) | Unit 1 |
| b | Bowl | $4954 / 1$ | GMII A3 (2) 3 | Unit 2 |
| c | Bowl | $5030 / 1$ | GMIII A3 (2) 3 | Unit 2 |
| d | Bowl | $5096 / 1$ | GMII A3 (13) | Unit 1 |
| e | Bowl | $4954 / 4$ | GMIII A3 (2) 3 | Unit 2 |
| f | Bowl | $4955 / 1$ | GMIII A3 12 |  |
| g | Cooking pot/bowl | $5038 / 2$ | GMIII A3 (2) 3 | Unit 2 |
| h | Bowl | $5096 / 2$ | GMIII A3 (13) | Unit 1 |
| i | Bowl/krater | $4954 / 2$ | GMIII A3 (2) 3 | Unit 2 |
| j | Bowl | $1495 / 1$ | GMIII A3 (11) |  |
| k | Krater/bowl | $5066 / 2$ | GMIII A3 (13) (2) 3 | Unit 1 |
| l | Krater | $5038 / 1$ | GMIII A3 (11) | Unit 2 |
| m | Jar | $1492 / 1$ | GMIII A3 (2) 3 | Unit 2 |
| n | Decorated sherd | $4954 / 3$ | GMIII A3 (11) |  |
| o | Sherd | $1495 / 3$ | GMIII A3 (11) (2) 3 |  |
| p | Lamp | $1495 / 2$ |  |  |
| q | Perforated sherd | Reg. No. 1693 (SI Cat. 975) |  |  |



FIGURE 3.149. Plan of Phase 7.

## Jugs and Juglets

Not many jugs or juglets were found in the LBII phases. A thin rim and neck with an attached handle from Phase 11 (Figure 3.125h) probably belongs to a jug (see, e.g., Batash, Panitz-Cohen, 2006a:91-92, Type JG1). A dipper juglet is represented by a rim, neck, and handle from Phase 13 (Figure 3.1011; see Batash, Strata VIII-VII, Panitz-Cohen, 2006a:111, Type JT3). A handle from Phase 11 decorated with red slip and burnish and white horizontal stripes (Figure 3.1251) belongs to a small jug or juglet.

## Decorated Ware

A sherd (bowl?) from Phase 12 (Figure 3.113b) is decorated on the interior by red and black stripes over white slip. Biconical kraters and jugs decorated in Canaanite style start to appear in Phase 10 (Figure 3.132e-1) and continue through Phases 9-6 (Figures $3.144 \mathrm{a}-\mathrm{c}, 3.148 \mathrm{n}, 3.161 \mathrm{~h}$ ) into the Iron I; a collection of these also appear in Field I, including two complete vessels (one of these is a jug, Figure 10.1a, and was found on the surface near Field III). These vessels are usually decorated by white slip and red paint and include typical motifs, such as ibexes, netted areas, and trees (see chapter 10).

## Other Forms and Wares

Flasks, a common LBII-Iron I form, are not very common at Tell Jemmeh. One probable example is a neck fragment from


FIGURE 3.150. Walls 2 and 3 in Sq. A3, with Wall 4 of Phase 8 below them and its deep foundation trench, Feature 3, to the left, looking north.

Phase 10, Room B (Figure 3.131j); another rim and neck from Phase 9 with two handles attached to it is also a flask (Figure 3.143p). Similar vessels can be found at other sites in the region, such as Batash (Panitz-Cohen, 2006a:115-116). One example of a possible pyxis or amphoriskos comes from Phase 10 (Figure 3.132p).

Several lamp fragments are illustrated, including in Phase 10 (Figures $3.131 \mathrm{k}, 3.132 \mathrm{q}$ ), Phase 9 (Figures 3.143r, 3.145q,r), and Phase 8 (Figure 3.148p). These fragments usually have a simple rim, rounded body, thin wall, and soot marks (for similar LBII lamps, see, e.g., Batash, Strata IX-VIII, Panitz-Cohen, 2006a:117-118, Type LP1); one example has an everted rim (Phase 9, Figure 3.145r) and indicates a different type (similar to Panitz-Cohen, 2006a:118-119, Type LP2, appearing there somewhat later, in Strata VIII-V).

One example of a handle (Figure 3.124n) may either belong to a scoop, which is an asymmetric open bowl or a fragment of a strainer bowl with one high thick handle attached from the rim to the body, found in Phase 11 (for further discussions on scoops, see Zuckerman, 2007, for LBII and Gitin, 1998, for the Iron II version). A fragment of a handmade flat object may be a baking tray (Phase 10, Figure 3.112s; see Uziel, 2008:144, fig. 59; Gadot


FIGURE 3.151. North balk of Sq. A3.
and Yadin, 2009:236; Frankel, 2011:95-96, for more references). The rim fragment of a strainer bowl, with at least four rows of prefired perforations (Figure 3.132o), was found in Phase 10 (for a possible parallel, see Lachish, Level P-1; Clamer, 2004: fig. 2.16:13). One example of a cup and saucer comes from Phase 9 (Figure 3.145p; this type appears also in Phase 6, Figure 3.161k); for discussion on cup and saucer vessels, see, e.g., Panitz-Cohen (2006a:119, pl. 55:11) and Uziel and Gadot (2010).

The only clear example of an Egyptian form from the LB levels at GMIII is a beer bottle from Phase 9, Room A (Figure $3.143 q)$. More than half of the vessel, made of coarse clay with added straw, was preserved; the lower part is roughly modeled with finger marks and seems to be perforated. This vessel type and its distribution in Canaan have recently been discussed in relation to the LBII assemblage of Tel Mor (Martin and Barako, 2007:147-150, fig. 4.11, table 4.11). Beer bottles of the "BB 4" type are found in various LBII sites in southern Israel but seem to be common only in Egyptian administrative centers (see, e.g., Deir el-Balah [Dothan, 1979; Gould, 2010:31-38, fig. 2.5] and Tel Mor [Martin and Barako, 2007]; see also Martin, 2009:447-448).

Cypriot imports appear in various quantities in all LBII levels; Mycenaean imports are found in smaller number. A Mycenaean bowl base is illustrated from Phase 9 (Figure 3.144e). Cypriot Base Ring jugs, or bilbils, come from Phase 13 (Figure 3.101o,p), Phase 12 (Figure 3.113e-k), and Phase 11 (Figure 3.125i); Base Ring bowls come from Phase 12 (Figure 3.112f; probably also Phase 13, Figure 3.101n). White-slipped milk bowls come from Phase 12 (e.g., Figure 3.113d), and White Shaved juglets come from Phase 13 (Figure 3.101q,r); for further discussion on Cypriot imports, see chapter 11.

## Summary

Although there are at least six architectural phases attributed to the Late Bronze Age at the Tell Jemmeh Field III step trench, the pottery assemblages recovered from secure contexts in these phases is rather limited, probably because of the small area of exposure. Not all forms typical of this period are represented (see, e.g., Batash, Panitz-Cohen, 2006a:126-138, for a more complete repertoire), and some forms are represented by only a very few examples (underrepresented forms include jugs,



FIGURE 3.154. West balk of Sq. A3.


FIGURE 3.155. Pottery from Phase 7A.

| Part | Description | Bag/Box/Reg. No. | Provenance | Architectural unit |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $4948 / 1$ | GMIII A3 (1) 3 | Unit 2 |
| b | Bowl | RV 151 (SI Cat. 914) | GMIII A3 (1) 3 | Unit 2 |
| c | Krater | 1485/1 | GMIII A3 (8) | Unit 1 |
| d | Cooking pot | $5034 / 1$ | GMIII A3 (6) 1 | Unit 1 |
| e | Jar | $1485 / 3$ | GMIII A3 (8) | Unit 1 |
| f | Jug(?) | $5070 / 1$ | GMIII A3 W3 |  |
| g | Nozzle? | $1485 / 4$ | GMIII A3 (8) | Unit 1 |

flasks, pyxides, etc.). Egyptian-style pottery does not appear in large numbers, whereas imported Mycenaean and Cypriot wares appear in quantities that are typical for large southern Levantine sites.

Quantitative analysis of pottery from good contexts from Fields III and I combined may produce more viable conclusions on subtle chronological aspects of the assemblage. The problem is that in Field III there are insufficient exposure and quantities of indicative forms from each type and phase for such an analysis (and many of the contexts from Field I are problematic; see chapter 6). Nevertheless, several forms might indicate some general trends. More MBII-LBI forms appear in Phases 13-11 (such as the simple everted-rim cooking pots; see Seger, 2011), although these forms disappear in Phases 10-8. For example, the MBIIB-C open bowls with an inverted rim do not appear in Phase 10 onward; moreover, several later LBII forms are introduced in Phase 10 and usually continue up to Phase 6; these include the carinated kraters, wedge-shaped-rim cooking pots, Canaanite decorated biconical forms, and cups and saucers. Thus, tentatively, Phase 13 to Phase 11 can be dated to the LBIIA, i.e., roughly the 14th century BCE, whereas Phases $10-8$ can be dated to the LBIIB, roughly the 13 th century BCE.

## REMAINS OF PHASE 7

Phase 7 (Figure 3.149) is only represented in Sq. A3 by a few features, divided into two local subphases, 7B and 7A. Phase 7B is defined by a single element in Sq. A3: a tabun (Feature 4) was reported to cut into the eastern face of Wall 4 of Phase 8 and to be cut by Wall 3 of Phase 7A above it (visible in the northern section, Figures 3.151, 3.152, although not appearing on the plan). The tabun continues into the northern balk and was laid on a 10 cm fill layer that was defined between Walls 3 and 4 (Layer 6, Locus 5). Otherwise, all other elements in Sq. A3 belong to Phase 7A (Figures $3.149,3.150$ ). The walls of Phase 7A are rather fragmentary, but they seem to conserve the general plan of four perpendicular abutting units as seen in Phases 9 and 8. An area above Unit 1 of Phase 8 is delimited by Wall 3 (Figure 3.150), a north-south brick wall overlying Wall 4 ; it is built of one row of headers and is nearly 4 m long. Wall 2 bonds with it, creating a right angle overlying Wall 5, preserved to three courses high. Wall 5 seems to thicken to the east of Wall 3. The wall immediately above it (elevation of 55.65 m ) has the same alignment but probably belongs to Phase 6 (see Figure 3.156). Phase 7A, Unit 1 is also cut by Pit 3 of Phase 2. Pit 2 in Sq. A3 may also belong to Phase 7A.

The small amount of pottery found in Phase 7 (probably all from subphase 7A) seems to date it to the LBII-Iron IA horizon, as it includes typical LBIIB forms, such as the straight-sided open bowl (Figure 3.155a), carinated krater (Figure 3.155c), everted krater or cooking pot (Figure 3.155d), and button-based storage jar (Figure 3.155e). As the next phase, Phase 6, already contains Philistine Bichrome and other Iron IB forms, Phase 7 is tentatively dated to the Iron IA, or to the beginning of the 12th century BCE, similar to Lachish Level VI. Note that no Philistine Monochrome (or Philistine 1; see, e.g., Dothan and Zukerman, 2004; Dothan et al., 2006) dating to this period was found here. This is not surprising as this ware is restricted to the Philistine Pentapolis sites (see, e.g., Ben-Shlomo, 2006a:82, 2006-2007).

Phase 7 also yielded an intact, small, closed carinated bowl with an incurving simple rim (Figure 3.155b) and a disk base; possible parallels come from Tell Qasile, Stratum XI (Mazar, 1985a: fig. 24:3). A triple handle with two ridges (Figure 3.155f) is probably a jug or juglet handle redeposited from the MBII levels (see a similar handle from Tel Nagila, Stratum IX, Uziel, 2008: fig. 72:11). Another ceramic object illustrated (Figure 3.155 g ) is a thick, hollow, tubular sherd, widening from one end to the other; this is a spout or a nozzle of some sort (possibly from a figurative vessel).

## REMAINS OF PHASE 6

Phase 6 was primarily preserved in Sq. A2, with fragmentary remains in the western half of Sq. A3 as well (Figure 3.156).

This is probably the main "Philistine level" in Field III, yielding large amounts of Philistine Bichrome pottery. A partial unit excavated in Sqs. A2 and A3 includes Walls 10 and 11, which form an exact right angle (Figures 3.156, 3.159), defining a unit to the east that might roughly continue Unit 1 of Phases 7-9 or be defined as the new Unit 3 (Figures 3.142, 3.159). As noted above, Wall 1 of Sq. A3 may be a continuation of Wall 10 of Sq. A2, showing continuity between the Phase 7A and 6 plans. To the west, Wall 12 is parallel to Wall 11 and almost abuts it, although it is slightly higher; the gap of a few centimeters is filled with mortar (Figure 3.159). This is possibly part of a new unit continuing into the western balk or the widening of Unit 3 (as seems to be the case with Unit 1) in a later phase. In the northwest corner, Wall 12 is already cut by the foundation trench of the Phase 2 rounded Persian period granary wall (Wall 2, Feature 1, Figures 3.173, 3.175; see also in A2 sections, Figure 3.158, Feature 1). A pinkish plaster floor was defined in Unit $3(1$ ?) at an elevation of 55.82 m (Feature 3, Layer 20), abutting the western face of Wall 11 (or Wall 12?) (Figure 3.158, Sq. A2, north balk). This plaster floor, although it is fragmentary, probably continued in Sq. A3 (Layer 5), where it reaches the base of Wall 1. In Sq. A2, the Phase 6 fill and debris levels include Layers 14-20, whereas in Sq. A3 these include Layers 2-5 (Figure 3.158); all these layers contain Philistine Bichrome pottery (see Figure 3.162). This level is also cut by Sq. A3, Pit 3 and Feature 1 of Phase 2.

In the southwest corner of Sq. A2, particularly in the southern section (Figure 3.157), Wall 9 was defined, although its orientation is not clear. In the southern balk of Sq. A2 (Figures $3.157,3.158$ ), the collapse of at least two mud brick walls can be


FIGURE 3.156. Plan of Phase 6.


FIGURE 3.157. South balk of Sq. A2; note brick collapse.
seen, probably Walls 9 and 12 (the latter denoted as Wall 8 in the southern balk, Figure 3.158). This destruction (Layers 17-19), indicated by the arched row of complete mud bricks, is clearly sealed by the Phase 5 levels. This may be evidence of destruction (by earthquake?) during the Iron I period (maybe similar to Ashdod, where a similar phenomenon is noted between Stratum XIb and Stratum XIa; see Dothan and Ben-Shlomo, 2005:34-37, plans $2.8,2.9$ ). The Phase 6 bricks are different from those of the earlier phases (especially those of the Bronze Age phases), as they are less elongated and more square. Another phenomenon to note is that the upper course of the walls (especially in Walls 10 and 11, but also in Wall 12 to a lesser extent) shows cracking, at times with a very long fracture line (Figure 3.159). This could be additional evidence for the occurrence of an earthquake terminating Phase 6 . Generally, Phase 6 shows a similar plan to Phase 7 but introduces a new technique of plaster flooring.

The pottery of Phase 6 includes forms in the Canaanite tradition, continuing to some extent forms seen in Phases 9-7 (Figures $3.160,3.161$ ), and the newly appearing Philistine tradition (Figure 3.162). Open bowls with straight sides, made of lightcolored clay, continue to appear (Figure 3.160c,d). At least two examples (Figure 3.160a,b) are probably bowls influenced by the

Egyptian style (see above); these are bowls made of straw-rich clay. Rounded, hemispherical bowls become more common in this phase (Figure $3.160 \mathrm{e}-\mathrm{i}$ ); these usually have simple or slightly inverted rims and a hemispherical body. Several complete examples were found, one with a concave disk base (Figure 3.160e, made of pinkish light clay) and one with a flat disk base (Figure 3.160 f ); one example with an inner and outer red rim band is illustrated (Figure 3.160 g ); two examples have soot marks on the rim area (Figure 3.160 h, i) and may have been used as lamps. The diameter is usually $14-18 \mathrm{~cm}$, with one small example being 10 cm (Figure 3.160 g ). This bowl type is a typical Iron I form continuing late LBII forms (see above). Early Iron I examples include bowls from Ashdod, Stratum XIIIb (Dothan and Porath, 1993:55, fig. 14:1-7) and Strata XII-XI (Dothan and BenShlomo, 2005:109, figs. 3.29:3-6, 3.57:1-6), and Lachish, Level VI (Tufnell et al., 1940: pl. XXXVIII:36,51,52); other Iron I examples come from Tell Qasile, Stratum XI (Mazar, 1985a:33-36, Type 1, fig. 28:5-12), Ashdod (Dothan, 1971: Fig. 84:5,6), Tel Miqne, Strata VII-VI (Dothan and Zukerman, forthcoming In press a), Batash (Panitz-Cohen, 2006a:32, Type BL50b, and references therein), and Beit Mirsim (Greenberg, 1987: Figs. 4:12,13, 5:10).



FIGURE 3.159. Walls 10, 11, and 12 of Phase 6, looking east; note cracks.

Carinated bowls (Figure 3.160j-1) usually have an S-shaped profile and a simple everted rim. Several examples have white slip (Figure 3.160j-1,o). Carinated bowls of this form are typical of the 13th century BCE (see above, Phases 10-7) and the Iron Age I in southern Israel and may have evolved from the cyma-shaped bowls (Mazar, 1985a:39; Panitz-Cohen, 2006a:44, Bowl 59); see parallels also at Tell Qasile (Mazar, 1985a:39-41,

Bowl 8), Gezer (Dever et al., 1970: pl. 26:19), Lachish, Level VI (Tufnell et al., 1940: pls. XLIB:117,125, XLIIb:142; Tufnell, 1958: pls. 68:125, 72:630; Yannai, 2004:1041, Bowl 300), Ashdod, Strata XIII-XI (Dothan and Freedman, 1967: fig. 27:1,2,7; Dothan, 1971: fig. 74:4,5; Dothan and Ben-Shlomo, 2005: figs. 3.15:12, 29:13, 57:9-14), Batash, Stratum V (Panitz-Cohen, 2006a:44-47, Bowl 59), Tel Mor (Barako, 2007: fig. 3.8:6-11),


FIGURE 3.160. Pottery from Phase 6.

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl | RV 49 | GMIII A2 (20) |
| b | Bowl | RV 48 | GMII A2 (20) |
| c | Bowl | $1538 / 4$ | GMIII A2 (19) |
| d | Bowl | $1504 / 1$ | GMIII A2 (19) |
| e | Bowl; soot | $1515 / 1$ | GMIII A3 (3) |
| f | Bowl | SI Cat. No. 632.1 | GMIII A2 (20) |
| g | Bowl; red decoration | $1504 / 2$ | GMIII A2 (19) |
| h | Bowl; soot | $1538 / 1$ | GMIII A2 (19) |
| i | Bowl; soot | $1538 / 2$ | GMIII A2 (19) |
| j | Bowl | $1538 / 3$ | GMIII A2 (19) |
| k | Bowl; white slip | 5 | GMIII A2 (18) |
| l | Bowl/chalice; white slip, red decoration | 2 | GMIII A3 (4) |
| m | Krater | $1538 / 5$ | GMIII A2 (19) |
| n | Krater | $1501 / 2$ | GMIII A2 (20) |
| o | Bowl | $1505 / 1$ | GMIII A2 (20) |

and Aphek, Stratum X10 (Gadot and Yadin, 2009:203-206, Type BC4a). The bowl shown in Figure 3.1601 has a triangular rim and may belong to a chalice.

Carinated kraters with hammerhead rims (Figure 3.160m) are typical of the Iron I (see, e.g., Batash [Panitz-Cohen, 2006a:57-60, Type KR1], Tel Mor, Stratum VI [Barako, 2007: fig. 3.15:6], and Aphek, Strata X10-X9 [Gadot and Yadin, 2009:211-212, Type KR3]), continuing the carinated kraters of the LBII (see above). Another type illustrated is a rounded
krater (Figure 3.160n) with a slightly thickened rim and loop handle (see, e.g., Batash, Panitz-Cohen, 2006a:57, Type KR4). It is made of whitish clay. A decorated biconical krater (or jug) with a netted pattern (Figure 3.161h) was also found in Phase 6.

Several jars from Phase 6, including one complete example (Figure 3.161a-c), are illustrated. The nearly complete jar (Figure 3.161a) has an ovoid, long body, thickened rim, short neck, and pointed stump base; it is about 50 cm in height. Three other rim and neck fragments (Figure 3.161b,c) probably belong to the same

type of storage jar, although the shape of the rim varies in thickness and angle. Similar jars come from other Iron I-IIA sites, e.g., Tell Qasile, Strata XI-IX (Mazar, 1985a:54-56, fig. 48, Type SJ1), Ashdod, Stratum X (Dothan and Porath, 1982: figs. 3:17, 5:9, 9:1), Batash (Panitz-Cohen, 2006a:86, Type SJ3), Tel Mor (Barako, 2007: fig. 3.23), and Aphek (Gadot and Yadin, 2009: Type SJ2).

Two jugs illustrated from Phase 6 (Figure 3.161d,f) are of a similar type with a globular body, concave disk base, and thickened or triangular rim. Soot marks appear on various areas of these jugs. These are probably cooking jugs, appearing in Philistia during the Iron Age (for Philistine cooking jugs, see Killebrew, 1999:93-94, 2000; Dothan and Zukerman, 2004:28-31, figs. 36, 37, Type P; Ben-Shlomo et al., 2008, and references therein; see also, for recent results from Tel Mor, Stratum III, Barako, 2007:72, fig. 3.32:18-20). The third jug (Figure 3.161e) is also a rim and handle fragment, made from whitish clay; the rim is slightly inverted. This could also be a variant of a cooking jug. The presence of Iron Age I cooking jugs at Tell Jemmeh is characteristic of Philistine material culture during this period.

Another nearly complete jug (Figure 3.161 g ) has a globular body, flat base, and long, narrow neck; it resembles red-slipped Iron I jugs in its shape (see, e.g., Tell Qasile, Stratum X [Mazar, 1985a: figs. 41:7,8, 49:5-8] and Megiddo, Stratum VI [Loud, 1948: pl. 75:6-10]) but is undecorated.

Other pottery forms illustrated include a complete lamp (Figure 3.1611) with a simple rim and somewhat flat base; soot marks are seen on the spout. Other than the flatter base, this is similar to typical Iron I lamps (e.g., Batash, Panitz-Cohen, 2006a:117, Type LP1). A base of a cup and saucer (Figure 3.161 k ) was also found in Phase 6 (for this type, see above discussion of LBII pottery). A thick, slightly curved object with flaring edges (Figure 3.161 m ) may be a fragment of a stumpy, short stand (see, e.g., Aphek, Gadot and Yadin, 2009: fig. 8:14:4, LB;

Mazar and Panitz-Cohen, 2001:137, Iron II). Two residual Cypriot WS sherds are also illustrated (Figure 3.161i).

The second group of pottery forms from Phase 6 includes Philistine Bichrome pottery (Figure 3.162). These include bellshaped bowls (Figure 3.162a-d,g,h), bell-shaped kraters (Figure $3.162 \mathrm{f}, \mathrm{i}-1, \mathrm{~m}, \mathrm{n})$, and several decorated body sherds from closed vessels (e.g., Figure 3.162o). These sherds are usually decorated with white slip and black and red painted decoration, with motifs including spirals (Figure 3.162a-e,m,n), lozenges (Figure $3.162 \mathrm{i}, \mathrm{j}$ ), and a Maltese cross (Figure 3.162 n ). In addition, a string-cut fragment is the lower part of a false spout of a stirrup jug (Figure 3.162q), and a body sherd with a spout breakage mark (Figure 3.162p) is probably a fragment of a feeding bottletype jug. For further discussion on the Philistine pottery typology and decoration, see chapter 12.

Terra-cottas from Phase 6 include a clay disk or wheel (Figure 3.161 m ), a leg of a zoomorphic vessel or figurine (see chapter 17, Reg. No. 1271), and a fragment of a snake(?) figurine (see chapter 17, Figure 17.8d); a mud jar sealing (Figure 3.161n), a bronze point (Reg. No. 1326), and a handstone (Figure 23.3e) from this phase should also be noted.

## REMAINS OF PHASE 5

Phase 5 (Figure 3.163), identified in Sq. A2, was not very well preserved and was destroyed both by erosion to the east and by pits and features of later phases in the western part of the square. In the south balk of Sq. A2, above the nearly 1 m of brick collapse of Phase 6, a leveling of the area in layers of Phase 5 can be seen (Figures 3.157, 3.158). The architecture includes two walls defining Unit 4, which reflect a different plan than the one of Phases 9-6. Fragmentary Wall 6, severely cut by erosion in the east (Figure 3.164), seems to make a right angle with Wall

FIGURE 3.161. Pottery and finds from Phase 6. Cyp. WS = Cypriot White Slip ware. (opposite)

| Part | Description | Bag/Box/Reg. No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Jar | RV 51 | GMIII A2 (20) | 6 |
| b | Jar | 1557A/1 | GMIII A3 (2) 2 | 6 |
| c | Jar | 1501/1 | GMIII A2 (20) | 6 |
| d | Cooking jug; soot | 1512/1 | GMIII A2 (18) | 6 |
| e | Jug | 5054/1 | GMIII A2 (14) 1 | 6 |
| f | Jug | SI Cat. No. 915 | GMIII A3 (2) 2 | 6 |
| g | Cooking jug | 1514/1 | GMIII A3 (4) | 6 |
| h | Krater; decoration | 1 | GMIII A3 (3) | 6 |
| i | Milk bowl (Cyp. WS) | Box 526/1 | GMIII A2 (19) | 6 |
| j | Cyp. WS? | Box 530/1 | GMIII A3 (1A) 1 | 6 ? |
| k | Worked base | 1538/7 | GMIII A2 (19) | 6 |
| 1 | Lamp | RV 690 | GMIII A2 (20) | 6 |
| m | Stand(?) | 1506/1 | GMIII A3 (4) | 6 |
| n | Perforated sherd | Reg. No. 2426 | GMIII A2 (20) | 6 |
| O | Mud jar sealer | Reg. No. 1668 | GMIII A2 (20) | 6 |



FIGURE 3.162. Philistine pottery from Phase 6. $\mathrm{BSB}=$ bell-shaped bowl; $\mathrm{BS}=$ bell-shaped; Phil. $\mathrm{BC}=$ Philistine Bichrome ware. (opposite)

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl (BSB); white slip, red/black decoration | 1 | GMIII A2 (18) |
| b | Bowl (BSB); white slip, red/black decoration | 2 | GMIII A2 (18) |
| c | Bowl (BSB); white slip, red/black decoration | 1 | GMII A2 (19) |
| d | Bowl (BSB); white slip, red/black decoration | 2 | GMIII A2 (19) |
| e | Krater/bowl (BS); white slip, red/black decoration | 3 | GMII A2 (19) |
| f | Krater (BS); white slip, red/black decoration | 8 | GMIII A2 (19) |
| g | Krater (BSB); white slip, red/black decoration | 5 | GMIII A2 (19) |
| h | Bowl (BSB); white slip, red/black decoration | 2 | GMIII A3 (3) |
| i | Krater (BS); white slip, red/black decoration | 4 | GMIII A2 (19) |
| j | Krater(?); white slip, red/black decoration | 3 | GMII A2 (18) |
| k | Krater (BS); white slip, red/black decoration | 4 | GMIII A2 (18) |
| l | Krater (BS); white slip, red/black decoration | 6 | GMII A2 (18) |
| m | Bowl (BSB); soot, white slip, red/black decoration | 1 | GMIII A3 (4) |
| n | Krater (BS); white slip, red/black decoration | 6 | GMII A2 (19) |
| o | Sherd (Phil. BC); white slip, red/black decoration |  | GMIII A2 (15) 1 |
| p | Feeding bottle; white slip | 7 | GMIII A2 (19) |
| q | Stirrup jar | $1538 / 6$ | GMIII A2 (19) |



FIGURE 3.163. Plan of Phase 5.

5 , although the base of Wall 6 is about 0.5 m higher than that of Wall 5. A wall seen in the western balk of Sq. A2 (Wall 7, Figure 3.158) may also belong to the same phase. In the western part of Wall 5, several stones may be part of a threshold (Feature 2, Figure 3.164). No floor levels were detected here, and the finds are few.

Pottery illustrated includes a bell-shaped Philistine bowl (Figure 3.165b) with a vertical profile, a degenerated Philistine form (see chapter 12), and the horizontal handle of an undecorated
bell-shaped bowl (Figure 3.165c). Another fragment of an open bowl (Figure 3.165a) is decorated with red bands on the interior and along the rim and may also relate to the influence of Philistine pottery. An everted rim of a carinated bowl (Figure 3.165d) and a hammerhead rim of a carinated krater (Figure 3.165e; see discussion on this form in Phase 6 above, Figure 3.160) were also found, as well as a residual Cypriot WS sherd (Figure 3.165f). This small pottery assemblage indicates a date of the late Iron IB for Phase 5.


FIGURE 3.164. Walls 5 and 6 of Phase 5 in Sq. A2, looking northeast.


FIGURE 3.165. Pottery from Phase 5. BSB = bell-shaped bowl; Cyp. WS = Cypriot White Slip ware.

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl; decoration | 3 | GMIII A2 (13) 1 |
| b | Bowl (degenerated BSB) | 1 | GMIII A2 (13) 1 |
| c | Bowl (BSB?) | 2 | GMII A2 (13) 1 |
| d | Bowl | GMIII A2 (13) |  |
| e | Bowl/krater | 14989/1 | GMIII A2 (13) |
| f | Milk bowl (Cyp. WS) | Box 525/1 | GMIII A2 (13) |

## REMAINS OF PHASE 4

Phase 4 was only detected in Sqs. A1 and A2 (Figure 3.166). There is an about 1 m gap between the top of walls of Phase 5 in Sq. A2 $(57.63 \mathrm{~m})$ and the base of Phase 4 walls in Sq. A1 $(58.66 \mathrm{~m})$. This gap could be explained either by a leveling and constructional fill between the phases or by the existence of an abandonment phase or an additional Iron II constructional fill in between the two phases. Phase 4 was cut by Phases 2 and 3, and thus, it might be difficult at times to separate them, especially in relation to floor or debris levels. The lower wall in the east of Sq. A1, Wall 2, probably belongs to Phase 4. This wall is highly eroded on its eastern end, is cut by Wall 4 of the Phase 2 granary in the north, and continues into the south balk. A crumbly wall fragment from Sq. A2 (Wall 4; also possible Wall 3 in Sq. A2) may also belong to this phase. In Sq. A2, Layers 3-10 belong to Phase 4, with Layer 10 and/or Layer 7 being a floor level
associated with Wall 4 (Figure 3.167). In Sq. A1 the debris layers related to Wall 2 were completely eroded.

The pottery from the Phase 4 levels (especially in Sq. A2) contains some typical red-slipped Iron IIA forms (Figure 3.168). These include carinated open bowls (Figure 3.168a,b) with a slightly thickened rim and vertical upper wall, appearing with hand-burnished red slip on the interior (Figure 3.168b) or on both the interior and upper exterior (Figure 3.168a). Parallels come, for example, from Tell Qasile, Stratum IX (Mazar, 1985a: fig. 52:6) and Lachish, Levels V-IV (Zimhoni, 1997a: fig. 3.17). The ledge rim of a carinated bowl (Figure 3.168c) also has parallels in Lachish, Level IV (Zimhoni, 1997a: fig. 3.16.5). "Degenerated" or red-slipped bell-shaped bowls (Figure 3.168d-g; all examples are red slipped on the outside) are typical of the late Iron I or Iron IIA (see, e.g., Ben-Shlomo, 2006a:30,42). They have the bell-shaped form and a degenerated horizontal handle completely touching the vessel body (for this type, see chapter 12,


FIGURE 3.166. Plan of Phase 4.


FIGURE 3.167. A possible hard floor level of Phase 4 in Sq. A2 (Layer 7), looking south.

Figure 12.5). Another Philistine form appearing with red slip and burnishing is strainer-spouted jugs ("beer jugs"; Figure 3.168j1). For other examples of red-slipped and degenerated strainerspouted jugs, see, Ashdod, Stratum X (Dothan and Ben-Shlomo, 2005: fig. 3.72), and Tell Qasile, Stratum X (Mazar, 1985a: figs. 35:2,3, 36:1, 50:2-3; see also Field IV, Phases 11-9 in chapter 8 and chapter 12, Figure 12.6)(also Dothan 1982:191-194, Type 17, and references therein). Philistine red-slipped, degenerated pottery, or "Philistine 3" (Dothan et al., 2006:20, 72) ware, is typical of the Iron I-IIA transition and early Iron IIA (see further discussion in chapter 12).

The short neck of a jar (Figure 3.168i) is also illustrated, possibly similar to a type from Aphek, Stratum X-8 (Gadot and Yadin, 2009: fig. 8.11:10, Type SJ3; see also Khirbet

Qeiyafa, early 10th century BCE, Kang and Garfinkel, 2009a: fig. 6.24:4).

Although the architecture of Phase 4 was hardly preserved, the pottery from the thick accumulation of this phase seems to indicate a clear and distinct horizon of the Iron I-IIA transition or early Iron IIA (probably contemporary with Field IV, Phases 11-10). A body fragment of a Late Philistine Decorated Ware (LPDW) closed vessel is also illustrated (Figure 3.168h) and is also indicative of the Iron IIA (on this ware, see Field IV, Phases $11-8$ and chapter 12; see also Ben-Shlomo et al., 2004). The sherd is decorated by red burnishing and black paint; this ware is more common in Field IV. Other finds include an incised jar handle (Figure 19.1k) and a finger-impressed jar handle (Figure 19.2 g ; see chapter 20). A stone club-shaped pendant (Figure


FIGURE 3.168. Pottery from Phase 4. BSB = bell-shaped bowl; LPDW = Late Philistine Decorated Ware.

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl; red slip, burnish | $1494 / 1$ | GMIII A2 (7) |
| b | Bowl; red slip, burnish | $5025 / 2$ | GMIII A2 (9) |
| c | Bowl | $5019 / 3$ | GMIII A2 (8) |
| d | Bowl; red slip, burnish | $5019 / 1$ | GMIII A2 (8) |
| e | Bowl; red slip, burnish | $5025 / 1$ | GMIII A2 (9) |
| f | Bowl (degenerate BSB); red slip, burnish | $5019 / 2$ | GMIII A2 (8) |
| g | Bowl (degenerate BSB); red slip, burnish | $1489 / 1$ | GMIII A2 (3) |
| h | Sherd (LPDW); red slip, burnish, black decoration | $1489 / 2$ | GMIII A2 (3) |
| i | Jar | $5019 / 4$ | GMIII A2 (8) |
| j | Spout (SSJ?); white slip, decoration | $5025 / 4$ | GMIII A2 (9) |
| k | SSJ spout; red slip | $5025 / 3$ | GMIII A2 (9) |
| l | SSJ spout (LPDW); red slip, burnish | $1494 / 2$ | GMIII A2 (7) |

22.2 g ) was also found in Phase 4, typical of the Iron IIA (see chapter 22).

## REMAINS OF PHASE 3

Phase 3 is mainly represented by a thick brick wall in Sqs. A1 and A0 (Wall 1, Figures 3.169, 3.170). This wall is 1.1-1.2 m thick and is built of two lines of bricks with mortar filling between them. This wall is only preserved to a height of 20 cm , has a wide foundation trench, and continues into the eastern balk. Wall 3 (Figures 3.170 , 3.171) seems to make a right angle with Wall 1 and continues into the southern balk. However, Wall 3 is about 0.5 m lower than Wall 1 and thus could represent a lower level of Phase 3 (possibly subphase 3B?) or may even belong to Phase 4. Both walls are cut by granary Wall 4 of Phase 2. The top of Wall 1 is also cut by a Phase 1 grave (Feature 1, Figures 3.170, 3.180; see below). To the south of Wall 1, Locus 2 was defined,
whereas Locus 3 is to the north of Wall 1, and to the east of Wall 3 Locus 1 was defined. Layers $1-3$ in Sq. A1 belong to the phase associated with these walls. Pit 2 from Sq. A1 may also belong to this phase. The limited amount of pottery from these contexts can be dated to the Iron IIB-C (Figure 3.173). It is noteworthy that the Iron IIB-C period (contemporary with the "Assyrian levels" in Field IV, Phases 7-5) is meagerly represented in Field III, in contrast to the relatively rich finds from Field IV. This can be explained either by the fact that most of the Iron Age IIB-C remains were eroded in the squares excavated in Field III (thus, if more squares to the west would have been excavated, the situation would have changed) or by a lower intensity of occupation in this part of the site during this period. In any case, the few remains from this period still show massive and reinforced wall building, similar to finds from other fields at Tell Jemmeh.

The pottery from Phase 3 (Figure 3.172) includes only several typical Iron IIB forms, but as this is a small assemblage, a more exact dating cannot be made. A red-slipped bowl with a


FIGURE 3.169. Plan of Phase 3.


FIGURE 3.170. Square A1: Wall 1 of Phase 3 with a cavity from a grave (Feature 1), with Walls 2 and 3 in the rear right, looking east.
horizontal handle (Figure 3.172a) is probably residual from the Iron IIA. More indicative of the late Iron IIA or Iron Age IIB are two hole-mouth jars (Figure $3.172 \mathrm{f}, \mathrm{g}$ ) with thickened or hammerhead rims (on this shape, see, e.g., Mazar and Panitz-Cohen, 2001:105-107); the rims, however, indicate an earlier date within the Iron II (see, e.g., Lachish, Level IV, Zimhoni, 1997a: fig. 3.33:6). Two jar rims (Figure 3.172d,e) are more typical of Iron Age IIB-C sack-shaped jar types (see, e.g., Lachish, Level II, Zimhoni, 1997b: fig. 5.28; see further discussion on these types in Field IV in chapter 8). The body of a jar (Figure 3.172c) is more similar to Iron I-IIA types (see, e.g., Figure 3.161a). Another vessel is a flaring neck of a large, wide, closed globular vessel (Figure 3.172b), either an amphora, a storage jar, or a large krater; possible parallels come from Batash (Mazar and Panitz-Cohen, 2001: Type KR11). This may also be considered an Iron IIA-B type. A fragment of the hollow part of a vessel, a chalice or a large funnel, is also illustrated (Figure 3.172i). Thus,


FIGURE 3.171. Walls 1 (front), 2, and 3 (front left) in Sqs. A1 and A0; Pit 2 is seen in the rear balk, looking south.
it seems that Phase 3 includes both Iron IIA forms and a few Iron IIB-C ones; either this represents an Iron IIA-IIB transitional period (possibly similar to Field IV, Phase 8), or the pottery is stratigraphically mixed. A complete iron arrowhead found in Sq. A1, Wall 1 (Figure 3.172j, see chapter 23) should also be noted.

## REMAINS OF PHASE 2

The rounded granary wall (also denoted Granary 2) dated to the Persian period (Figures $3.173,3.174$ ) is the primary feature of Phase 2, delineated by Wall 4 in Sqs. A0 and A1 and Wall 2 in Sq. A2. The foundation trench of this wall was labeled Feature 1 in Sq. A2 (Figures 3.175, 3.176). The wall is built of three concentric lines of rectangular bricks (Figure 3.174). The projected diameter of the granary, which continues north beyond the excavation area, is 4.75 m , similar to the granaries excavated in Field IV and previously by Petrie (see chapter 8). The wall (whose base was at an elevation of 56.83 m ) was preserved to a height of 2 m , although it was likely higher and had eroded away. The foundation trench cuts Phases 3-6, and the fill inside (Sq. A1, Feature 2, dug 1.6 m deep, Figure 3.173), excavated down to an elevation of 57.91 m , cuts into Phases 3-5 and yielded mainly Iron II pottery. Four to six Aramaic ostraca were found in this fill (see chapter 32, Figures 32.3c,d, 32.4a, Reg. Nos. 1960-1963, possibly also SI Cat. Nos. 985, 986). Several deep pits disturbing earlier phases in Sqs. A2 and A3 are also attributed to Phase 2. These include Pit 2 in Sq. A2 and Pits 1 and 3 in Sq. A3 (Figure 3.177) Pit 3 is very large, at least 2 m in diameter and at least 1.5 m deep (the level from which it was dug was eroded in Sq. A3), and is seen in the west, south, and north balks of the square (Figures 3.152-3.154, 3.158), cutting through all levels. These pits contained Persian period pottery as well as earlier pottery (Figures 3.177, 3.181).

Some reconstructed pottery originates from Sq. A1, Pit 1 and Sq. A3, Feature 1 and Locus 2, Layer 2 (see Figure 3.177).


FIGURE 3.172. Pottery and finds from Phase $3 . \mathrm{BSB}=$ bell-shaped bowl.

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl (degenerate BSB); red slip, burnish | $1557 / 2$ | GMIII A1 (2) 2 |
| b | Amphora? | $1565 / 1$ | GMIII A1 (3) 2 |
| c | Jar | $1565 / 2$ | GMIII A1 (3) 2 |
| d | Jar | $5052 \mathrm{~A} / 1$ | GMIII A1 (3) 3 |
| e | Jar | $5056 / 3$ | GMIII A1 (1) 1 |
| f | Hole-mouth jar | $5056 / 1$ | GMIII A1 (1) 1 |
| g | Hole-mouth jar | $5056 / 2$ | GMIII A1 (1) 1 |
| h | Jar/jug | $5033 / 1$ | GMIII A1 (2) 3 |
| i | Chalice/funnel? | $5033 / 2$ | GMIII A1 (2) 3 |
| j | Iron arrowhead | Reg. No. 451 | GMIII A1 W1 |

These include a complete rounded bowl (Figure 3.178a, GMIII A3 (2)2; see Field IV, Persian material for similar forms) and a complete, small, deep carinated bowl with a thin, flaring rim and a concave base (Figure 3.178b). Parallels for the carinated bowl can be found at Megiddo, Tomb 64 (Guy and Engberg, 1938: pl. 74:8). These forms may be dated to the end of the Iron Age II or the Persian period. A complete lower part of a jar (Figure 3.178 c) with a button base and ovoid body was found in Sq. A3, Pit 3 or Feature 1 (Figure 3.177); this jar type may be of an earlier date and may belong to the Iron I-IIA (see above). An amphora or jug rim is also illustrated (Figure 3.178d), as well as a neck of a flask with two broken handles (Figure 3.178e). A lamp fragment (Figure 3.178f) was also found in Phase 2. In addition, a crudely handmade ceramic spout (Figure 3.178 g ) is possibly a spouted rim fragment of a crucible; it has red paint on its exterior. Several pottery vessels from this phase may be dated to the Persian period or earlier, including amphorae and
mortaria, yet much of the pottery seems to be redeposited from Iron Age levels.

## REMAINS OF PHASE 1

Phase 1 is represented by a single burial (Feature 1, Figures $3.179,3.180$ ) cutting both the top of Wall 1 of Phase 3 (Figure $3.180)$ and the face of Wall 4 of Phase 2. The simple pit grave contained one articulated skeleton with its head facing SSW; there were no finds associated with it. This is an apparent Islamic or modern grave, and its date could be any time from the Crusader-Mamluk to the modern period; the type and orientation of the burial is typical of Islamic and Bedouin graves (see, e.g., Toombs, 1985). A large pit dug from a level of 59.00 m in the northern part of Sq. A1 (Pit 1; see above) may also belong to Phase 1. This pit included large amounts of pottery and other


FIGURE 3.173. Plan of Phase 2.
finds, some of which were typical to the Persian period, including Attic sherds mostly dating to the 5th century BCE (Figure 3.181; see also chapter 14) and some earlier material as well. This material includes sherds from finely decorated open bowls or "plates" (Figure 3.181a,b), which may have been imported. Two jars are also illustrated (Figure 3.181c,d); the first has a thickened rim, whereas the second is a slightly inverted rim with incisions on the shoulder. Otherwise, no pottery can be clearly attributed to the uppermost phase. A reconstructed deep alabaster bowl was found in Sq. A3, Layer 2, Locus 2 (see chapter 23, Figure 23.10a).

## UNSTRATIFIED FINDS

In addition to the above-mentioned remains, several objects originating in the topsoil of Field III are worth mentioning
(Figure 3.182) as they may have special importance and/or represent an artifact type not appearing elsewhere. These include several RWB body sherds (Figure 3.182b,c; see section on MBII pottery above); three fragments of biconical jugs or kraters decorated with ibexes or other motifs (see above LBII discussion) are discussed in chapter 10. A fragment of a cup, knob, or a lid with red slip is illustrated (Figure 3.182d). This type is not identified and may belong to the LBII as it comes from Sq. B topsoil (see, e.g., a complex bowl from MBII from Megiddo, Stratum X [Loud, 1948: pl. 45:19] or LBII goblets from Hazor [Yadin et al., 1958: pl. XC:5,13]). Another nearly complete item illustrated is a rattle (Figure 3.182a); this is a completely closed globular ceramic object, about $8-9 \mathrm{~cm}$ in diameter, with one loop handle attached to the top. It is filled with balls, creating the rattle sound. Rattles are common in the Iron Age but appear in other periods as well (for cylindrical or bird-shaped rattles, see, e.g., Ashdod [Dothan and Ben-Shlomo, 2005:120, fig. 3.36:1], Beth Shemesh


FIGURE 3.174. Granary Wall 4 from above and looking north.


FIGURE 3.175. Square A1: Walls 1 and 2 (right and rear) cut by Granary Wall 4, looking east; note the deep fill excavated inside.


FIGURE 3.176. Section through fill inside granary (Sq. A1, Feature 2); note Pit 1 defined in the upper part.


FIGURE 3.177. Pottery from lower Pit 3 in Sq. A3, Level 2, Locus 2, looking north.


FIGURE 3.178. Pottery and finds from Phase 2.

| Part | Description | Bag/Box/Reg. No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | 1 | GMIII A3 (2) 2 | 2 ? |
| b | Bowl (votive?) | RV 152 (SI Cat. 916) | GMIII A3 (2) 2 | 2 ? |
| c | Jar | RV 52 | GMIII A3 F1 | 2 ? |
| d | Jug/amphora | $5052 / 3$ | GMIII A3 (2) 2 | 2 |
| e | Flask | $5052 / 1$ | GMIII A3 (2) 2 | 2 |
| f | Lamp; soot | $5067 / 1$ | GMIII A3 (2) 2 | 2 |
| g | Crucible/spout(?); red paint | $5052 / 2$ | GMIII A3 (2) 2 |  |



FIGURE 3.180. Grave, Feature 1, looking west.


FIGURE 3.181. Pottery from Phase 1.

| Part | Description | Bag/Box/Reg. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl; red slip | SI Cat. No. 398/1 | GMIII A1 P1 |
| b | Bowl; red slip | SI Cat. No. 398/2 | GMIII A1 P1 |
| c | Jar | $1567 / 1$ | GMIII A1 P1 |
| d | Jar | $1567 / 2$ | GMIII A1 P1 |



FIGURE 3.182. Selected unstratified finds from Field III.

| Part | Description | Bag/Box/Reg. No. | SI Cat. No. | Provenance |
| :--- | :--- | :--- | :--- | :--- |
| a | Rattle | RV 663 | 817 | GMIII B (+) |
| b | Sherd; red/white/blue decoration | Box 230/1 |  | GMIII J1 (1) |
| c | Sherd; red/white/blue decoration | Box 230/2 | GMII J1 (1) |  |
| d | Cup(?); red slip | $4438 / 1$ | GMIII B (0) |  |

[Grant, 1934: pl. XXIV: bottom], Gezer [Macalister, 1912: pl. CLXXVI:18], and Tell en-Nasbeh [McCown, 1947: pl. 46:20]).

## SUMMARY

The trench excavated in Field III provides an almost complete stratigraphic profile for Tell Jemmeh, particularly for the Chalcolithic, Middle Bronze, Late Bronze, and early Iron Ages. The sequence included some 19 phases, with several of these further divided into two subphases. This is the only area in the site where Chalcolithic levels were unearthed. Although no clear architecture was exposed from this period, a representative assemblage of Late Chalcolithic (Ghassulian) pottery was found, indicating a settlement roughly contemporary with the sites of the Beer-Sheba culture in the northern Negev.

Middle Bronze Age II is represented by four or five rather well-preserved constructional phases (Phases 18-15). The remains indicate domestic architecture and installation along the edge of the tell. The large quantities of storage jars, especially in Sqs. J1-J2, Phase 17, may indicate that this was a storage area; the clay sealings with scarab impressions found in Phase 16 indicate administrative activity to a certain extent. The rich pottery assemblage dates Phases $17-15$ to the latter part of the MBII or the MBIIC, probably the late 17 th to 16 th centuries BCE. Phase 18 might be slightly earlier, dating to the MBIIB. The remains include a rich and representative pottery assemblage, including a large quantity of jars and impressed clay sealings, imported Cypriot pottery in relatively large quantities, and unique vessels, such as the Tell el-Yahudiyeh zoomorphic bovine vessel.

Phase 14 may date to the LBII, but the finds securely retrieved from this phase represent a mixture of the MBIIC, LBII, and possibly LBI periods. Although no phase contains pottery of the LBI horizon, six or seven phases (13-8) are dated to the LBII. The remains show a series of overlying rooms, probably domestic structures, including grain storage and cooking installations. The pottery retrieved from these levels is not as rich as the previous MBII pottery but is rather typical of the LBII in the southern coastal plain (although not all types are represented). The pottery seems to suggest that Phases 13-11 date to the LBIIA (ca. 14th century BCE) and Phases $10-8$ to the LBIIB (13th century BCE).

Phase 7 is a poorly preserved (transitional?) phase, probably dating to the Iron Age IA, i.e., the 12th century BCE. The Iron IB
is represented by two Phases (6-5) with some fragmentary architectural remains and a collection of Philistine Bichrome pottery. From the brick collapses seen in the field, it seems that Phase 6 was violently destroyed, possibly by an earthquake.

The Iron II is rather poorly preserved, with two fragmentary phases (4-3), yielding small amounts of pottery; Phase 4 is tentatively dated to the Iron IIA and Phase 3 to the Iron IIB-C. The multiple building phases of the Iron IIB-C illustrated in Field IV are not represented in Field III (possibly these were eroded). A portion of a rounded brick granary was discovered above this (Phase 2) and can be dated to the Persian period, according to analogies from Field IV. An Islamic or modern grave and several pits cutting lower phases were defined as Phase 1, but hardly any datable pottery can be attributed to this phase.

In conclusion, the main contribution of Field III is that it includes the main or only stratified material remains for the Chalcolithic and MBIIB-C periods at the site, with a representative pottery assemblage. Furthermore, this is the only area in which virgin soil was clearly reached, indicating no pre-Ghassulian remains at the site, and it indicates the gap in occupation during the Early Bronze and MBI-IIA periods. Evidence for fortifications on the tell discovered in Trench ST1 (see chapter 5 and Van Beek, 1992) was not recovered in the Field III narrow trench, but possibly, these fortifications were located nearby. The strategic location and prominence of the site and the rich material culture, including many imported vessels, indicate this was an important settlement in the southern Levant during the MBIIB-C. Another important contribution is the long stratigraphic sequence of the LBII, with at least six phases; such a detailed sequence has rarely been uncovered (and even more rarely published) at any other site in the southern Levant. The good preservation of the brick walls and installation and the careful and detailed documentation of the section in the trench further contribute to the importance of this excavation field.

## AUTHOR NOTE

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## APPENDIX 3.1

TABLE 3.A1. List of contexts of Field III. The notation $\{\mathrm{xx}\}$ indicates the year of excavation when the layer number is repeated in various seasons. Recording of elevations was not systematic. In some cases only the upper or lower elevation was recorded, and in others it is questionable; the notation ( xx ) indicates estimated or recorded layer thickness.

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMIII A1 (0) | Topsoil | 59.56 |  | None |  |  |
| GMIII A1 (1) | Fill | 59.40 | 59.56 | 3-2? |  | Above P2, mixed pottery |
| GMIII A1 (1) 1 | Fill | 59.00 | 59.10 | 3 ? |  |  |
| GMIII A1 (2) 1 | Fill | 58.90 | 59.00 | 3 ? |  |  |
| GMIII A1 (2) 2 | Fill | 59.20 | 59.40 | 3 |  |  |
| GMIII A1 (3) 2 | Fill | 59.10 | 59.20 | 3 |  |  |
| GMIII A1 (2) 3 | Fill | 59.10 | 59.20 | 3 |  |  |
| GMIII A1 (3) 3 | Fill | 58.69? | 59.20? | 3 |  | Floor level of Wall 1? |
| GMIII A1 F1 | Burial |  |  | 1 |  | Islamic/modern burial |
| GMIII A1 F2 | Fill | 57.91 | 59.50 | 2-4 |  | Fill in granary; mostly Iron IIA pottery |
| GMIII A1 F2 (1) | Fill |  |  | 2 |  | Fill in granary, under P1 |
| GMIII A1 F2 (2) | Fill |  |  | 2 |  | Fill in granary |
| GMIII A1 W1 | Wall | 59.19 | 59.36 | 3(A?) |  | Brick wall |
| GMIII A1 W2 | Wall |  | 58.96 | 4 |  | Brick wall |
| GMIII A1 W3 | Wall |  | 58.59 | 3(B?) |  | Brick wall |
| GMIII A1 W4 | Wall | 57.91 | 58.80 | 2 |  | Rounded granary brick wall |
| GMIII A1 P1 | Pit |  | 59.00 | 1 ? |  |  |
| GMIII A1 P2 loc2 | Pit |  |  | 3 ? |  |  |
| GMIII A2 (1) | Fill |  |  | 3-4? |  | Equals A1 (2) 1 |
| GMIII A2 (2) | Fill | (0.2) |  | 3-4? |  |  |
| GMIII A2 (3) | Debris | (0.35) |  | 4 |  | Debris on floor; Iron IIA pottery |
| GMIII A2 (4) | Fill | (0.12) |  | 4 |  | Debris on floor; Iron IIA pottery |
| GMIII A2 (5) | Fill | (0.18) |  | 4 |  |  |
| GMIII A2 (6) | Fill | (0.2) |  | 4 |  |  |
| GMIII A2 (7) | Fill | (0.06) |  | 4 |  |  |
| GMIII A2 (8) | Fill | (0.08) |  | 4 |  |  |
| GMIII A2 (9) | Fill | (0.25) |  | 4 |  |  |
| GMIII A2 (10) | Floor? |  | 58.66? | 4 |  | Floor related to Wall 4? |
| GMIII A2 (11) | Fill | (0.11) |  | 5 ? |  |  |
| GMIII A2 (12) | Fill | (0.07) |  | 4-5? |  |  |
| GMIII A2 (13) 1 | Fill |  |  | 5 | Unit 4? |  |
| GMIII A2 (14) 1 | Fill | (0.15) |  | 6 | Unit 1?/3 |  |
| GMIII A2 (15) 1 | Fill |  |  | 6 | Unit 1?/3 |  |
| GMIII A2 (16) 1 | Fill |  |  | 6 | Unit 1?/3 |  |
| GMIII A2 (17) | Fill |  |  | 6 |  |  |
| GMIII A2 (18) | Fill |  |  | 6 | Unit 1?/3 |  |
| GMIII A2 (19) | Fill |  |  | 6 | Unit 1?/3 |  |
| GMIII A2 (20) | Floor? |  |  | 6 | Unit 1?/3 |  |
| GMIII A2 (21) | Fill |  |  | 6-7A |  |  |
| GMIII A2 F1 | Foundation trench |  | 2 |  | Foundation trench for Wall 2 |  |

TABLE 3.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMIII A2 F2 | Stones |  |  | 5 |  |  |
| GMIII A2 F3 | Floor |  |  | 6 | Unit 1?/3 | Pinkish plaster floor runs to west face of Wall 12 like layer 20 |
| GMIII A2 P1 | Pit |  |  | 2 |  | Equals A3 P3 |
| GMIII A2 W1 | Canceled |  |  | None |  | Canceled |
| GMIII A2 W2 | Wall |  |  | 2 |  | Equals A1 W4, granary wall |
| GMIII A2 W3 | Wall |  |  | 4 ? |  | Eroded |
| GMIII A2 W4 | Wall |  |  | 4 ? |  | Eroded |
| GMIII A2 W5 | Wall | 57.00 | 57.13 | 5 | Unit 4 | Brick wall |
| GMIII A2 W6 | Wall | 57.51 | 57.65 | 5 | Unit 4 | Brick wall |
| GMIII A2 W7 | Wall |  |  | 5-6? |  | Brick wall |
| GMIII A2 W8 | Bricks |  |  | 6 |  | Collapse of Wall 12 or upper Wall 9 |
| GMIII A2 W9 | Wall |  |  | 6 |  | Brick wall |
| GMIII A2 W10 | Wall | 55.82 | 56.00 | 6 |  | Brick wall |
| GMIII A2 W11 | Wall | 55.85 | 56.06 | 6(B?) |  | Brick wall |
| GMIII A2 W12 | Wall |  | 56.03 | 6(A?) |  | Brick wall |
| GMIII A3 (0) | Topsoil |  | 56.89 | None |  |  |
| GMIII A3 (1) | Wash layer |  |  | 6 |  | Equals A2 (17) |
| GMIII A3 (2) | Fill | (0.2) |  | 6 |  | Fill over Wall 1, equals A2 (18) |
| GMIII A3 (3) | Fill | (0.2) |  | 6 |  | Fill over Wall 1, equals A2 (18) |
| GMIII A3 (4) | Fill | (0.4) |  | 6 |  | Equals A2 (19) |
| GMIII A3 (5) | Floor | (0.02) |  | 6 |  | Equals A3 F2, A2 (20) |
| GMIII A3 (6) 1 | Fill | (0.18) |  | 7A | Unit 1 |  |
| GMIII A3 (7) 1 | Fill | (0.15) |  | 7A | Unit 1 |  |
| GMIII A3 (8) 1 | Fill | (0.06) |  | 7 A ? | Unit 1 |  |
| GMIII A3 (9) 1 | Fill | 55.00 | 55.10 | 8 ? | Unit 1 |  |
| GMIII A3 (10) 1 | Fill | (0.07) |  | 8 | Unit 1 | Runs to Wall 5, cut by P3 |
| GMIII A3 (11) 1 | Fill | (0.06) |  | 8 | Unit 1 | Runs to Wall 5, cut by P4 |
| GMIII A3 (12) 1 | Fill | (0.04) |  | 8 | Unit 1 | Runs to Wall 5, cut by P5 |
| GMIII A3 (13) 1 | Debris | 54.54 | 54.70 | 8 | Unit 1 | Runs to Wall 5, cut by P6 |
| GMIII A3 (14) 1 | Fill | (0.38) |  | 9 | Unit 1 | Runs to Wall 5, cut by P7 |
| GMIII A3 (15) 1 | Fill | (0.1) |  | 8 | Unit 1 | TT in base of wall 5 |
| GMIII A3 (2) 2 | Fill/pit |  |  | $2 ?$ |  | Equals P3 |
| GMIII A3 (1) 3 | Fill | 55.00 |  | 7A | Unit 2 |  |
| GMIII A3 (2) 3 | Fill |  |  | 8 | Unit 2 |  |
| GMIII A3 (3) 3 | Debris | 54.54 | 54.64 | 8 | Unit 2 |  |
| GMIII A3 (4) 3 | Debris |  | 54.70? | 9 | Unit 2 | Debris/floor in Unit 2 reaching F6; equals B F1 |
| GMIII A3 (5) 3 | Fill |  |  | 9-10 | Unit 2 |  |
| GMIII A3 (1) 4 | Fill | (0.05) |  | 9? |  | Equals B (5) |
| GMIII A3 (2) 4 | Fill | (0.05) |  | 9? |  |  |
| GMIII A3 (3) 4 | Fill |  |  | 9 | Unit 2? | Equals B (51) |
| GMIII A3 (4) 4 | Fill | (0.2) |  | 9 | Unit 2 | Equals B (51A) |
| GMIII A3 (6) 5 | Fill | (0.1) |  | 7B | Unit1? |  |
| GMIII A3 F1 | Pit |  |  | 2 ? |  | Equals P3, (2) 2 |

TABLE 3.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMIII A3 F2 | Floor |  | 55.82? | 6 ? | Unit 1? | Plaster floor associated with Wall 1 |
| GMIII A3 F3 | Foundation trench | (0.85) |  | 8 |  | Foundation trench of wall 4 |
| GMIII A3 F4 | Tabun |  |  | 7B |  |  |
| GMIII A3 F4A | ? |  |  | ? |  |  |
| GMIII A3 F5 | Tabun |  |  | 9 | Unit 2 |  |
| GMIII A3 F6 | Tabun |  |  | 9 | Unit 2 |  |
| GMIII A3 F7 | Bricks |  |  | 9 | Unit 2 |  |
| GMIII A3 W1 | Wall | 55.65 |  | 6 ? | Unit 1? | Brick wall, possibly continues A2 W10 |
| GMIII A3 W2 | Wall | 55.41 | 55.65 | 7A | Unit 1 | Brick wall |
| GMIII A3 W3 | Wall | 55.20 | 55.66 | 7A | Unit 1 | Brick wall |
| GMIII A3 W4 | Wall | 54.70 | 55.00 | 8 | Unit 1 | Brick wall |
| GMIII A3 W5 | Wall | 54.31 | 54.89 | 8-9 | Unit 1 | Brick wall; continuation of B W54 |
| GMIII A3 W6 | Wall |  | 54.96 | 9 | Unit 2 | Brick wall |
| GMIII A3 W7 | Wall |  | 54.71 | 9 | Unit 1 | Brick wall; continuation of B W50 |
| GMIII A3 W88 | Wall |  |  | 8-7A? |  | Brick wall; continuation of B W52 |
| GMIII A3 P1 | Pit |  |  | 2 ? |  |  |
| GMIII A3 P2 | Pit |  |  | 7A? |  |  |
| GMIII A3 P3 | Pit | (1.5) |  | 2 |  | Very large pit seen in W, S, N balks; cuts through all levels; equals A2 P1 |


| GMIII B (0) | Topsoil |  | None |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| GMIII B (50) | Fill | 54.74 | 55.32 | 9 | Room A |  |
| GMIII B (51) | Fill | 54.73 | 54.88 | 9 | Room A |  |
| GMIII B (51A) | Fill | 54.60 | 54.78 | 9 | Room A |  |
| GMIII B (51B) | Fill | 54.45 | 54.60 | 9 | Room A |  |
| GMIII B (52) | Fill | 54.35 | 54.55 | 9 | Room A |  |
| GMIII B (53) | Debris | 54.30 | 54.40 | 9 | Room A |  |
| GMIII B (54) | Debris | 54.20 | 54.37 | 9 | Unit 2 |  |
| GMIII B (54) 1 | Floor | 54.28 | 54.31 | 9 | Room A | Earth floor |
| GMIII B (55) | Fill | 53.96 | 54.20 | 10 |  |  |
| GMIII B (55) 1 | Fill | 54.08 | 54.28 | 10 |  | Equals 55 |
| GMIII B (56) | Fill | 53.67 | 54.04 | 10 |  |  |
| GMIII B (56) 2 | Fill | 53.67 | 54.04 | 10 | Unit 6 |  |
| GMIII B (56) 3 | Fill | 53.67 | 54.04 | 10 | Room B |  |
| GMIII B (56) 4 | Fill | 53.67 | 54.04 | 10 | Room C |  |
| GMIII B (57) 2 | Fill | 53.58 | 53.69 | 10 | Unit 6 |  |
| GMIII B (57) 3 | Fill | 53.57 | 53.65 | 10 | Room B |  |
| GMIII B (57) 4 | Fill | 53.58 | 53.69 | 10 | Room C |  |
| GMIII B (58) 2 | Fill | 53.50 | 53.58 | 10 | Unit 6 |  |
| GMIII B (58) 3 | Fill | 53.67 | 53.65 | 10 | Room B |  |
| GMIII B (58) 4 | Fill | 53.47 | 53.58 | 10 | Room C |  |
| GMIII B (59) 2 | Fill | 53.46 | 53.56 | $10-11$ | Unit 6 |  |
| GMIII B TT1 (59) 3 | Fill | 53.46 | 53.58 | 11 | Room B |  |
| GMIII B (59) 3 | Fill | 53.41 | 53.52 | 11 | Room C |  |

TABLE 3.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMIII B (60) 2 | Fill | 53.33 | 53.5 | 10-11 | Unit 6 |  |
| GMIII B TT2 (6) 3 | Fill | 53.37 | 53.5 | 11 | Room B? |  |
| GMIII B (60) 4 | Fill | 53.27 | 53.43 | 11 | Room C |  |
| GMIII B (61) 2 | Fill | 53.21 | 53.52 | 11 | Unit 6? |  |
| GMIII B TT3 (61) 3 | Fill | 53.14 | 53.34 | 11? | Room B? |  |
| GMIII B (61) 4 | Fill | 53.14 | 53.34 | 11 | Room C |  |
| GMIII B (61) 5 | Fill | 53.00 | 53.28 | 11 | Room C |  |
| GMIII B (62) 2(=7) | Floor/fill | 53.12 | 53.22 | 11 | Room D | Ashy floor layer with bones and pebbles |
| GMIII B (62) 5 | Floor/fill | 53.00 | 53.28 | 11 | Room C | Ashy floor layer with bones and pebbles |
| GMIII B (1) 6 | Fill | 53.00 | 53.26 | 11 | Unit 7 |  |
| GMIII B (2) 6 | Fill | 52.92 | 53.00 | 11 | Unit 7 |  |
| GMIII B (2A) 6 | Fill | 52.92 | 53.00 | 11-12 | Unit 7 |  |
| GMIII B (3) 6 | Fill | 52.79 | 52.92 | 12 |  |  |
| GMIII B (4) 6 | Fill | 52.58 | 52.79 | 12 |  |  |
| GMIII B (5) 6 | Fill | 52.18 | 52.58 | 12 |  |  |
| GMIII B TT1(1) 5 | Fill | 52.98 | 53.02 | 11 |  | Fill under Unit 6 |
| GMIII B TT1 (2) 5 | Fill | 52.90 | 52.93 | 11 | Unit 6? |  |
| GMIII B (63) 2(=7) | Fill | 52.89 | 53.18 | 11 | Room D |  |
| GMIII B TT2 5 | Fill | 52.86 | 53.03 | 11 | Unit 6? |  |
| GMIII B (63) 5 | Fill | 52.80 | 53.12 | 12 ? |  |  |
| GMIII B (63A) 5 | Fill/floor | 52.70 | 52.85 | 12 | Unit 8? |  |
| GMIII B (64) 5(=8) | Fill | 52.60 | 52.78 | 12 | Unit 8? |  |
| GMIII B (65) 9 | Fill | 52.06 | 52.22 | 12-13 |  |  |
| GMIII B (65) 10 | Fill | 52.47 | 52.79 | 12 | Unit 9 |  |
| GMIII B (1) 11 | Fill | 52.44 | 52.80 | 12 | Room E |  |
| GMIII B (1) 12 | Fill | 52.44 | 52.50 | 13 | Unit 11 |  |
| GMIII B (66) 13 | Fill | 52.42 | 52.67 | 12-13? | Unit 10 |  |
| GMIII B (66) 14 | Fill | 52.16? |  | 13 | Unit 11 |  |
| GMIII B (67) | Fill |  | 52.35 | 13 | Unit 10 |  |
| GMIII B (1) 15 | Fill | 52.10 | 52.16 | 13 | Unit 11 |  |
| GMIII B (2) 15 | Fill | 51.96 | 52.10 | 13 | Unit 11 |  |
| GMIII B (3) 15 | Fill | 51.81 | 51.96 | 13 | Unit 11 |  |
| GMIII B TT3 | Fill | 51.90 | 52.31 | 13-14 |  | Under Unit 10 |
| GMIII B F1 477$\}$ | Floor | 54.08 | 54.22 | 9 | Room A | Cobble floor |
| GMIII B F1A $\{77\}$ | Floor bedding | 54.08 | 54.22 | 9 | Room A | Ash bedding for F1(77) |
| GMIII B F1 | Ash layer | 54.78 | 55.05 | 9 | Unit 2 |  |
| GMIII B F1A | Ash layer | 54.70 | 54.85 | 9 | Unit 2 |  |
| GMIII B F1B | Ash layer | 54.70 | 54.74 | 9 | Unit 2 |  |
| GMIII B F1C | Ash layer | 54.45 | 54.58 | 9 | Unit 2 |  |
| GMIII B F1D | Ash layer | 54.35 | 54.47 | 9 | Unit 2 |  |
| GMIII B F1E | Ash layer | 54.30 | 54.38 | 9 | Unit 2 |  |
| GMIII B F1 6 | Tabun | 52.68 | 52.96 | 11 | Unit 7 |  |
| GMIII B F2 1 | Bricks | 54.03 | 54.11 | 9-10 |  |  |
| GMIII B F3 2 | Hearth? | 53.50 | 53.6 | 10 | Unit 6 |  |
| GMIII B F4 2 | Bricks | 53.19 | 53.35 | 11 | Room D? |  |
| GMIII B F5 5 | Tabun/oven | 52.51 | 52.87 | 12 A | Unit 8 |  |
| GMIII B F6 8 | Stones | 52.4 | 52.5 | 12 | Unit 8 |  |

TABLE 3.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMIII B F7 9 | Installation (bin) | 52.4 | 52.58 | 12B | Unit 8 |  |
| GMIII B F8 | Oven/tabun | 51.9 | 52.25 | 13 | Unit 10 |  |
| GMIII B F9 | Paving | 51.94 | 52.35 | 13-14 | Unit 11 | Stone paving |
| GMIII B F10 | Tabun | 52.02 | 52.22 | 13 | Unit 11 |  |
| GMIII B F11 | Tabun |  | 51.94 | 13-14 | Unit 11 |  |
| GMIII B F11A | Tabun |  | 51.94 | 13-14 | Unit 11 |  |
| GMIII B W50 | Wall | 54.19 | 55.16 | 9 | Room A | Brick wall |
| GMIII B W51 | Wall? |  | 54.88 | 9 | Room A |  |
| GMIII B W 52 | Wall | 54.83 | 55.2 | 8 ? | Room A? |  |
| GMIII B W53 | Wall |  | 54.25 | 9 | Room A | Brick wall |
| GMIII B W54 | Wall | 54.15 | 55.1 | 9 | Room A | Brick wall |
| GMIII B W55 | Wall |  | 54.35 | 9 | Room A | Brick wall |
| GMIII B W56 | Wall | 53.22-10 | 53.95 | 10 | Room C-D | Brick wall |
| GMIII B W56A | Wall | 53.52 | 53.95 | 10 | Room B | Brick wall |
| GMIII B W57 | Wall | 53.30 | 53.59 | 7 a | Room B-C | Brick wall |
| GMIII B W57A | Wall | 53.66 | 54.01 | 10 | Room B-C | Brick wall |
| GMIII B W58 | Wall | 53.57 | 53.77 | 10 | Room B | Brick wall |
| GMIII B W59 | Wall | 53.00 | 54.19 | 10-11 | Room B | Brick wall |
| GMIII B W60 | Wall | 53.67 |  | 10 | Unit to $S$ | Brick wall |
| GMIII B W61 | Wall | 53.12 | 53.46 | 11 | Room C | Brick wall |
| GMIII B W62 | Wall | 52.71? | 53.36 | 11 | Room C | Brick wall |
| GMIII B W63 | Wall | 52.73 | 53.22 | 11 | Room C-D | Brick wall |
| GMIII B W64 | Wall | 53.00 | 53.38 | 11 | Room D | Brick wall |
| GMIII B W65 | Wall | 52.92 | 53.08 | 11 | Room D | Brick wall |
| GMIII B W66 | Wall | 52.66 | 53.42? | 12 | Room E | Brick wall |
| GMIII B W67 | Wall |  | 52.93 | 11-12 | Unit to south | Brick wall |
| GMIII B W68 | Wall | 52.60 | 52.73 | 12 | Unit 8 | Brick wall |
| GMIII B W69 | Wall | 52.66 | 52.82 | 12 | Room E | Brick wall |
| GMIII B W70 | Wall | 52.45 | 52.63 | 12 | Room E | Brick wall |
| GMIII B W71 | Wall | 52.46 | 53.00 | 12 | Unit 8 | Brick wall |
| GMIII B W72 | Wall | 52.60? | 52.95? | 12 | Unit 8 | Stone foundation of W71 |
| GMIII B W73 | Wall | 52.44 | 52.51 | 13 | Unit 10 | Brick wall |
| GMIII B W74 | Wall | 52.23 | 52.43 | 13 | Unit 10 | Brick wall |
| GMIII B W75 | Wall | 52.10 | 52.66 | 12 | Room E | Brick wall/bench |
| GMIII B W76 | Wall |  | 52.36 | 13 | Unit 10 | Brick wall |
| GMIII C1 (68) | Fill | 51.85 | 51.99 | 13-14 | Unit 11 |  |
| GMIII C1 (69) | Fill |  |  | 14 |  |  |
| GMIII C1 (1) 1 | Fill |  |  | 14 | Unit 12 |  |
| GMIII C1 (2) 1 | Fill |  |  | 14 | Unit 12 |  |
| GMIII C1 (1) 2 | Fill |  |  | 14 | Unit 13 |  |
| GMIII C1 (70) | Fill |  |  | 14 |  |  |
| GMIII C1 (71) | Fill |  |  | 14 |  |  |
| GMIII C1 (72) | Fill |  |  | 14 |  |  |
| GMIII C1 (73) | Fill |  |  | 14 |  |  |
| GMIII C1 (74) | Debris/floor |  |  | 14 |  |  |
| GMIII C1 (75) | Fill |  |  | 14-15 |  |  |
| GMIII C1 (76) | Fill |  |  | 14-15 |  |  |
| GMIII C1 (77) | Fill |  |  | 15 |  |  |
| GMIII C1 (78) | Fill |  |  | 15 |  |  |

(continued)

TABLE 3.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMIII C1 (79) | Fill |  |  | 15 |  |  |
| GMIII C1 (80) | Fill |  |  | 16 |  | Equals (81) |
| GMIII C1 (81) | Fill | 50.05(49.50?) | 50.59 | 16 |  | Fill and brick tumble |
| GMIII C1 (81A) | Fill |  |  | 16 |  | Equals (81) |
| GMIII C1 TT1 (82) | Fill |  |  | 16 |  |  |
| GMIII C1 TT1 (83) | Fill |  |  | 16 |  |  |
| GMIII C1 F12 | Cobbles | 51.96 | 52.12 | 13-14 | Unit 11 |  |
| GMIII C1 F13 1 | Installation (bin) | 50.87 | 51.34 | 14 | Unit 12 |  |
| GMIII C1 F13A 1 | Foundation trench |  | 14 | Unit 12 | Foundation trench of F13 |  |
| GMIII C1 F13 1 | Fill |  |  | 14 | Unit 12 | Fill in lower F13 |
| GMIII C1 F13 (2) 1 | Fill |  |  | 14 | Unit 12 | Fill in lower F13 |
| GMIII C1 F13 (3) 1 | Fill |  |  | 14 | Unit 12 | Fill in lower F13 |
| GMIII C1 F14 | Bricks/bench | 51.30 | 51.40 | 14 | Unit 12 |  |
| GMIII C1 F15 |  |  |  | 15 |  | Equals W79 |
| GMIII C1 F16 | Bricks | 50.05 | 50.52 | 16 |  | Brick tumble (81) |
| GMIII C1 F17 | Tabun | 49.55 |  | 16 |  |  |
| GMIII C2 F18 | Loom weights? | 48.95 | 18 |  |  |  |
| GMIII C2 F19 | Pillar base/posthole | 48.74 | 48.95 | 18 |  |  |
| GMIII C2 F20 | Installation | 49.00 | 49.10 | 17-18? |  |  |
| GMIII C2 F21 | Tabun | 48.70 | 49.06 | 18 |  |  |
| GMIII C3 F22 | Pit | 47.45 | 48.70 | 18-19 |  |  |
| GMIII C3 F22A | Brick layer |  |  | 18-19 |  | Lumps of bricks around F22 |
| GMIII C3 TT2 F23 | Fill |  |  | 19 |  |  |
| GMIII C3 F24 |  |  |  | 18 |  |  |
| GMIII C3 F25 | Brick layer |  |  | 19 |  |  |
| GMIII C1 W77 | Wall | 51.07 | 51.80 | 14 | Unit 12 | Brick wall |
| GMIII C1 W78 | Wall | 51.10 | 51.14 | 14 | Unit 12 | Brick wall |
| GMIII C1 W79 | Wall | 50.58 | 50.86 | 15 |  | Brick wall (=F15) |
| GMIII C2 W80 | Wall |  | 49.88 | 17 |  |  |
| GMIII C1-C2 W81 | Wall | 49.29 | 50.37 | 17 |  | Brick wall |
| GMIII C2 W82 | Wall |  | 49.61 | 17 |  | Brick wall |
| GMIII C2 (82) | Fill |  |  | 16 |  | Fill and bricks |
| GMIII C2 (83) | Fill |  |  | 16 |  |  |
| GMIII C2 (84) | Fill |  |  | 16 |  |  |
| GMIII C2 (85) | Ash layer |  |  | 16 |  | Relating to F17 |
| GMIII C2 (86) | Floor/fill | (0.15) |  | 18 |  |  |
| GMIII C2 (87) | Ash layer |  |  | 18 |  |  |
| GMIII C2 (87A) | Ash layer |  |  | 17-18 |  |  |
| GMIII C2 (88) | Fill |  |  | 18-19 |  |  |
| GMIII C2 (89) | Fill |  |  | 18-19 |  |  |
| GMIII C3 (90) | Fill |  |  | 19 |  |  |
| GMIII C3 (91) | Fill |  |  | 19 |  |  |
| GMIII C2-C3 P1 | Pit | 48.30 | 48.35 | 18 |  |  |
| GMIII C3 P2 | Pit | 47.12 | 47.45 | 19 ? |  | Equals P3 |
| GMIII C3 P3 | Pit | 46.46 |  | 19 |  |  |
| GMIII C3 TT1 (1-2) | Fill |  |  | 18 |  |  |
| GMIII C3 TT1 (3-4) | Fill |  |  | 19 |  |  |
| GMIII C3 TT2 (1) | Fill | 48.12 | 48.60 | 19 |  |  |

TABLE 3.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMIII C3 TT2 (2) | Fill | 47.80 | 48.12 | 19 |  |  |
| GMIII C3 TT2 (3) | Fill | 47.70 | 47.80 | 19 |  |  |
| GMIII C3 TT2 (4) | Fill | 47.60 | 47.70 | 19 |  |  |
| GMIII C3 TT2 (5) | Virgin soil | 47.50 | 47.60 | None |  |  |
| GMIII C3 TT3 (1-2) | Trench | 47.50 |  | 19? |  |  |
| GMIII F1 (0) | Topsoil |  |  | None |  |  |
| GMIII F1 (1) | Fill | 51.13 | 51.45 | 14 ? |  |  |
| GMIII F1 (2) 1 | Fill | 50.83 | 51.17 | 14 ? | Room F |  |
| GMIII F1 (2) 2 | Fill | 50.97 | 51.13 | 14 | Unit 14 |  |
| GMIII F1 (3) 1 | Fill | 50.70 | 50.97 | 14A | Room F |  |
| GMIII F1 (4) | Fill | 50.57 | 50.87 | 15? |  |  |
| GMIII F1F1 (4) | Bricks | 50.67 | 50.86 | 15? |  |  |
| GMIII F1 (5) | Fill | 50.11 | 50.73 | 15? |  |  |
| GMIII F1 (5) 4 | Fill | 49.77 | 50.19 | 15?-16? | Unit 15 |  |
| GMIII F1 (6) 4 | Fill |  |  | 15?-16? |  |  |
| GMIII F1 (6) 5 | Fill | 49.65 | 49.83 | 16 | Room G? |  |
| GMIII F1 (7) 5 | Fill | 49.92 | 50.19 | 15 | Room G? |  |
| GMIII F1 F1 1 | Tabun | 50.70 | 51.06 | 14 A | Room F |  |
| GMIII F1 F2 1 | Installation | 50.75 | 50.95 | 14 B ? |  | Brick installation |
| GMIII F1 F3 | Stones/pit | 50.19 | 50.40 | 14 ? |  |  |
| GMIII F1 F4 | Bricks | 50.11 | 50.16 | 14B? |  |  |
| GMIII F1 F5 | Tabun | 49.57 | 49.76 | 16 |  |  |
| GMIII F1 F6 | Bricks |  | 50.18 | 16 |  |  |
| GMIII F1 F7 | Tabun | 49.82 | 49.96 | 16 |  |  |
| GMIII F1 W1 | Stones | 51.22 | 51.33 | 14 ? | Room F | Stones; same as Wall 77? |
| GMIII F1 W2 | Wall | 50.85 | 51.24 | 14A | Room F |  |
| GMIII F1 W3 | Wall | 50.87 | 51.18 | 14 | Room F |  |
| GMIII F1 W4 | Wall | 50.7 | 50.95 | 14B? | Room F |  |
| GMIII F1 W5 | Wall | 50.24 | 50.35 | 15 | Room G? | Brick wall |
| GMIII F1 W6 | Wall | 50.06 | 50.16 | 15 | Room G? | Brick wall |
| GMIII F1 W7 | Wall | 49.84 | 49.96 | 16 ? |  | Brick wall |
| GMIII F1 P1 | Pit | 49.21 | 49.99 | 16 |  |  |
| GMIII F2 (8) 5 | Fill | 49.73 | 49.94 | 16 ? |  | Fill under Room G |
| GMIII F2 (9) | Fill | 49.67 | 49.82 | 16 ? |  |  |
| GMIII F2 (10) | Fill | 49.60 | 49.67 | 16 ? |  |  |
| GMIII F2 (11) | Fill | 49.59 | 49.75 | 16 ? |  |  |
| GMIII F2 (12) | Fill | 49.32 | 49.66 | 16 ? |  |  |
| GMIII F2 TT1 (1) | Fill | 49.22 | 49.46 | 16-17? |  |  |
| GMIII F2 TT1 (2) | Fill | 49.20 | 49.32 | 16-17? |  |  |
| GMIII F2 (13) | Fill | 49.43 | 49.56 | 17? |  |  |
| GMIII F2 (14) | Fill | 49.30 | 49.49 | 17? |  |  |
| GMIII F2 (15) | Fill/debris | 49.11 | 49.41 | 17? |  |  |
| GMIII F2 (16) 1 | Floor | 49.11 | 49.38 | 17 |  |  |
| GMIII F2 (16) 2 | Floor | 49.39 | 49.49 | 17 | Room H |  |
| GMIII F2 (17) 1 | Fill | 49.26 | 49.35 | 17 |  |  |
| GMIII F2 (17) 2 | Fill | 49.31 | 49.39 | 17 | Room H |  |
| GMIII F2 (17) 3 | Fill | 49.06 | 49.27 | 17 |  |  |
| GMIII F2 (18) 1 | Fill | 49.21 | 49.29 | 17 |  |  |
| GMIII F2 (18) 2 | Fill | 48.92 | 49.08 | 17-18 | Room H? |  |

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TABLE 3.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMIII F2 (19) 1 | Fill | 49.06 | 49.25 | 17-18 |  |  |
| GMIII F2 (19) 2 | Fill | 48.80 | 49.08 | 18? |  |  |
| GMIII F2 (20) 1 | Fill | 48.80 | 49.13 | 18 |  |  |
| GMIII F2 (21) 1 | Fill | 48.76 | 49.06 | 18 |  |  |
| GMIII F2 (22) 1 | Fill | 48.76 | 49.07 | 19 |  |  |
| GMIII F2 (23) 1 | Fill | 48.76 | 48.93 | 19 |  |  |
| GMIII F2 F8 | Pit? | 49.66 | 49.87 | 16 |  |  |
| GMIII F2 F9 | Pit/installation | 49.60 | 49.70 | 16-17? |  |  |
| GMIII F2 F10 | Equid burial | 49.16 | 49.34 | 16-17? |  |  |
| GMIII F2 F11 | Pit? | 49.19 | 49.41 | 16-17? |  | Pit of F10 |
| GMIII F2 F12 | Mortar layer | 49.39 | 49.49 | 17 |  | Bedding mortar of W8 |
| GMIII F2 F13 | Installation? | 49.29 | 49.37 | 17? |  |  |
| GMIII F2 F14 | Clay strip | 49.21 | 49.33 | 17? |  | Wall? |
| GMIII F2 F15 | Tabun | 49.11 | 49.29 | 17? |  |  |
| GMIII F2 F16 | Fill | 49.08 | 49.40 | 17? |  |  |
| GMIII F2 F17 | Ash | 48.96 | 49.06 | 18 |  |  |
| GMIII F2 F18 | Pit | 48.62 | 49.05 | 18 |  |  |
| GMIII F2 F18A | Pit | 48.92 | 49.18 | 18 |  |  |
| GMIII F2 F19 | Brick | 48.95 | 49.06 | 18 |  | Patch of bricky material |
| GMIII F2-J2 W8 | Wall? | 49.41 | 49.70 | 17 | Unit 16? |  |
| GMIII F2 W9 | Bricks/wall? | 49.38 | 49.39 | 17?? |  |  |
| GMIII F2 W10 | Wall ? | 49.08 | 49.55 | 17? |  |  |
| GMIII F2 W11 | Wall | 49.08 | 49.47 | 17? |  | Brick wall |
| GMIII F2 W12 | Wall | 49.08 | 49.47 | 17? |  | Brick wall |
| GMIII F2 P2 | Pit | 48.23 | 49.53 | 16-17? |  |  |
| GMIII F2 P2 (1) | Pit | 48.65 | 49.53 | 16-17? |  |  |
| GMIII F2 P2 (2) | Pit | 48.33 | 48.65 | 16-17? |  |  |
| GMIII J1 (1) | Fill/topsoil |  | 51.41 | None |  |  |
| GMIII J1 (2) | Fill/topsoil | 51.38 | 51.48 | None |  |  |
| GMIII J1 (3) | Fill/debris | 51.38 | 51.51 | 14 ? |  |  |
| GMIII J1 (4) 1 | Fill |  | 51.25 | 14 |  |  |
| GMIII J1 (4) 2 | Fill | 51.03 | 51.14 | 14 | Room F |  |
| GMIII J1 (5) 1 | Fill |  | 51.15 | 14 |  |  |
| GMIII J1 (5) 2 | Fill |  | 51.03 | 14 | Room F |  |
| GMIII J1 (6) 2 | Fill |  | 50.91 | 14 | Room F |  |
| GMIII J1 (7) | Fill | 50.95 | 51.11 | 15 |  |  |
| GMIII J1 (8) 1 | Fill | 50.69 | 50.75 | 15 |  |  |
| GMIII J1 (8) 2 | Fill | 50.24 | 50.4 | 15 | Room G |  |
| GMIII J1 (9) 1 | Fill | 50.41 | 50.75 | 15 |  |  |
| GMIII J1 (9) 2 | Fill |  | 50.19 | 15 | Room G |  |
| GMIII J1 (9) 3 | Fill | 50.25 | 50.34 | 16? |  |  |
| GMIII J1 (10) 1 | Fill |  | 50.69 | 15 ? |  |  |
| GMIII J1 (10) 2 | Fill |  | 50.2 | 15 | Room G |  |
| GMIII J1 (10) 3 | Fill |  | 50.39 | 15 |  |  |
| GMIII J1 (11) 1 | Fill |  | 50.52 | 15? |  |  |
| GMIII J1 (11) 2 | Fill/floor |  |  | 15 | Room G |  |
| GMIII J1 (11) 3 | Fill | 50.21 | 50.31 | 16 |  | Fill below W4 |
| GMIII J1 (11) $\{84\}$ | Fill | 50.21 |  | 16? |  |  |
| GMIII J1 (12) 1 | Fill | 50.18 | 50.26 | 16? |  |  |

TABLE 3.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMIII J1 (13) \{84\} | Fill |  | 50.2 | 16? |  |  |
| GMIII (14) \{84\} | Fill | 50.11 | 50.21 | 16 ? |  |  |
| GMIII J1 F1 (2) | Pit? | 51.38 | 51.47 | 14 ? |  |  |
| GMIII J1 F2 1 | Fill/FT |  | 50.99 | 14 ? |  | Ashy area north of W1 possibly foundation trench |
| GMIII J1 F3 | Jar |  | 50.19 | 15? |  |  |
| GMIII J1 F4 | Bricks (steps?) |  | 50.52 | 15 ? |  |  |
| GMIII J1 F5 | Bricks |  | 50.42 | 15(B?) |  |  |
| GMIII J1 W1 | Wall |  | 51.02 | 14(B?) | Room F | Brick wall |
| GMIII J1 W2 | Wall |  | 50.97 | 14(B?) | Room F | Brick wall |
| GMIII J1 W3 | Wall | 50.76 | 51.10 | 15 | Room G | Brick wall |
| GMIII J1 W4 | Wall | 50.79 | 50.73 | 15 | Room G | Brick wall |
| GMIII J1 W5 | Wall |  | 50.39 | 15-16? |  |  |
| GMIII J2 W6 | Wall? |  | 49.91 | 16-17? |  | Few bricks |
| GMIII J2 W7 | Wall? | 49.23 | 49.76 | 16-17? |  | Few bricks |
| GMIII J2 W8 | Wall? | 49.55 | 49.82 | 16-17? |  | Few bricks |
| GMIII J2 W9 | Wall |  | 49.32 | 17? |  | Brick wall |
| GMIII J1 W10 | Wall | 50.33 | 50.63 | 15 |  | Brick wall |
| GMIII J1 W11 | Wall |  | 50.30 | 16 |  | Brick wall |
| GMIII J1 W12 | Wall | 50.24 | 50.31 | 16 |  | Brick wall |
| GMIII J2 (13) | Fill/floor | 50.02 | 50.15 | 16 |  | Ash layer with 2-3 (jar?) holes |
| GMIII J1 \& J2 (14) | Fill | 49.78 | 50.08 | 16 |  |  |
| GMIII J1 \& J2 (15) | Fill | 49.66 | 49.92 | 16 |  |  |
| GMIII J1 \& J2 (16) 1 | Fill | 49.39 | 49.66 | 17 |  |  |
| GMIII J1 \& J2 (16) 2 | Fill | 49.39 | 49.4 | 17 |  |  |
| GMIII J1 \& J2 (16A) | Fill |  | 49.77 | 17? |  |  |
| GMIII J1 \& J2 (17) 1 | Fill/debris | 49.39 | 49.49 | 17 |  | Fill north of W6 |
| GMIII J1 \& J2 (17) 2 | Fill |  | 49.21 | 17 |  |  |
| GMIII J2 (18) 1 | Fill | 49.20 | 49.31 | 17 |  |  |
| GMIII J2 (18) 2 | Fill | 49.12 |  | 17 |  |  |
| GMIII J2 (19) 2 | Debris | 49.25 | 49.25 | 17 |  |  |
| GMIII J2 (20) 2 | Floor? | 49.14 | 49.25 | 17 |  |  |
| GMIII J2 (21) 2 | Fill | 48.95 | 49.05 | 17 |  |  |
| GMIII J2 (22) | Fill | 48.62 | 48.90 | 17-18 |  |  |
| GMIII J2 (23) | Fill | 48.43 | 48.62 | 18-19 |  | $1 \times 1 \mathrm{~m}$ probe |
| GMIII J2 (24) | Fill | 48.32 | 48.43 | 19 |  | $1 \times 1 \mathrm{~m}$ probe |
| GMIII J2 (25) | Fill | 48.07 | 48.32 | 19 |  | $1 \times 1 \mathrm{~m}$ probe |
| GMIII J2 (26) | Fill/virgin soil | 47.49 | 48.07 | 19 |  | $1 \times 1 \mathrm{~m}$ probe |
| GMIII J2 F6 | Pit | 49.93 | 50.02 | 16 |  | Pit lined with pebbles |
| GMIII J2 F7 | Bricks |  | 49.89 | 16 |  | Possible blocked doorway |
| GMIII J2 F8 | Bricks | 48.98 | 49.33 | 17 |  | Brick frame related to F7 |
| GMIII J1 F9 | Tabun | 50.25 | 50.30 | 15 |  |  |
| GMIII J2 P1 | Pit | 49.52 |  | 16 ? |  |  |
| GMIII J2 P2 | Pit | 47.66 | 48.32? | 19? |  |  |
| GMIII J1-J2 P3 | Pit | 50.38 | 50.65 | 15 ? |  |  |

# Field II: The Northwestern Stepped Trench 

David Ben-Shlomo

## INTRODUCTION

Field II, excavated during the 1972-1976 seasons, consisted of a stepped trench located along the northwestern slope of the tell (Figures 1.11, 4.1). The main trench, oriented northwest-southeast, was approximately $2 \times 22 \mathrm{~m}$ (Step Trench B-C, Figure 4.2). The difference in elevation between the upper square (C1) and lower (A6) square was about 15.5 m (topsoil elevations measured were $61.30-46.85 \mathrm{~m}$; virgin soil was reached in Square A6 at elevations $45.80-47.60 \mathrm{~m}$ ). The trench was excavated in several sections. Square C3 was added to the west of Square C2 in 1974, parallel to Square A3 to its north (to enlarge the exposure of the stone surface), whereas to the east of Square A3 and parallel to Square C2, Square A2 was added in the same season (Figure 4.2). Squares D4-D5 were opened about 7 m to the south of the main trench (separated by a naturally eroded gully, used as the excavation dump; see Figures 4.4, 4.18; see also Van Beek, 1992:4*), creating another $6 \times 2 \mathrm{~m}$ trench with the same orientation (elevations were 48.05-53.40 m). Altogether, an area of about $46 \mathrm{~m}^{2}$ was excavated, divided into nine small "squares" (which were, in fact, $2 \times 3-4 \mathrm{~m}$ rectangles, denoted as C1, C2, B3, A3, A4, A5, A6, D4, and D5; Figure 4.2). Field II was supervised by Lee Marfoe and Michael Shea (1975); architects were Brian Lalor and David Sheehan.

The primary aims of the excavations in this field were to obtain a sequence of the different periods at the site and to examine evidence for fortifications, which were thought to have been visible in previously eroded slopes to the west of this area. A single probe on the west was opened in search of the cemetery, as an eroded shaft opening seemed to have been observed there. This probe apparently did not yield any finds. Virgin soil was reached in the lower square, Square A6, as high as 47.60 m (seen as a clear line in the eastern and northern balks, Figure 4.3). Six occupation phases were identified.

## REMAINS OF PHASE 6 AND BENEATH PHASE 6 (PHASE 6/7)

The lowermost phase in Field II was sealed between virgin soil below and Square A3, Feature 5 (the stone pavement or foundation; see Figures 4.5-4.10), found in Sqs. A3 and A5-A6. This is not a well-defined architectural phase, but rather includes finds that seem to predate the Phase 6 stone pavement (thus denoted


FIGURE 4.1. General photo of Field II before excavation, from the east.

| A6 | A5 | A4 | A 3 |  |
| :---: | :---: | :---: | :---: | :---: |
| 4.3 | 4 | 6.5 | B 3 | 1.65 |
| C 3 | C 2 | C 1 |  |  |



# Tell Jemmeh GMII 

FIGURE 4.2. Plan of Field II.


FIGURE 4.3. East and north balks of Sq. A6 (looking east), showing darker virgin soil.


FIGURE 4.4. Square D4, east section.

Phase 6/7). This phase includes Square A3, Ashy Layer AB (or $A B^{\prime}$ ), found beneath the stone pavement (the finds of which were assigned to Phase 6/7, Figures 4.12, 4.13), as well as possibly Pits 1 and 2 from Square (Sq.) A5 and Layer 4 from the latter square containing bricks. Square A6, Pit 1 may also belong to this phase, as well as a large pit in Sq. D4, which seems to belong to this phase according to its elevations (Figures 4.4, 4.17; Sq. D4, Pit 1, Feature 3, Layers 1a-1d), although it seems to cut Wall 1 of an unclear date. This pit, at least 1 m wide and very deep, contained much charcoal and ash and may have been dug from an elevation of 52.50 m down to 50.10 m . In this pit, a plaque figurine of a goddess holding two lotus flowers was found (Figure 4.13 d ; see chapter 17). Beneath this level, at a height of 49.65 m in Sq. D4, virgin soil may already appear, yet this was not substantiated (Figure 4.17).

The pottery found in this phase (mostly from Sq. A3, Layer $A B$ and Sq. C3, Layers $A B$ and $A B$ ', Figure 4.9) belongs to fills beneath the Phase 6 remains (denoted as Phase 6/7). The assemblage includes local Late Bronze Age pottery, such as open, rounded (Figure 4.12a-d; see Field III, Figures 3.112h-k,
3.143a-d for these forms) and carinated bowls (Figure 4.12em; see Fields I and III for similar forms, e.g., Figures 3.125 d , 3.143e). Several forms are of less common types, such as a thickened rim of a krater or a cooking pot (Figure 4.12p), a krater, possibly carinated (Figure 4.12n), with a groove on the rim, and another large fragment of a bowl/krater (Figure 4.12e) with a more open shape and a thickened rim.

Other forms include a typical, everted-wedge-rim cooking pot (Figure 4.12o; see Field III, Phases 12-8 for this form) and two lamp fragments (Figure 4.12r,s). A decorated jar handle (Figure 4.12 q ) has red paint on the upper part the handle, with three converging lines forming a triangle, maybe a tree motif (see, e.g., Ashdod, Stratum XIII, Dothan and Ben-Shlomo, 2005:76, fig. 3.6:13-15). An imported Mycenaean sherd from a closed vessel (Figure 4.13a), a Cypriot Base Ring (BR) II bowl (Figure 4.13b) and a White Slip (WS) II bowl (Figure 4.13c) are also illustrated (see chapter 11 for further description of these wares). In addition, two marked jar handles (Figure 4.12e and Reg. No. 3355, not pictured) may also be attributed to this phase, as well as an elaborate plaque figurine (Figure 4.13d found in Sq. D4, Pit 1).

The local and imported pottery dates generally to the LBII (parallel to Field III, Phases 12-9, and Field I, Phase 3; see parallels for these types therein), yet because of the small size of the assemblage, a more precise date cannot be suggested.

## REMAINS OF PHASE 6

The main finds from this phase include a surface covered with stones (Sqs. A3-B3, Feature 5, Figures 4.5-4.17) and a massive mud brick structure above it (Wall 1; Figures 4.10, 4.14). This stone surface is composed of pebbles (mostly 10-30 cm in size) laid very close to one another (Figure 4.6), creating a surface that may have served as a pavement (Figure 4.5, elevation of 53.13-53.19 m). This stone surface was exposed over an area of $2.8 \times 2.2 \mathrm{~m}$ in Sqs. A3 and B3, although it can be seen in the western section of Sq. C3, in the eroded area (Figure 4.18), on the section from the south (Figure 4.11), continuing at least $2-3 \mathrm{~m}$ to the south. To the north and south of the stones a brick structure at least 1.9 m high can be seen in the sections (Figure 4.10). This feature was labeled Level 5 (later denoted Wall 1), and levels below it were labeled as Test Trench 2. In the south of Sq. B3 this feature was probably excavated in Layers 2-21. This seems to be a massive wall, about 2 m thick and at least 3 m long. As the stone surface seems to separate these two walls and is at their base, this area was suggested to be a paved opening within the fortification of the site, or a small gate, about 2.5 m wide (see Van Beek, 1992:4*). However, as noted, the stones continue about 2 m to the south, and thus, if the bricks in Sq . C3 fell from the wall, a wider entrance could be reconstructed. However, as the stones continue in this area under the bricks and as bricky material was also excavated in the levels above the stone surface in Sqs. A3-B3, this surface could be also interpreted as a foundation of the massive wall, running approximately north-south. Moreover, the fact that the stone surface


FIGURE 4.5. Plan of Phase 6.
itself is composed of unevenly surfaced pebbles, not creating a smooth pavement, may support the latter interpretation. In this case, although a massive city wall can be identified here, the stones do not represent a gateway or entrance through this wall. The walls of this phase (Wall 1 north and Wall 1 south) were also interpreted as a casemate or fortification wall in a previous publication (Van Beek, 1992:4*). Although a considerable amount of pottery, including large sherds (although no complete or restorable vessels), was found above the stone paving, the nature of this accumulation is still unclear, and whether a gateway existed in the wall at this spot or not is still an open question.

The pottery from Phase 6 (Figures 4.19-4.20) includes medium to small open bowls with simple or everted rims (Figure
4.19c,d,h,j; see also Figure 4.12). These are also found, for example, in Field III, Phases 10 and 9 (Figures 3.131a, 3.143a-c). Rounded or hemispherical bowls with simple, straight rims are typical of the LBII (Figure 4.19b,e); for parallels, see, e.g., Field III (Figures 3.131m, 3.143d, Phase 11) or Field I (Phase 3, e.g., Figure 6.51 f$)$. Bowls with a rounded to slightly carinated body and everted or simple rims also appear (Figure 4.19 g ,i). Similar carinated bowls are found in LBII phases of Fields III, Phases 11 and 9 (see parallels therein). A complete bowl with a ring base (Figure 4.19a) was also found; parallels for this form can be found at Batash, Stratum VII (Panitz-Cohen, 2006a:35, pl. 38:22) and Aphek, Stratum X12 (Gadot and Yadin, 2009: fig. 8.59:7,8). A small carinated bowl (Figure 4.19f) with an unusual shape (possibly a residual MBII sherd) is also illustrated.


FIGURE 4.6. The stone paving/foundation, from above.


FIGURE 4.7. Close-up of the stone paving/foundation in Sq. A3.


FIGURE 4.8. The stones in Sq. A3 and a brick wall above it.

## GMII <br> A3 East Balk



FIGURE 4.9. East-west section through pavement and Wall 1 in Sq. A3, Phase 6.


FIGURE 4.10. North section of Sq. A3.


FIGURE 4.11. Possible continuations of stones, Feature 5, from the south, looking north.

Several thickened rims of carinated kraters or large bowls are illustrated (Figure $4.19 \mathrm{~m}, \mathrm{n}$ ); for parallels, see, e.g., Field III, Phases 10-9 (e.g., Figures 3.131e. 3.143h) and Field I, Phase 3 (chapter 6). Larger carinated kraters with handles also appear (Figure $4.19 \mathrm{o}, \mathrm{p}$ ); the latter example shown has a thickened ledge rim. For vessels similar to Figure 4.19o, see complete examples from Field I, Phase 3 (Figures 6.124b, 6.157). The other krater (Figure 4.19p), made of a grayish fabric, has a thickened rim and a handle attached below the rim, a somewhat unusual feature for this type (see Figure 6.154p,r from Field I, Phase 1).

No cooking pots were identified from Phase 6. Several jar necks (Figure 4.20a-c) and the button base of a jar (Figure 4.20 d ) were found in Phase 6; these are typical LBII jar forms (see, e.g., Panitz-Cohen, 2006a:77-81, Type SJ2; for further discussion, see Field III, e.g., Figure 3.131i, and also chapter 6, Field I, Phase 3), continuing into the early Iron I. The fragment of a jug handle attached to a simple rim (Figure 4.20e) is also illustrated.

Several examples of fragments of biconical jugs and kraters decorated in red with ibexes and other motifs (Figure 4.20f-h) are also illustrated; these are discussed further in chapter 10 (also see Panitz-Cohen, 2006a:102-107, for discussion of these LBII forms). Cypriot imported pottery includes a BRII bilbil jug (Figure 4.20i) and WSII milk bowls (Figure 4.20j-1, including a WSII derivative or WSIII example, Figure 4.20 k ; see chapter 11). A lamp fragment (Figure 4.20 m ) is also illustrated. Other finds from Phase 6 include a miniature vessel (see chapter 19, Figure 19.5 d ), a worked sherd (Figure 4.20n), a sealing fragment (Reg. No. 2056), and a chert/flint rubber/hammer (Figure 4.20o). An iron nail (see Figure 21.51) is probably intrusive.

It can be suggested that Phase 6, including the assumed fortification belonging to it, can be attributed to the LBII. This is according to the pottery found on and above the stone paving/ foundation that dates to the LBII, including imported Cypriot wares and local LBII forms, including decorated biconical kraters/jugs in the Canaanite pictorial tradition; the pottery is not different from that of layers under Phase 6 (i.e., Phase 6/7). It should be noted that many local Canaanite forms found in these levels continue into the early Iron I as well.

## REMAINS OF PHASE 5

Phase 5 was only defined in Sq. A3 and possibly in Sq. C3 (Figures 4.21-4.24). The main feature of this phase is part of a tabun (Sq. A3, Feature 3, at an elevation of 54.09 m, Figure 4.21) that is about 1 m wide, running into the northern balk of Test Trench 1 in Sq. A3. Pit 1B in Sq. A3, beneath Pit 1, may also belong to this phase. In addition, the bricky fill layers in Sq. C3 (Layers 5-16; also Features 1 and 2, possibly wall remains, at $54.55-54.85 \mathrm{~m}$ ), which lie beneath Walls 2 and 3 in Sq. C2 and above the bricks of the massive wall of Phase 6 , probably belong to this phase. Another feature that should be mentioned is a massive wall seen in the northern balk of Sq. A3 (Wall 2, Figure 4.22), above the Phase 6 wall and below a later wall (denoted Wall 1*). This wall may be assigned to Phase 5 as well (but may
also belong to Phase 4) and may be part of a fortification. The Phase 5 features lie above the foundation of TT2 Wall 1 (Phase 6) but slightly below the level of the top of this wall; it is possible that this massive wall of Phase 6 still stood above ground in Phase 5.

It is difficult to date this phase because it has limited exposure, no floor levels were detected, and there are very few pottery sherds from secure contexts (Figure 4.23 from Sq. A3, Layer 15 and Sq. C3, Layer 9). Several open bowls (Figure 4.23a-d) and rounded bowl rims (Figure 4.23e,f), a flat string-cut base (Figure 4.23 g ), probably of an open bowl, and a jar neck (Figure 4.23h) are not very indicative and can be dated to the late LBII or early Iron I, similar to forms found in Phases 6 and 7 (see above). The jug/jar rim (Figure 4.23i) with an everted rim and a thick ridge on the neck under it seems similar to a fragment from Field III, Phase 10 (Figure 3.131q).

## REMAINS PHASE 4

Phase 4 is composed of brick wall fragments in Sqs. C2, C1, and A2 (Figures 4.24-4.28). An east-west brick wall exposed to a length of about 3 m was excavated in Sq. C2 (elevations of $55.48-56.01 \mathrm{~m}$ ). Several higher bricks ( 56.22 m ) may represent a higher phase of the same wall (Wall 3, Phase 4A?). The space north of Wall 2 was defined as Unit 4, and a floor level here may have been detected at a height of 55.47 m . The area to the south of Wall 2 (denoted Unit 5) was covered with ash layers ( $55.48-55.67 \mathrm{~m}$ ). In the eastern balk of Sq. A2 (Figure 4.26) a wall is seen under the massive Phase 3, Wall 1, denoted Wall 2 or Wall 2A. This wall seems to belong to Phase 4, making a right angle with Wall 2 of Sq. C2. This area is cut by a perfectly rounded pit ( 1 m diameter, Sq. C2-A2, Pit 1, Figure 4.25).

The pottery from this phase reflects a mixture of Iron IB and Iron IIA forms (Figure 4.29). Iron Age IB pottery includes a Philistine bell-shaped bowl with a spiral found in Sq. A2, Wall 2 (Figure 4.29 h ; also plain bell-shaped bowl [BSB], Figure 4.29i). Rounded bowls (Figure 4.29e) and carinated bowls (Figure 4.29f) also may date to the Iron IB. For a discussion of such forms from Field I FUR, see below, chapter 7, and chapter 12. Red-slipped and burnished carinated bowls (Figure 4.29a-d) are typical of the Iron IIA (see below and Field IV, chapter 8, Phases 11-9). An open bowl with a ledge rim (Figure 4.29b) and interior slip and an open bowl with a bar handle and external slip (Figure 4.29a) are typical of the Iron IIA (see, e.g., Lachish, Levels V-IV, Zimhoni, 1997a; fig. 3.11:1-3); similarly dated are red-slipped ring bases of large bowls/kraters (Figure 4.29j). The jar with a simple rim and straight neck (Figure 4.291) is also typical of the Iron I-IIA (e.g., Qasile [Mazar, 1985a: type Jar 1] and Batash [Mazar and Panitz-Cohen, 2001: Type SJ21]), whereas another jar (Figure 4.29 k ) has a short "inserted" neck, more typical of the Iron IIB-C (see Field IV, chapter 8; see also Batash, Mazar and Panitz-Cohen, 2001: Type SJ7). A small flask (Figure 4.29m) may also belong to Phase 4; it has red concentric circles similar, for example, to Iron Age I flasks from Qasile and elsewhere (see


FIGURE 4.12. Pottery from fills under the stone surface (Phase 6/7). (opposite)

| Part | Description | Bag/RV/Box No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | RV 279/1 | GMII C3 (AB') | $6 / 7$ |
| b | Bowl | $7454 / 1$ | GMII C3 (AB) | $6 / 7$ |
| c | Bowl | $6519 / 1$ | GMII C3 (AB) | $6 / 7$ |
| d | Bowl | $7441 / 1$ | GMII C3 (AB') | $6 / 7$ |
| e | Bowl/krater | RV 276/1 | GMII D4 F3 | $6 / 7$ ? |
| f | Bowl | RV $279 / 3$ | GMII C3 (AB') | $6 / 7$ |
| g | Bowl | RV $279 / 2$ | GMII C3 (AB') | $6 / 7$ |
| h | Bowl | $7481 / 5$ | GMII C3 (AB) | $6 / 7$ |
| i | Bowl | $7481 / 4$ | GMII C3 (AB) | $6 / 7$ |
| j | Bowl | $7441 / 2$ | GMII C3 (AB') | $6 / 7$ |
| k | Bowl | $7454 / 2$ | GMII C3 (AB) | $6 / 7$ |
| 1 | Bowl | $7481 / 1$ | GMII C3 (AB) | $6 / 7$ |
| m | Bowl | $7481 / 3$ | GMII C3 (AB) | $6 / 7$ |
| n | Krater | $7481 / 7$ | GMII C3 (AB) | $6 / 7$ |
| o | Cooking pot | $7441 / 3$ | GMII C3 (AB') | $6 / 7$ |
| p | Cooking pot? | $7481 / 6$ | GMII C3 (AB) | $6 / 7$ |
| q | Jar; red decoration | Box 167 | GMII C3 (AB') | $6 / 7$ |
| r | Lamp, soot | $7481 / 9$ | GMII C3 (AB) | $6 / 7$ |
| s | Lamp, soot | $7481 / 10$ | GMII C3 (AB) | $6 / 7$ |

Mazar, 1985a: fig. 42:10-13). A ceramic item decorated in vegetative motifs may also be attributed to this phase (Figure 4.29n, possibly a snake-shaped or phallus-shaped object; see chapter 17). A scarab dating to the Iron IB-IIA was also found in Phase 4 (Figure 4.29o; see chapter 27) and supports an Iron IIA date for the end of this phase.

## REMAINS OF PHASE 3

Phase 3 was discovered in Sqs. C2, C1, and A2 (Figures 4.30-4.34). A relatively massive north-south brick wall, nearly 2 m wide, was excavated to a length of up to 3.5 m in Sqs. A2 and C2 (Figures 4.30, 4.31). This wall seems to have been built on top of a wall with a similar orientation from Phase 4 (Wall 2, Sq. A2); the base of the wall seems to be at an elevation of 56.92 m , as seen in the eastern section of Sq. A2 (Figure 4.26). Its outer courses are built of "header" bricks, whereas its inner courses are built of "stretcher" bricks (Figure 4.30; a line of narrow bricks and a mortar layer separate these two parts of the wall; see Figure 4.25). To the west in Sq. C2 this phase is disturbed by erosion and several deep pits of Phase 2 or later (Pits 1 and 2). To the east, in Sq. C1, a thin brick wall (Wall 4) made of one line of bricks abuts Wall 1 at a right angle. To the south of Wall 4 and east of Wall 1 a room or a confined area was defined (Unit 3). Several bricks abutting Wall 4 at a peculiar angle (Figure 4.32, Features 12 and 13, elevation of 57.47-57.79 m) may be an installation within Unit 3 or fallout from Wall 4. An installation made of a mud wall creating a bin may be related to the same phase or to Phase 2 (Sq. C1, Feature 11, Figure 4.36). The walls of this phase were interpreted as a casemate wall in a previous publication (Van Beek, 1992:4*).

Again, it is difficult to date Phase 3 because of the limited ceramic evidence (Figure 4.33), but an Iron Age IIB date is likely. The finds illustrated include a red-slipped and burnished bowl (Figure 4.33a) and a chalice fragment (Figure 4.33b) with soot marks. The cooking pots are better chronological indicators of the dating of this phase (Figure 4.33c,d), including a ridged-gutter-rim cooking pot (Figure 4.33d) typical of the Iron IIB-C, the 8th-7th centuries BCE (e.g., Mazar and Panitz-Cohen, 2001: Type CP10), as well as a narrow-necked ridged cooking pot (Figure 4.33c; possibly like Mazar and Panitz-Cohen, 2001: Type CP9). A thumbed handle from a large krater or a hole-mouth jar (Figure 4.33e) should also be similarly dated (see, e.g., Batash, Strata III-II, Mazar and Panitz-Cohen, 2001:69-70, Type KR35, for the generic krater type).

A restorable jug body (Figure 4.33f) of the "decanter" jug type (see, e.g., Lachish, Levels III-II, Zimhoni, 1997b:254; Mazar and Panitz-Cohen, 2001:118-119, Type JG 14) is common in Iron IIB Judah and appears less frequently on the coastal plains. A thick, shallow basin (Figure 4.33 g ) from Phase 3 is also illustrated; it is made of coarse clay, rich in organic inclusions (see, possibly, Ashdod, Stratum XIIIa, denoted as a threading vat, Dothan and Porath, 1993: fig. 23:13). It should be noted that it seems that much of the pottery from the nonstratified contexts is dated to the Iron IIA and IIB, including material washed to lower levels in Sqs. A5 and A6, suggesting that the occupation during this period in Field II was relatively extensive. Other finds from Phases $3,3 / 4$, and $2 / 3$ include a zoomorphic figurine horn (Reg. No. 3107; see chapter 17) and a clay sealing (Figure 4.33h).

In Sq. C2, Layer 3, which belongs either to Phase 3 or 4, a bronze weight in the form of a bull's head was found (Figure 4.34). The object is complete, with a flat neck, and therefore,


FIGURE 4.13. Pottery and finds from fills under the stone surface (Phase 6/7). Myc. = Mycenaean; SUJ = stirrup jar; Cyp. BRII = Cypriot Base Ring II ware; Cyp. WSII = Cypriot White Slip II ware; $a f=$ after firing.

| Part | Description | Bag/RV/Box No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Myc., SUJ? | Box 520 | GMII D4 F3 |
| b | Bowl (Cyp. BRII) | Box 517/1 | GMII C3 (AB) |
| c | Milk bowl (Cyp. WSII) | Box 517/2 | GMII C3 (AB) |
| d | Plaque figurine | Reg. No. 628 (SI Cat. No. 602) | GMII D4 P1 (1) |
| e | Incised jar handle, af | Reg. No. 3798 | GMII A5 (4) |

it was probably a scale weight (weight of 14.6 g ). The date of this item, which has few good parallels, could be the Iron II; see chapter 21 for a detailed discussion.

## REMAINS OF PHASE 2

Phase 2 includes several walls defining a space in Sq. C1 and several deep pits in Sq. C2 cutting remains of Phase 3 that possibly belong to this phase (Figures 4.35-4.39). In Sq. C1 two brick walls (Walls 1A and 2) create a right angle and define Unit 1 to the west of Wall 1A (Figure 4.35). Wall 1A, built about 0.5 m above Wall 1 , may be an upper phase of the same wall. In Unit 1, an area paved with pebbles was excavated at a level of
$58.68-58.83 \mathrm{~m}$. (Layer 2B). To the east of Wall 1, Unit 2 was defined; here a poorly preserved tabun, 0.4 m in diameter, was excavated (Sq. C1, Feature 4, Figure 4.37). In lower Sq. C2 a layer of stones ( $0.8 \times 0.6 \mathrm{~m}$ in size; Feature 1, Figures 4.38-4.39) was uncovered, somewhat lower at $57.84-58.04 \mathrm{~m}$, but probably belonging to the same phase. Here a complete storage jar was excavated (Figures 4.39, 4.40k), which seems to have been embedded in the pebbles (Figure 4.39). Several pits in this area were not fully preserved but are very visible in the northern section (Figure 4.27) as a "conical" sectioned pit. These pits are quite deep and could have been dug from Phase 2 floors that were not preserved (Pits 1 and 2), with their lower levels at elevations of $56.50-57.60 \mathrm{~m}$, probably cutting into Phase 3 and 4 remains. There is an ash layer reported through the sections

GMII
C2 East balk



FIGURE 4.14. Square C2, south and east sections.


FIGURE 4.15. Wall 2 in section of Sq. A2.


FIGURE 4.16 East section of Sq. A3.


FIGURE 4.17. Squares D4-D5, south section.


FIGURE 4.18. Square C3, the trench under the stone surface (Level AB ) and the gully, looking west.
of Sq. C1 at an elevation of 58.74-58.84 m, possibly marking a destruction level.

The pottery from the area of the tabun in Unit 2 (Locus 1) seems to date to the Iron IIC, with fragments of Assyrian-style bowls and storage jars typical of the period (Figure 4.40); this phase may correlate to Field IV, Phase 6 or 5. The pottery includes several complete vessels or large profiles, such as a thick, slightly carinated, large open bowl (Figure 4.40a) that has an everted rim and a ridge under the outer rim, possibly similar to rounded bowls with folded rims common in the Iron Age IIB-C (e.g., Lachish, Level III, Zimhoni, 1997b: fig. 5.4:17-21 or a krater in fig. 5.5:2, and Batash, Stratum III, Mazar and Panitz-Cohen, 2001:39-40, Type BL13; it is also somewhat similar to Assyrian-style open bowls; see chapter 13). A complete carinated bowl (Figure 4.40b) is a type also found in Field IV, Phase 5 (e.g., Figure 8.173c). A red-slipped and burnished, slightly thickened rim of an open bowel (Figure 4.40c) is also illustrated (see, e.g., Lachish, Level III, Zimhoni, 1997b: fig. 5.4:3,5). The upper part of a large bowl (Figure 4.40d) with a flaring, thickened rim and three wheel-made deep ridges may belong to the Assyrian-style bowl types (see chapter 8, Phase 5, and chapter 13); a ridged flat base (Figure 4.40e)
found in the same layer belongs to the same type (possibly even the same vessel). Also from this layer is a rim and body sherd of a vessel, likely a bowl (Figure 4.40f), with at least four perforations through the wall; this was possibly a type of strainer bowl that was typical mostly of the Iron IIB (see, e.g., Megiddo, Strata II-III and V, Lamon and Shipton, 1939: pls. 23:20-24, 31:146). A thick neck of a cooking pot or a jug (Figure 4.40 g ) has a prominent ridge under the rim (possibly similar to Batash, Stratum II, Mazar and Panitz-Cohen, 2001:86-87, Type CP10).

Closed shapes attributed to Phase 2 include jars, jugs, and juglets. A complete storage jar (Figure 4.40k) was part of Feature 1 in Sq. C2 (see above); its capacity is 32.2 L . This is a typical Iron IIC jar with a short inserted neck, sack-shaped body, two thick loop handles, and a tapering base, very common in Field IV, Phase 5 (chapter 8, Type JR2, and discussion therein; see also, e.g., Zimhoni, 1997b: fig. 5.28; Mazar and Panitz-Cohen, 2001:101, Type SJ18). Another jar (Figure 4.40 m ) is somewhat different; it has a short, folded neck, is made of a lighter fabric, and may be more similar to Phoenician-style storage jars (see, e.g., Mazar and Panitz-Cohen, 2001: Type SJ15). A trefoil rim of a jug (Figure 4.401) with an incision under the rim is less common for this period. Three juglets (Figure $4.40 \mathrm{~h}-\mathrm{j}$ ) are also illustrated; Figure 4.40 h is a nearly complete dipper juglet, typical of the Iron Age II; Figure 4.40i is a cylindrical lower part of a redslipped juglet with a flat base; Figure 4.40 j has a decoration of two or three red horizontal bands under the handle (this could be a juglet or a small decorated jug). A nearly complete lamp with a rounded base and soot marks (Figure 4.40n) is also attributed to Phase 2 or 3 (see, e.g., Ashdod, Stratum VIIIa, Dothan, 1971: fig. 50:21,22). A sealing fragment (Figure 4.40o) was also found in a Phase 2 or 3 context.

## REMAINS OF PHASE 1

Phase 1 includes various pits or features cutting or above Phase 2 in Sq. C1, as well as several fill layers overlaying the walls (Sq. C1, Levels 2-7, down to an elevation of 59.30 m ). This phase may be dated to the Persian period, as indicated by the presence of imported Greek pottery found in this level (see chapter 14). Several features may represent modern or CrusaderMamluk disturbances in this area, such as Pit 1 in Sq. C1 (see north section, large pit, Figure 4.27), similar to Field IV, Phase 1, with numerous pits. As these features are difficult to attribute chronologically, a separate phase was not assigned.

Only several pottery sherds can be securely attributed to Phase 1; of these, the later examples seem to indicate a Persian or Hellenistic date. These include an open bowl with a wide ledge rim (Figure 4.41b), a "basket-handle" amphora (Figure 4.41f; see Field IV, Figure 8.257j; e.g., Tel Mevorakh, Strata IV-VI, Stern, 1978:35, fig. 8:12-16), an amphora handle (Figure 4.41d), and the button base of a juglet or amphoriskos (Figure 4.41e; see, possibly, Petrie, 1928: pl. LVIII:66d,66q). A wide bowl or basin (Figure 4.41a) and a shallow burnished basin or thick platter with red paint (Figure 4.41 h ) are less indicative; a jug or amphora body and ridged neck fragment (Figure 4.41 g ) with red slip and vertical

burnish may be residual from Iron II levels. A plano-convex ivory spindle whorl was also attributed to Phase 1 (Figure 4.411).

## UNSTRATIFIED FINDS

Several unstratified finds are presented as well (Figures $4.41 \mathrm{c}, \mathrm{i}-\mathrm{k}, 4.42$ ), as they represent types or periods not represented otherwise. These include an MBIIB White Painted Cypriot sherd (Figure 4.41i; see chapter 11) and a WS milk bowl (Figure 4.41j), as well as a large fragment of an LBII decorated biconical jug or krater (Figure 4.41 k ; see chapter 10) with an ibex motif. Another interesting vessel is a complete, rather straight profile of a red-slipped small bowl or cup with black bands on the inside (Figure 4.41c); this is probably an Iron IIA form with possible parallels from Ashdod (Dothan and Ben-Shlomo, 2005: figs. $3.82: 23,3.115: 8$ ). A nearly complete globular cooking pot (not illustrated, RV 459, catalog number 279.4) may be dated to the Persian period (see Field IV, e.g., Figure 8.255e). Several noticeable unstratified small finds are illustrated from Field II and include a thick female plaque figurine with red slip (Figure 4.42a), a solid bird figurine (Figure 4.42b), a ceramic rectangular seal or lid (Figure 4.42c), an iron arrowhead with a square pointed section (Figure 4.42d), a broken hematite cylinder (Figure 4.42e) that might be a scale weight, and a complete ivory object (Figure $4.42 \mathrm{f})$. These objects are discussed in later chapters on the various small finds (chapters 17, 19, 21, and 23).

## SUMMARY

Summarizing the results from Field II, it can be said that although the remains excavated here are very fragmentary because
of both the limited exposure and conditions of the area, additional evidence for some of the main settlement periods at Tell Jemmeh was retrieved. Extensive LBII remains were unearthed, with an unclear feature that may be related to the fortification of the site. It should be noted that fortified sites are not common in the LBII southern Levant (see, e.g., Mazar, 1990:243-244). It might be suggested that the fortification at Field II, if present, may have been erected during the MBII period (see below and chapter 5). In addition, Iron IIC remains are also represented from this field, including Assyrian-style pottery.

## A Note on GM WADI

A section of a massive brick wall was exposed near Field II in the wadi and was denoted as GM Wadi (Figure 4.43). A brick wall that is seven courses $(1.1 \mathrm{~m})$ high and at least 2.4 m long was exposed here. An ash layer was observed beneath it, where a bronze chisel was found (GM Wadi, Level 2). The pottery in this section is dated to the Iron Age II, and thus, this was interpreted as a massive "Assyrian" fortification wall showing a lower sand layer (Van Beek, 1996:6*, fig. 10), possibly created to absorb and thus reduce earthquake damage (Van Beek, 1996:7*-8*).

## AUTHOR NOTE

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FIGURE 4.19. Pottery from Phase 6. (opposite)

| Part | Description | Bag/RV/Box No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl | SI Cat. No. 639 | GMII B3 (19) |
| b | Bowl | $6791 / 1$ | GMII A3 (20) |
| c | Bowl | $7019 / 1$ | GMII B3 (21) |
| d | Bowl | $7019 / 2$ | GMII B3 (21) |
| e | Bowl | $6515 / 1$ | GMII A3 (16) |
| f | Bowl | $6791 / 2$ | GMII A3 (20) |
| g | Bowl | $7029 / 1$ | GMII C3 (21) |
| h | Bowl | $7029 / 2$ | GMII C3 (21) |
| i | Bowl | $6791 / 3$ | GMII A3 (20) |
| j | Bowl | RV 277 | GMII A3 TT2 (20) |
| k | Krater | $6791 / 4$ | GMII A3 (20) |
| l | Krater | $6455 / 1$ | GMII A3 TT2 (20) |
| m | Krater | $7019 / 3$ | GMII B3 (21) |
| n | Krater | $6455 / 2$ | GMII A3 TT2 (20) |
| o | Krater/cooking pot | $6876 / 1$ | GMII A3 (11) |
| p | Krater | $6890 / 1$ | GMII A3 (20) |



FIGURE 4.20. Pottery and finds from Phase 6. Cyp. BRII = Cypriot Base Ring II ware; Cyp. WSII = Cypriot White Slip II ware. (opposite)

| Part | Description | Bag/RV/Box No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jar | $7106 / 1$ | GMII B3 (9) |
| b | Jar | $6791 / 5$ | GMII A3 (20) |
| c | Jar | $6791 / 6$ | GMII A3 (20) |
| d | Jar | $7019 / 4$ | GMII B3 (21) |
| e | Jug | $7030 / 2$ | GMII B3 (19) |
| f | Krater; red decoration | $6813 / 1$ | GMII B3 (19) |
| g | Krater; red decoration | $6813 / 2$ | GMII B3 (19) |
| h | Krater; red decoration | $7030 / 1$ | GMII B3 (19) |
| i | Sherd (Cyp. BRII) | Box 502 | GMII A3 TT3 F5 |
| j | Milk bowl (Cyp. WSII) | Box 495 (SI Cat. No. 328) | GMII A3 TT1 (18) |
| k | Milk bowl (Cyp. WSII, degenerated) | Box 520A | GMII A3 TT2 (19) |
| l | Milk bowl (Cyp. WSII) | Box 518 | GMII B3 (21) |
| m | Lamp, soot | $6791 / 7$ | GMII A3 (20) |
| n | Worked sherd | Reg. No. 3364 | GMII C3 (23) |
| o | Chert/flint rubber/hammer | Reg. No. 834 | GMII A3 TT2 (20) |



FIGURE 4.21. Phase 5: tabun, Feature 4 in Sq. A3, from SE.


FIGURE 4.22. Square A3 balk with two massive walls overlying each other.


FIGURE 4.23. Finds from Phase 5.

| Part | Description | Bag/RV/Box No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl | $6475 / 2$ | GMII A3 (15) |
| b | Chalice/bowl | $6475 / 3$ | GMII A3 (15) |
| c | Bowl | $7032 / 2$ | GMII C3 (9) |
| d | Bowl, soot | $7032 / 1$ | GMII C3 (9) |
| e | Bowl | $6475 / 1$ | GMII A3 (15) |
| f | Krater/bowl | $6475 / 4$ | GMII A3 (15) |
| g | Bowl base, string cut | $6475 / 5$ | GMII A3 (15) |
| h | Jar | $6475 / 6$ | GMII A3 (15) |
| i | Jug(?) | $7032 / 3$ | GMII C3 (9) |



FIGURE 4.24. Plan of Phases 4 and 5.

FIGURE 4.25. Rounded Pit 1 cutting Wall 2, Phases 3 and 4.


FIGURE 4.27. North section of Sqs. C1-C2.

GMII


FIGURE 4.28. East section of Sq. C2 (lower part).


FIGURE 4.29. Pottery from Phase $4 . \mathrm{BSB}=$ bell-shaped bowl; Phil. $=$ Philistine.

| Part | Description | Bag/RV/Box No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl; red slip | RV 79 | GMII C2 (6) 3 | 4 | Fills on wall/or in unit 4 |
| b | Bowl; red slip | RV 91 | GMII C2 (6) 2 | 4 |  |
| c | Bowl; red slip, burnish | II-1070/2 | GMII C2 (7) 5 | 4 | Unit 4 |
| d | Bowl; red slip, burnish | II-1070/1 | GMII C2 (7) 5 | 4 | Unit 4 |
| e | Bowl | 6500/1 | GMII C1 TT2 (7) 2 | 4 |  |
| f | Krater/bowl | II-1010/1 | GMII C2 (4) | 4 | Unit 5 |
| g | Bowl (BSB?) red slip, burnish | II-1031/2 | GMII C2 W2 | 4B | Unit 4 |
| h | BSB (Phil.), red and black decoration | 7025/1 | GMII A2 W2 | 4? |  |
| i | Bowl (BSB?) | II-1031/1 | GMII C2 W2 | 4B | Unit 4 |
| j | Bowl; red slip, burnish | II-1043/1 | GMII C2 (4) 1A | 4 | Unit 5 |
| k | Jar | II-1010/3 | GMII C2 (4) | 4 | Unit 5 |
| 1 | Jar, soot | II-1043/2 | GMII C2 (4) 1A | 4 | Unit 5 |
| m | Flask; red decoration | RV 133 | GMII A3 P1B | 4? |  |
| n | Clay item; incised decoration | Reg. No. 2148 (Cat. 449) | GMII C2 (7) 5 | 4 |  |
| o | Scarab | Reg. No. 1161 | GMII C2 (6) TT2 | 4 |  |



FIGURE 4.30. Plan of Phase 3.


FIGURE 4.31. Squares A2-C2, Wall 1.


FIGURE 4.32. Features 12 and 13, Phase 3.


FIGURE 4.33. Pottery and finds from Phase 3.

| Part | Description | Bag/RV/Box No. | Provenance | Phase | Architecture |
| :--- | :--- | :--- | :--- | :--- | :--- |
| a | Bowl; red slip, burnish | $6836 / 1$ | GMII A2 W1 | $3(?)$ |  |
| b | Chalice, soot | $6836 / 2$ | GMII A2 W1 | $3(?)$ |  |
| c | Cooking pot | II-1045/2 | GMII C1 P2 (4) | $3(?)$ |  |
| d | Cooking pot; soot | II-1045/1 | GMII C1 P2 (4) | $3(?)$ |  |
| e | Krater/hole-mouth jar (thumbed handle) | II-1045/3 | GMII C1 P2 (4) | $3(?)$ |  |
| f | Decanter jug | RV 1034 | GMII C2 (3) 2 | 3 | Fills on walls |
| g | Basin | RV557 | GMII C2 (3) 4 | 3 | Fills on walls |
| h | Sealing | Reg. No. 1229 | GMII C1 (4) 2 | $3 / 4$ |  |



FIGURE 4.34. The bronze bull head weight (Reg. No. 1944, GMII C2 (3)).


FIGURE 4.35. Plan of Phase 2.


FIGURE 4.36. Brick/mud bin, Feature 11, Sq. C1.


FIGURE 4.37. Tabun, Feature 4 (Sq. C1), looking south.


FIGURE 4.38. Squares C1-C2 in Phase 2 with stones and jar, Feature 1, looking west.


FIGURE 4.39. Feature 1, stones and jar, Sq. C2.


FIGURE 4.40. Finds from Phase 2.

| Part | Description | Bag/RV/Box No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl; red slip | RV 59 | GMII C1 (9) | 2 | Unit 1 |
| b | Bowl; red decoration | RV 62 | GMII C1 (8) | 2 | Unit 2 |
| c | Bowl; red slip, burnish | 6488/1 | GMII A2-C2 P6 | 2-4? |  |
| d | Bowl (Assyrian style) | RV 222/2 | GMII C1 (8) | 2 |  |
| e | Bowl (Assyrian style) | II-1015/1 | GMII C1 (8) | 2 | Unit 2 |
| f | Bowl/strainer | RV 222/1 | GMII C1 (8) | 2 |  |
| g | Cooking pot/jug | II-1013/1 | GMII C1 (10) (or (3) 2) | 2 | Unit 1 |
| h | Juglet | RV 155 (SI Cat. No. 384) | GMII C1 (10) | 2 |  |
| i | Juglet; red slip, burnish | II-1013/3 | GMII C1 (10) (or (3) 2) | 2 | Unit 1 |
| j | Jug/juglet; red decoration | II-1013/2 | GMII C1 (10) (or (3) 2) | 2 | Unit 1 |
| k | Jar | RV 973 (SI Cat. No. 380) | GMII C2 F1 | 2 ? |  |
| 1 | Jug | RV 268/1 | GMII C2 (9) | 2 |  |
| m | Jar | RV 208/1 | GMII C2 F1 (4) | 2 ? |  |
| n | Lamp; soot | RV 202/1 | GMII C1 TT2 F11 (2) | 2/3 |  |
| o | Sealing | Reg. No. 1228 | GMII C1 P2 (2) | $2 / 3$ ? |  |



FIGURE 4.41. Finds from Phase 1 and unstratified finds. Cyp. WP = Cypriot White Painted ware; Cyp. WSII = Cypriot White Slip II ware; us $=$ unstratified.

| Part | Description | Bag/RV/Box No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl/basin | II-1016/1 | GMII C1 (4) | 1 |
| b | Bowl; red slip, burnish (outside) | II-1011/1 | GMII C1 (5) | 1 |
| c | Cup/bowl; red slip, black decoration | RV 89 | GMII C1 (+) | us |
| d | Amphora | II-1016/2 | GMII C1 (4) | 1 |
| e | Juglet | II-1011/3 | GMII C1 (5) | 1 |
| f | Amphora (basket handle) | II-1011/2 | GMII C1 (5) | 1 |
| g | Amphora(?); red slip, vertical burnish | II-1049/2 | GMII C1 (6) 2 | 1 ? |
| h | Basin/platter; burnished | II-1049/1 | GMII C1 (6) 2 | 1 ? |
| i | Sherd (Cyp. WP) | $7424 / 1$ | GMII A5 (6) | ? |
| j | Milk bowl (Cyp. WSII) | Box 496 (SI Cat. No. 377) | GM A5 (+) | us |
| k | Krater; red decoration | Box 72 | GMII C1 (+) | us |
| l | Spindle whorl (ivory) | Reg. No. 1421 | GMII C1 (5) | 1 |



FIGURE 4.42. Unstratified finds from Field II.

| Part | Description | Bag/RV/Box No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Plaque figurine; red slip | Reg. No. 1240 (SI Cat. No. 623) | GMII A2 W1 (0) |
| b | Bird figurine | Reg. No. 640 (SI Cat. No. 336) | GMII A5 (0) |
| c | Ceramic object (seal?) | Reg. No. 2196 (SI Cat. No. 339) | GMII A5 (0) |
| d | Iron arrowhead | Reg. No. 1278 | GMII C1 (3) 2 |
| e | Weight? (stone, hematite) | Reg. No. 3553 | G II A2-C2 balk (3) |
| f | Ivory/bone object | Reg. No. 1371 (SI Cat. No. 624) | GMII A2 (0D) |



FIGURE 4.43. Massive wall seen in section in GM Wadi.

## APPENDIX 4.1

TABLE 4.A1. List of contexts of Field II. The notation $\{x x\}$ indicates the year of excavation when the layer number is repeated in various seasons. Recording of elevations was not systematic. In some cases only the upper or lower elevation was recorded, and in others it is questionable.

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes/description |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMII A2 (0-0a) | Topsoil/fill | 58.50 | 59.01 | None |  |  |
| GMII A2 (0b) | Fill | 57.90 | 58.50 | None |  |  |
| GMII A2 (0c) | Fill | 57.65 | 57.88 | None |  |  |
| GMII A2 (0d) | Fill | 56.85 | 57.65 | None |  | Wall 1 |
| GMII A2 (0) lower | Fill |  |  | 4 ? |  |  |
| GMII A2 (1) | Fill |  |  | 4 ? |  | Equals P1 |
| GMII A2 W1 | Wall | 57.92 | 58.55 | 3 ? |  |  |
| GMII A2 W2 | Wall |  | 57.32 | 4 ? |  |  |
| GMII A2 P1 | Pit | 57.12 | 57.32 | 4 ? |  |  |
| GMII A3 TT1 (0) | Topsoil | 55.38 | 55.62 | None |  |  |
| GMII A3 TT1 (1) | Fill | 55.27 | 55.38 | 6 ? |  |  |
| GMII A3 TT1 (1B) | Fill |  |  | 6 ? |  |  |
| GMII A3 TT1 (1C-1H) | H) Fill |  |  | 6 |  |  |
| GMII A3 TT1 (2) | Wash layer |  | 55.46 | None |  | Wash layer |
| GMII A3 TT1 (3) | Fill/wash |  | 55.38 | Unstratified? |  |  |
| GMII A3 TT1 (4) | Wash |  | 55.25 | None |  |  |
| GMII A3 TT1 (5) | Fill |  | 55.22 | 6 |  |  |
| GMII A3 TT1 (6) | Fill |  | 55.19 | 6 |  |  |
| GMII A3 TT1 (7) | Fill |  | 54.78 | 6 |  |  |
| GMII A3 TT1 (8) | Fill |  | 54.53 | 6 |  |  |
| GMII A3 TT1 (9) | Fill |  | 54.85 | 6 |  |  |
| GMII A3 TT1 (10) | Fill |  | 54.15 | 6 |  |  |
| GMII A3 TT1 (11) | Fill |  | 54.06 | 6 |  |  |
| GMII A3 TT2? (12) | Fill |  |  | ? |  |  |
| GMII A3 TT2? (13) | Fill |  | 54.09 | 5 |  |  |
| GMII A3 TT2? (14) | Fill |  | 54.09 | 5 |  |  |
| GMII A3 TT2? (15) | Fill |  |  | 5 |  |  |
| GMII A3 TT2? (16) | Fill |  |  | 6 |  |  |
| GMII A3 TT2? (17) | Fill |  |  | 6 ? |  |  |
| GMII A3 TT2? (18) | Fill |  |  | 6 |  |  |
| GMII A3 TT2? (19) | Fill |  |  | 6 |  |  |
| GMII A3 TT2? (20) | Fill |  |  | 6 |  |  |
| GMII A3 TT3 (AB) | Fill |  |  | 6-7 |  |  |
| GMII A3 F1 | Bricks |  | 54.85 | 5 |  |  |
| GMII A3 F2 | Bricks |  | 54.55 | 5 |  |  |
| GMII A3 F3 | Tabun |  | 54.09 | 5 |  |  |
| GMII A3 F5 St | Stone paving/foundation | 53.11 | 53.2 | 6 |  |  |
| GMII A3 F6 | Clay installation |  | 54.95? | 5 ? |  | Possibly basin; equals B3 (4) |
| GMII A3 W1 | Wall | 53.15 | 55.1 | 6 |  | Massive brick wall lying on stones, F5 |
| GMII A3 W1* | Wall |  |  | 4-5? |  | Wall in north balk |
| GMII A3 W2 | Wall |  | 55.35 | 5 ? |  | Wall in north balk under W1 |
| GMII A3P1 | Pit | 54.94 | 55.26 | 4 ? |  |  |
| GMII A3 P1B | Pit |  |  | 5 |  |  |
| GMII A3 P4 | Pit |  |  | 5 |  |  |
| GMII A3 P5 | Pit |  |  | 5 |  |  |

TABLE 4.A1 (continued)

| Context | Lower Context type | Upper level (m) | level (m) | Phase | Architecture | Notes/description |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMII A5 (0) | Topsoil |  |  | None |  |  |
| GMII A5 (1) | Fill |  |  | Unknown |  |  |
| GMII A5 (2) | Fill |  |  | Unknown |  |  |
| GMII A5 (3) | Fill |  |  | Unknown |  |  |
| GMII A5 (4) | Fill |  | 51.88 | 6-7? |  |  |
| GMII A5 (4a) | Fill/ash |  |  | ? |  |  |
| GMII A5 (5) | Fill/ash |  | 49.25 | ? |  |  |
| GMII A5 (6) | Fill/ash |  |  | ? |  |  |
| GMII A5 (7) | Fill/virgin soil | 47.58 | 49.21 | ? |  |  |
| GMII A5 (8) P1 | Pit? |  |  | 7? |  |  |
| GMII A5 (9) P2 | Pit |  | 48.14 | 7? |  |  |
| GMII A6 (0) | Topsoil |  |  | None |  |  |
| GMII A6 (1) | Topsoil/fill |  | 47.94 | None |  |  |
| GMII A6 (1B) | Pit? |  |  | Unknown |  |  |
| GMII A6 (2) | Fill/virgin soil |  | 47.61 | None |  |  |
| GMII A6 (3) | Fill/virgin soil |  | 47.13 | None |  |  |
| GMII A6 (4) | Fill/virgin soil |  | 46.53 | None |  |  |
| GMII A6 (4) probe | Fill/virgin soil |  | 45.80 | None |  |  |
| GMII B3 (1) | Fill |  |  | 6 |  | Equals A3 (1) |
| GMII B3 (1B) | Fill |  |  | 6 |  | Equals A3 (1B) |
| GMII B3 (2) | Fill/wall |  |  | 6 |  | Equals A3 (3) |
| GMII B3 (3) | Fill/wall |  |  | 6 |  | Equals A3 (3) |
| GMII B3 (4) | Installation |  | 54.95? | 5 ? |  | Equals A3 F6 |
| GMII B3 (5) | Fill/wall |  |  | 6 |  | Equals A3 (6) |
| GMII B3 (6) | Fill/wall |  |  | 6 |  | Equals A3 (6) |
| GMII B3 (7) | Fill/wall |  |  | 6 |  | Equals A3 (7) |
| GMII B3 (8) | Fill/wall |  |  | 6 |  | Equals A3 (8) |
| GMII B3 (9) | Fill/wall |  |  | 6 |  | Equals A3 (9) |
| GMII B3 (10) | Fill/wall |  |  | 6 |  | Equals A3 (10) |
| GMII B3 (11) | Fill/wall |  |  | 6 |  | Equals A3 (11) |
| GMII B3 (12) | Fill/wall |  |  | 6 |  | Equals A3 (12) |
| GMII B3 (13) | Fill/wall |  |  | 6 |  | Equals A3 (13) |
| GMII B3 (14) | Fill/wall |  |  | 6 |  | Equals A3 (14) |
| GMII B3 (15a) | Fill |  |  | 6 ? |  |  |
| GMII B3 (15b) | Fill |  |  | 6 ? |  |  |
| GMII B3 (15c) | Fill |  |  | 6 ? |  |  |
| GMII B3 (16) | Fill/wall |  |  | 6 |  | Equals A3 (15) |
| GMII B3 (17) | Fill/wall |  |  | 6 |  | Equals A3 (16) |
| GMII B3 (18) | Fill |  |  | 6 ? |  |  |
| GMII B3 (19) | Fill/wall |  |  | 6 |  | Equals A3 (19) |
| GMII B3 (20) | Fill |  |  | 6 ? |  |  |
| GMII B3 (21) | Fill/wall |  |  | 6 |  | Equals A3 (20) |
| GMII B3 (22) | Fill |  |  | 6-7 |  |  |
| GMII B3 (23) | Fill |  |  | 6-7 |  |  |
| GMII C1 (+) | Topsoil |  |  | None |  |  |
| GMII C1 (0) | Topsoil | 60.25-59.30 | 61.30-59.30 | None |  |  |
| GMII C1 (1a) | Fill | 60.87 | 60.95 | None |  |  |
| GMII C1 (1b) | Fill | 60.87 | 60.95 | None |  |  |
| GMII C1 (2) | Ash layer |  | 60.87 | 1 |  |  |

TABLE 4.A1 (continued)

| Context | Lower <br> Context type | Upper level (m) | level (m) | Phase | Architecture | Notes/description |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMII C1 (3) | Fill | 60.69 | 60.87 | 1 |  |  |
| GMII C1 (4a) | Fill | 60.39-20 | 60.69-39 | 1 |  |  |
| GMII C1 (4b) | Fill | 59.95 | 60.20 | 1 |  |  |
| GMII C1 (5) | Fill | 59.86 | 59.95 | 1 |  |  |
| GMII C1 (6) | Fill | 59.97 | 60.27 | 1 |  |  |
| GMII C1 (7) | Fill | 59.70 | 59.97 | 1 |  |  |
| GMII C1 (8) 1 (1) | Fill | 58.84 | 59.02 | 2 | Unit 2 |  |
| GMII C1 (9) 2 (1) | Fill | 58.93 | 59.55 | 2 | Unit 1 |  |
| GMII C1 (10) 1 (2) | Fill |  |  | 2 | Unit 2 |  |
| GMII C1 (10) 2 (2A) | Fill |  |  | 2 | Unit 1 |  |
| GMII C1 (10) 2 (2B) | Fill |  | 58.68 | 2 | Unit 1 |  |
| GMII C1 (11) 2 (3) | Fill | 57.66? | 59.59 | 3 ? | Unit 1? |  |
| GMII C1 TT2 (2B) 2 | Fill | 58.75 | 58.83 | 2-3? |  |  |
| GMII C1 (4) $\{73\} 2$ | Fill |  | 58.6 | 2 | Unit 1 |  |
| GMII C1 TT2 (4) 2 | Fill |  | 57.82 | 3-4 |  |  |
| GMII C1 TT2 (5) 2 | Fill |  |  | 3-4 |  |  |
| GMII C1 TT2 (6) 2 | Fill |  |  | 4 |  |  |
| GMII C1 TT2 (7) 2 | Fill |  | 57.34 | 4 |  |  |
| GMII C1 F1 | Pit?/trench | 59.58 | 60.17? | 1-2 |  |  |
| GMII C1 F2 | Stones | 59.3 | 59.57 | 1-2? |  |  |
| GMII C1 F3 | Bricks | 59.45 | 60.00 | 1-2? |  |  |
| GMII C1 F4 | Tabun | 58.92 | 58.92 | 2 | Unit 2 |  |
| GMII C1 F5 | Stones | 58.83 | 59.00 | 1-2? | Unit 1 | Stones lying on W1B |
| GMII C1 F6 | Wall? | 58.9 | 59.37 | 2 | Unit 1 |  |
| GMII C1 F7 | Bricks | 58.07 | 59.00 | 2 | Unit 1 |  |
| GMII C1 F8 | Pebbles |  | 58.83 | 2 | Unit 1? |  |
| GMII C1 F9 | Wall? | 58.13 | 59.00 | 2-3? | Unit 1?? |  |
| GMII C1 TT2 F10 | Ash layer |  | 58.10 | 3 ? | under Unit 1 |  |
| GMII C1 TT2 F11 | Bricks/bin |  | 58.13 | 2-3 |  |  |
| GMII C1 TT2 F11 (1) | Fill | 57.98 | 58.13 | 2-3 |  | Fill above Wall 4 |
| GMII C1 TT2 F11 (2) | Fill |  | 58.04 | 2-3 |  | Fill above Wall 4 |
| GMII C1 TT2 F11 (3) | Fill |  | 57.96 | 2-3 |  | Fill above Wall 4 |
| GMII C1 TT2 F11 (4) | Fill |  | 57.93 | 2-3 |  | Fill above Wall 4/ possibly bin |
| GMII C1 TT2 F12 | Bricks | 57.47 | 57.57 | 3 |  | Bricks above Wall 4 |
| GMII C1 TT2 F13 | Bricks |  | 57.79 | 3 |  | Bricks above Feature 12, Wall 4 |
| GMII C1 W1 | Wall | 58.85 | 59.45 | 2 (2A) | Unit 1 | Brick wall |
| GMII C1 W1A | Wall |  | 58.88 | 2 (2B) | Unit 1 | Brick wall |
| GMII C1 W2 | Wall | 58.68 | 58.78 | 2 | Unit 1 | Brick wall |
| GMII C1 W4 | Wall |  | 57.39 | 3 | unit 3 | Brick wall |
| GMII C1 P1 | Pit | 58.25 | 58.59 | ? |  | Mamluk pit? |
| GMII C1 TT2 P2 (1) | Pit | 58.72 | 58.73 | 3 |  |  |
| GMII C1 TT2 P2 (2) | Pit |  | 58.72 | 2-3? |  |  |
| GMII C1 TT2 P2 (3) | Pit | 58.06 | 58.10 | 2-3? |  |  |
| GMII C1 TT2 P2 (4) | Pit? | 58.02 | 58.10 | 3 ? |  |  |
| GMII C1 P3 (1) | Pit | 58.05 | 58.15 | 2 ? |  |  |
| GMII C1 TT2 P4 | Pit? | 58.02 | 58.70 | 3 ? |  |  |
| GMII C2 (0) | Topsoil |  |  | None |  |  |
| GMII C2 (1) | Fill |  |  | 2 ? |  | Layer with pebbles |

TABLE 4.A1 (continued)

| Context | Lower <br> Context type | Upper level (m) | level (m) | Phase | Architecture | Notes/description |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMII C2 TT1 (1) | Fill |  |  | 3-4 |  | Equals (4) |
| GMII C2 TT1 (2) | Pit |  |  | Unknown |  | Equals P1 |
| GMII C2 TT1 (3) | Wall? |  |  | 3-4? |  | Equals F3 |
| GMII C2 TT1 (1) 1 | Wall? |  |  | 3-4? |  | Equals F3 |
| GMII C2 TT1 (2) 1 | Fill |  |  | 4 ? |  | Equals (5) |
| GMII C2 TT1 (3) 1 | Fill |  |  | Unknown |  |  |
| GMII C2 TT1 (4) 1 | Fill |  |  | Unknown |  |  |
| GMII C2 TT1 (5) 1 | Fill |  |  | Unknown |  |  |
| GMII C2 (2) | Fill |  |  | 4 ? |  |  |
| GMII C2 (3) | Fill |  |  | 4 ? |  |  |
| GMII C2 (4) | Fill | 57.39 | 57.87 | 4 |  |  |
| GMII C2 (5) | Wall? |  | 57.39 | 4 |  |  |
| GMII C2 (1) 1 | Fill | Unexcavated | 56.97 | 4 ? |  |  |
| GMII C2 (2) 1 | Fill | 56.47 | 56.97 | 4 ? |  |  |
| GMII C2 (3) 1 | Fill | Unexcavated | 56.97 | 4 ? |  |  |
| GMII C2 (4) 1 | Fill | 56.47 | 56.97 | 4 ? |  |  |
| GMII C2 (5) 1 | Fill | Unexcavated | 56.97 | 4 ? |  |  |
| GMII C2 (1)\{73\} | Fill |  |  | 4 ? |  |  |
| GMII C2 (2)\{73\} | Fill |  |  | 4 ? |  |  |
| GMII C2 (3) \{73\} | Fill |  | 57.66 | 3 |  | Fill on walls |
| GMII C2 (3B) \{73\} | Fill |  |  | 3 |  | Fill on walls |
| GMII C2 (4)\{73\} | Fill |  | 57.42 | 3 |  | Fill on walls |
| GMII C2 (1) 1 \{73\} | Fill |  | 57.43 | 3 |  | Fill on walls |
| GMII C2 (2) 1 \{73\} | Pit |  | 57.04 | 3 |  | Fill on walls |
| GMII C2 (2B) 1 \{73\} | Fill |  |  | 3 |  | Fill on walls |
| GMII C2 (2C) 1 \{73\} | Fill |  | 57.05 | 3 |  | Fill on walls |
| GMII C2 (2D) 1 \{73\} | Fill |  | 56.91 | 3 |  | Fill on walls |
| GMII C2 (2E) 1 \{73\} | Fill |  |  | 3 |  | Fill on walls |
| GMII C2 (3) 1 \{73\} | Fill | 56.65 |  | 3 |  | Fill on walls |
| GMII C2 (1) 3 \{73\} | Fill |  |  | 3 |  | Fill on walls |
| GMII C2 (2) 3 \{73\} | Fill |  | 56.62 | 3 |  | Fill on walls |
| GMII C2 (3) 3 \{73\} | Fill |  | 56.06 | 3 |  | Fill on walls |
| GMII C2 (4) 3 \{73\} | Fill | 56.05 | 56.06 | 3 |  | Fill on walls |
| GMII C2 (5) 3 \{73\} | Fill | 56.01 | 56.10 | 4 |  | Fill on wall or in Unit 4 |
| GMII C2 (6) 3 \{73\} | Fill | 55.75 | 56.03 | 4 |  | Fills on wall or in Unit 4 |
| GMII C2 (4) 1 \{73\} | Fill |  | 56.49 | 4 |  | Fills on walls |
| GMII C2 (3) 1A \{73\} | Fill |  | 55.77 | 4 | Unit 5 |  |
| GMII C2 (4B) 1A $\{73\}$ | Fill | 55.92 | 56.06 | 4 |  | Fills on walls |
| GMII C2 (4) 1A \{73\} | Fill |  | 55.60 | 4 | Unit 5 |  |
| GMII C2 (5) 1A \{73\} | Fill | 55.45 | 55.50 | 4 | Unit 5 |  |
| GMII C2 (1) 4 | Fill |  | 55.48 | 4 | Unit 5 |  |
| GMII C2 (2) 4 | Fill |  | 55.34 | 4 | Unit 5 |  |
| GMII C2 (3) 4 | Fill |  | 55.56 | 4 | Unit 5 |  |
| GMII C2 (5) 1 \{73\} | Ash layer |  | 56.16 | 4 |  | Fill on walls |
| GMII C2 (5) 3 \{73\} | Fill |  | 56.08 | 4 |  | Fill on walls |
| GMII C2 (6) 1 \{73\} | Fill |  | 56.06 | 4(A) | Unit 4 |  |
| GMII C2 (7) 3 \{73\} | Fill |  | 55.83 | 4 | Unit 4 |  |
| GMII C2 (8) 3 \{73\} | Fill | 55.37 | 55.50 | 4 | Unit 4 |  |
| GMII C2 (7) 5 | Fill | 55.57 | 55.79 | 4 | Unit 4 |  |

(continued)

TABLE 4.A1 (continued)

| Context | Lower Context type | Upper level (m) | level (m) | Phase | Architecture | Notes/description |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMII C2 (1) 6 | Fill |  |  | 4(A) |  |  |
| GMII C2 F1 | Stones | jar-57.87 | 58.04 | 2 ? |  | Stone pavement with embedded jar |
| GMII C2 F2 | Bricks |  |  | 4 |  |  |
| GMII C2 F3 | Wall? | 56.97 | 57.39 | 3-4? |  |  |
| GMII C2 F4 | Ash layer |  | 55.54 | 4 | Unit 5 |  |
| GMII C2 F5 | Brick |  | 55.48 | 4 | Unit 5 |  |
| GMII C2 F6 | Bricks |  | 55.67 | 4 | Unit 5 |  |
| GMII C2 F7 | Bricks |  | 56.51 | 3-4? | Unit 4 |  |
| GMII C2 F8 | Bricks |  | 55.42 | 4 |  |  |
| GMII C2-A2 W1 | Wall |  | 57.32? | 3 |  |  |
| GMII C2 W1 (F3) | Wall | 57.42 | 57.51 | 3 | Unit 4 | Brick wall, F3 |
| GMII C2 W2 | Wall | 55.81 | 55.91 | 4(B) | Unit 4 | Brick wall |
| GMII C2 W3 | Wall |  | 56.24 | 4(A) | Unit 4 | Brick wall |
| GMII C2-A2 P1 | Pit? |  |  | Post 4 |  |  |
| GMII C2 P2 | Fill |  |  | 3 ? |  |  |
| GMII C2 P3 | Fill |  |  | Unknown |  |  |
| GMII C2 P3 \{73\} | Pit |  |  | 2 ? |  |  |
| GMII C2 P2/P4 | Pit |  |  | None |  |  |
| GMII C2 P4 | Pit | 58.02 | 58.70 | Post 3? |  |  |
| GMII C2 P5 | Pit |  |  | 4 ? |  |  |
| GMII C2 P6 | Pit |  |  | 2?-4? |  |  |
| GMII C3 (5) | Fill |  |  | 5 |  |  |
| GMII C3 (6) | Fill |  |  | 5 |  |  |
| GMII C3 (7) | Fill |  |  | 5 |  |  |
| GMII C3 (8) | Fill |  |  | 5 |  |  |
| GMII C3 (9) | Fill |  |  | 5 |  |  |
| GMII C3 (10-13) | Fill/wash |  |  | 5 |  |  |
| GMII C3 (14) | Fill |  |  | 5 |  |  |
| GMII C3 (15) | Fill |  |  | 5 |  |  |
| GMII C3 (16) | Fill |  |  | 5-6 |  |  |
| GMII C3 (16a) | Fill |  |  | 5-6 |  |  |
| GMII C3 (17) | Fill |  |  | 6 |  |  |
| GMII C3 (18) | Fill |  |  | 6 |  |  |
| GMII C3 (19) | Fill |  |  | 6 |  |  |
| GMII C3 (20) | Fill |  |  | 6 |  |  |
| GMII C3 (21) | Fill |  |  | 6 |  |  |
| GMII C3 (22) | Fill |  |  | 6 |  |  |
| GMII C3 (23) | Fill | 53.32 |  | 6 |  |  |
| GMII C3 (AB) | Lime deposit |  | 53.32 | 6-7 |  |  |
| GMII C3 (AB') | Lime deposit |  |  | 6-7 |  |  |
| GMII C3 (AC) | Lime deposit |  |  | 6-7 |  |  |
| GMII D4 (0) | Topsoil | 52.70 |  | None |  |  |
| GMII D4 (1) | Fill |  | 52.70 | 6 ? |  |  |
| GMII D4 (1b) | Pit |  | 52.45 | 6 ? |  |  |
| GMII D4 (2) | Pit |  |  | 6 ? |  |  |
| GMII D4 (2a) | Fill |  |  | 6 ? |  |  |
| GMII D4 (3) | Fill | 51.40 | 51.80 | 6-7? |  |  |
| GMII D4 (3a) | Fill | 51.15 | 51.45 | 6-7? |  |  |

TABLE 4.A1 (continued)

| Context | Lower Context type | Upper level (m) | level (m) | Phase | Architecture | Notes/description |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMII D4 (4) | Fill | 51.20 | 51.40 | 6-7? |  |  |
| GMII D4 (5) | Fill |  | 51.25 | 6-7? |  |  |
| GMII D4 (5a) | Fill |  |  | 6-7? |  |  |
| GMII D4 (6) 1 | Fill | 50.80 | 51.30 | 6-7? |  |  |
| GMII D4 (7) 1 | Fill | 50.60 | 50.85 | 6-7? |  |  |
| GMII D4 (6) 3 | Fill/virgin soil | 49.65 | 50.45 | 6-7? |  |  |
| GMII D4 F1 | ? |  |  | Unknown |  |  |
| GMII D4 F2 | Furnace? |  |  | Unknown |  |  |
| GMII D4 F3 | Wall? | 51.40 | 52.20 | 6-7? |  |  |
| GMII D4 F3 (a) | Fill | 51.13 | 51.38 | 6-7? |  |  |
| GMII D4 F3 (b) | Fill | 50.55 | 51.11 | 6-7? |  |  |
| GMII D4 F3 (c) | Fill | 50.50 | 50.55 | 6-7? |  |  |
| GMII D4 F3 (d) | Fill | 50.10 | 50.65 | 6-7? |  |  |
| GMII D4 F4 | Fill |  |  | 6-7? |  |  |
| GMII D4 F5 | Wall |  |  | 6 ? |  | Equals W2 |
| GMII D4 W1 | Wall | 51.75 | 52.65 | Unknown |  |  |
| GMII D4 P1/F2 | Pit | 51.13 | $\sim 52.50$ | 6-7? |  |  |
| GMII D5 (0) | Topsoil |  |  | None |  |  |
| GMII D5 (1) | Fill |  |  | None |  |  |
| GMII D5 (1a) | Ash layer |  |  | Unknown |  |  |
| GMII D5 P2 | Pit |  |  | Unknown |  |  |
| GM Wadi W1 | Wall |  |  | 2-3? |  | Brick wall |
| GM Wadi (1) | Ash layer |  |  | 3 ? |  | Fill below Wall 1 (1 m trench) |
| GM Wadi (2) | Ash layer |  |  | 3 ? |  | Fill below Wall 1 |
| GM Wadi BC1 | Object/ash |  |  | 3 ? |  | Bronze chisel (BC1) |
| GM Wadi BC2 | Ash layer |  |  | 3 ? |  | Below Wall 1 |

# The South Trench (ST1) David Ben-Shlomo 

## DESCRIPTION

The south trench (ST1) is located on the southern edge of the tell (Figure 5.1), near the access road to the site (Figure 5.2, about 50 m west of the paved parking strip). The south trench was opened in 1987, when a bulldozer opened a $2.5-3 \mathrm{~m}$ wide trench along a length of 13.35 m (Figures $5.3-5.8$ ). It was opened at the 52.90 m contour line, with a depth of about $3.0-4.5 \mathrm{~m}$ and a roughly north-south orientation (see sections in Figures 5.6-5.8). The area was excavated later, however, in a short season during 1990 (Figures 5.9-5.14; see also Van Beek, 1992). The aim of opening this field was to locate evidence for Middle Bronze Age or other fortifications or a city wall. This was the last effort to find evidence for such fortifications as in previous seasons the step trenches in the western (Field II) and eastern (Field III) slopes of the tell yielded no such remains and the northern slope was largely eroded anyway. An article on the results from the south trench was published in Eretz Israel (Van Beek, 1992), where the remains were dated to the MBII. Furthermore, it was suggested that Petrie's fortifications dated to the Iron Age (earth revetments or glacis of Strata CD and GH of Petrie, 1928: pl. XXV:1, located in a southwestern part of the tell, near ST1) may have been originally constructed during the MBII and possibly reused in later periods (Van Beek, 1992:9*).

The 1987 bulldozer trench revealed a seemingly massive earthen feature in the north section, probably a glacis (Figure 5.4). The aim of the excavation of a $2.6 \times 1.8 \mathrm{~m}$ area within the trench was to expose the glacis (built on a dark sediment layer) from the top and to date it according to debris on it; the different sections were recorded as well (Figures 5.6-5.8, 5.14). The square opened in 1990 was located just to the north of the bulldozer trench (Figures 5.9-5.13). The large massive wall (Wall 1, plastered?; Van Beek, 1992:7*) was seen in the northern, eastern, and southern balks of the trench (Figures 5.12, 5.14). It is aligned northwest-southeast and may have been positioned on top of the earth revetment.

This wall (denoted also "glacis wall" or Wall 1) is seen to be lying on virgin soil in some places (but not everywhere, as noted in Van Beek, 1992:5*, ill. 2) but is mostly lying on a dark layer; it is composed of a sandy layer on the upper part and an additional sandy layer with horizontal clay bands on the lower part; in the north section, mud bricks were defined as well (Figures 5.12-5.14). The lower layer is composed of a soil different from the common one used for bricks in the site (Van Beek, 1992:5*). Thus, it is suggested that Wall 1 was constructed of courses of pisé above and overlaying courses of mud brick (see section in Figure 5.14). It is aligned NNW-SSE and is plastered in some places. This glacis wall is seen in section to be about 2 m wide (assumed to be up to 6 m in width; Van Beek, 1992:5*), at least 1 m high, and, according to the south section, at least 5 m long ( 1.5 m high there). Nevertheless, it was exposed only in a small area from the top in the excavation square (Figure 5.10). In the excavated square an eroded top of the pisé de terre wall was exposed on the eastern side, in an area of $0.5 \times 0.5 \mathrm{~m}$ (Figure 5.10 ); in the NE corner, Wall 1 is defined as well. A similar MBIIB glacis was excavated at Tel Haror, Area E (Oren et al., 1986b:67, 71, figs. 9, 10).

The excavation in ST1 yielded fill Layers 1 and 2 above the wall and fill Layers 3, 4A, and 4B alongside the wall (see Figure 5.14). Layer 3 close to the top of Wall 1 included hearth fragments and stones. Both Layers 2 and 3 contained many animal bones, including a significant number of pig bones (see chapter 33). The layers to the west of the wall were ashy (see Figures $5.11,5.12$ ). The bricks can be seen clearly in the northern section from 1990: the wall itself is wider at its base and narrows on top, with a rounded contour (Figure 5.12). Whether this was intentional or is due to weathering is not clear; in any case, the wall continues to the east. The ashy layers could be evidence of a glacis (as noted from the top), especially in the lower part, where the layers have more acute angles. This is seen also on the eastern balk (Figure 5.14). Note that the exposed width of Wall 1 can define it as a massive wall but not clearly as a fortification wall. Layers 5-8 are layers under the base of Wall 1, and they seal the earth revetment; Wall 1 is seen to lie on a thick, dark horizontal layer of the earth revetment. During the 1987 and 1990 recording of the balks, several pits were defined (Figures


FIGURE 5.1. Location of the south trench in the tell.
5.6-5.7), Pits 1 and 2 in the western balk and Pits 3 and 4 in the eastern balk. They were filled with late pottery (Van Beek, 1992:5*), as well as a layer with late Roman/Byzantine sherds in the upper part of the western part. Pit 1 was dug from the level of the wall and included MBII material.

## THE FINDS FROM GM STI

The fragmentary pottery from just above the wall and layers relating to it include only MBIIB-C pottery (Layers 1-8) and
thus can date this feature to this period (Figures 5.15, 5.16). This includes several open bowls (Figure 5.15a,b) and the rim of a carinated bowl (Figure 5.15c; see Field III, Phases 18-15 for further discussion on these forms, e.g., Figure 3.58). Also illustrated are a handled krater (Figure 5.15 f ), two cooking pot rims (Figure $5.15 \mathrm{~d}, \mathrm{e}$ ), probably from the common "gutter rim" type (see Field III, e.g., Figures 3.781, 3.79m-o), an everted rim and neck fragment of a jug (Figure 5.15 g ), a wasp-body-shaped dipper juglet (Figure 5.15h; see Field III, Figures 3.47s, 3.79q), and a double-coil handle of a jug (Figure 5.15i). In addition, several Tell el-Yahudiyeh juglet sherds (Figure 5.16q,r) and several


FIGURE 5.2. A view to the south from the trench.


FIGURE 5.3. The trench during the excavation with the bulldozer.


FIGURE 5.4. The trench's interior, looking north.


FIGURE 5.5. Close-up of the northern face of the trench.


FIGURE 5.6. East balk section of 1987 (Van Beek, 1992: fig. 1).


FIGURE 5.7. West balk section of 1987 (Van Beek, 1992: fig. 2).

## NORTH BALK



FIGURE 5.8. North balk section of 1987 (Van Beek, 1992: fig. 3).
imported Cypriot White Painted (WP) sherds (Figure 5.16a-p, mostly classified as WPIV; see chapter 11) were also found in GM ST1 Layers 1, 2, 4, and 4B (most of these were previously published; see Van Beek, 1992: ill. 7). A jug handle decorated with red bands (Figure 5.16p) is also illustrated, probably of Cypriot WPIV or WPV ware (see chapter 11).

There was no pottery found inside the wall (thus, it was suggested the wall dates to the earliest MBII phase of the site, Van Beek, 1992:5*). It seems very likely that Wall 1 and the fills related to it can be dated to the MBIIB-C. The identification of the results from the south trench as a fortification wall seems plausible and is based on the location of the wall within the tell


FIGURE 5.9. The area excavated in 1990, looking east.


FIGURE 5.10. Plan of square excavated in 1990 (Van Beek, 1992: fig. 6).
contour and on the characteristics of the earth revetment that is seen in the sections, although it is not very well preserved and only very partially exposed.

## AUTHOR NOTE

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FIGURE 5.11. The northern balk section of the areas excavated in 1990; note glacis Wall 1 on right and ashy layers on left side.


FIGURE 5.12. Close-up of the northern balk section of the areas excavated in 1990.


FIGURE 5.13. Trench ST1 at the end of the 1990 excavation.

SOUTH TRENCH 1 (ST1)


FIGURE 5.14. Combination of east, north, and west balk sections of the 1990 excavation (Van Beek, 1992: fig. 5)


FIGURE 5.15. Pottery from ST1.

| Part | Description | Bag/RV/Box No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl | $1983 / 1$ | GM ST1 (4) |
| b | Bowl | $1982 / 2$ | GM ST1 (4B) |
| c | Bowl | $1982 / 1$ | GM ST1 (4B) |
| d | Cooking pot | $1896 / 1$ | GM ST1 P10 |
| e | Cooking pot | $1982 / 3$ | GM ST1 (4B) |
| f | Krater(?) | $1983 / 2$ | GM ST1 (4) |
| g | Juglet/jug | $1896 / 2$ | GM ST1 P10 |
| h | Juglet | $1983 / 3$ | GM ST1 (4) |
| i | Jug | $1899 / 1$ | GM ST1 (5) |



FIGURE 5.16. Pottery from ST1. Cyp. WP = Cypriot White Painted ware; TEY = Tell el-Yahudiyeh ware.

| Part | Description | Bag/RV/Box No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Sherd (Cyp. WP) | 1 | GM ST1 (1) |
| b | Sherd (Cyp. WP) | 2 | GM ST1 (1) |
| c | Sherd (Cyp. WP) | 3 | GM ST1 (1) |
| d | Sherd (Cyp. WP) | 1 | GM ST1 (2) |
| e | Sherd (Cyp. WP) | 2 | GM ST1 (2) |
| f | Sherd (Cyp. WP) | 3 | GM ST1 (2) |
| g | Sherd (Cyp. WP) | 4 | GM ST1 (2) |
| h | Sherd (Cyp. WP) | 5 | GM ST1 (2) |
| i | Sherd (Cyp. WP) | 6 | GM ST1 (2) |
| j | Sherd (Cyp. WP) | 7 | GM ST1 (2) |
| k | Sherd (Cyp. WP) | 1 | GM ST1 (4) |
| l | Sherd (Cyp. WP) | 2 | GM ST1 (4) |
| m | Sherd (Cyp. WP) | 3 | GM ST1 (4) |
| n | Sherd (Cyp. WP) | 1 | GM ST1 (4B) |
| o | Jug (Cyp. WP) | 8 | GM ST1 (2) |
| p | Jug (Cyp. WP) | Box 780 | GM ST1 (2) |
| q | Sherd (TEY) | 4 | GM ST1 P10 |
| r | Sherd (TEY) | 5 | GM ST1 (4) |

## APPENDIX 5.1

TABLE 5.A1. List of contexts from Trench ST1.

| Context | Type | Phase/period | Notes |
| :---: | :---: | :---: | :---: |
| GM ST 1 (0) | Topsoil | None | Mixed pottery LBII-Hellenistic |
| GM ST 1 (1) | Fill | MBII? | Eroded brick |
| GM ST 1 (2) | Fill | MBII | Slopes to south and west; MBII sherds, bone |
| GM ST 1 (3) | Fill | MBII | Same as Layer 2, more bones |
| GM ST 1 (3A) | Fill | MBII | Layer with top of Wall 1, hearth fragments; stones |
| GM ST 1 (4) | Fill | MBII | Fill related with Wall 1 |
| GM ST 1 (4A-B) | Fill | MBII | Layer running to Wall 1 |
| GM ST 1 (5) | Fill | MBII | Fill under Wall 1 |
| GM ST 1 (6) | Fill | MBII | Fill under Wall 1 |
| GM ST 1 (7) | Fill | MBII | Fill under Wall 1 |
| GM ST 1 (8) | Fill | MBII | Fill under Wall 1 |
| GM ST 1 TT1 | Fill | MBII | 0.2 m wide trench dug down to Layer 3 |
| GM ST 1 TT2 | Fill | MBII | Same orientation as TT1 but more to the west, stones |
| GM ST 1 TT3 | Fill | MBII? | East side of square down to Layer 5 |
| GM ST 1 TT4 | Fill | MBII | 0.5 m from west balk, from Layer 6 |
| GM ST 1 P1 (P10) | Pit | Unknown | Long pit along south of square (1987) |
| GM ST 1 P2 | Pit | Unknown | Large pit(?) on west balk? (1987) |
| GM ST 1 P3 | Pit | Unknown | Possibly large, deep pit on east balk (1987) |
| GM ST 1 P4 | Pit | Unknown | See east balk, 0.8 m wide, 0.8 m deep (1987) |
| GM ST 1 P10 | Pit | Unknown | Same as Pit 1? |
| GM ST 1 W1 | Glacis | MBII | Glacis wall seen in section about 2 m wide, 1 m high (in south balk, 5 m long, 1.5 m high), only in a small area on the top square |

## INTRODUCTION

Field I lies in a low area roughly in the center of the tell (Figures 6.1-6.3). This area was the main area excavated by W. M. F. Petrie, where one or two strata of architectural remains dated to the LBII were uncovered, under the Iron Age levels, and was denoted as the "town of the XVIIIth Dynasty" (Petrie, 1928:5, pl. VIII: top; see here Figure 1.5), with the "town of the XXth Dynasty" above it (Petrie, 1928:6, pl. VII). The area was therefore selected for excavation by the Smithsonian expedition in order to examine the structures under Petrie's town of the XVIIIth Dynasty and "JK" building, which are probably dated to the Late Bronze Age II or somewhat later. The town of the XXth Dynasty above it, or the G-H level (Figure 1.6; Petrie, 1928:6, pl. VII), is the main Iron I Philistine level Petrie excavated but may also date to the end of the LBII (or at least some elements of it). In the Smithsonian Institution (SI) excavations in this area, the Late Bronze Age exposures were enlarged horizontally, and indeed, this field contributed the main Late Bronze Age exposure to the SI excavations.

Field I was excavated in the 1971-1972 and 1975-1978 seasons (Figures 6.1, 6.3). The area was supervised by Lee Marfoe (1972: Square [Sq.] 4F, 1975: Sqs. 5D, 6E, 6F), W. S. Measday (1976: Sqs. 4D, 5D), Van Button, and Egon Lass; architects were Brian Lalor and David Sheehan. The total area excavated here includes twelve $5 \times 5 \mathrm{~m}$ complete squares ( $2 \mathrm{D}, 3 \mathrm{E}, 3 \mathrm{~F}, 3 \mathrm{G}, 4 \mathrm{D}, 4 \mathrm{E}, 4 \mathrm{~F}, 4 \mathrm{G}, 5 \mathrm{D}, 5 \mathrm{E}, 5 \mathrm{~F}, 5 \mathrm{G}$; in most cases balks were eventually removed) as well as six partial squares ( 1 F , $2 \mathrm{E}, 4 \mathrm{H}, 5 \mathrm{H}, 6 \mathrm{E}, 6 \mathrm{~F}$ ), altogether totaling an area of about $270 \mathrm{~m}^{2}$.

The main feature uncovered in Field I is the large courtyard building (Building I) exposed quite close to the surface in many places; however, it was not recognized in the first season or two. The paved court was first discovered in Sq. 4F in 1971 and then in a few test trenches around it (TTA, Sq. 3F; TTB, Sq. 4E; TTC, Sq. 4E; TTD, Sq. 4G). In general, the aim of the excavation here was to expose a large horizontal area of the LBII and not to excavate earlier levels. Only in Sq. 3G was a deeper trench excavated into earlier LB and MBII layers (Figures 6.4-6.31). The phase numbering in Field I is only to the SI excavations in this field and thus does not reflect the actual sequencing of layers at the site. Clearly, there were several later phases not documented here, dating at least to the LBII,


FIGURE 6.1. General photo of Field I during the 1973 excavation.


FIGURE 6.2. General photo of Field I prior to excavation.


FIGURE 6.3. Field I in the beginning of the excavations in 1972, looking east.


FIGURE 6.4. Plan of Phase 9 in Sq. 3G.


FIGURE 6.5. Brick floor(?), Feature 10 in Sq. 3G, Phase 9, looking west.


FIGURE 6.6. Tabun, Feature 9 in Sq. 3G, Phase 9, looking west.


FIGURE 6.7. Equid burial, Feature 11 under Wall 6 in north balk of Sq. 3G.


FIGURE 6.8. Lower south balk of Sq. 3G; note large Pit 4.


FIGURE 6.9. West balk of Sq. 3G trench with the tabun, Feature 9 (bottom); note Pit 5 above.


FIGURE 6.10. Pottery from Phase 9. TEY = Tell el-Yahudiyeh ware.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl | $1696 / 3$ | GMI 3G (25) 1 |
| b | Bowl | $1696 / 2$ | GMI 3G (25) 1 |
| c | Cooking pot | $1696 / 4$ | GMI 3G (25) 1 |
| d | Cooking pot; soot | $1696 / 5$ | GMI 3G (25) 1 |
| e | Jar? | $1696 / 1$ | GMI 3G (25) 1 |
| f | Juglet | $1713 / 1$ | GMI 3G F11 |
| g | Juglet | $1673 / 1$ | GMI 3G (25) 1 |
| h | Juglet (TEY) | Box 830 | GMI 3G (25) 1 |

Iron I, and Iron II. This is evidenced in Petrie's excavations, as well as in Field I FUR, where the pottery kiln can be seen above the LBII remains (see Figure 7.1).

The main LBII architectural phase in the SI excavations is denoted here as Phase 3, and although it includes several local constructional phases, they are presented together. As the excavations were conducted close to the surface, the area was disturbed from Petrie's excavations. Furthermore, incomplete documentation in certain areas created difficulties in ascertaining the stratigraphical relationships between the main SI excavation building phase and the lower phase excavated by Petrie as well as several remains excavated by the SI along the edges of the area, which may be related to buildings excavated by Petrie (see below, Phase 1). Nevertheless, a tentative sequence is suggested for the LBII: above Phase 3, Phase 2 denoted a later construction phase (but may be considered a technical "buffer" between Phases 1 and 3 ), whereas the end of Phase 1 probably dates to the Iron IA (early 12 th century BCE). The latter is probably the lower phase excavated by Petrie in his XVIII Dynasty town, in which several separate architectural remains were recovered. "Phase 0" denoted activities from Petrie's excavations and dumps (especially in Sq. 4F, possibly Feature 2, a trench from SW to NE, and some fills in Sq. 5D).

The phases will be described from the earliest (excavated in Sq. 3G) to the latest; naturally, the main emphasis will be on the large exposure of Phase 3. Altogether nine phases were defined in Field I (Phases 1-9); Phases 4-9 were detected only in the trench in Sq. 3G; in the rest of the area, only Phases 1-3 were excavated.

## PHASES 9-4: THE TRENCH IN SQUARE 3G

Only in limited locales were early remains, underlying the main Phase 3 remains, excavated. In Sq. 4F several test trenches, particularly Test Trenches 4 and 5 (see Figure 6.128), were excavated up to 1 m beneath the lower pavement of Courtyard A (Layers 10-12). These remains did not yield any architecture (only possible pits, such as Pit 1), although they may be attributed to Phase 4 fill and debris layers (see below).

The main area in which lower phases were excavated in Field I was the test trench in Sq. 3G, which began as a trapezoid-shaped trench $(2-3 \times 5 \mathrm{~m})$. The trench is located in and beneath Unit L of Building I (see below for the Phase 3 remains in Building I, Unit L), just east of the western tabun, Feature 2 (Figure 6.29).


FIGURE 6.11. South and west sections of Sq. 3G trench.

## Phase 9

The earliest level in the Sq. 3G trench, denoted Phase 9 (Figure 6.4), includes a layer of bricky material, probably some sort of paving (Feature 10, Figure 6.5, at a level of 46.95-47.23 m) lying on virgin soil (or some natural sediment); it is at least $3 \times$ 2 m in size and has straight hatched lines on it, possibly indicating bricks. Overlying the paving, a 0.5 m large tabun was found (Feature 9, Figure 6.6; Figure 6.5, rear; also visible in the west balk, Figures $6.9,6.11$ ) at a level of 47.35 m . Also belonging to this phase is a small pit containing the skeleton of a newborn donkey (Feature 11, Figure 6.7; see Wapnish, 1997:337, figs. 12.1-5; see Field III for an additional donkey burial and see chapter 33), as well as another pit or posthole (Feature 12). Virgin soil was reached below this level and in pits, from an elevation of 46.70 m ; this roughly matches the level of virgin soil in Field III.

Only a small amount of pottery was retrieved from Phase 9 (Layers 25-28; Figure 6.10). Most of these can be securely dated to the MBIIB-C. These include bowls (Figure 6.10a,b) similar to examples from Field III, Phases 17-15 (e.g., Figure 3.58a-e). The two cooking pots illustrated (Figure 6.10c,d) are also typical of the MBIIB-C. One cooking pot, with a gutter rim (Figure 6.10d) is similar to examples from Field III, Phases 15 and 16 (Figures 3.59h, 3.781; see also, e.g., Tel Nagila, Uziel, 2008:143, Type CP1.2, fig. 58:4). The other example has a thickened folded rim (Figure 6.10c), possibly a hole-mouth shape, similar to examples from Field III, Phase 17 (see also Aphek, Stratum X16, Gadot and Yadin, 2009: figs. 7.16:10,11, 7.18:7-9; possibly, Megiddo, Stratum XIII-X, Loud, 1948: pl. 30:3). Also illustrated from Phase 9 are two juglet fragments (Figure 6.10f,g); one is larger and represents a wasp-shaped juglet, typical of the MBIIB-C and LBI (Figure 6.10 g ; see Field III, Phases $17-15$, and references therein, e.g., Lachish, Singer-Avitz, 2004: fig. 16.30:5). A body


FIGURE 6.12. North and east sections of Sq. 3G trench.
sherd of a Tell el-Yahudiyeh juglet with black burnish and punctured decoration (Figure 6.10h) was also found in Phase 9.

## Phase 8

Phase 8 denotes a building phase overlying the Phase 9 remains (Figure 6.13), including two wall fragments (Walls 6 and 7, Figure 6.14) forming a right angle on the northwest side of the trench. Thus, the rest of the area could have been confined within a room. The walls were preserved at levels of $47.54-47.77 \mathrm{~m}$. Part of a tabun, cut by Pit 7 (Feature 8; Figure 6.13), also belongs to Phase 8; here floor levels were reached at a height of 47.44 m (Layers 23-24). Pits 6 and 8, which are seen at the edges of the square, possibly belong to this phase too.

Phase 8 also appears to date to the MBIIB-C (Layers 20-24, Figure 6.15), as indicated by the pottery found in this phase, including mostly bowls and jars (possibly correlating to Field III, Phase 16). The bowls include open bowls with slightly inverted rims (Figure 6.15a,b, the former is burnished; see above) about 20 cm in diameter and a rounded bowl with a simple rim
(Figure 6.15c). Such rounded bowls are also found in Field III in Phases 18-16 (Figure 3.58a-g, where complete examples have ring bases, e.g., Figure 3.58 e ) and are typical of the MBIIB-C. Another bowl (Figure 6.15d) has a high, sharp carination. Similar bowls comes from Field III, Phases 18-15 (such as Figure $3.58 \mathrm{w}, \mathrm{x}$; see parallels in chapter 3, e.g., Beit Mirsim, Tomb 24, Ben-Arieh, 2004: fig. 2.28:7-11). A fragment of a larger bowl (Figure 6.15e) is similar in shape to fine eggshell bowls (see Field III, e.g., Figure $3.58 \mathrm{t}, \mathrm{w}$; Amiran, 1969:110, pl. 27) but is not as fine. It has an everted rim, high neck with vertical burnish, and globular profile under the carination (see parallels in Field III, such as Figure 3.58w,x; see, e.g., Tel Nagila [Uziel, 2008: Type BL3.1, 3.2, fig. 54:1, 2] and Lachish [Singer-Avitz, 2004: fig. 16.11:6]).

Several jar fragments from Phase 8 are illustrated (Figure 6.15f-j). Most have everted or flaring, thickened (Figure 6.15f,g) or modeled rims (Figure $6.15 \mathrm{~h}, \mathrm{i}$ ); one example (Figure 6.15 g ) has a ridge under the rim. These jar necks probably represent large storage jars, similar to those found in Field III, especially in Sqs. J1-J2, Layer 17 of Phase 17 (Figures 3.48, 3.49 and parallels


FIGURE 6.13. Plan of Phase 8 in Sq. 3G.
therein). A large body fragment (Figure 6.15j), probably of a jar, is worked: this could have been a similar storage vessel that had its neck cut and the breakage worked to a smooth edge for a different use. Two juglet fragments from Phase 8 are also illustrated. One (Figure 6.15 k ) is probably a typical dipper juglet with an elongated body (wasp shape; see above, Phase 9). The other is a thinner body sherd made of dark gray burnished clay with a handle (Figure 6.15l); this could be a Tell el-Yahudiyeh juglet fragment. Several sherds (Figure 6.15m-o) indicate the presence of two or three imported White Painted (WP) Cypriot vessels; one of the sherds is worked (Figure 6.15o).

## Phase 7

Phase 7 includes fill layers under Wall 5 and a tabun in the SE corner of the trench (Feature 7, Figures 6.16, 6.17). The tabun, discovered at an elevation of 48.76 m , is 0.6 m in diameter. Pit 5 may belong to this phase (and possibly some of the lower pits [Pits 6-8 were dug from this level], especially Pit 7, which cuts the Phase 8 , Feature 8 tabun).

The pottery from Phase 7 (including pottery from Sq. 3G, Pit 7 , which may date to Phase 7 or 8 ) continues to date to the MBIIC forms, with hardly any LB pottery forms appearing (Figures 6.18, 6.19). This includes open bowls with slightly inverted


FIGURE 6.14. Layer 21 and Walls 6 and 7 in Sq. 3G, looking SE.


FIGURE 6.15. Pottery from Phase 8. TEY = Tell el-Yahudiyeh ware; Cyp. WP = Cypriot White Painted ware.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl; burnished | $1668 / 1$ | GMI 3G (20) |
| b | Bowl | $1692 / 1$ | GMI 3G (21) |
| c | Bowl | $1668 \mathrm{~A} / 1$ | GMI 3G (21) |
| d | Bowl; burnish outside | $1668 / 2$ | GMI 3G (20) |
| e | Bowl; vertical burnish | $1666 / 1$ | GMI 3G (20) |
| f | Jar(?) | 1668 A | GMI 3G (21) |
| g | Jar | $1668 / 3$ | GMI 3G (20) |
| h | Jar | $1668 / 4$ | GMI 3G (20) |
| i | Jar | $1668 / 5$ | GMI 3G (20) |
| j | Jar; shaved/worked neck | $1706 / 1$ | GMI 3G (20) |
| k | Juglet | $1692 / 2$ | GMI 3G (21) |
| l | Juglet (TEY?); black burnish | $1692 / 3$ | GMI 3G (21) |
| m | Sherd (Cyp. WP) | Box 776 | GMI 3G (20) |
| n | Sherd (Cyp. WP) | Box 777 | GMI 3G (21) |
| o | Worked sherd (Cyp. WP) | Reg. No. 1723 | GMI 3G (20) |



FIGURE 6.16. Plan of Phase 7 in Sq. 3G.


FIGURE 6.17. Tabun, Feature 7 of Sq. 3G, Phase 7, looking east.


FIGURE 6.18. Pottery from Phase 7.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $1784 / 1$ | GMI 3G (18) | 7 |
| b | Bowl | $1675 / 1$ | GMI 3G P7 | $7 / 8 ?$ |
| c | Bowl | $1674 / 1$ | GMI 3G (19) | 7 |
| d | Bowl | $1784 / 2$ | GMI 3G (18) | 7 |
| e | Bowl | $1675 / 2$ | GMI 3G P7 | $7 / 8$ ? |
| f | Bowl | $1784 / 3$ | GMI 3G (18) | 7 |
| g | Bowl | $1674 / 3$ | GMI 3G (19) | 7 |
| h | Bowl | $1674 / 2$ | GMI 3G (19) | 7 |
| i | Bowl | $1675 / 3$ | GMI 3G P7 | $7 / 8$ ? |
| j | Krater | $1667 / 1$ | GMI 3G P7 | $7 / 8 ?$ |
| k | Base | $1694 / 1$ | GMI 3G (19) | 7 |
| l | Cooking pot/thick krater | $1785 / 2$ | GMI 3G (17) | 7 |
| m | Cooking pot | $1785 / 1$ | GMI 3G (17) | 7 |
| n | Cooking pot (hole-mouth) | $1681 / 1$ | GMI 3G P7 | $7 / 8 ?$ |

rims (Figure 6.18a,c) and rounded bowls (Figure 6.18b). Several types of carinated bowls appear as well (Figure 6.18d-g). These include carinated bowls with a simple rim (Figure 6.18d), a fine, small carinated bowl (Figure 6.18e), and a bowl with a high, sharp carination (Figure 6.18f, similar to Figure 6.15d from Phase 8 above). A larger carinated bowl (Figure 6.18g)
is more similar to LBII S-shaped carinated bowls (see Field III, Phases 12-9 and discussion of Phase 3 below). Figure 6.18h is a bowl with a rounded body and high carination. A fine carinated bowl fragment (Figure 6.18i) is made of very whitish clay; it has a sharp carination under a flaring neck. This is an example of fine MBIIB-C eggshell ware, possibly a pedestal bowl, similar
to a more complete one from Field III, Phase 17 (Figure 3.47h; see, e.g., Amiran, 1969:110, pl. 27; Beit Mirsim, Tomb 24, BenArieh, 2004: fig. 2.9:28-32). A large disk base (Figure 6.18j) may belong to a large bowl or a krater; a small, flat base (Figure 6.18 k ) is also illustrated.

Several rim fragments from Phase 7 (Figure 6.181-n) are of thick kraters or cooking pots. One has a thickened folded rim (Figure 6.18n); the other (Figure 6.18 m ) has a folded triangular rim with a slight inner gutter. The rim in Figure 6.18 n may be similar to MBII hole-mouth cooking pots seen in Field III, Phase 16 (Figure 3.71q,r). A larger rim fragment (Figure 6.18m) is of a more typical gutter-shaped rim (possibly hole-mouth) and has soot marks (similar to cooking pots from Phase 9, Figure 6.10c,d).

Closed vessels from Phase 7 include jars, jugs, and juglets (Figure 6.19a-i). Two jar fragments include a smaller modeled rim (Figure 6.19a) and a more complete flaring neck and rim of a large storage jar (Figure 6.19.c; see Field III, Phase 17, Figures $3.48,3.49$ ). The base of a similar jar type (Figure 6.19d) was also found. In addition, several jar or pithoi sherds with drilled holes covered with plaster (Figure 6.19q) are very similar to those found in Field III Phases 17 and 16 (Figures 3.49a,f). Jugs include a neck and long handle of a small jug (Figure 6.19e) or large dipper juglet and a rim with a wide handle attached to it (Figure 6.19 h ). Juglet fragments include a large body fragment of a dipper juglet (Figure 6.19f), a narrow neck with an everted rim typical of MBIIB-C juglets (e.g., Beit Mirsim, Tomb 24, Ben-Arieh, 2004: fig. 2.10:43-47), and a double handle (Figure 6.19 g, , possibly of a Tell el-Yahudiyeh ware juglet). A handmade ceramic fragment (Figure 6.191) may belong to some type of ceramic box, house model, or stand. Several fragments of decorated WPV Cypriot jugs were also found in this phase (Figure 6.19j,k; see chapter 11). Four worked sherds come from Phase 7 layers as well (Figure $6.19 \mathrm{~m}-\mathrm{p}$ ).

## Phase 6

Under Walls 3 and 4, an ashy fill with brick-like material was discovered (Layer 10). These covered Wall 5 of Phase 6 (Figures $6.20,6.22$ ). This is an east-west brick wall, with 3 m of its length exposed, and is cut by Pits 3 and 4 of Phase 4. It stood 0.7 m , or 7-9 courses high, at elevations of 49.07-49.80 (Figures 6.21-6.22). Pit 5 in the northwest corner may also belong to Phase 6 or to Phase 7.

The pottery assemblage from Phase 6, the earliest Late Bronze phase in the Sq. 3G probe (Layers 9-16, with context denoted as Phase 6/7 included; Figures 6.23-6.24), is somewhat larger, including clear LBII forms (particularly cooking pots and imported Cypriot pottery, such as White Slip ware). Nevertheless, MBIIC(-LBI?) forms continue to appear, such as the open bowls with thickened or slightly inverted rims, which appear in various sizes (Figure 6.23a-e); small rounded bowls also appear (Figure 6.23j,k). Carinated bowls with simple rims appear in various sizes (Figure 6.23f-i,l-m, the latter has remains of white slip on the outside); one example (Figure 6.23 n ) has a sharp everted rim and high carination with whitish and pinkish clay and a ring
base, belonging to the eggshell ware (Figure 6.23q; see above for more on this ware). These are either residual from MBII phases or indicate a continuation into the early LBII. A complete, fine, high-foot pedestal bowl/chalice (Figure 6.23r) from Sq. 3G, Pit 5 has a thin hemispherical bowl and high conical (trumpet-shaped) foot (see parallels at Beit Mirsim, Tomb 100, Ben-Arieh, 2004: fig. 2.33:65); this vessel is also possibly related to fine ware. Bowls with a low carination (Figure 6.23h,i, the latter complete with a flat base), more typical of the LBII, also appear (see Field III, Phases 12-8; Panitz-Cohen, 2006a:40-42, Type BL56). An everted rim fragment of a carinated bowl with a vertical loop handle attached to the rim (Figure 6.23p) has a similar form to cyma-shaped LBII bowls, sometimes appearing with handles (see Tel Miqne, Stratum VIIB, Dothan et al., 2006: fig. 3.7:15,16). The worked ring base of a bowl (Figure 6.23 t ) and a thick perforated body fragment of what seems to be a large chalice (Figure 6.23 s ) are also illustrated. Note that no typical LBII kraters were found in Phase 6, but this could be coincidental.

The few cooking pots found in Phase 6 include the everted-triangular-rim cooking pots (Figure 6.23v) typical of the LBII (see Field III, Phases 12-8, e.g., Figures 3.112r 3.143k,l; e.g., Killebrew, 1999; Panitz-Cohen and Mazar, 2006:68-70, Type CP1, and references therein).

Closed shapes from Phase 6 include storage jar rims (Figure $6.24 \mathrm{a}-\mathrm{c}$ ) with an everted shape, which are more similar to MBIIC forms (see above); a jar handle (Figure 6.24d) and a flat thin jar base (Figure 6.24e) are also illustrated. The latter (Figure 6.24 e ) has thick white-slipped bands on it, similar to jars from Field III (see, e.g., Figure 3.60h). A similar surface treatment on jars was found at Batash, Stratum X (Panitz-Cohen, 2006a:75, pl. 12:4-7) and Megiddo, Stratum X (Loud, 1948: pl. 129:1). Figure 6.24 g is a long vertical handle of a small jug or juglet; an everted juglet neck (Figure 6.24h) is also illustrated. Typical LBII Cypriot imports appear in Phase 6, including White Slip "milk bowls" (Figure 6.241) and a Base Ring II jug (Figure $6.24 \mathrm{k})$. A complete Cypriot White Shaved juglet was found in Sq. 3G, Layer 12 (Figure 6.24j), whereas the lower part of a pointed white shaved juglet (Figure 6.24i) may be Cypriot product or a local imitation, as the upper indicative part with the handle was not preserved (see chapter 11 and below on these wares). It seems, therefore, that the pottery seems to date Phase 6 to the early LBII, possibly similar to Field III, Phases 13-12. Another item found in Layer 16, Locus 2 (Phase 6 or 7) is a large fragment of a bronze axe (Figure 6.24 m ); a stone spindle whorl was also found in this phase (Figure 6.24n; see chapter 23). The complete horn of an antelope or hartebeest was found in Sq. 3G, Layer 12 (see chapter 33, Bone No. 1664).

## Phases 5-4

Beneath Phase 3, two large pits (Figures 6.28, 6.30, 6.31, Pits 3 and 4) that were more than 2 m in diameter each and about $1.5-1.8 \mathrm{~m}$ deep ( $49.05-50.81 \mathrm{~m}$ ) were attributed to Phase 4 ; they are clearly seen in the north and south sections as well as photos (Figures 6.11, 6.12, 6.29-6.31). Few finds were found in the pits, which cut Walls 3 and 4 of Phase 5 (Figures 6.25, 6.26),

## $\mp \quad \mp$ <br> a



- $]_{0} m_{n}^{\prime}$ 酳

$0 \quad 10 \mathrm{~cm}$


FIGURE 6.19. Finds from Phase 7. TEY = Tell el-Yahudiyeh ware; Cyp. WP = Cypriot White Painted ware. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Jar | $1674 / 5$ | GMI 3G (19) | 7 |
| b | Jar | $1674 / 4$ | GMI 3G (19) | 7 |
| c | Jar | $1679 / 1$ | GMI 3G P7 | $7 / 8$ ? |
| d | Jar base | $1664 / 1$ | GMI 3G (19) | 7 |
| e | Jug | $1784 / 4$ | GMI 3G (18) | 7 |
| f | Juglet | $1670 / 1$ | GMI 3G P7 | $7 / 8$ ? |
| g | Juglet | $1674 / 6$ | GMI 3G (19) | 7 |
| h | Jugglet | $1674 / 7$ | GMI 3G (19) | 7 |
| i | Jug/juglet (TEY?); black burnish | $1675 / 4$ | GMI 3G P7 | $7 / 8$ ? |
| j | Sherd (Cyp. WP) | Box 771/1 | GMI 3G (19) | 7 |
| k | Sherd (Cyp. WP) | box 771/2 | GMI 3G (19) | 7 |
| l | Handmade vessel (box?) | $1694 / 2$ | GMI 3G (19) | 7 |
| m | Worked sherd (Cyp. WP) | Reg. No. 1724 | GMI 3G P7 | $7 / 8$ ? |
| n | Rounded sherd | Reg. No. 3743a | GMI 3G (19) | 7 |
| o | Worked sherd | Reg. No. 3743b | GMI 3G (19) | 7 |
| p | Thick worked sherd | Reg. No. 3743c | GMI 3G (19) | 7 |
| q | Drilled jar sherd with plaster | Bag 1663 | GMI 3G P7 | $7 / 8$ ? |



FIGURE 6.20. Plan of Phase 6 in Sq. 3G.
as well as Phases 6-7. In addition, a debris level excavated at an elevation of $50.25-50.55 \mathrm{~m}$ can be attributed to this phase (Layers 7-8).

Only a few sherds can be securely provenanced to Phase 5 (Figure 6.27), including an open bowl (Figure 6.27a) and a
cooking pot with an everted rim (Figure 6.27b). Another cooking pot (Figure 6.27c) has a folded inverted rim, less typical of the LBII (more typical of Iron I; see Aphek, Gadot and Yadin, 2009: Types CP1d-CP1e). A Base Ring II (BRII) vessel and a White Slip (WS) milk bowl (Figure 6.27d-e) were also found in this phase. The pottery seems to fit an LBII date.

The Phase 4 pottery from the probe and from levels under the main LBII Phase 3 remains can be combined together (Figure 6.32); however, pottery from lower levels in Building I, Unit L and Area K, which may be allocated to Phase 4, is discussed below with the main LBII Phase 3 pottery. The pottery includes mostly open bowls with simple rims (Figure 6.32a-d), rounded bowls (Figure 6.32f-i), and a complete hemispherical bowl (Figure 6.32 e ) with a slightly inverted rim and a ring base (see Field III, Phases 11-7). Several carinated bowls also appear (Figure $6.32 \mathrm{j}, \mathrm{k})$. A large carinated bowl or krater has an unusual thickened rim (Figure 6.321). A rim and handle fragment (Figure 6.32 m ) of a typical LBII large carinated krater is also illustrated; complete examples come from Phase 3 (see Figures 6.124b, 6.157). These kraters are common in the LBII-Iron I in southern Israel (see, e.g., Lachish, Levels VII-VI [Yannai, 2004:1041], Qubur Walaydah, Iron I [Lehmann et al., 2009: fig. 7:3,4,9,10], and Aphek, Stratum X12 [Gadot and Yadin, 2009:209, Type KR2, and references therein]). A handle attached to a body fragment (Figure 6.32n) is probably the base of a large bowl or krater with a three-handled base. These vessels are known from Late Bronze parallels at Gezer (Macalister, 1912: pl. LXXXII:1), Tell Farah (S) (Duncan, 1930:image no. 28j5), and Tell Abu Hawam (Hamilton, 1935: pl. XIII:81), as well as the Iron I (e.g., Ashdod, Stratum XIII [Dothan and Ben-Shlomo, 2005:74, fig. 3.5:15] and Qasile [Mazar, 1985a:42, fig. 40:2]; see also handlebased closed vessels from Megiddo [Loud, 1948: pls. 79:5, 85:6; Guy and Engberg, 1938: pl. 71:2]).


FIGURE 6.21. Square 3G, Wall 5, looking SE.


FIGURE 6.22. Wall 5 (left) and Pit 5 (right) in Sq. 3G, looking south.

Several of the cooking pots illustrated have triangular everted rims (Figure $6.32 \mathrm{o}, \mathrm{p}$ ) or a simple everted rim (Figure 6.32 q ). A flat jar base (Figure 6.32r) is of a relatively small storage jar. A handmade vessel (Figure 6.32t), possibly a crucible or a lamp(?), is also illustrated, as well as a Cypriot White Shaved juglet fragment (Figure 6.32s). Generally, the Phase 4 pottery does not seem to vary considerably from the main Phase 3 pottery (see below), and thus, the two phases should be closely dated.

Other finds from Phase 4 include worked sherds (Figure $6.33 \mathrm{a}, \mathrm{b}$ ) and a bronze spatula or other tool (Figure 21.3r); a complete bone needle (Figure 6.33c; see also chapter 25) also possibly comes from Phase 4.

## PHASE 3 AND THE MAIN COURTYARD BUILDING (BUILDINGS I AND II)

General Remarks

The major remains excavated in Tell Jemmeh Field I, reflecting a horizontal exposure of over $250 \mathrm{~m}^{2}$ in 18 squares, are denoted here as Phase 3 (Figure 6.34). The most important remains from this phase include a large courtyard building (Building I) that was nearly completely excavated (Figures 6.35-6.103). To the south of Building I a segment of an additional building was excavated (Building II, Figure 6.34), and a $1.5-\mathrm{m}$-wide passage way or street (Street J) separates the buildings, with another open area to the east of Building I (Area K). Building I is composed of a large paved courtyard (Courtyard A, Figures 6.43, 6.46) with a series of rooms surrounding it from the west (Rooms B and E), east (Room C), and mostly north (Rooms D1, D2, D3, N, and O and Units M1 and M2; Figure 6.37). Although all these remains belong to a single building, there are at two or three phases of construction and floor levels in various locations within it. The somewhat lower northern unit of the building also included open spaces; it may have been built somewhat lower intentionally as a flight of three steps down to this area was noted (Van Beek, 1993a:669) but not recorded. However, this possibly represents an earlier phase of the building or a natural slope in the site. In any case, in certain locations at least two constructional phases of the building can be suggested (e.g., Figures 6.40, 6.41, 6.49): the lower phase (tentatively denoted 3B locally) includes the lower paving of Courtyard A, without Room B and the tabun (see below) and the lower stone paving in Room C. Also, in the southern wall of the building in Sq. 4E (Figures 6.41, 6.42) a lower phase at the level of the stone paving bulges $20-30 \mathrm{~cm}$ to the south. The floors below the stone paving, as well as the brick walls, can be seen clearly in a section in Sq. 3F (Figures 6.42, 6.48). The upper phase (denoted locally 3A) includes the upper stone paving in Courtyard A, Room B with the tabun, and the upper earth floor in Room C. As noted, the same floor levels in the northern units (D1-D3, M, N, O, L) are about $30-35 \mathrm{~cm}$ lower than in the main courtyard; thus, these units could belong to the building in its lower phase, matching the lower phase of the paving in the courtyard. However, the northern units could have existed in the upper phase (some floor levels are similar to
those in the south, and there were no building remains identified on top of them, probably because of erosion), and the height difference, when relevant, may merely represent slopes in the field or, as previously suggested, a section of the house intentionally built lower.

Building I is defined from the south by Wall 6 in Sq. 5E (continuing to the west about 12 m in Sqs. 4 E and 3E), Wall 4 in Sq. 5 E (or Wall 7 in Sq. 5D, 6.5 m ), and then Wall 3 of Sq. 5 F another 4 m to the north, the eastern wall of Unit D1 in the east, and Wall 3 of Sqs. 1F-2F in the west (of which only 3.5 m were uncovered). The outer walls of the building are not thick and are built of one row of header-laid bricks, one brick wide, about $0.5-0.7 \mathrm{~m}$ in most cases; the southern wall had some stone foundations at least along 5.5 m in Sqs. 3E-4E (Figure 6.48); the walls in the south and east were not preserved very high, about 0.5 m at levels of $51.73-52.20 \mathrm{~m}$ (being higher in the south); in the west, the walls were lower at $51.09-51.27 \mathrm{~m}$, probably representing walls of the lower 3B phase. In the north, the building is defined by a series of outer walls of Units D, N, and O (in Sqs. $4 \mathrm{G}, 5 \mathrm{G}, 4 \mathrm{H}, 5 \mathrm{H})$; it is also possible that the building included additional units in this northeastern area. In the northwest the outer wall of Building I was not excavated, probably lying in Sq. 3H in the northern part of Unit L. Two possibilities can be suggested for the entrance of Building I. The main entrance was most likely through Courtyard A in Sq. 5E (Figures 6.34, 6.39), where a wide cavity (about 1 m wide) was noted along the eastern wall of the courtyard, Wall 7 (Figures 6.39-6.41, Feature 5). Here a large stone slab and a flat hard plaster slab (SCI1390; also a plaster fragment shaped as a rounded protrusion could belong to the threshold of Building I's main entrance) probably constituted the threshold at a height of 51.50 m (Sq. 5E, Feature 5, Figure 6.42). Excavations beneath this feature indicated that in a lower phase, the wall continued under it (Figure 6.41). A secondary entrance may have been located in the northern part of the building, on the east side of Unit M2 into a paved area (Sq. 5G, Feature 8A, Figure 6.95). This could be considered a side entrance serving mostly Units M and L , which are characterized by cooking facilities (see below). However, as this section was not excavated farther to the east, it is not certain that the paved area is indeed outside the building. Another entrance was also suggested from the east into the paved area in Unit D1 (Figure 6.71, which may be a sloped ramp at an elevation of 51.03-51.46 $\mathrm{m})$. It should be noted that all these suggestions for entrances to Building I are not completely clear and that an entrance to the courtyard from the long southern side (from Street J) cannot be ruled out. In the southern wall in Pit 1 of Sq. 5E, a foundation deposit of the lamp and bowl type is mentioned in the excavation notes (possibly seen in Figure 6.42), yet no further records of this were found. Another deposit of a lamp and two bowls was found in Pit 1 in Sq. 1F and is possibly attributed to Phase 1 (see Figure 6.150-6.151). These foundation deposits, nevertheless, have good parallels in the southern Levant during the LBII, such as at Lachish (e.g., Bunimovitz and Zimhoni, 1993) and Beth Shean, Stratum S-4 (Panitz-Cohen and Mazar, 2009: photos $4.49,4.50$ ), as well as other LBII-Iron IA sites (Bunimovitz and Zimhoni, 1993).


Thus, the dimensions of Building I would have reached at least 19 m (east-west) by 17 m (north-south), and its area covers $200 \mathrm{~m}^{2}$ at a minimum. Of this, the main rectangular paved courtyard, Courtyard A, would measure about $15.0 \times 6.5 \mathrm{~m}$ (Figures 6.34, 6.46), about $100 \mathrm{~m}^{2}$ or half of the building's area. The building plan is characterized by high "depth" in its access scheme, with three or four access levels (Figure 6.38). The building is probably entered from the main courtyard, although most rooms do not have access to the courtyard; the next level of access is Units D1-D2, moving from there to the more inner Units L and M and from there to the innermost Rooms O and N (see discussion below). Note that the rooms in Building II in the
south are somewhat higher and may represent a later subphase (see below) or a natural inclination of the area.

## Courtyard A

Of the 12 units composing Building I (Figure 6.37), the most dominant is Courtyard A. The paved courtyard was not identified as such in the first two seasons of 1971 and early 1972 when the excavation was only conducted in narrow trenches (Figures 6.43, 6.46); the stones were thought to represent wall fragments (such as Wall 1 of Sq. 4F). As excavations continued, it was recognized as a large paved area of a large building, and the

FIGURE 6.23. Pottery from Phase 6. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $1769 / 3$ | GMI 3G (16) 1 | $6 / 7$ |
| b | Bowl | $1769 / 2$ | GMI 3G (16) 1 | $6 / 7$ |
| c | Bowl | $1653 / 1$ | GMI 3G P5 | 6 |
| d | Bowl | $1790 / 1$ | GMI 3G (15) 2 | $6 / 7$ |
| e | Bowl | $1757 / 1$ | GMI 3G (12) | 6 |
| f | Bowl | $1765 / 1$ | GMI 3G (10) | 6 |
| g | Bowl | $1769 / 4$ | GMI 3G (16) 1 | $6 / 7$ |
| h | Bowl | $1787 / 1$ | GMI 3G P5 | 6 |
| i | Bowl | $1659 / 1$ | GMI 3G (9) | 6 |
| j | Bowl | $1789 / 2$ | GMI 3G P5 | 6 |
| k | Bowl | $1769 / 1$ | GMI 3G (16) 1 | $6 / 7$ |
| l | Bowl | $1653 / 2$ | GMI 3G P5 | 6 |
| m | Bowl | $1769 / 5$ | GMI 3G (16) 1 | $6 / 7$ |
| n | Eggshell bowl | $1789 / 1$ | GMI 3G P5 | 6 |
| o | Bowl; whitish clay | $1786 / 1$ | GMI 3G (15) 2 | 6 |
| p | Bowl? | $1653 / 3$ | GMI 3G P5 | 6 |
| q | Bowl | $1788 / 1$ | GMI 3G P5 | 6 |
| r | Bowl/chalice | SI Cat. No. 987 | GMI 3G P5 | 6 |
| s | Perforated base/chalice? | $1792 / 1$ | GMI 3G (15) 1 | 6 |
| t | Worked base | $1765 / 2$ | GMI 3G (10) | 6 |
| u | Cooking pot | GMI 3G P5 | 6 |  |
| v | Cooking pot | GMI 3G (9) | 6 |  |

excavation was expanded in Test Trenches A, B, C, and D and was denoted as Feature 1; eventually, the pavement was uncovered over a length of 12 m and a width of up to 5.7 m (Figures $6.36,6.46$; exposed in five squares, Sqs. 3E, 4E, 5E, 3F, 4F). The pavement was nearly completely exposed, with only a patch in the southwest, Sqs. 2E-3E, eroded or disturbed (see Figure 6.35 , center). An additional round disturbance was detected in the northern part in Sq. 4F, seemingly a structure or a pit (Figures $6.46,6.152$, rear left) that destroyed a large area of the courtyard and southern part of Units D1-D2.

Courtyard A has a nearly rectangular shape, with the exception of two rooms (Rooms B, C) in the NE and NW. It is delineated by Sq. 2F, Wall 2 in the west; Wall 5 in the north (and Sq. 5F, Wall 4); Sq. 5E, Wall 4 in the east; and Wall 6 in the south. In Sqs. $3 \mathrm{~F}-4 \mathrm{~F}$, there is $20-30 \mathrm{~cm}$ gap between the northern stones of Courtyard A and Wall 5; this could represent a feature not recognized in the excavations, such as a drainage channel (this is more clear in Sq. 4F, as seen in Figure 6.71) or a beam near the wall; alternatively, the wall may actually have been thicker, but the bricks were not preserved or recognized. The pavement is built of closely packed flat pebbles of sizes ranging $0.2-0.5 \mathrm{~m}$, and it is relatively evenly surfaced at elevations of 51.40-51.70 m ; a lower level of the paving was recognized, especially along its northwestern side at elevations of 51.00-51.25 m (see Figure 6.49). The pavement was discovered relatively close to the surface (Figure 6.2), with only about $0.3-0.4 \mathrm{~m}$ fill above it, and included few finds. Moreover, no installations were identified on it.

Not much pottery is presented from Courtyard A, especially in relation to its large area. This lack could result from the area
being relatively devoid of finds because of, for example, its paved surface, which was cleaned in antiquity from time to time. Such a large, well-built, "clean" courtyard may indicate a ceremonial, symbolic, or public use, rather than a domestic courtyard in which daily chores would usually take place (food processing, cooking, etc.). However, another reason for this could be that large areas of the excavated courtyard were poorly documented (especially in Sqs. 3E, 4E, and 5E), and thus, the remains from these locations cannot be presented here. Also, this area lies close to the site's surface, and thus, the preservation of finds is poor. No complete or nearly complete vessels were recovered from here. From what was preserved, a small assemblage of open, rounded and carinated bowls, cooking pots, jar fragments, and a juglet are illustrated (Figure 6.51a-r) as well as three Cypriot WS "milk bowls" (Figure 6.51s-u); two worked and perforated sherds also come from Courtyard A (Figure 6.51v,w). Several sherds come from the building's possible threshold (Figure $6.51 \mathrm{n}-\mathrm{p}$ ) and include several vessel bases and a bowl.

## Unit B

In the northwest of the courtyard, Room or Unit B was assigned to the upper phase, Phase 3A (Figures 6.48-6.50, 6.526.55). This space is defined by a circular wall in the NW corner of the courtyard (Sqs. 2F-3F, Feature 4, Figures 6.34, 6.52-6.55) that measures about 2 m ; the circular wall did not exist in the lower phase because under its bricks the paving of the courtyard continued in the lower phase (Figure 6.48). In the upper phase, the higher stone paving from outside of the rounded room can


FIGURE 6.24. Pottery and finds from Phase 6. Cyp. WSh $=$ Cypriot White Shaved ware; Cyp. BRII $=$ Cypriot Base Ring II ware; Cyp. WSII $=$ Cypriot White Slip II ware.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Jar | $1794 / 1$ | GMI 3G (16) 2 | $6 / 7$ |
| b | Jar | $1794 / 2$ | GMI 3G (16) 2 | $6 / 7$ |
| c | Jar | $1765 / 3$ | GMI 3G (10) | 6 |
| d | Jar | $1757 / 2$ | GMI 3G (12) | 6 |
| e | Jar, white paint | 1650 | GMI 3G P5 | 6 |
| f | Jug | $1793 / 1$ | GMI 3G (14) | 6 |
| g | Jug/juglet | $1769 / 6$ | GMI 3G (16) 1 | $6 / 7$ |
| h | Juglet/flask neck | $1792 / 2$ | GMI 3G (15) 1 | $6 / 7$ |
| i | Juglet (Cyp. WSh) | $1787 \mathrm{~A} / 2$ | GMI 3G 13 | 6 |
| j | Juglet (Cyp. WSh) | RV 65 | GMI 3G (12) | 6 |
| k | Bilbil jug (Cyp. BRII) | Box 716 | GMI 3G (9) | 6 |
| l | Milk bowl (Cyp. WSII) | Box 631 | GMO) | 6 |
| m | Bronze axe | Reg. No. 1318 (SI Cat. No. 991) | GMI 3G (16) 2 | $6-7$ |
| n | Spindle whorl (stone) | Reg. No. 1039 | GMI 3G (9) | 6 |



FIGURE 6.25. Plan of Phase 5.


FIGURE 6.26. Lower pits and Walls 3 and 4 in Sq. 3G, looking south.


FIGURE 6.27. Finds from Phase 5. Cyp. BRII = Cypriot Base Ring II ware; Cyp. WSII = Cypriot White Slip II ware.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl | $1763 / 1$ | GMI 3G (8) 2 |
| b | Cooking pot | $1763 / 2$ | GMI 3G (8) 2 |
| c | Cooking pot | $1763 / 3$ | GMI 3G (8) 2 |
| d | Bilbil jug (Cyp. BRII) | Box 728 | GMI 3G (8) 2 |
| e | Milk bowl (Cyp. WSSII) | Box 633 | GMI 3G (7) 2 |



GMI 3G - Phase 4
0
FIGURE 6.28. Plan of Phase 4 in Sq. 3G.


FIGURE 6.29. Trench in Sq. 3G and north balk, looking north; note Feature 2, a tabun, of western Unit L in the front left.


FIGURE 6.30. Pits 3 and 4 of Phase 4 in Sq. 3G, looking south; on the right, the tabun (Feature 2) of western Unit L, Phase 3; note stone foundation.


FIGURE 6.31. Pit 3 in Sq. 3G (bottom).

FIGURE 6.32. Pottery from Phase 4. Cyp. WSh = Cypriot White Shaved ware. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 4233A/2 | GMI 3G (5) 1 | 4 |
| b | Bowl | 2959/1 | GMI 4F TT5 (2) | 4? |
| c | Bowl | 4233A/3 | GMI 3G (5) 1 | 4 |
| d | Bowl | 2959/4 | GMI 4F TT5 (2) | 4? |
| e | Bowl | 4181/1 | GMI 4F TT3 (8) | 4? |
| f | Bowl | 2959/2 | GMI 4F TT5 (2) | 4 ? |
| g | Bowl/chalice | 2959/3 | GMI 4F TT5 (2) | 4 ? |
| h | Bowl | 4302/1 | GMI 3G P4 | 4 |
| i | Bowl | 4302/3 | GMI 3G P4 | 4 |
| j | Bowl | 4233A/1 | GMI 3G (5) 1 | 4 |
| k | Bowl | 4302/2 | GMI 3G P4 | 4 |
| 1 | Bowl/krater? | 4233A/4 | GMI 3G (5) 1 | 4 |
| m | Krater | 4302/4 | GMI 3G P4 | 4 |
| n | Base handle | 2962/1 | GMI 4F TT5 (2) | 4? |
| o | Cooking pot | 2959/5 | GMI 4F TT5 (2) | 4 ? |
| p | Cooking pot | 4302/5 | GMI 3G P4 | 4 |
| q | Cooking pot | 4302/6 | GMI 3G P4 | 4 |
| r | Jar | 1649/1 | GMI 3G (1) 5 | 4 |
| s | Juglet (Cyp. WSh) | RV 286 | GMI 3G (5) | 4 |
| t | Handmade vessel (crucible/lamp?) | 4303/1 | GMI 3G (4) 1 | 4? |

be seen as rising up to the rounded wall (Figure 6.49). Most of the area of Room B is occupied by a large tabun, Feature 5 (Feature 3 in 1975; Figures 6.52-6.55), at a level of 52.07 m ; it is possible that the circular wall was a low partition wall and Room B was not roofed. The tabun was nearly completely preserved ( 1 m in diameter) and had a stone foundation under the clay wall (Figure 6.49); the clay wall was also covered with sherds (Feature 2). In the corner of the room, between Wall 4 in the north and Wall 2 in the west, there seems to be a narrow passage in the main wall, at least according to the photograph (Figures 6.52, left, 6.55).

The pottery associated with fills in and above Room B (Figure 6.56; note that for some reason much of the material from Room B was listed with 1 F layer numbers instead of 2 F , i.e. Sq.

1F, Features $3-5=$ Sq. 2F, Features 3-5; see discussion of Room E below) includes rounded and carinated bowls (Figure 6.56a-f), a decorated bowl (Figure 6.56h), cooking pots (Figure 6.56g,i,j), jars (Figure 6.56k), what seems to be a jug (Figure 6.56k), and a lamp (Figure 6.56n). Several Cypriot WS milk bowls are also illustrated (Figure $6.56 \mathrm{p}-\mathrm{q}$ ). A large body sherd (Figure 6.56 m ) with parallel ridges probably belongs to a large pithos; a similar body sherd was found in the same square in an unclear context (Figure 3.157j). These large pithoi with ridged relief decoration on their shoulder are typical of the LBII but are more common in northern Israel (e.g., Hazor, Stratum 1a, Area F [Yadin et al., 1960: pl. CXLV] and Dan, Stratum VII [Ben-Dov, 2011a:256, fig. 152:9,10], local to Tel Dan according to petrography). A thick, handmade, hollow fragment (Figure 6.560) may be a large



FIGURE 6.33. Finds from Phase 4.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Perforated worked sherd | Reg. No. 6002 | GMI 3G (4) 1 | 4 ? |
| b | Perforated worked base | Reg. No. 1712 | GMI 3G Pit 4 | 4 |
| c | Bone needle | Reg. No. 1369 (SI Cat. No. 979) | GMI 3G (4) 1 | 4 ? |

spout (possibly of a jar, a transport stirrup jar imitation, or a figurative vessel).

As noted above, in Sq. 3F to the north of Courtyard A, there seems to be higher building remains with the same orientation (Figures 6.72, 6.128, Phase 2): this includes east-west Wall 2 (above Wall 5 of Phase 3) and Wall 3 running to the north in a higher phase of Unit D2 (Figure 6.72, western side of Unit D), as well as possibly the tabun and Room B, Phase 3A in the NW corner of the courtyard, which continues into Phase 2.

## Room C

In the northeast corner of Courtyard A , a rectangular unit (Room C, Figures 6.57-6.62 ["RM/Room A" in photographs]) seemed to have a special use. Room C is defined by Wall 5 (or Wall 1) in Sq. 5F in the south, Wall 4 in Sq. 5E in the east, Wall 4 in Sq. 5 F in the north, and Wall 7A in the west; it measures internally $3.1 \times 1.5 \mathrm{~m}$, and its entrance was from the courtyard along Wall 7A (Figure 6.58). In a lower layer (Figure 6.57), the western 1.5 m of Room C was paved with flat stones, at a height of $51.23-51.31 \mathrm{~m}$, although in an upper layer, this area seems to have had a beaten earth floor (Figures $6.57,6.58$ ) with the entrance at a level of 51.67 m . The eastern $2 \times 1.5 \mathrm{~m}$ portion of Room C was depressed by $0.3-0.5 \mathrm{~m}$ and was lined with thick plaster (Figures 6.58-6.60, elevations $51.30-51.58 \mathrm{~m}$; see plaster fragments from this area in Figure 6.66, SCI 122, SCI 103), rising up on the western edge; a section through the unit seems to show that pebbles were used as a foundation for the plaster (Figure 6.57). There is a small wall reconstructed between the plastered sloped area and the western part of Room C.

A large amount of this plaster was recovered from the room and the balk of Sqs. 4E-4F (Figure 6.66, SCI 90-93,SCI 103,SCI 122; altogether, at least 630 fragments were counted). These fragments can attest to the technique of the construction of this feature. Most fragments are $1-1.5 \mathrm{~cm}$ thick and flattened on one side;
several fragments show curved edges, indicating edge fragments, whereas others are more rounded (Figure 6.66a). Several thicker fragments, $3.5-6.0 \mathrm{~cm}$ in thickness, were also recovered (Figure 6.66b); one side is carefully smoothly flattened, whereas the other is grooved (similar to the floor fragments in Room N; see Figure 6.100). These have many small pebble inclusions. The thick plaster may have been applied on a stone foundation (see above).

In the lower part of the eastern wall of Room C there is a plaster channel leading to the outside and connecting the plastered space to Feature 2, located adjacent to the outer wall of the building (Figures 6.61, 6.62). Feature 2 in Sqs. 5E-6E was first detected as a circle of stones 1.2 m in diameter. Eventually, it was realized this installation penetrates deeper and was built with stones down to a depth of about 2 m (Figures 6.63-6.65, elevations of $51.68-49.67 \mathrm{~m}$ ), connected by a gap in the wall that is covered by a large, flat stone. The installation was probably constructed first by digging a pit (see the wide foundation trench in Figure 6.64) carefully dressed by courses of evenly laid stones up to a height of about 2 m and then filling the sides of the pit with earth (probably in several stages, similar to the building of stone wells; see Garfinkel et al., 2006). It seems that this installation, probably a sump or drainage of the plastered installation in Room C, was covered underground and was not seen when in use.

Not much pottery was recovered from Room C. The assemblage includes several bowls (Figure 6.67a-e); of these, a complete hemispherical bowl with a disk base (Figure 6.67a), a large rounded bowl (Figure 6.67b), a thick krater with a flat rim (Figure 6.67f), a jar (Figure 6.67g), a decorated jug (Figure 6.67i), and a vertical handle (Figure 6.67 h ) that may belong to a scoop (see Field III, Figure 3.124n) should be noted. The small number of finds may support the identification of the space as a bath or installation.

The plastered space in Room C can therefore be interpreted as a pool or reservoir of liquids that were drained from time


FIGURE 6.34. Plan of Phase 3 (combining Phase 3A and 3B components).


FIGURE 6.35. Field I with Building I, looking east.


FIGURE 6.36. Field I, looking west, with Building I; note upper ashy layers in far western balks.


FIGURE 6.37. Schematic plan of Building I.


FIGURE 6.38. Access diagram of Building I, Phase 3.


FIGURE 6.39. Possible threshold of eastern entrance to Building I (Sq. 5E, Feature 5 in Wall 7), looking northwest.


FIGURE 6.40. Possible threshold of eastern entrance to Building I (Sq. 5E, Feature 5 in Wall 7), looking north.


FIGURE 6.41. The area under the threshold after the excavation of Sq. 5E, Feature 5, looking west.


FIGURE 6.42. Southern wall of Building I (Wall 6) with possible pit of foundation deposit, looking NW.


FIGURE 6.43. Excavating the paved courtyard in Test Trench D (lower level), looking east.


FIGURE 6.44. East balk of Test Trench C, showing fill levels above paved courtyard.


FIGURE 6.45. West balk of Test Trench A, showing fill levels above paved courtyard.


FIGURE 6.46. Courtyard A during excavations, looking east; note upper rounded feature on rear left.


FIGURE 6.47. Upper layer in northern Courtyard A, looking south, with Wall 5 in front and Room B on right.


FIGURE 6.48. Section in Building I showing two levels of stone paving and plastered Room C on right, looking west.


FIGURE 6.49. Northwest corner of Courtyard A (under Room B) in Sq. 3F; note the two levels of paving, with the lower paving under the rounded wall of Room B , looking east.


FIGURE 6.50. Northern edge of Courtyard A and paving of Unit D 2 on the right, looking west, with Room B on the far left.


10 cm

$0 \quad 2 \mathrm{~cm}$

FIGURE 6.51. Pottery and other finds from Courtyard A and entrance to Building I. Cyp. WSII = Cypriot White Slip II ware. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 2958/2 | GMI TTA (2) | 3 | Courtyard A |
| b | Bowl | 2958/1 | GMI TTA (2) | 3 | Courtyard A |
| c | Bowl; soot | 3006/1 | GMI 4F (3a) | 3 | Courtyard A |
| d | Bowl | 3425/1 | GMI 5E F5 (2) | 3/4 | Courtyard A, threshold? |
| e | Bowl | 2983/3 | GMI 4F TT1 (3) 1 | 3 | Courtyard A |
| f | Bowl | 3006/2 | GMI 4F (3a) | 3 | Courtyard A |
| g | Bowl | 4187/2 | GMI 4F TT1 (3) 1 | 3 | Courtyard A |
| h | Bowl | 4187/3 | GMI 4F TT1 (3) 1 | 3 | Courtyard A |
| i | Bowl | 2983/1 | GMI 4F TT1 (3) 1 | 3 | Courtyard A |
| J | Bowl | 2983/2 | GMI 4F TT1 (3) 1 | 3 | Courtyard A |
| k | Bowl | 4187/1 | GMI 4F TT1 (3) 1 | 3 | Courtyard A |
| 1 | Bowl | 2955/1 | GMI TTA (1) | 3 | Courtyard A |
| m | Cooking pot | 2983/4 | GMI 4F TT1 (3) 1 | 3 | Courtyard A |
| n | Cooking pot | 3425/3 | GMI 5E F5 (2) | $3 \mathrm{~B} / 4$ | Courtyard A, threshold? |
| o | Base | 3425/2 | GMI 5E F5 (2) | $3 \mathrm{~B} / 4$ | Courtyard A, threshold? |
| p | Base | 3425/4 | GMI 5E F5 (2) | $3 \mathrm{~B} / 4$ | Courtyard A, threshold? |
| q | Jar | 2983/5 | GMI 4F TT1 (3) 1 | 3 | Courtyard A |
| r | Juglet | 3425/5 | GMI 5E F5 (2) | 3B/4 | Courtyard A, threshold? |
| s | Milk bowl (Cyp. WSII) | Box 617/1 | GMI 4F (3A) | 3 | Courtyard A |
| t | Milk bowl (Cyp. WSII) | Box 617/2 | GMI 4F (3A) | 3 | Courtyard A |
| u | Milk bowl (Cyp. WSII) | Box 620 | GMI 4F (3A) | 3 | Courtyard A |
| v | Perforated worked sherd | Reg. No. 1692 (SI Cat. No. 337) | GMI TTA1 (1) | 3 | Courtyard A |
| w | Perforated worked sherd | Reg. No. 1931 | GMI TTA1 (1) | 3 | Courtyard A |



FIGURE 6.52. Upper level of Room B of Building I, with tabun in balk, looking NW.


FIGURE 6.53. Rounded wall of Room B from above; note ashy debris above tabun.


FIGURE 6.54. Tabun, Feature 5 in Room B, Building I, Sq. 2F-3F, looking NW.


FIGURE 6.55. Tabun, Feature 5 in Room B, Building I, from above.
to time. This was either a bath for personal use or some kind of industrial, ritual, or agricultural installation. This type of installation of a rounded, hollow stone structure adjacent and connected to an outer wall and a room (with plastered walls) appears elsewhere in this area: in the north of Room H of Building II in Sq. 5D, just about 5 m to the south (Feature 1A in Sq. 5D; see Figures 6.119, 6.120).

Parallels for such installations are rare in the Late Bronze Age. The best parallel seems to come from Strata XV and XIV in Area G at LBII Ashdod (Dothan and Porath, 1993:43, 47, Plan 6, pls. 7:3, 8:2,3, Room 4165/Pool 4162 and Sump 4160). There, a small rectangular plastered room was uncovered (about $3 \times$ 1.4 m inner size); it was located in the corner of a building (denoted by the excavators as "Governor's Residence") and drained into a $2.5-\mathrm{m}$-deep stone-lined sump located seemingly outside the building in an open area. The installation from Ashdod is defined there as a pool for water collection, although further interpretation is not suggested. Although the location and shape of the Jemmeh installation are similar to that of Ashdod, the entire building is different in its plan, as the latter is not a courtyard building but is built in a typical governor's residence plan (see below and Oren, 1992); notably, however, the Tell Jemmeh LBII example is probably contemporary with Ashdod Stratum XV.

At Beth Shean (LBII, Stratum R-1) a $2.2 \times 4.3 \mathrm{~m}$ installation in a corner of a building is also interpreted as a bathroom (Mullins and Mazar, 2007:178-180, fig. 3.26, photos 3.116,
3.116). The floor of this installation has three steps, although a clear drainage channel was not identified (Mullins and Mazar suggested this, on the basis of the elevations, that the water was filled rather than drained through the existing channel). Other similar examples are from Palace II at Tell el-‘Ajjul (about $2 \times 2 \mathrm{~m}$ in size; Petrie, 1932: pls. XLIV, XLVI: Unit OH, dated to the Middle Bronze Age) and Alalakh, Level IV (Woolley, 1955: fig. 45; see also Mullins and Mazar, 2007:180).

In addition, examples of deep, stone-lined sumps with stone conduits leading to them appear at MBIIB Aphek (Stratum X16, Palace III, in a plastered hall as a part of a gutter system; Gadot and Yadin, 2009:27, fig. 2.34) and possibly LBII Hazor, Stratum IA, Area I (Yadin et al., 1961: pl. CXLI:2, Room 5013; also possibly in Area C, Stratum III, Yadin et al., 1960: fig. 4, Room 6103 with a drainage channel); however, these are probably installations of a different function as they drain open areas rather than enclosed rooms. The plastered installations at Tell Jemmeh Field I may indicate the affluent nature of the residents of the LBII building or may attest to a special public or ritual use of these spaces, although there is no further evidence for such functions arising from the finds (see discussion below).

## UNITS D1-D3

The northern section or wing of Building I was excavated in Sqs. 3G-5G and the southern edge of Sqs. 4H and 5H and


FIGURE 6.56. Finds from Room B. Cyp. WSII = Cypriot White Slip II ware. (opposite)

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl | $4133 / 2$ | GMI 1F F3 (1) |
| b | Bowl | $4128 / 3$ | GMI 1F F5 (1) |
| c | Bowl | $4128 / 2$ | GMI 1F F5 (1) |
| d | Bowl | $4133 / 1$ | GMI 1F F3 (1) |
| e | Bowl | $4133 / 3$ | GMI 1F F3 (1) |
| f | Bowl | $4128 / 1$ | GMI 1F F5 (1) |
| g | Krater | $4133 / 4$ | GMI 1F F3 (1) |
| h | Bowl/kylix; red decoration | box 329 | GMI F3 (1) |
| i | Cooking pot; soot | $4133 / 6$ | GMI 1F F3 (1) |
| j | Cooking pot | $4133 / 5$ | GMI 1F F3 (1) |
| k | Jar/jug | $4129 / 2$ | GMI 1F F5 (2) |
| l | Jar | $4129 / 1$ | GMI 1F F5 (2) |
| m | Pithos; plastic decoration | $4147 / 1$ | GMI 1F F5 (1) |
| n | Lamp? | $4128 / 4$ | GMI 1F F5 (1) |
| o | Spout? | $4128 / 5$ | GMI 1F F5 (1) |
| p | Milk bowl (Cyp. WSII) | Box 558/1 | GMI 1F F2 (2)/4D (3) |
| q | Milk bowl (Cyp. WSII) | Box 598/1 | GMI 1F F2 |



FIGURE 6.57. Stone paving in Room C, with plastered area in the rear (note stone foundation under plaster), looking east.


FIGURE 6.58. Plastered area in Room C, Building I ("Rm A" in picture), looking south; note drainage hole on the left.


FIGURE 6.59. Plastered area in Room C, Building I, with a close up on the drainage hole, looking SE.


FIGURE 6.60. Upper phase of plastered Room C (in front), looking west.


FIGURE 6.61. Stone channel of the sump, Feature 2 in Sq. 5E, prior to excavation.


FIGURE 6.62. Stone channel, drainage, and upper sump of Sq. 5E, Feature 2, looking north.


FIGURE 6.63. The sump, Feature 2 in Sqs. 5E-6E, as excavated from the side.


FIGURE 6.64. The sump, Feature 2 in Sqs. 5E-6E, as excavated from the side; note plastered drainage.


FIGURE 6.65. The sump, Feature 2 in Sq. 5E, after excavation, from the inside, looking south.


FIGURE 6.66. Plaster fragments from the area of Room C: (a) SCI 103, GMI 4E (2), and (b) SCI 122, GMI 4E-4F.
includes Units or Rooms D1-D3, L, M, N, and O (Figures 6.92, 6.98; see below). This area was excavated mostly in the 1977 season and includes a north-south corridor, 1 m wide, flanked by Units D3 and M to the east and Unit L to the west and leading to Rooms N and O in the north. An interesting phenomenon is the abundance of tabun installations and the use (and preservation) of wooden beams as thresholds (see below).

Units D1-D3 are three rectangular units or rooms located to the north of Courtyard A (Figures 6.34, 6.74-6.76): Unit D1 to the east, Unit D2 to the west, and Unit D3 to the north of unit D1. Only Unit D1 was nearly completely excavated (Figures $6.50,6.74$ ) and is defined in Sqs. 4 F and 5 F by Wall 4 in the south and Wall 3 in the east; the western wall was not preserved (or the space continues into Unit D2 without a division), and its northern edge is defined by the line of stone paving. This is a $5.7 \times 2.2 \mathrm{~m}$ space that is connected to Courtyard A through a passage in Wall 4 (Figures 6.71, 6.73); the entire area is paved with flat stones at levels of 51.23-51.35 m (Figures 6.50, 6.71, 6.74 ), similar to the paving of the main courtyard, indicating
this may well have been a continuation of the courtyard to the north. This area is lower in the east and slopes up gradually to the west (see Figure 6.71) from a height of 51.03 to 51.50 m ; this creates a "step" between this paving and the Courtyard A paving. The exposed paving of Unit D1 likely represents a lower phase. Hardly any pottery was recorded from this area: possibly, as in Courtyard A, the paved surfaces were rather clean of finds.

Another paved area to the northwest of Courtyard A was excavated to an extent of $4.5 \times 0.7 \mathrm{~m}$ in Sqs. $3 \mathrm{~F}-4 \mathrm{~F}$ and was denoted Unit D2 (Figure 6.75); as noted, it might have been connected to Unit D1. The eastern 1.5 m section is, however, paved in a different style of smaller pebbles ( $10-20 \mathrm{~cm}$ in size), and this may indicate a lower paving phase of this area (level 51.0751.24 m ; denoted as Wall 5 of Sq. 4F); the fact that this paved patch ends in the west in a straight line may indicate there was a narrow separation wall between the two paved areas in Unit D2. Unit D3 is an unpaved area north of Unit D1, about $1.3 \times 4 \mathrm{~m}$ in size in Sq. 5 F , continuing to the north in Sq. 5 G . Apparently,


FIGURE 6.67. Finds from Room C.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $2945 / 1$ | GMI TTC (3) | 3 |
| b | Bowl | $4180 / 1$ | GMI TTC (3) | 3 |
| c | Bowl | $2737 / 1$ | GMI TTC (3) | 3 |
| d | Bowl | $2946 / 2$ | GMI TTC (3) | 3 |
| e | Bowl | $2946 / 1$ | GMI TTC (3) | 3 |
| f | Krater | $2946 / 3$ | GMI TTC (3) | 3 |
| g | Jar | $2946 / 6$ | GMI TTC (3) | 3 |
| h | Scoop? | $2946 / 5$ | GMI TTC (3) | 3 |
| i | Jug; decoration | RV 281 | GMI 4F TTC (5) | $3 ?$ |

this was a narrow room, $4.5 \times 1.2 \mathrm{~m}$ (Figures 6.75, 6.76, 6.91), and was defined in Sq. 5 G by Wall 7 in the south, Wall 8 in the east, Wall 4 in the north, and Feature 1 in the west. Note that the walls were poorly preserved, with only a few bricks defined, and thus, they are mostly outlined according to the contour of the bricky material. The floor reached was a beaten earth floor at a height of 51.09-51.19 m. The entrance to Room D3 was from the west through a corridor (Figure 6.75 on the left); the paved area to the southwest and west of Unit D3 indicated there was a paved passage between Courtyard A, the paved (courtyard) Unit D , and the northern section of the building (see below).

Pottery sherds from Room D3 or from the corridor (Figure 6.68) include several open and rounded bowls (Figure 6.68ag; Figure 6.68 e is black burnished, possibly covered by soot), a possible flask (Figure 6.68h), and a zoomorphic fragment (Figure 6.68i); this fragment is a leg attached to a wheel-made
body fragment of a quadruped zoomorphic vessel (see, e.g., BenShlomo, 2008b).

## Room E

To the west of Courtyard A, Room E is delineated in Sq. 2 F by Wall 2 in the east, the western continuation of Wall 5 in the north, and Wall 3 in the west (the western wall of Building I). The southern wall of the room, probably eroded, was not excavated but can be assumed according to the position of the western continuation of the southern wall of Building I in Sq. 2E. Room E was only partially excavated in a 3.5 m section of Sq. 2F as well as in Sq. 1F and the western Wall 3, seen in a 2 m segment between Sqs. 2F and 1F; however, it can probably be reconstructed as a $5.5 \times 3 \mathrm{~m}$ rectangular room. The floor of the room seems to have been a beaten earth one, yet some thin, flat


FIGURE 6.68. Pottery from Rooms D1-D3.

| Part | Description | Bag/RV No. | Provenance | Architecture |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $4261 / 2$ | GMI 4G (3) 2 | Corridor/D3? |
| b | Bowl | $3933 / 1$ | GMI 5G (1) 5 | Room D3 |
| c | Bowl | $3925 / 1$ | GMI 5G (2) 5 | Room D3 |
| d | Bowl | $3933 / 2$ | GMI 5G (1) 5 | Room D3 |
| e | Bowl; black burnish | $3925 / 2$ | GMI 5G (2) 5 | Room D3 |
| f | Bowl | $3925 / 3$ | GMI 5G (2) 5 | Room D3 |
| g | Bowl | $4261 / 1$ | GMI 4G (3) 2 | Corridor/D3? |
| h | Flask? | $3933 / 3$ | GMI 5G (1) 5 | Room D3 |
| i | Zoomorphic vessel | $3925 / 4$ | GMI 5G (2) 5 | Room D3 |

FIGURE 6.69. Pottery from Room E. (opposite)

| Part | Description | Bag/RV No. | Provenance |
| :---: | :---: | :---: | :---: |
| a | Bowl; soot | 4196/1 | GMI 1F (11) 1 |
| b | Bowl | 4193/1 | GMI 1F (12) 1 |
| c | Bowl | 4196/3 | GMI 1F (11) |
| d | Bowl | 4195/3 | GMI 1F (12) |
| e | Bowl | 4196/2 | GMI 1F (11) |
| f | Bowl | 4195/1 | GMI 1F (12) |
| g | Bowl | 4196/4 | GMI 1F (11) |
| h | Bowl | 4198/1 | GMI 1F (11) 1 |
| . | Bowl | 4193/3 | GMI 1F (12) 1 |
| j | Bowl | 4198/3 | GMI 1F (11) 1 |
| k | Bowl | 4198/2 | GMI 1F (11) 1 |
| 1 | Bowl | 4195/2 | GMI 1F (12) |
| m | Bowl/krater | 4196/5 | GMI 1F (11) |
| n | Bowl/krater | 4199/1 | GMI 1F (11) |
| o | Bowl (Cypriot Monochrome?) | Box 145 | GMI 1F (11) |
| p | Krater | 4146/1 | GMI 1F (11) |
| q | Krater | 4198/4 | $\text { GMI 1F (11) } 1$ |
| r | Krater? | 4193/4 | GMI 1F (12) 1 |
| s | Krater/basin | 4200/1 | GMI 1F (10) |
| t | Cooking pot | 4195/5 | GMI 1F (12) |
| u | Cooking pot | 4195/4 | GMI 1F (12) |
| v | Chalice(?); white slip | 4197/1 | GMI 1F (11) 1 |

fragments of plaster found in the room (SCI 174, GMI 1F, Layer 12, Locus 1) may indicate plaster flooring (or wall coating); it may be that the actual floor was not reached in the excavation. In Sq. 1F, a section was made under the westernmost wall of the building (Wall 3) in Room E, seen in the south and north sections, with a "mortar" line on the outer face of the wall (see possibly Figure 6.149). A test trench excavated here in 1977 (Layers $13,14)$ seems to have yielded remains from Phase 4.

A relatively larger assemblage of pottery was seemingly recovered from Room E and the fill above it (Figures 6.69, 6.70; for some reason most of the layers relating to Room E, located
mostly in Sq. 2F, were registered as layers of Sq. 1F). This includes typical forms of rounded and carinated bowls (Figure 6.69a-1), kraters (Figure $6.69 \mathrm{~m}-\mathrm{n}, \mathrm{p}-\mathrm{q}$ ), cooking pots (Figure 6.69 t , u ), a possible chalice fragment (Figure 6.69v), several jars fragments (Figure 6.70a-c,h), and a jug and a juglet (Figure $6.70 \mathrm{~d}-\mathrm{g}$ ). A large, wide, flat, and thick base (Figure 6.69 s ) may belong to a basin or a large krater (see, possibly, Ashdod, Stratum XII [Dothan and Ben-Shlomo, 2005: fig. 3.28:6] and Stratum XI [Dothan and Porath, 1993:107, fig. 41:5], yet this form is related to the Aegean lekane form there). Also found here are a fragment of a decorated Bichrome jug (Figure 6.70i; see a parallel



FIGURE 6.70. Pottery and finds from Room E. Cyp. WSh = Cypriot White Shaved ware; Cyp. BRII = Cypriot Base Ring II ware; Cyp. WSII = Cypriot White Slip II ware.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jar; gritty clay | $4146 / 2$ | GMI 1F (11) |
| b | Jar | $4195 / 7$ | GMI 1F (12) |
| c | Jug/jar | $4196 / 6$ | GMI 1F (11) |
| d | Jug/pyxis | $4200 / 2$ | GMI 1F (10) |
| e | Jug | $4198 / 6$ | GMI 1F (11) 1 |
| f | Juglet | $4196 / 7$ | GMI 1F (11) |
| g | Juglet; burnish | RV 282 | GMI 1F (12) |
| h | Jar; white slip | $1873 / 1$ | GMI 1F (12) |
| i | Sherd; red and black decoration | box 326 | GMI 1F (12) 1 |
| j | Juglet (Cyp. WSh) | $4198 / 1$ | GMI 1F (11) 1 |
| k | Bilbil jug (Cyp. BRII) | Box 691 | GMI 1F (11) |
| l | Milk bowl (Cyp. WSII) | Box 597 | GMI 1F (12) 1 |
| m | Incised jar handle | Reg. No. 2007 | GMI 1F (12) |



FIGURE 6.71. Unit D1 with paving, looking east; on far left Unit D3; note gap (drainage or beam?) on left.


F


FIGURE 6.72. Plan of higher Phase 3A (or Phase 2) elements in area of Unit D2.


FIGURE 6.73. The northern section of Building I during excavations, looking NE.


FIGURE 6.74. The northern section of Building I (Sqs. 4G, 4H, 5G, 5H), with Units L (front) and M (rear), Units D3 and D1 (paved, right), and Rooms N-O (left), looking west.


FIGURE 6.75. Room D3, looking north, with paved Unit D2 in the front and Units M1, M2, and corridor in the rear.


FIGURE 6.76. Debris in Room D3 with jar base (Layer 1, Locus 5 in Sq. 5G).


FIGURE 6.77. Wooden beam in entrance to Unit L, Sq. 4G, Feature 3, looking north.


FIGURE 6.78. Close-up of wooden beam in entrance to Unit L.


FIGURE 6.79. Eastern part of Unit L, looking east, with the tabun, Feature 2, on the left and tabun remains, Feature 4, on the right and the entrance to the unit in between.


FIGURE 6.80. Close-up of the tabun, Feature 2, in eastern Unit 2, Sq. 4G, looking NE.


FIGURE 6.81. Tabun, Feature 2 in eastern Unit 2, Sq. 4G, after excavation.


FIGURE 6.82. Bottom layer of the tabun, Feature 2 in eastern Unit 2, Sq. 4G, with shell and pottery, looking NE.


FIGURE 6.83. Tabun, Feature 11 in Sq. 4H, Unit L, looking west.
from Aphek, Stratum X14, Gadot and Yadin, 2009: fig. 8.33:1), fragments of a Cypriot White Shaved juglet (Figure 6.70j), a WS milk bowl (Figure 6.701), and a BR jug (Figure 6.70k). A bowl with a broken handle may be a Cypriot Monochrome ware bowl (Figure 6.690; see chapter 11). Also illustrated is a tristrand strap handle (Figure 6.70e) probably belonging to a jug that is residual from MBIIB-C levels (see Field III). An incised jar handle (Figure 6.70 m ) also comes from Room E.

## Unit L

Unit L in Sqs. 3G and 4G (Figures 6.77-6.90) is delineated by Wall 1 in the south, Walls 3 and 2 in the east, and Wall 12 to the north (shared with Rooms N and O and not excavated in its western part). Wall 1 seems to have an upper phase related to a $1.15-\mathrm{m}$-long bench (Feature 5 in Sq. 3G, Figures 6.34, 6.79,


FIGURE 6.84. Western Unit L in Sq. 3G with the brick installation (Feature 1) in front and the tabun (Feature 2) in the rear, looking west.
$6.84,6.85)$ and a lower phase that has a slightly more southern orientation. The western wall was either eroded or lies in the unexcavated area (probably Sq. 2G, or this area could have been open from the west). Thus, the unit, which was probably an open area, measures internally at least $3.7 \times 8.5 \mathrm{~m}$. The entrance to the unit was from a corridor lying to the east in between Walls 2 and 3. In the $1.1-\mathrm{m}$-wide entrance to the room, remains of a wooden beam were found (Feature 3, Figures 6.77, 6.78, elevation of $51.31 \mathrm{~m})$. In Unit L, there are at least four tabuns, three in the eastern side (Sq. 4G, Feature 2, and Sq. 4H, Features 4 and 11, Figure 6.79) and one on the western side (Figure 6.79, Feature 2 of Sq. 3G). It is suggested that these two features comprised a pair of a bread oven (Sq. 4G, Feature 2; chapter 9, Cat. No. 20) and a cooking hearth (Sq. 4H, Feature 11; see chapter 9, Cat. No. 22). The tabuns, or ovens, may have been at least partially dug into ground; Features 4 and 11 may be late (belonging to an


FIGURE 6.85. Western Unit L in Sq. 3G with the brick installation (Feature 1) in the rear and the tabun (Feature 2) in the front, from above, looking east.

FIGURE 6.86. Pottery from Unit L. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 4259/1 | GMI 4G (3) 3 | 3 | Unit L (entrance) |
| b | Bowl | 4394/2 | GMI 4G F2 | 3(B) | Unit L |
| c | Bowl | 4270/1 | GMI 4G (3) 1 | 3 | Unit L |
| d | Bowl | 4262/2 | GMI 4G (2) 1 | 3 | Unit L |
| e | Bowl | 4259/2 | GMI 4G (3) 3 | 3 | Unit L entrance |
| f | Bowl | 4281/1 | GMI 3G (1A) | 3(A) | Unit L |
| g | Bowl | 4279/1 | GMI 3G (1) | 3 | Unit L |
| h | Bowl | 4279/2 | GMI 3G (1) | 3 | Unit L |
| i | Bowl; soot | 4281/3 | GMI 3G (1A) | 3(A) | Unit L |
| j | Bowl | 4394/1 | GMI 4G F2 | 3(B) | Unit L |
| k | Bowl | 4275/1 | GMI 3G (2) | 3 | Unit L? |
| 1 | Bowl | 4393/1 | GMI 4G (2) 1 | 3 | Unit L |
| m | Bowl | 4279/3 | GMI 3G (1) | 3 | Unit L |
| n | Bowl | 4305/1 | GMI 3G (3) 1 | 3/4? | Unit L |
| O | Bowl | 5084/2 | GMI 3G F5 | 3 ? | Unit L? (bench) |
| P | Bowl | 4259/3 | GMI 4G (3) 3 | 3 | Unit L entrance |
| q | Bowl | 4281/2 | GMI 3G (1A) | 3(A) | Unit L |
| r | Bowl | 4262/1 | GMI 4G (2) 1 | 3 | Unit L |
| s | Bowl | 4259/4 | GMI 4G (3) 3 | 3 | Unit L entrance |
| t | Bowl | 3908/1 | GMI 4G (2) 1 | 3 | Unit L |
| u | Bowl | 4399/1 | GMI 4G F4 | 3(A?) | Unit L |
| v | Bowl | 4270/2 | GMI 4G (3) 1 | 3 | Unit L |

upper phase, 3A?) as their lower part is higher. In the northeast of Unit L, two tabuns are located side by side. In the NE corner, Feature 2 is a complete tabun/oven, 0.8 m in diameter, probably somewhat dug from the floor level (levels of 51.18-51.34 m); the fill inside it is rich in seeds and includes a conch shell and a bowl base (Figure 6.82), as well as several cooking pots (Figure $6.87 \mathrm{i}-\mathrm{m}$ ) and a miniature vessel (Figure 6.88 m ). To the west, part of a smaller tabun, Feature 11 (Figure 6.83), is only 0.7 m in diameter and located near the entrance to Room O (Figures $6.81,6.98$ ) at level 51.57 m . In the southeast corner of Unit L, there are probably remains of another tabun, Feature 4; only its
lower part is preserved at an elevation of $51.44-51.54 \mathrm{~m}$, and it was possibly 0.7 m in diameter.

To the far west of Unit L in Sq. 3G, another large tabun was excavated (Figures 6.84, 6.85, bottom, Feature 2; just to the east of this tabun, the stratigraphic trench of Sq. 3 G was excavated); this is a 0.9 m tabun that is almost completely preserved but lies higher (at $51.61-51.97 \mathrm{~m}$ ) and possibly represents a local upper phase. It is lined with stones at its base and by sherds along its outer face (Figure 6.85; see also chapter 9). Just to the east of the tabun in the upper phase in Sq. 3G, Feature 1 was discovered. Feature 1 is an installation composed of bricks forming a half



FIGURE 6.87. Pottery from Unit L.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 5084/3 | GMI 3G F5 | 3? | Unit L? (bench) |
| b | Bowl | 5084/1 | GMI 3G F5 | 3? | Unit L? (bench) |
| c | Bowl | 4276/1 | GMI 3G (2) 1 | 3(B?) | Unit L |
| d | Krater | 4270/3 | GMI 4G (3) 1 | 3 | Unit L |
| e | Krater | 4396/1 | GMI 4G (1) 1 | 3 | Unit L? |
| f | Krater | 4396/3 | GMI 4G (1) 1 | 3 | Unit L? |
| g | Basin/krater base? | 4396/2 | GMI 4G (1) 1 | 3 | Unit L? |
| h | Krater; soot | 4252A/2 | GMI 4G F11 | 3(A?) | Unit L |
| i | Cooking pot | 3965/1 | GMI 4G (1) 1 | 3 | Unit L? |
| , | Cooking pot | 4305/2 | GMI 3G (3) 1 | 3/4? | Unit L |
| k | Cooking pot | 4394/4 | GMI 4G F2 | 3(B) | Unit L |
| 1 | Cooking pot | 4289/1 | GMI 3G F2 (1) | 3(A?) | Unit L |
| m | Cooking pot | 4281/4 | GMI 3G (1A) | 3A | Unit L |
| n | Cooking pot | 4394/3 | GMI 4G F2 | 3B | Unit L |



FIGURE 6.88. Pottery from Unit L.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Jar | 4270/4 | GMI 4G (3) 1 | 3 |
| b | Jar | 4399/2 | GMI 4G F4 | 3(A?) |
| c | Jar/jug | 4394/5 | GMI 4G F2 | 3B |
| d | Jar | 1648/2 | GMI 3G F2 | 3(A?) |
| e | Jar | 4252A/1 | GMI 4G F11 | 3(A?) |
| f | Jar | 4252A/3 | GMI 4G F11 | 3(A?) |
| g | Jar | 1648/1 | GMI 3G F2 | 3(A?) |
| h | Jar? | 4305/5 | GMI 3G (3) 1 | 3/4? |
| i | Jar(?); red and white decoration | 3962/1 | GMI 4G F2 | 3(B) |
| j | Lamp; soot | 4393/2 | GMI 4G (2) 1 | 3 |
| k | Lamp; soot | 4393/1a | GMI 4G (2) 1 | 3 |
| , | Lamp | 4289/2 | GMI 3G F2 (1) | 3(A?) |
| m | Handmade miniature vessel | RV 67 | GMI 4G F2 | 3(B) |
| n | Decorated sherd (zoomorphic vessel?) | 4281/5 | GMI 3G (1A) | 3(A) |



FIGURE 6.89. Finds from Unit L. Cyp. WSh = Cypriot White Shaved ware; Cyp. BRII = Cypriot Base Ring II ware; Cyp. WSII = Cypriot White Slip II ware.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bilbil jug (Cyp. BRII) | Box 719/1 | GMI 3G (3) 1 | 3/4? | Unit L |
| b | Jug (Cyp. BRII) | Box 719/2 | GMI 3G (3) 1 | 3/4? | Unit L |
| c | Jug (Cypriot?) | Box 732/1 | GMI 4G (4) 1 | 3/4? | Unit L? |
| d | Bilbil jug (Cyp. BRII) | Box 731/1 | GMI 4G (3) 1 | 3 | Unit L |
| e | Bowl (Cyp. BRII) | Box 659/1 | GMI 3G (2) 1 | 3(B?) | Unit L |
| f | Bowl base (Cyp. BRII) | Box 732/2 | GMI 4G (4) 1 | 3/4? | Unit L? |
| g | Milk bowl (Cyp. WSII) | Box 626/1 | GMI 3G (1A) 1 | 3(A) | Unit L |
| h | Milk bowl (Cyp. WSII) | Box 625/1 | GMI 3G (1) 1 | 3 | Unit L |
| i | Milk bowl (Cyp. WSII) | Box 628/1 | GMI 3G (2) 1 | 3(B?) | Unit L |
| j | Milk bowl (Cyp. WSII) | Box 627/1 | GMI 3G (2) 1 | 3(B?) | Unit L |
| k | Juglet (Cyp. WSh) | 4393/3 | GMI 4G (2) 1 | 3 | Unit L |
| 1 | Perforated worked sherd (base of jug) | Reg. No. 1700 | GMI 4G F2 | 3(B)(in tabun) | Unit L |
| m | Incised rim | Reg. No. 2010 | GMI 3G W1 | 3 | Unit L |



FIGURE 6.90. Stone finds from Unit L: (a) Reg. No. 928, (b) Reg. No. 843, and (c) Reg. No. 999 (see chapter 23).


FIGURE 6.91. Corridor in northern Building I, Sq. 5G, looking south, with paving in Unit M2 on the left and Room D3 in the rear.


FIGURE 6.92. Northern Building I, Sq. 5G: Units M1 (rear) and M1 (front) with the threshold and wooden beam (Feature 7) separating them; on the left, Wall 6 and brick paving (Feature 9), looking east.


FIGURE 6.93. Close-up of wooden beam, Feature 7 in Unit M, Sq. 5G, looking east.


FIGURE 6.94. Units M1 (right) and M2 (left), looking south.


FIGURE 6.95. Paved area (Feature 8A) in Unit M2, Sq. 5G, looking west.

b


FIGURE 6.96. Pottery and finds from Unit M1. Cyp. BRII = Cypriot Base Ring II ware; Myc. = Mycenaean. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 3923/2 | GMI 5G (2) 3 | 3 | Unit M1 |
| b | Bowl | 3922/1 | GMI 5G (3) 3 | 3 | Unit M1 |
| c | Bowl | 3927/1 | GMI 5G (1) 3 | 3 | Unit M1 |
| d | Bowl | 4296/1 | GMI 4G (2) 3 | 3(A?) | Corridor/M1 |
| e | Bowl | 3923/3 | GMI 5G (2) 3 | 3 | Unit M1 |
| f | Bowl | 3922/2 | GMI 5G (3) 3 | 3 | Unit M1 |
| g | Bowl | 3923/1 | GMI 5G (2) 3 | 3 | Unit M1 |
| h | Bowl | 4263/1 | GMI 3G (3) 1 | 3 | Corridor/M1 |
| i | Bowl/krater | 3923/4 | GMI 5G (2) 3 | 3 | Unit M1 |
| j | Krater/cooking pot | 3927/2 | GMI 5G (1) 3 | 3 | Unit M1 |
| k | Chalice? | 3923/5 | GMI 5G (2) 3 | 3 | Unit M1 |
| 1 | Jug/flask? | 4263/2 | GMI 3G (3) 1 | 3 | Corridor/M1 |
| m | Jar | 4296/2 | GMI 4G (2) 3 | 3(A?) | Corridor/M1 |
| n | Jug (Cyp. BRII) | 3927/3 | GMI 5G (1) 3 | 3 | Unit M1 |
| o | Bilbil jug (Cyp. BRII) | Box 656/1 | GMI 4G (3) 1 | 3 | Corridor/M1 |
| p | Bowl; red decoration (imitation of Cyp. BRII?) | Box 391/1 | GMI 5G (2) 3 | 3 | Unit M1 |
| q | Bilbil jug (Cyp. BRII) | Box 736/1 | GMI 5G (1) 3 | 3 | Unit M1 |
| r | Amphoriskos/pyriform jar (Myc. IIIA:2) | Box 770/1 | GMI 5D (7) 2 | 3 | Corridor/M1 |


$0 \quad 2 \mathrm{~cm}$


FIGURE 6.97. Pottery and finds from Unit M2. Cyp. WSII = Cypriot White Slip II ware; Myc. = Mycenaean.

| Part | Description | Bag/RV No. | Provenance | Architecture |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $3934 / 2$ | GMI 5G (1) 4 | Unit M2 |
| b | Miniature bowl? | $3934 / 1$ | GMI 5G (1) 4 | Unit M2 |
| c | Bowl | $3934 / 3$ | GMI 5G (1) 4 | Unit M2 |
| d | Jar | $3934 / 4$ | GMI 5G (1) 4 | Unit M2 |
| e | Krater (Myc. IIIB) | Box 765/1 | GMI 5G (1) 4 | Unit M2 |
| f | Milk bowl (Cyp. WSII) | Box 651/1-2 | GMI 5G (1) 4 | Unit M2 |
| g | Lamp | $3934 / 5$ | GMI 5G (1) 4 | Unit M2 |
| h | Incised jar handle | Reg. No. 3816 | GMI 5G (2) 4 | Unit M1/M2 |



FIGURE 6.98. Northern Building I, Sq. 4H: Room O on the left with wooden beam (marked "W"; Feature 12) and Unit L with the tabuns, Features 11 (front) and 2 (rear), on the right, looking east.


FIGURE 6.99. Room N, looking south, with entrance in the rear and tabun (Sq. 4G, Feature 2 ) in the far right corner.


FIGURE 6.100. Plaster fragments from Room N (SCI 266, two fragments; GM 5H (1) 6).
circle (about 1.2 m in diameter; Figure 6.85, center) attached to Wall 1. This may be a bin similar to that found in Room 1 of Phase 1 (see Figure 6.132) but is smaller. Also in Sq. 3G are ashy debris and floor levels at levels of 51.16-51.52 m (Layers 2-3, Locus 1).

A relatively large amount of pottery was found in Unit L (Figures 6.86-6.89). A large array of open, rounded and carinated bowls were found here (Figures 6.86, 6.87a-c, though none complete), as well as krater bases (Figure 6.87g,h), cooking pots (Figure 6.87i-m), jars (Figure 6.88a-h), and lamps (Figure 6.88j-1); several vessels have soot marks (such as Figures 6.86i, 6.87 h ) and were recovered from within or in the vicinity of the tabuns (e.g., cooking pots from Sq. 4G, Feature 2, Figure 6.87k, n). Several fragments of large kraters were also found (a rim with a handle, Figure $6.87 \mathrm{~d}-\mathrm{g}$, including a coarse flat base [Figure 6.87 g ] and a thick, rounded rim [Figure 6.87 f ]). Large body fragments of a closed vessel (Figure 6.88i), possibly a jar or an amphora, show white painted bands on its shoulder. Several sherds of imported Cypriot pottery include a White Shaved juglet (Figure 6.89 k ), WS milk bowls (Figure $6.89 \mathrm{~g}-\mathrm{j}$ ), and BRII bowls and jugs (Figure 6.89a-f; see chapter 11). An irregularly shaped (handmade?) curved fragment (Figure 6.88n) is decorated by thick brown bands and may be a body fragment of a zoomorphic vessel. Also notable is a small handmade vessel (Figure 6.88 m ),
about 4 cm long, that looks like a small lamp (also found in the tabun in Sq. 4G, Feature 2). This may be a votive vessel. Other finds from Unit L include a leg or horn of a figurine (Reg. No. 1269), an incised rim (Figure 6.89 m ), and a worked sherd (Figure 6.891 ) found in a tabun (Sq. 4G, Feature 2). Several groundstone items found in Unit L (Figure 6.90) could also indicate food preparation activities. These include a large basalt upper grinding stone (Figure 6.90a) and a flint rubber (Figure 6.90b); a limestone pivot stone may have been a door socket (of the entrance to Unit L?; Figure 6.90c; for further discussion on the stone objects, see chapter 23).

## Unit M

Across the corridor to the east of Unit L, Unit M was defined (Figures 6.91-6.95) and is located between Room D3 in the south and Room N in the north, a 2.7 m wide space mostly in Sq. 5 G . As noted, this area possibly served as a side entrance to the building. The western part, delineated by Wall 4 in the south, Wall 6 in the east, and Wall 5 in the north, was denoted as Unit M1. This is a $2.7 \times 2.0 \mathrm{~m}$ space, probably an open area, with a layer of three rows of bricks in the north that probably served as a small brick paving (Feature 9, Figure 6.92) adjoining with Wall 5 at a level of $51.43-51.53 \mathrm{~m}$. In the east there is a $1.2-\mathrm{m}$-wide


FIGURE 6.101. Pottery and finds from Rooms N and O. Cyp. BRII = Cypriot Base Ring II ware; Cyp. WSII = Cypriot White Slip II ware. (opposite)

| Part | Description | Bag/RV No. | Provenance | Architecture |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $5959 / 2$ | GMI 5H (1) 6 | Room N |
| b | Bowl | $5959 / 1$ | GMI 5H (1) 6 | Room N |
| c | Bowl | $3913 / 1$ | GMI 5H (1) 6 | Room N |
| d | Bowl | $3912 / 1$ | GMI 5H (1) 6 | Room N |
| e | Bowl/krater | $3912 / 3$ | GMI 5H (1) 6 | Room N |
| f | Cooking pot | $5954 / 1$ | GMI 5H (1) | Room N |
| g | Jar | $3914 / 1$ | GMI 5H (1) 6 | Room N |
| h | Jar | $3915 / 1$ | GMI 5H (1) 6 | Room N |
| i | Jar | $5959 / 3$ | GMI 5H (1) 6 | Room N |
| j | Jug | $3916 / 1$ | GMI 5H (1) 6 | Room N |
| k | Bilbil jug (Cyp. BRII) | Box 559 | GMI 5H (1) 6 | Room N |
| l | Milk bowl (Cyp. WSII) | Box 657 | GMI 5H (1) | Room N |
| m | Worked sherd (unfinished drilling) | Reg. No. 6003 | GMI 5H (2) 6 | Room N |
| n | Bronze tool | Reg. No. 1329 | GMI 5H (1) 6 | Room N |
| o | Bowl | $3948 / 1$ | GMI 4H (1) 7 | Room O |
| p | Bowl | $3948 / 2$ | GMI 4H (1) 7 | Room O |
| q | Perforated worked sherd | Reg. No. 1926 | GMI 4H (2) 7 | Room O |



FIGURE 6.102. Room O, looking south toward entrance and tabun, Feature 2 of Unit L (Layer 1, Locus 7).


FIGURE 6.103. Reconstruction of Building I (prepared by Brian Lalor).
passage, paved with flat pebbles, and the threshold itself was preserved with a $1.15-\mathrm{m}$-long wooden beam at a height of 51.33 m (Figure 6.93), occupying the entire gap between Walls 4 and 6 (Figure 6.92). To the east of this threshold lies another space, defined as Unit M2 (Figure 6.94, left), that is at least $3.5 \times 2.5 \mathrm{~m}$ in size; most of this area is paved by flat pebbles of various sizes (Feature 8A, Figure $6.95,51.46 \mathrm{~m}$ ). This area may actually be outside the building. In the north, a long bench or brick installation is attached to Wall 6 (Feature 5, level of 51.70 m ); the feature, about $1.8 \times 0.7 \mathrm{~m}$ in size, is built from flat lying and upright standing bricks and may be plastered from the outside (Figure 6.94, lower left). In the south, between the paved area (Feature 8A) and Wall 4, another small bench made of two bricks was excavated (Feature 8).

Pottery from Unit M1 (Figure 6.96) includes rounded and carinated bowls (Figure 6.96a-h), kraters, a jar base, and a jug or flask (Figure 6.961). A high base (Figure 6.96k) is made of whitish clay and may belong to a chalice or a redeposited pedestal bowl fragment(?) from the MBIIB-C. Sherds of a Mycenaean amphoriskos/pyriform jar (Figure 6.96r, dated in chapter 11 to the LHIIIA:2) and Cypriot imports (Figure 6.96n-q) were also found. In Unit M2, only a few bowl fragments (Figure 6.97a-c),
a jar neck, a lamp (Figure 6.97d,g), and a Cypriot WS milk bowl (Figure 6.97f) were found, along with an incised jar handle (Figure 6.97 h ).

## Rоом $N$

The most northern unit of Building I excavated is Room N (Figures 6.98-6.101) in Sq. 5H. It is delineated by Wall 5 in the south, Wall 9 in the east, Wall 13 in the north, and Wall 10 in the west; in the SW corner, Wall 12 continues Wall 5 . Wall 9 is thicker than the other 1-m-thick walls (Figure 6.99, left), although the northern faces of these walls were eroded. The entrance to the room was from the corridor to the south, a 0.7 m opening in Wall 5 (with doorjamb noted). The inner dimensions of this completely excavated room are $3.3 \times 2.2 \mathrm{~m}$; the floor level was grayish and uneven and was lower in the center at 51.33-51.49 m (Locus 6, Layer 2). On the floor and above it (Locus 6, Layer 1), large fragments of plaster were found, flat on one side and with depressions/dents or wide grooves on the other side (Figure 6.100, SCI 266 , SCI 344, SCI 8); the plaster is coarse, with small pebbles inside. This could have been the remains of some kind of floor paving or an installation lined with plaster (similar fragments were
found near Room C, possibly in relation to the pool there; see Figure 6.66). This shaping of plaster may have been formed with thick protrusions in order to apply it to a certain foundation (of flat stones or bricks located on the underside), making the plaster fit in the crevices between the stones (for similar plaster fragments used for wall, ceiling, and floor construction, see Tel Dan, Iron I, Stratum V; Ilan, 2011:139, fig. 5a-c).

On the floor of Room N, a complete rounded bowl (Figure 6.101 d ) and a complete large slightly carinated bowl (Figure 6.101c) were found. The rest of the assemblage consist of sherds, although large portion of vessels were often reconstructed, such as rounded bowls (Figure 6.101a,b,e), jar bases (Figure 6.101g,h), and a jug (Figure 6.101j). A very shallow and open handmade vessel with straw inclusions (not illustrated; Bag 3913/2) may be a platter; Cypriot imports include a milk bowl and Base Ring jug (Figure 6.101k,l) as well as a worked sherd (Figure 6.101m) and a bronze tool (Figure 6.101n). The area to east of Room N included only brick tumble, and no floors were reached.

## Room O

To the west of Room N a narrow room or closet was partly excavated (Room O, Figures 6.102, 6.101o-q). This is a $3 \times 1.2$ space, unexcavated in the northwest, defined by Wall 11 in the west and Wall 10 in the east (the northern border is assumed according to the continuation of the line of Wall 13). The entrance is from the south side, 1.2 m into Unit L , and is partially blocked by a tabun (Feature 2). If this is a closet or storage unit, the blocking of the entrance may not have created a problem. In the entrance, three bricks were found at a level of 51.70 m , having either fallen or been laid as threshold. Inside, a sloping wooden beam was also found at a height of 51.62 m (Feature 12, Figure 6.98; the wood was collected [sample SCI 1477] and measured $62 \times 11 \mathrm{~cm}$, but it did not survive afterward for further analysis), along with another brick; all of these may be fallout of shelves located above the floor. Only two bowl fragments and a worked sherd (Reg. No. 1926) were identified from Room O (Figure 6.101o-q).

The architectural and cultural features of Building I (Figure 6.103) in its archaeological, chronological, and regional context will be discussed further below.

## Street J and Area K

Building I and Building II are separated by Street J (Figures 6.104-6.107), a $1.5-\mathrm{m}$-wide SE-NW-oriented passage way that is at least 6 m long but may well be at least 19 m long according to the southern outline of Building I. A large number of plaster fragments were found in this area (SCI 1544-SCI 1547); these are flat on at least one side, are $2.5-3 \mathrm{~cm}$ thick, and contain many small pebbles as temper. This indicates that at least at some stage the street area was paved with thick plaster. The passage way was excavated mostly in Test Trench 1 in Sq. 5D and was covered in brick collapse.

The area of the street yielded various pottery vessels, such as bowls, kraters, cooking pots, and jars (Figure 6.106), as well


FIGURE 6.104. Sq. 4D, Room F of Building II, looking north; Room G is on the right, with Street J behind Wall 7 and the courtyard of Building I behind it.
as several unique finds that deserve special attention. The lower part of a wall bracket (Figure 6.107a), made of yellowish clay, includes the flat back wall and curved foot. Another fragment of a wall bracket was found in a Phase 3 context (Figure 6.126 d ). This is a handmade artifact of Cypriot origin, well known in the LBII southern Levant (see Panitz-Cohen, 2006b). It was possibly used as a lighting device and had certain cultic characteristics (Maran, 2004:12); these items are also found in the Mycenaean world, especially at Tiryns, providing evidence of contact with the Levant during the 13th century BCE. The two examples cited are the only ones known from Tell Jemmeh (but see another possible example in Petrie, 1928: pl. LXII: W173).

Several items relating to metallurgical activities were also found in this area, including a tuyère nozzle fragment with a triangular section, which was used for inserting air into a copper furnace (Figure 6.107 c ; see further discussion in chapter 19). In addition, several crucible fragments were found with remains


FIGURE 6.105. Fill in Street J in test trench between Building I (right) and Building II (left), looking west.

FIGURE 6.106. Pottery from Street J. (opposite)

| Part | Description | Bag/RV No. | Provenance | Architecture |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 2407/1 | GMI 5D (7A) 2 | Street J |
| b | Bowl | 2566/2 | GMI 4D (4) 4 | Street J |
| c | Bowl/chalice | 2008/1 | GMI 5D (8A) | Street J |
| d | Bowl | 2472A/1 | GMI 4D (4) 5 | Street J |
| e | Bowl | 2407/2 | GMI 5D (7A) 2 | Street J |
| f | Bowl | 2472A/2 | GMI 4D (4) 5 | Street J |
| g | Bowl | 2566 | GMI 4D (4) 4 | Street J |
| h | Bowl | 2565/1 | GMI 4D (4) 4 | Street J |
| i | Bowl | 2472A/3 | GMI 4D (4) 5 | Street J |
| j | Krater/bowl | 2565/2 | GMI 4D (4) 4 | Street J |
| k | Krater | 2431/1 | GMI 5D (7C) 2 | Street J/Area K |
| 1 | Krater?; greenish clay (sintered?) | 3192/1 | GMI 5D (7) | Street J |
| m | Cooking pot | 2566/3 | GMI 4D (4) 4 | Street J |
| n | Cooking pot | 2409/1 | GMI 5D (7B) 2 | Street J |
| o | Jar | 2566/4 | GMI 4D (4) 4 | Street J |
| p | Jar/jug | 2403/1 | GMI 5D (6) 1 | Street J |
| q | Jar | 2007/1 | GMI 5D (8) 2 | Street J |
| r | Jar | $2045 / 1$ | $\text { GMI 5D (8B) } 3$ | Street J |
| s | Juglet | 2409/2 | $\text { GMI 5D (7B) } 2$ | Street J |
| t | Jar | 2403/2 | GMI 5D (6) 1 | Street J |


of copper in them (Figure 6.107b,d). Several metal objects were also found in the passage way, including a complete bronze arrowhead (Figure 6.107i), a bronze tool (Figure 6.107k), and a bronze point (Figure 6.107j). If the wall bracket and the tuyère and crucibles (as well as the bronze items) were found in their primary context, they may indicate certain special activities, such as metal smithing carried out in the passageway/street or in its near vicinity. Additional finds from Street J include worked sherds (Reg. Nos. 763, 1757) and a zoomorphic figurine leg
(Figure 6.107 g ). Two additional zoomorphic figurines (Figure $6.107 \mathrm{e}, \mathrm{f})$, found in Sq. 5D, Test Trench 3, Layer 1 may also be attributed to this area. Also in the area of Street J a bone (Reg. No. 799), a glass bead (Reg. No. 788, see chapter 22), and three or four flint sickle blades (FL 334) were found.

Although no area was excavated to the west of Building I, the area to the east of Building I was excavated and is denoted Area K (Figures 6.108-6.111). This is a large open area, at least $10 \times 5 \mathrm{~m}$, spreading over Sqs. 6D, 6E, and 6 F , most of which


FIGURE 6.107. Pottery and small finds from Street J.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Wall bracket | RV 68 | GMI 5D (7B) 2 | 3 | Street J |
| b | Crucible? (copper remains) | 2403/3 | GMI 5D (6) 1 | 3 | Street J |
| c | Tuyere | Reg. No. 2020 | GMI 4D (4) 4 | 3 | Street J |
| d | Crucible; copper remains | Reg. No. 199 | GMI 5D (7A) 2 | 3 | Street J |
| e | Zoomorphic figurine; soot | Reg. No. 1257 (SI Cat. No. 772) | GMI 5D TT3 (1) | 3? | Street J? |
| f | Figurine (bull head?); dark clay | Bag 2012 | GMI 5D TT3 (1) | 3? | Street J? |
| g | Figurine | Reg. No. 4083 | GMI 5D (7B) 2 | 3 | street J |
| h | Baked clay sealing/object | Reg. No. 3920 | GMI 5D (7C) | 3 | Street J/Area K |
| 1 | Bronze arrowhead | Reg. No. 1308 (SI Cat. No. 901) | GMI 4D (4) 4 | 3 | Street J |
| j | Bronze point | Reg. No. 187 | GMI 5D (7B) 2 | 3 | Street J |
| k | Bronze tool | Reg. No. 195 | GMI 4D (4) 4 | 3 | Street J |
| 1 | Bronze point | Reg. No. 174 | GMI 5D (7C) 2 | 3 | Street J/Area K |

was not excavated to the floor levels of Phase 3 (although in Sq. 6F, lower levels beneath Phase 3 were excavated down to a level of 50.24 m ). Area K includes two sump installations (Figures 6.63, 6.120; for Feature 1A in Sq. 5D of Building II, see below), as well as a patch of stone paving near Walls 3 and 4 in Sqs. 6E-6F to the east of Unit D. The paving is composed of a layer of pebbles spread over an area of $2.2 \times 1.5 \mathrm{~m}$ (Figure 6.110) at a height of $51.51-51.65 \mathrm{~m}$ (denoted as Feature 2 in Sq. 6F and Feature 4 in Sq. 6E). The pottery in Area K (Figures $6.108,6.109$ ) includes sherds from the debris on floor levels as well as lower levels in Sq. 6F that could be below floor levels (these are denoted as Phase 3/4). The pottery includes open and rounded bowls (Figure 6.108a-k), kraters and cooking pots (Figure $6.108 \mathrm{~m}-\mathrm{s}$ ), and juglet fragments (Figure 6.109c,d); a nearly complete, very small black juglet (Figure 6.109b) and a bronze arrowhead (Figure 6.109 g ) were also possibly found in Area K. In addition, several finds from Sq. 6E, Layers 1 and 2 may possibly be attributed to Area K in Phase 3 (or 4?), yet no records on these contexts were found. These finds include what seems to be a jar rim with an unusual gritty fabric (Figure 6.109a; the fabric, with coarse reddish grits, somewhat resembles Minoan coarse fabrics), an unclear handmade fragment (Figure 6.109e), a Mycenaean zoomorphic figurine leg (Figure 6.109f), a bronze tool (Figure 6.109h), a bronze adze (Figure 6.109i), and two crucibles (Reg. Nos. 2022, 2023; see chapters 19 and 21).

## BUILDING II

Building II, lying to the south of Building I in Sqs. 4D and 5D (Figures 6.112-6.124), is the other building that can be securely assigned to Field I, Phase 3. Only the northern (or northwestern?) part of Building II was excavated and included three partial rooms: Rooms F, G, and H (Figures 6.112, 6.118). ${ }^{1}$ It is delineated by Sq. 4D, Wall 7 and the Sq. 5D wall from the north, which are aligned with Street J, and Sq. 4D, Wall 8 in the west. There seems to be a an entrance, about 0.8 m wide, from the passage way (Street J) through Sq. 5D, Wall 8 in the northwest, leading into Room G.

## Room F

Room F, the western unit in Sq. 4, is defined by Wall 8 in the west, Wall 7 in the north, and Wall 6 in the east. This is probably a rectangular room (the southern part of which remains unexcavated), measuring at least $3 \times 3 \mathrm{~m}$. The walls are somewhat high for Phase 3 at 52.30 m , and the western Wall 8 seems to be wider in the inner face at floor level (Figure 6.112; see also Figure 6.139). The room was empty of installations and seems to have had an earth floor (level of 51.68 m ?); this could have been a living room.

A relatively rich assemblage of pottery is illustrated from Room F (Figures $6.121,6.122$ ), including mostly rounded and carinated bowls (Figure 6.121a-l), kraters (Figure 6.121n,o), cooking pots (Figure 6.121r-t), jar fragments (Figure 6.121u-w;
the latter has a finger imprint on the handle), and a flask (Figure 6.122 c). The krater shown in Figure 6.121o has a prominent high ring base; a solid, thick, heavy base is also illustrated (Figure 6.121 x ), which may belong to a krater or a basin. Several decorated sherds include a rim sherd with bands (Figure 6.121 m ) that probably belongs to a chalice; decorated body sherds, probably of biconical jugs (Figure 6.122a,b), show fragmentary motifs painted in red over a white slip. These belong to the group of Canaanite-style decorated vessels discussed in chapter 10. A rim fragment of a bowl with perforations made before firing (Figure 6.121q) may be a strainer (similar to a vessel from Field III, Phase 13; see possible parallel from Iron I Dan, Biran, 1992: fig. 117:4). An unusual find is a thick body sherd with deep straw(?) imprints made before firing (Figure 6.122e). Small finds from Room F include a plaque figurine fragment (Figure 6.122f), a marked jar handle (Figure 6.122g), two clay sealings with scarab impressions (Figure 6.122h,i; both impressions were made by scarabs dated to the MBII; see chapter 20), a geometric basalt stone finger seal (Figure 6.122 m ; see also chapter 27, although there dated by Keel to the Iron I), and a stone spindle whorl (Figure 6.1221; see chapter 23). Two bronze points (Figure 6.122j,k), a bronze sheet (Reg. No. 202), and a limestone handstone (Figure 6.122n; chapter 23) were also found in Room F (for several beads [Reg. Nos. 766, 815, 822], see chapter 22, although one seems typologically intrusive). In fact, some of the artifacts found in this room indicate administrative activities (i.e., the seal, impressed sealings, and marked jar handle). The lack of installations (ovens, pits, bins, etc.) in this room may further support such a special function for the room.

## Room G

In Sq. 5 D to the east, Room G is defined by Wall 6 to the west, Wall 8 to the north, and Wall 4 to the east; it measures at least $2.4 \times 2.3 \mathrm{~m}$. The entrance is from the street, through the east corner of Wall 8, where a doorjamb was located (Feature 4 , at 51.39 m , which may include a burnt beam; Figure 6.114). A tabun, Feature 3, is located in the northwestern corner of the room (Figures 6.113, 6.115-6.117 at a level of 51.98 m ). The tabun, or oven, is about 0.9 m in diameter, is built into the ground, and has a related lined and plastered floor and a sherd lining (made from cooking pots and jar fragments) from the outside (see Figures 6.115, 6.116, a section of the oven in Figure 6.117, and further discussion in chapter 9).

Pottery from Room G (Figure 6.123) includes several fragmentary carinated and open bowls (Figure 6.123a-e) and several large fragments of storage jars (Figure 6.123i-1); a trefoil rim of a seemingly warped jug was also found here (Figure 6.123 m ). The relatively large quantity of jars in this room (especially in relation to other forms found in it) may indicate one of its functions was a storage room. A fragment of a crucible with copper remains (Figure 6.123n, found in Sq. 5D, Layer 6, Locus 1), used for melting copper, was also found in the room, as well as a perforated worked sherd (Figure 6.123o).


FIGURE 6.108. Pottery from Area K.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 3734/1 | GMI 6E (2) | 3/4? | Area K |
| b | Bowl; soot | 2396/1 | GMI 5D F1A | 3 | Area K |
| c | Bowl | 3610/1 | GMI 6E (2) | 3/4? | Area K |
| d | Bowl | 3610/2 | GMI 6E (2) | 3/4? | Area K |
| e | Bowl | 3641/1 | GMI 6E F2 | 3 | Area K |
| f | Bowl | 3610/3 | GMI 6E (2) | 3/4? | Area K |
| g | Bowl; red decoration | 3641/2 | GMI 6E F2 | 3 | Area K |
| h | Bowl | 3610/4 | GMI 6E (2) | 3/4? | Area K |
| i | Bowl | 3655/1 | GMI 6F (2) | 3 | Area K? |
| j | Bowl | 3601/1 | GMI 6E F2 | 3 | Area K |
| k | Bowl | 3585/1 | GMI 6E F2 (4) | 3 | Area K |
| 1 | Chalice/bowl; red decoration | Box 290 | GMI 5D F1A | 3 | Area K |
| m | Krater | 3641/3 | GMI 6E F2 | 3 | Area K |
| n | Bowl/krater? | 3601/2 | GMI 6E F2 | 3 | Area K |
| o | Cooking pot | 3734/4 | GMI 6E (2) | 3/4? | Area K |
| p | Cooking pot | 3610/5 | GMI 6E (2) | 3/4? | Area K |
| q | Cooking pot | 2396/2 | GMI 5D F1A | 3 | Area K |
| r | Cooking pot | 3734/3 | GMI 6E (2) | 3/4? | Area K |
| s | Cooking pot/krater? | 3641/4 | GMI 6E F2 | 3 | Area K |


$0 \quad 10 \mathrm{~cm}$

$0 \quad 2 \mathrm{~cm}$

FIGURE 6.109. Pottery and finds from Area K. TEY = Tell el-Yahudiyeh ware; Cyp. BRII = Cypriot Base Ring II ware; Myc. = Mycenaean.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :--- | :--- | :--- | :--- | :--- | :--- |
| a | Jar(?); gritty clay | $3616 / 1$ | GMI 6E (2) | $3 / 4$ ? | Area K |
| b | Miniature juglet; black | RV 284 | GMI 6E (2) | $3 / 4$ ? | Area K |
| c | Juglet (TEY?); black burnish | 3968 A/1 | GMI 6F (2) | 3 | Area K? |
| d | Base (Cyp. BRII?) | $3734 / 2$ | GMI 6E (2) | $3 / 4$ ? | Area K |
| e | Handmade sherd | $3734 \mathrm{~A} / 1$ | GMI 6E (1) | 3 ? | Area K |
| f | Figurine (Myc. IIIB) | Box 760/1 | GMI 6F (2) | 3 | Area K? |
| g | Bronze arrowhead | Reg. No. 1320 | GMI 6F (2) | 3 | Area K? |
| h | Bronze tool | Reg. No. 1310 | GMI 6E (2) | 3 | Area K? |
| i | Bronze adze | Reg. No. 1317 | GMI 6E (1) | 3 | Area K? |



FIGURE 6.110. Paving, Feature 2 in Area K, Sqs. 5E, 6E, 6F.


FIGURE 6.111. Sandstone blocks in Area K, Sq. 5D (Feature 1A).


FIGURE 6.112. Building II, Rooms G and F (front), looking west.


FIGURE 6.113. Room G in Building II, Sq. 5D, looking south.


FIGURE 6.114. Doorway in wall of Room G (Feature 4) from section, Sq. 5D, looking south.


FIGURE 6.115. Room G in Building II and tabun (Feature 3) on the left, Sq. 5D, looking north.


FIGURE 6.116. Close-up of tabun (Feature 3) in Room G.

## GMI 5D detail tabun next to W8


3. $B$ (2) $=10 \mathrm{YR} 6 / 6$ brownish yellow w/ ash and fired mud

FIGURE 6.117. Section through tabun (Feature 3) in Room G.


FIGURE 6.118. Rooms G and H (right; note drainage hole) in Building II, Sq. 5D.


FIGURE 6.119. Sump, Feature 1A in Area K, Sq. 5D (related to Building I, Room H), looking south.


FIGURE 6.120. Sump, Feature 1, and channel in Area K, Sq. 5D from above, looking west.

## Rоом H

The eastern unit, Room H, was only partially excavated with its NW corner in Sq. 5D (Figures 6.118, 6.120). It is defined by Wall 4 to the west and Wall 11 to the north. This unit is very similar to Room C in Building I (see above). The walls and floor are thickly plastered from the inside (Feature 2, level of 51.15 m , Figure 6.118 ); the walls stand to a height of 0.6 m . A complete krater with vertical handles was found on this floor (Figure 6.124b). The vessel may have been related to the usage of the plastered unit or may indicate postusage. A channel (Feature 1C, Figures 6.118-6.120) made of stones connects the plastered spaced under Wall 11 through to the outside into Area K and into a sump built into the ground; the sump (Feature 1A, Figures 6.118-6.120) is 1.5 m in diameter and at least 0.65 m deep. It is also well built, with layers of stones laid into the ground. As opposed to the sump in Building I, this feature was not fully excavated.

As mentioned above, a complete krater or large bowl was found in Room H (Figure 6.124b, from Feature 2); this krater is similar to one from an unclear context (Figure 6.157) and has a rounded body, thickened rim, loop handles attached to the rim, and a ring base (see discussion of this typical LBII form below). Also found in Room H are several fragments of bowls, kraters (one with a perforated base, Figure 6.124c), and jars (Figure $6.124 \mathrm{~d}, \mathrm{e}$ ). If this was used as a bath, these vessels possibly indicate the use of the room as a regular one after the bath went out of use.

Although the plan of Building II is unknown, it seems to have interesting similarities to Building I, with a plastered room or pool and adjacent sump in the open area near the main entrance. A paved area was not discovered, but it is possible that Room H could have led into a similar large paved courtyard located in the southeastern unexcavated area, and beyond Room F (which probably had a special function in the house according to the finds; see above), a series of rooms could have developed to the west (under Petrie's excavations or disturbed by it).

## discussion of phase 3 LBII POTTERY

Although not many complete vessels were reconstructed from Buildings I and II, the pottery assemblage of Field I, Phase 3 is relatively large and substantial. However, quantitative comparison of pottery between the different architectural units (buildings, rooms, etc.) may be problematic as the amount and reliability of the data from the different contexts varies to a great degree. Furthermore, floor levels were not reached in some units, whereas in others, several consecutive levels were excavated (see above). Therefore, typo-chronological aspects will be emphasized here, and the assemblage will be discussed according to these criteria, with the main aim of dating it in comparison to other archaeological levels in the site and elsewhere.

Bowls compose the vast majority of the assemblage (about $50 \%$ of the illustrated forms), whereas other main forms are kraters, cooking pots, and jars. Additional forms, such as
chalices, jugs, juglets, flasks, and lamps, appear in much smaller quantities.

## Bowls

The main types of bowls appearing in Phase 3 include open, rounded; deep rounded/hemispherical; and carinated bowls; the latter are more diversified. Shallow open bowls (e.g., Figure 6.108 c) continue from the MBIIB-C ceramic tradition (Field III, e.g., Figure 3.101a-c; also, e.g., Aphek, Strata X13-X12, Gadot and Yadin, 2009:190-191, Type BO1, and references therein); their size varies between 15 and 25 cm in diameter, and no complete examples were found. The rim is either simple (e.g., Figure 6.68a) or slightly inverted (e.g., Figure 6.108c); one example of a thickened rim (Figure 6.51d) also appears. Several flat bases (e.g., Figure $6.51 \mathrm{o}, \mathrm{p}$ ) may belong to this bowl type.

Rounded bowls are much more common in Phase 3 (e.g., Figures 6.51f, 6.67a, 6.68b,c); a complete example comes from Room C (Figure 6.67a), and a complete large example was found in Room N (Figure 6.101d). These bowls are usually small, ranging from about 15 to 20 cm in diameter, although larger examples with diameters of $30-35 \mathrm{~cm}$, such as the complete bowl mentioned previously, do appear. The rims are almost always simple (e.g., Figure 6.68b) or very slightly inverted (e.g., Figure 6.121a); the body is rounded, not more than $5-6 \mathrm{~cm}$ deep, and the base is a disk or slightly ringed (Figure 6.101d). This is a typical LBII bowl form that also continues from the MBIIB-C (see, e.g., Batash, Panitz-Cohen, 2006a:29-32, Types BL50a, BL50b), although it is not very chronologically indicative; often, this type is combined with the deep rounded or hemispherical bowl (see below; see also Aphek, Gadot and Yadin, 2009:194, Type BH1a). Deep rounded bowls or hemispherical bowls (e.g., Figure 6.68 c ) have a more rounded profile and are deeper, $6-8 \mathrm{~cm}$, with a diameter of $15-20 \mathrm{~cm}$ in most cases. These usually have simple rims and ring or concave bases, as seen in more complete parallels (e.g., Figure 6.67a). Similar bowls appear in Field III, Phases 11 and 10 (e.g., Figure 3.124a,g) as well as later (Iron I, Phase 6) and in other LBII levels in the southern Levant (e.g., Batash [Panitz-Cohen, 2006a:32, Types BL50c,d] and Aphek [Gadot and Yadin, 2009:194, Type BH1a, and references therein]). Of the two complete bowls found in Sq. 5D, Layer 2 (Figure $6.125 b, d$ ), one is a typical hemispherical bowl (Figure 6.125b); the other is more open and has a flat or disk base. The context of the two bowls is not clear. This type is often used in "lamp and bowl deposits" during the LBII (see above and Figs. 6.150, 6.151). Another variant is represented by a large rounded bowl with a simple rim, made of thicker, coarser clay (Figure 6.67b).

Also common in Phase 3 is an open bowl with a thickened rim (e.g., Figures 6.51c, 6.101c). These bowls have a rounded open body and thickened inner rims; bases are concave or a ring. These bowls can be somewhat larger than other rounded bowls at $20-35 \mathrm{~cm}$ in diameter (see Figure 6.101c for a complete example). These bowls are very common in Phase 3, appearing in almost every architectural unit, although they are rare in Field III. This bowl type continues to appear throughout the second millennium BCE in the southern Levant during the MBIIB to the

( 7 b


LBII (for a detailed discussion, see Batash, Strata IX-V [PanitzCohen, 2006a:33-35, Type BL53] and Aphek, Stratum X14 [Gadot and Yadin, 2009:192-193, Type BO3, and many parallels therein]); it is suggested, however, that these bowls disappear during the Iron I (e.g., they are absent from Tel Miqne, Stratum VII; see Killebrew, 1998a:82; Gadot and Yadin, 2009:193). Less common are large, deep bowls with inverted and/or thickened rims, with a slight high carination (Figure $6.69 \mathrm{~m}, \mathrm{n}$ ).

Carinated bowls, which are quite diverse, are not common in Field I, Phase 3 (e.g., Figures 6.69 k, 6.87c, 6.121i). Shallow bowls with high carination (Figure 6.86q, similar to rounded bowls) have a simple everted rim, some more sharply everted. A deeper variant (Figure 6.96f) also appears. These bowls also appear in Field III, Phases 12-9 (e.g., Figures 3.124a, 3.131n from Phase 10; for other parallels, see, e.g., Batash [Panitz-Cohen, 2006a:39-42, Type BL56, pls. 20:18, 37:5, 38:18], Aphek [Gadot and Yadin, 2009:200-201, Type BC2], and Deir el-Balah, Stratum VI [Dothan and Brandl, 2010: pl. 34:4]). Another type of carinated bowl, appearing rarely (Figure 6.68f), has a slight high carination and a vertical thick rim (see, possibly, Batash, Stratum VII [Panitz-Cohen and Mazar, 2006: pl. 38:5] and Aphek, Strata X14-X12 [Gadot and Yadin, 2009: figs. 8.4:3, 8.37:13]). Later, during the LBIIB and Iron I these carinated bowls develop into the common cyma bowls (see Field III, e.g., Figure 3.112l, and Mazar, 1985a:39-41, Bowl 8; Panitz-Cohen, 2006a:44, Type BL59). A small deep carinated bowl (Figure 6.511) may be a variant of this type (see, e.g., Gadot and Yadin, 2009: fig. 8.4:3,

Type BC2). One example of this type, decorated with inner red bands, comes from Building II, Room G (Figure 6.123e). Larger carinated bowls with flat or slanted thickened rims (as Figure 6.106j) are defined as carinated kraters and are discussed below (see also Field III).

A rare type is a small carinated bowl (represented by a sherd) with a high loop handle attached to the rim (Figure 6.56h). It is decorated with a wide red band on the rim that has a vertical band connected to it. This could be either a small bowl, a onehandled cup (see Petrie, 1928: pl. LI:26j,k; also Ashdod, Stratum XII, Dothan and Ben-Shlomo, 2005: fig. 3.10:23), or possibly an imitation of a Mycenaean kylix. A carinated bowl or chalice (Figure 6.1081) has a similar inner decoration; other parallels are rare (possibly, Ashdod, Stratum XI, Dothan and Ben-Shlomo, 2005:152, fig. 3.57:17).

## Kraters

Two main kraters types appear in Phase 3: a large krater with handles (Figure 6.124b) and a smaller carinated krater (e.g., Figure 6.125 f ); both types have a generally similar shape. The handled krater (such as Figure 6.124b and a similar one from an unclear context, Figure 6.157) has a large rounded to slightly carinated body, thickened or slightly inverted rim, two vertical handles attached to the rim or just below it (see Figures 6.69p, 6.87 d ), and a ring base; the diameter can reach about 40 cm . A complete example comes from Building II, Room H (Figure

FIGURE 6.121. Pottery from Room F. Note \{77\} indicates the excavation took place in 1977. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl, soot | 2555/1 | GMI 4D (4) 3 | 3 |
| b | Bowl | 2555/2 | GMI 4D (4) 3 | 3 |
| c | Bowl | 2557/1 | GMI 4D (4) 3 | 3 |
| d | Bowl | 2557/4 | GMI 4D (4) 3 | 3 |
| e | Bowl | 2557/3 | GMI 4D (4) 3 | 3 |
| f | Bowl | 2557/2 | GMI 4D (4) 3 | 3 |
| g | Bowl | 2555/4 | GMI 4D (4) 3 | 3 |
| h | Bowl | 2557/5 | GMI 4D (4) 3 | 3 |
| i | Bowl | 2557/6 | GMI 4D (4) 3 | 3 |
| J | Krater/bowl | 2557/7 | GMI 4D (4) 3 | 3 |
| k | Bowl | 2555/3 | GMI 4D (4) 3 | 3 |
| 1 | Krater/bowl | 2557/9a | GMI 4D (4) 3 | 3 |
| m | Chalice; red decoration | Box 268/2 | GMI 4D (4) 3 | 3 |
| n | Krater | 2466/1 | GMI 4D (3) \{77\} | 3? |
| o | Krater | 2549/1 | GMI 4D (4) 3 | 3 |
| p | Base | 2557/8 | GMI 4D (4) 3 | 3 |
| q | Strainer bowl(?) | Box 268/4 | GMI 4D (4) 3 | 3 |
| r | Cooking pot | 2557/9 | GMI 4D (4) 3 | 3 |
| s | Cooking pot | 2548/8 | GMI 4D (3) $\{77\}$ | 3? |
| t | Cooking pot | 2548/7 | GMI 4D (3) $\{77\}$ | 3? |
| u | Jar | 2548/9 | GMI 4D (3) $\{77\}$ | 3? |
| v | Jar | 2560A/1 | GMI 4D (4) 3 | 3 |
| w | Thumbed jar handle | 2560/1 | GMI 4D (4) 3 | 3 |
| x | Base | 2549/2 | GMI 4D (4) 3 | 3 |



FIGURE 6.122. Pottery and small finds from Room F. Note \{77\} indicates the excavation took place in 1977. Cyp. WSII = Cypriot White Slip II ware.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Decorated sherd | Box 268/1 | GMI 4D (4) 3 | 3 |
| b | Decorated sherd | Box 268/3 | GMI 4D (4) 3 | 3 |
| c | Flask | 2560A/2 | GMI 4D (4) 3 | 3 |
| d | Milk bowl (Cyp. WSII) | Box 571/1 | GMI 4D (4A) | 3 |
| e | Sherd; plastic decoration/incised | 2545/1 | GMI 4D (3) \{77\} | 3? |
| f | Plaque figurine | Reg. No. 1248 (SI Cat. No. 843) | GMI 4D (3) $\{77\}$ | 3? |
| g | Incised jar handle | Reg. No. 2200 | GMI 4D (3) $\{77\}$ | 3? |
| h | Sealing (with impression) | Reg. No. 1223 | GMI 4D (4) 3 | 3 |
| i | Sealing (with impression) | Reg. No. 1230 | GMI 4D (3) $\{77\}$ | 3? |
| J | Bronze point | Reg. No. 196 | GMI 4D (4) | 3 |
| k | Bronze point | Reg. No. 1324 | GMI 4D (4) 3 | 3 |
| 1 | Spindle whorl (stone) | Reg. No. 1112 | GMI 4D (4) 3 | 3 |
| m | Stone (basalt) stamp seal | Reg. No. 1238 (SI Cat. No. 836) | GMI 4D (3) $\{77\}$ | 3? |
| n | Handstone (limestone) | Reg. No. 973 | GMI 4D (4) 3 | 3 |



FIGURE 6.123. Pottery and finds from Building II, Room G.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl | $2028 / 1$ | GMI 5D F3 |
| b | Bowl | $2402 / 1$ | GMI 5D (6A) 1 |
| c | Bowl | $2047 / 1$ | GMI 5D F3C |
| d | Bowl | $2047 / 1 \mathrm{a}$ | GMI 5D F3C |
| e | Bowl; red decoration | Box 292/1 | GMI 5D F3C |
| f | Krater | $2047 / 2$ | GMI 5D F3C |
| g | Jar | $2028 / 2$ | GMI 5D F3 |
| h | Krater? | $2046 / 1$ | GMI 5D F3 |
| i | Jar | $2047 / 6$ | GMI 5D F3C |
| j | Jar | $2047 / 5$ | GMI 5D F3C |
| k | Jar | $2402 / 2$ | GMI 5D (6A) 1 |
| l | Jar | $2047 / 3$ | GMI 5D F3C |
| m | Jug | $2402 / 3$ | GMI 5D (6A) 1 |
| n | Crucible; copper remains | Reg. No. 2039 | GMI 5D (6) 1 |
| o | Perforated worked base | Reg. No. 1698 | GMI 5D (6A) 1 |



FIGURE 6.124. Pottery and finds from Building II, Room H.

| Part | Description | Bag/Reg. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl | $2016 / 1$ | GMI 5D F2 (2) |
| b | Krater | RV 983 | GMI 5D F2 |
| c | Krater | $2019 / 2$ | GMI 5D F2 (4) |
| d | Jar/jug | $2014 / 1$ | GMI 5D F2 (1) |
| e | Jar | $2016 / 3$ | GMI 5D F2 (2) |
| f | Jug? | $2016 / 2$ | GMI 5D F2 (2) |

FIGURE 6.125. Pottery from Phase 3, various contexts. Note \{77?\} indicates the excavation probably took place in 1977. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $4116 / 1$ | GMI 1F (9) | $3 ?$ |
| b | Bowl; straw imprint | SI Cat. No. 632 | GMI 5D (2) | Unstratified/3 |
| c | Bowl; brown decoration | $3659 / 1$ | GMI 6F (3) | $3 / 4$ ? |
| d | Bowl | SI Cat. No 667 | GMI 5D (2) | Unstratified/3 |
| e | Bowl | $2457 / 1$ | GMI 5D (2) | 3 |
| f | Krater/bowl | $4252 / 1$ | GMI 4G (3) | 3 ? |
| g | Krater | $4116 / 2$ | GMI 1F (9) | 3 ? |
| h | Krater; red, white decoration | Box 255/1 | GMI TTD (5) | 3 |
| i | Krater; red, white decoration | Box 279/1 | GMI 5D (3) | 3 |
| j | Krater; red, white decoration | Box 267/2 | GMI 4D (3) \{77?\} | 3 ? |
| k | Chalice/goblet | $4202 / 1$ | GMI 1F (9) | $3 ?$ |
| l | Cooking pot | $4203 / 2$ | GMI 1F (9) | $3 ?$ |
| m | Cooking pot | $4203 / 1$ | GMI 1F (9) | $3 ?$ |
| n | Cooking pot | $4203 / 3$ | GMI 1F (9) | 3 ? |
| o | Jar; red and white decoration | Box 267/1 | GMI 4D (3) \{77?\} | $3 ?$ |
| p | Jar; red decoration | Box 277/1 | GMI TTD (1) | Unstratified/3? |
| q | Jar | $2475 / 1$ | GMI 5D (3) | 3 |
| r | Pithos | $2405 / 1$ | GMI 5D (3) | 3 |

6.124b). The handled large kraters have a more rounded body than the smaller, more common carinated kraters (see below). Exact parallels to the complete kraters from Jemmeh are not common, with two examples found at Batash, Strata X and VIII (Panitz-Cohen, 2006a:61, Type KR4, pls. 11:7, 25:3; see also Deir el-Balah, Strata VII-V [Killebrew, 2010:76, Krater Bowl A:2; Dothan and Brandl, 2010: pls. 20:5, 28:5, 34:6] and Qubur Walaydah, Iron I [Lehmann et al., 2009: fig. 7:9,10]).

Smaller carinated kraters (sometimes referred to as large bowls) appear also in Phase 3 (such as Figures 6.101e, 6.106j,
6.1211, 6.125f). The vessels have a slightly thickened or inward slanting rim. These kraters are more common in Field III, Phases 11-9 (e.g., Figures 3.131e, 3.143g,h, 3.145j,k), as well as in other LBII sites in southern Israel (see, e.g., Lachish, Levels VII, VI [Yannai, 2004:1041, fig. 19.16:4, Krater K-1; Clamer, 2004:1178] and Aphek, Stratum X12 [Gadot and Yadin, 2009:209, Type KR2, and references therein]). This type continues into the Iron I (e.g., Field III, Phase 7, Figure 3.160m; Ashdod, Stratum XIII, Dothan and Ben-Shlomo, 2005: fig. 3.5:11). A hammerhead-rim version of this krater also appears (such as


Figures 6.108m, 6.125g; see Batash, Panitz-Cohen, 2006a: Type KR1) and becomes more common in the Iron I.

Another type of krater is the decorated biconical krater (Figure $6.125 \mathrm{~h}, \mathrm{i}$ ), with several examples from Phase 3 , although not originating in good contexts. This krater has a wide, thickened rim, high vertical neck, and biconical body. These vessels and their decorative Canaanite tradition are discussed in chapter 10. A thick, flat rim (Figure 6.108n) may belong to a large coarse krater (similar possibly to Field III, Phase 11, Figure 3.125f).

## Chalices

Chalices were quite rare in the assemblage. Decorated carinated bowls (Figures 6.1081, 6.121m) may belong to chalices; an everted rim may also belong to a small chalice (Figure 6.69v; possibly also Figure 6.106c, as well as two bases, Bags 4202/1 and $2946 / 4$, not illustrated). Figure 6.125 k is a high chalice or goblet base.

## Cooking Pots

Cooking pots from Field I, Phase 3 are only represented by rim fragments; three larger rim fragments come from Sq. 1F, Layer 9 (Figure 6.125l-n). It seems that most have everted rims and globular bodies (such as Figures 6.56j, 6.87i,j). The two main rim types are sharply everted and triangular rims (Figures 6.56j, $6.87 \mathrm{i}, 6.106 \mathrm{~m}, 6.108 \mathrm{o}, 6.121 \mathrm{~s}$ ) and pointed, wedge-shaped rims (e.g., Figures 6.51n, 6.56i, 6.87j, 6.121r; for further discussion, see Field III, Phases 13-8, e.g., Figures $3.143 \mathrm{k}, 1,3.145 \mathrm{n}$; see also, e.g., Killebrew, 1999; Batash, Strata IX-VI, Panitz-Cohen, 2006a:68-70, Type CP1, and references therein). The wedge rims may be indicative of a later stage in the LBII.

## JARS

In contrast to Field III, only a few jars were found in Field I, and none from Phase 3 are complete. Several larger fragments of the lower parts of jars were reconstructed (not illustrated; RV 72, Bag 1648/3), some of which were found in Building II, Room G. Generally, most examples probably belong to the common LBII ovoid storage jar (for the generic form, see, e.g., PanitzCohen and Mazar, 2006:77-86, Type SJ2). There is variability in the rim shape, with simple everted (Figure 6.97d, more similar to MBIIC jar types; see Figures 3.48, 3.49), thickened, slightly everted (e.g., Figures 6.56k, 6.106o,q, the most common), thickened (Figures 6.88c, 6.124f), and folded rims (Figure 6.124d). Bases are usually pointed or button shaped (e.g., Figures 6.70a, 6.88 g ), although some flat examples do appear (such as Figure 6.123 k ); an example of a wide button base also occurs (Figure $6.88 \mathrm{~h})$. Generally, the pointed jars are more typical of one of the major forms of the LB Canaanite storage jar (see, e.g., PanitzCohen, 2006a:77, Type SJ2; Gadot and Yadin, 2009:229, Type SJ2), whereas the flatter-base jar can be smaller but of a similar shape (see Gadot and Yadin, 2009:231, Type SJ1). According to parallels, these jars can have up to four wide vertical handles (see
jar handles, Figure 6.70b,h). Some of the handles are thumbed (Figure 6.121w) or incised (Figure 6.122g; see chapter 19 and Figures 19.1, 19.2 for further discussion of the various marks). Figure 6.125 r is a thick everted rim, probably belonging to a pithos (see, possibly, Panitz-Cohen, 2006a:88-89).

Another type of jar appearing in Phase 3 is the smaller decorated jar (Figures 6.88i, 6.125o-p). A decorated jar neck (Figure 6.125o) with two parallel red bands on the rim comes from an unclear Phase 1 or 3 context. These jars appear in the LBII-Iron I in the southern Levant (see chapter 10; e.g., Amiran, 1969:174, pl. 44); for parallels, see, e.g., Ashdod, Stratum XIII (Dothan and Ben-Shlomo, 2005:76) and Batash, Strata X-VI (Panitz-Cohen, 2006a:81-86, Type SJ2c, with comprehensive discussion and many parallels therein). A well-known elaborate example comes from Megiddo Stratum VIIB (Loud, 1948: pl. 64:4).

## Jugs

Only a few jug fragments were recovered from Phase 3. In Room N , a large portion of a jug with a globular body was found (Figure 6.101j); this may be a small jug with a trefoil rim (see, e.g., Batash, Stratum VIIA [Panitz-Cohen, 2006a: pl. 53:7, Type JG1] and Deir el-Balah, Stratum IX [Dothan and Brandl, 2010: pls. 5:4, 13:2]). A high neck with a long strap handle attached to the rim (Figure 6.126a) probably belongs to a typical LBII large jug form (see, e.g., Panitz-Cohen, 2006a:92, Type JG1), usually with a pyriform body (but sometimes globular; see example above). A rim fragment has a trefoil-shaped rim (Figure 6.123 m ). The body of a small jug or pyxis is also illustrated (Figure 6.70 d ) and is made of whitish clay. Biconical decorated jugs are discussed in chapter 10; one example is a decorated sherd from Building II, Room F (Figure 6.122b; Figure 6.961 is possibly also a biconical jug).

## Juglets

Several juglets found in Phase 3 include a nearly complete (rim is missing) miniature juglet (Figure 6.109b) with a black surface. It has a spherical body and slightly pointed base, possibly similar to a juglet from Batash, Stratum X (Panitz-Cohen and Mazar, 2006: pl. 14:8). Another lower part of a juglet (Figure 6.70 g ) has a pointed base and ovoid body. Other fragments include a handle (Figure 6.106s) and a pointed base (Figure 6.51r). These probably belong to the common pyriform shouldered dipper juglet (see, e.g., Panitz-Cohen, 2006a:111, Type JGT3). The lower body of another juglet (Figure 6.109c) has a pyriform body and a pronounced button base. This resembles MBIIB Tell el-Yahudiyeh TEY juglets (see, e.g., Figure 3.72h) and may be redeposited from earlier levels.

## FLASkS

Flasks are rather rare and include a neck and handle fragment (Figures 6.122c, 6.126b) of a relatively small flask, a possible body fragment of the side a lentoid flask (Figure 6.961,


FIGURE 6.126. Pottery and finds from Phase 3, various contexts. Cyp. BRII = Cypriot Base Ring II ware.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Jug | $2742 / 1$ | GMI TTA1 (3) | 3 |
| b | Flask | 4202 | GMI 1F (9) | $3 ?$ |
| c | Sherd; rope decoration | 3662 | GMI 6F (3) | $3 / 4$ ? |
| d | Wall bracket | 3664 | GMI 6F (3) | $3 / 4$ ? |
| e | Jug neck (Cyp. BRII) | Box 850 | GM 4E/4F (1) | $3 ?$ |
| f | Lamp | SI Cat. No. 630 | GMI 5D (2) | Unstratified/3 |
| g | Lamp | SI Cat. No. 631 | GMI 5D (2) | Unstratified/3 |

although this may be a biconical jug), and another possibly body fragment (Figure 6.68h).

## LAMPS

Several complete and fragmentary lamps were found in or associated with Phase 3. These include two complete intact lamps (Figure $6.126 \mathrm{f}, \mathrm{g}$ ), both similarly shaped with a pinched mouth, slightly everted rim, and rounded bottom; these may come from lamp and bowl deposits, especially the former, which was found with rounded bowls (Figure 6.125b,d). This is the rather typical Bronze Age everted-rim saucer lamp (e.g., Batash, Strata VIII-VI, Panitz-Cohen, 2006a:118-119, Type LP2). Other fragments (Figures $6.97 \mathrm{~h}, 6.88 \mathrm{j}-1$ ) are probably of the same type; some have soot marks, mostly in the area of the pinched mouth (e.g., Figure 6.97 h ). In addition, a complete crudely made miniature bowl may have functioned as a lamp (Figure 6.88m).

## Imported Pottery

Imported pottery, mostly Cypriot, appears in relatively large quantities (though mostly as sherds) in Field I, Phase 3; this pottery includes White Shaved juglets, white-slipped milk bowls, and BRII bowls and jugs ("bilbils"), which are all common forms in the southern Levant during the LBII (see chapter 11). The wall brackets (Figures 6.107a, 6.126d) should probably be added to this group. Only a few Mycenaean sherds appear; further discussion on these types appears in chapter 11.

## Summary

Summarizing the pottery assemblage of Phase 3, it seems that bowls dominate the assemblage; other forms appear in small numbers, and some rarer forms (such as the cup and saucer) are absent. Several common LBII forms appear in relatively small
quantities: carinated kraters, wedge-rim cooking pots, flasks, decorated biconical kraters, and jugs. Egyptian forms are very rare to absent. Phase 3 is clearly not an early phase within the LB sequence of the site, as according to the Sq. 3G probe (see above), at least three phases below it (Phases 4-6) belong to the LBII. Moreover, it is clearly not the final LBII stage, as there is at least one significant LBII phase above it (see below, Phase 1; possibly two if Phase 2 is considered). Thus, this phase may be paralleled to Phases 11-10 in Field III (as Phase 3 illustrates several architectural subphases, it is probably of a longer duration, thus parallel to more than one phase in the Field III trench). The small quantities of wedge-rim cooking pots and Canaanite decorated forms may also support such a dating; a tentative absolute date for this phase would thus be the late 14th or early 13th century BCE.

## REMAINS ABOVE THE COURTYARD BUILDING

As noted above, Petrie excavated at least two distinct and large-scale architectural phases above Phase 3 of the SI excavations (Petrie, 1928: pls. VI, VII, denoted as the town of the XXth and XVIII Dynasties). However, in the very fragmentary upper remains recorded in Field I of the SI excavations it is very difficult to define or distinguish between these two phases and other ones; tentatively, these were designated Phases 2, 1B, and 1A. Moreover, it is difficult to correlate these remains with the plans published by Petrie.

## Phase 2

Phase 2 in Field I is not very well defined as a general architectural phase and is used here as a technical means to denote remains seemingly later than the main Building I, Phase 3. In several locations this phase is represented by architectural remains above the walls of the main Phase 3 courtyard building, mostly in a similar orientation (see Figure 6.72 for a limited area). Thus, Phase 2 may be considered either a later modification of the building of Phase 3 (equaling Phase 3A) or a separate construction phase. In Sq. 3F (Figure 6.72), an 8-m-long NW-SE brick wall (Wall 2) stands to a height of approximately 1 m , including a stone foundation (elevation of $51.70-52.68 \mathrm{~m}$ ). This seems to be aligned with the northern wall of the main courtyard of Building I of Phase 3, yet it is higher, somewhat to the north, and built with different stones for the foundations. Wall 3 makes a right angle with Wall 2 and continues about 1.5 m north. Wall 6 in the northern part of Sq. 3F (Figure 6.72) is parallel to Wall 2 but lower and may have formed a corner with Wall 3 in the NW corner of Sq. 3F; alternatively, this wall and a lower wall below it (Wall 7) should be respectively allocated to Phase 2 (or 3A) and Phase 3.

It is thus difficult to date Phase 2, partially because of a lack of good floor contexts; it probably also dates to the late LBII. Some pottery that may come from units dated to this intermediate phase (Figure 6.127) includes pottery similar to that of Phase

3, such as rounded bowls (Figure 6.127a-f) and carinated bowls (Figure 6.127 g ). Figure 6.127 d shows a complete bowl made of light-colored clay with remains of straw/trimming signs on the outer surface and a flat base. This is similar to Egyptian-style LBII open bowls (see below and Field III, e.g., Figure 3.160c,d). A bowl with a bar handle is also illustrated (Figure 6.1271). Several jar necks (Figure 6.127i-j), a decorated sherd (Figure 6.127 k ), and a body fragment with a handle, possibly of a pyxis (Figure 6.127 m ), are also possibly attributed to Phase 2.

## REMAINS OF PHASE 1

Remains of the uppermost architectural phase excavated by the SI in Field I (Phase 1), apart from the detached pottery kiln to the far northeast (which postdates these remains; see Figure 7.1; because of the detachment of this area, a different phasing was used in Field I FUR), are scattered in various squares and do not create a coherent plan in most cases (Figures 6.128, 6.129). Most remains lie in Sqs. 4D and 5D (Figure 6.130) and 4F-2F. In this area, a high, massive wall was also noted in the section (the southern balk of Sq. 5D), possibly remains from Petrie's excavations (this was denoted Wall JR accordingly but is not clear; see Figure 6.137, Wall 1). A few remains in Sq. 2E indicate building phases of Phases 1A and 1B (Figures 6.141, 6.142; see below). Also, in Sq. 1F fragmentary remains of a well-preserved wall (Wall 2, Figure 6.146, at elevations of 53.22-53.28 m) are possibly remains of Phase 1A. An unclear large circular feature appearing in some field photographs (see Figure 6.152) is clearly later than the Phase 3 architecture, but as it was not documented in any form (and apparently no material came from there), it cannot be further discussed.

In Sq. 4D, two rooms or units were assigned to Phase 1 (or possibly Phase 1B), denoted as Rooms 1 and 2 (Figures 6.1306.140, 6.153). The two parallel units are rectangular, abutting spaces, defined in the north, east, and south, whereas the western part was not preserved. These remains lie above the Phase 3 southern portion of Building II.

## Room 1

Room 1 (Locus 1) in the north is delineated by Wall 4 to the east, Wall 5 in the south, and Wall 2 in the north, which is shared with Room 2 (Locus 2); its inner dimensions are 2.5 m by at least 5 m ; the walls here were uncovered at levels of $52.24-$ 52.90 m . On the eastern side of Wall 4, several horizontal bricks "floating" within the wall may indicate a blocking of the doorway in the SW corner of the room. A semicircular brick installation that is 2 m wide (Sq. 4D, Feature 1, Figures 6.130-6.132) is attached to the southern wall; it descends from near the floor level at $51.08-52.59 \mathrm{~m}$, is about 1.5 deep, and is mostly dug into the floor (Figure 6.130, section $\mathrm{A}-\mathrm{A}_{1}$ ). The installation is built of narrow upright bricks and probably served as a storage bin; it is divided into two cells (Features 1A, 1B) and was completely excavated. Near this bin, a pebbled floor level was excavated (Feature 2, Figures 6.132, front, 6.133) at an approximate


FIGURE 6.127. Pottery and finds from Phase 2 or of unclear stratigraphy.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $4123 / 1$ | GMI 1F (7) | $1 / 2 ?$ |
| b | Bowl | $4241 / 1$ | GMI 3F (1) | Unstratified/2? |
| c | Bowl | $2498 / 1$ | GMI 3D (3) | $2 / 3 ?$ |
| d | Bowl; mat imprint | $2498 / 2$ | GMI 3D (3) | $2 / 3 ?$ |
| e | Bowl | $4123 / 2$ | GMI 1F (7) | $1 / 2 ?$ |
| f | Bowl | $4241 / 2$ | GMI 3F (1) | Unstratified/2? |
| g | Bowl | $4241 / 3$ | GMI 3F (1) | Unstratified/2? |
| h | Krater? | $4123 / 4$ | GMI 1F (7) | $1 / 2 ?$ |
| i | Jar/krater | $4123 / 5$ | GMI 1F (7) | $1 / 2 ?$ |
| j | Jar | $4241 / 4$ | GMI 3F (1) | Unstratified/2? |
| k | Sherd; red decoration | Box 339/1 | GMI 3F (1) | Unstratified/2? |
| l | Bowl | $4123 / 3$ | GMI 1F (7) | $1 / 2 ?$ |
| m | Pyxis/jug | $2498 / 3$ | GMI 3D (3) | $2 / 3 ?$ |

height of 52.24 m . Several fragments of open, rounded and carinated bowls (Figure 6.153a-i) were found in Room 1, as well as a jar neck (Figure 6.153k) and a worked krater base (Figure 6.153j), a white-slipped milk bowl handle (Figure 6.153.1), and a Mycenaean pyxis/jar fragment (Figure 6.153 m ; see chapter 11). Other special finds found in this room include two large bone inlays, a wing and a tail (Figure 6.153o,p; see detailed discussion in chapter 25; good parallels come from the LBII cache found in a jar at Tel Harassim, Stratum IV [Givon, 1998: fig.

15:5,8] and Tell Fakhariyah [Kantor, 1958a: pl. 67a,b]), and a bronze spearhead/arrowhead with a bent/"killed" point (Figure $6.153 n$ ). Pumice fragments were also found in Sq. 4D, Layer 2C, Locus 1 (Figure 6.153q). Apparently, this room has a relatively high concentration of specials finds. Whether this indicates a special function for this room remains an open question, as most of the architecture around the room was not excavated in the SI excavations. It is still unclear if its residents were relatively affluent.


FIGURE 6.128. Upper layer of test trench in Sq. 4F and lower levels under Courtyard A, looking west.


FIGURE 6.129. General plan of Phase 1.


FIGURE 6.130. Plan of Phase 1 in Sqs. 4D-5D and section through bin in Room 1.

## Room 2

The northern unit, Room 2 (Figure 6.130) in Sq. 4D, extends slightly to the south (Sq. 4C) and to the east (Sq. 5D). It is bordered in the south by Wall 2, to the east by Wall 4, and to the north by Wall 3; the upper wall levels here are somewhat lower than to the south, at $52.28-52.52 \mathrm{~m}$. The room internally measures 1.3 m by at least 4.5 m , and the floor level, although not identified clearly, may be at 52.05 m . An unclear semicircular area with bricks (Feature 3) may be remains of an installation similar to Feature 1 in Room 1. The two similar parallel Rooms 1 and 2 of Phase 1 in Sq. 4D may have had a similar function for storage and were probably part of a larger building, maybe related to one of the early Iron Age I buildings excavated by

Petrie (Petrie, 1928: pl. VI). No pottery can be securely attributed to Room 2 of Phase $1 .^{2}$ A silver or lead earring may have been found here (see chapter 22, Figure 22.1b).

## OTHER PHASE 1 AND LATE REMAINS

To the west Sq. 5D, Wall 1, or Wall JR (see Figure 6.137; this was an annotation relating to supposed remnants of walls from Petrie's excavations), continues or abuts Wall 3 to the east, about another 2 m to the west in Sq. 3D. This massive $1.5-\mathrm{m}$-thick wall was reported to stand 1.5 m high in certain locations. The wall may be higher than the other Phase 1 walls and may indicate another upper phase (Phase 1A?).


FIGURE 6.131. Bin, Feature 1 in Room 1, Phase 1, looking north.


FIGURE 6.132. Room 1, with the bin, Feature 1, looking north.


FIGURE 6.133. Fill on the floor in Room 1, Sq. 4D, Layer 2A, looking north.


FIGURE 6.134. West section of Sq. 4D.


FIGURE 6.135. West section of Sq. 5D.


FIGURE 6.136. South balk of Sq. 4D; note the Phase 1 well-preserved brick wall on top and ash layers below, looking south.


FIGURE 6.137. South section of Sqs. 4D-5D.


FIGURE 6.138. Wall 3 in Sq. 4D, looking west.

## GMI 4D

## East balk



FIGURE 6.139. East section of Wall 8 in Sq. 4D.

## GMI 4F

## west balk



FIGURE 6.140. Upper remains and ash layers (Features 2A-2C) in the western balk of Test Trench 2 in Sq. 4F.

Remains of an upper Phase 1 in other areas of Field I are less coherent and more fragmentary (Figures 6.140-6.150); the remains from Petrie's excavations above the SI excavation levels were largely eroded and washed away. In Sq. 4F, test trench 2, ashy and bricky remains possibly belong to this phase (Features 2A-2C, Figure 6.140). In Sq. 3F, fragmentary remains of a tall brick wall (Wall 1) lie above Walls 2 and 3 of Phase 2 or 3A (see Figure 6.72); it seems to be an east-west wall, at least 4 m long (eroded to the east); its upper levels were $52.19-52.54 \mathrm{~m}$.

In Sq. 2E on the western edge of Field I, Wall 3 is about 5 m long and oriented east-west (Figures 6.141-6.145); its southern face was not excavated ( $52.58-53.04 \mathrm{~m}$ ). Several bricks recorded as "Wall 4" may be a north-south connecting wall or merely a fallout from Wall 3. Less than 1 m to the north, Wall 5 (Figure 6.142) meets Wall 15 at a $15^{\circ}$ angle and seems to be of the same phase according to its elevations ( $52.66-52.93 \mathrm{~m}$, sloping upward on its western side). There were possibly remains of plaster on these two wall fragments. In the western part of Sq. 2E, two


FIGURE 6.141. Plan of Phase 1A in Sq. 2E.


FIGURE 6.142. Plan of Phase 1B in Sq. 2E.


FIGURE 6.143. Walls 2 and 2A in Sq. 2E, Phase 1A, looking east.


FIGURE 6.144. West balk of Sq. 2E with ash layers.


FIGURE 6.145. Northern section of Sq. 2E.
upper walls (Figure 6.145, Walls 2 and 2A, at an elevation of 53.80 m , and possibly Walls 1 and 1 A to the east) have a similar angle between them but indicate a different orientation as the walls are oriented north-south (Figures 6.141, 6.142). These walls were assigned to the upper phase, denoted Phase 1A (see also Figure 6.144).

In Sq. 1F to the west, an east-west wall fragment (Wall 1) forms a right angle with Wall 2 (Figures 6.146-6.148, although poorly documented). This may be additional evidence for the remains of Phase 1 in this area. Also probably belonging to Phase 1 are Wall 1 in Sq. 2F (elevation of 53.08 m ; note the wooden beam in the section under the wall, Figure 6.149) and Features 2 and 2A-2C in Sq. 4F Test Trench 2. Pit 1 in Sq. 1F contained a lamp and bowl deposit (Figures 6.150, 6.151, 6.154a,d, 6.155p) consisting of a complete open bowl and a rounded bowl enfolding
a lamp (see Figure 6.151). Unfortunately, the context of this deposit in relation to other defined architectural features remains unclear. In Sq. 3G, Features 3 and Pits 1 and 2 cut the upper wall remains in the square and may be allocated to Phase 1.

The date of Phase 1, which may correlate to some of the remains excavated by Petrie (more likely the XVIII Dynasty town with Building Units J-K, Petrie, 1928: pl. VI), is difficult to determine (Figure 6.152), both according to the finds he published and by any stratigraphic relationships seen in the field. Although not many good contexts can be identified from this phase in the SI excavations, this is clearly a pre-Philistine Bichrome ceramic horizon (this pottery ware is actually completely absent from Field I), probably still within the Late Bronze Age yet somewhat later in date than Phase 3 (mostly because of absolute heights).


FIGURE 6.146. Plan of Sq. 1F in Phase 1.


FIGURE 6.147. Square 1F, Wall 2, looking west.


FIGURE 6.148. Square 1F, Wall 2 and Feature 1, looking NE.


FIGURE 6.149. Western balk of Sq. 1F with Phase 1 wall and wooden beam in its foundation.


FIGURE 6.150. Lamp and bowl deposit (Sq. 5E, Pit 1).


FIGURE 6.151. Lamp and bowl deposit.


FIGURE 6.152. Unclear circular feature on northeastern side of Field I.

## POTTERY OF PHASE 1

The pottery of Phase 1 includes several complete vessels, such as bowls (Figure 6.154a,b,d,e), a krater (Figure 6.154q,t), and a lamp (Figure 6.155p). However, some of these were not found in well-recorded contexts.

Bowls include open, rounded bowls (Figures 6.153a-g, 6.154 d ; see above, Phase 3, open bowls) and shallow, open, Vshaped bowels (Figure 6.154a-c,f-h), which are typical of the LBII. The complete V-shaped bowl (Figure 6.154b; and probably another complete bowl, Figure 6.154a) has a flat string-cut base and a wide, flat, somewhat warped rim. The bowl, which was part of a lamp and bowl deposit (Sq. 1F, Pit 1), together with a rounded bowl (Figure 6.154e) and a lamp (Figures 6.151, 6.155 p ), has a diameter of about 18 cm . In fact, this bowl type is typical of LBII lamp and bowl deposits (see Bunimovitz and Zimhoni, 1993; see also Beth Shean, Stratum S-4 [Panitz-Cohen and Mazar, 2009: photos 4.49, 4.50] and Deir el-Balah, Stratum VIII [Dothan and Nahmias-Lotan, 2010a]). This form is also considered to belong to the Egyptian tradition of pottery types (Field III, Figure 3.160a,b; see, e.g., Aphek [Gadot and Yadin, 2009:190191, Type BO1; Martin et al., 2009:362-363, Type EgB1-EgB2, and references therein], Tel Mor [Martin and Barako, 2007:135, figs. 4.4-4.6], Beth-Shean [Martin, 2009:444], and Deir elBalah, Stratum VI [Dothan and Brandl, 2010: pl. 24:8,9; Gould, 2010:16]). The straw-rich clay the bowl is made of is also a wellknown feature of the Egyptian potter's tradition.

Otherwise, most other bowl types from Phase 1 appear also in Phase 3 and were discussed above. These include open, rounded bowls with thickened rims (Figures $6.153 \mathrm{~d}-\mathrm{g}, 6.154 \mathrm{j}$ ) and rounded and open-rounded bowls with simple rims (Figures $6.153 b, c, 6.154 d$ ). The complete examples (Figure 6.154a,b,d,e) have a simple rim and a flat base and are 15 or 16 cm in diameter. Several examples of carinated bowls appear as well (Figures $6.153 \mathrm{~h}, 6.154 \mathrm{k}, \mathrm{l})$ and vary somewhat in size and body profile (see the generic types in Panitz-Cohen, 2006a: Type BL56; Aphek, Gadot and Yadin, 2009: Type BC2). Figure 6.154i is a nearly complete profile of a deep bowl with a flat base, yet the carination is somewhat different from the common form. Bowls or kraters with high carination and a ring base also appear (Figures 6.1541-o; the latter is a large example and can be defined as a krater). This is a type characteristic in the late LBII and Iron I, developing into the cyma bowls (see Field III, Figure 3.145d, and, e.g., Panitz-Cohen, 2006a:44, Type BL59; see parallels also at Qasile, Mazar, 1985a:39-41). A rim and body of a rounded bowl with at least five rows of perforations made before firing (Figure 6.155a) are from a strainer bowl similar to those from MBII/LBII Field III (see Figure 3.132o).

Several examples of rounded to slightly carinated kraters with loop handles extending from the rim or below appear in Phase 1 (Figure $6.154 \mathrm{q}-\mathrm{t}$ ). These are relatively similar to the complete examples from Phase 3 (Figure 6.124b; see also PanitzCohen, 2006a:61, Type KR4). A complete large carinated krater (Figure 6.154q) was found in a Phase 1(?) context. It has a slightly thickened, inward-slanting rim, a loop handle attached to the rim, and a ring base. The large lower part of a krater
with a similar ring base (Figure 6.154t, also probably Figure 6.153 j ) probably belongs to the same type of krater. These medium to large carinated kraters are very typical of the late LBIIIron I context (see, e.g., Aphek, Stratum X12, Gadot and Yadin, 2009:209-211, Type KR2). Smaller carinated kraters (or large bowls) with thickened and/or slanting rims (Figure $6.154 \mathrm{~m}-\mathrm{o}$ ) are more common in Phase 1 than in Phase 3. As noted above this is a typical LBII-Iron I form. Another type of krater that seems to be present in Phase 1 is the decorated biconical krater (Figure 6.156a-e; see also above). Cooking pots found in Phase 1 (Figure 6.154u) have everted, wedge-shaped rims. These are dated to the late LBII or Iron Age I (see above, e.g., Killebrew, 1999; Batash, Strata VII-V, Panitz-Cohen, 2006a:68-71, Types CP1 and possibly CP4a). Figure 6.155b is either the large base of a vessel or a short stand fragment.

Jar fragments, mostly necks and handles (Figures 6.153k, $6.155 \mathrm{c}-\mathrm{g}$ ), indicate types similar to those discussed in Phase 3 (e.g., Figure 6.88). Figure 6.155j is a wide, flat base, probably of a jar. A large shoulder fragment of a jar (Figure 6.155) has a decoration of white bands and a wavy red line delimited between two horizontal red lines in between the bands. This decoration pattern recalls Red, White, and Blue ware jars from the MBIIB-C (see Field III, e.g., Figure 3.601-o) or could be a fragment of a large LBII decorated jar (as seen at Batash, although without the wavy line; Panitz-Cohen, 2006a: photos 34, 35). A thick neck with a thickened everted rim and a prominent ridge under the rim (Figure 6.155 d ) may belong to a jar or a pithos, although parallels are rare (see, possibly, Batash, Stratum X, Panitz-Cohen and Mazar, 2006: pl. 13:6,7). A large body sherd of a large pithos with ridged relief (Figure 6.155h; see also Figure 6.56m) may belong to Phase 1 as well.

Jugs are not numerous in Phase 1. One example of a large jug with a trefoil rim occurs (Figure $6.155 n$; see Phase 3 above for parallels). Two handle and body fragments (Figure 6.155 k ,l) may belong to small jugs or amphoriskoi (see, e.g., Iron I examples from Batash, Stratum V, Panitz-Cohen, 2006a:112-113, Type AM1). Several sherds of decorated biconical jugs also appear (Figure 6.156a-e; see chapter 10). One example of a small flask neck is illustrated (Figure 6.155o).

One complete intact lamp (see Figure 6.155p) is attributed to Phase 1. This lamp has no soot marks and was probably not used; this is in accordance with its context, as it was found in a lamp and bowl deposit (Figures 6.150, 6.151). The form is typical of the LBII, as seen in the examples from Phase 3 with an everted rim and rounded base (Figures $6.88 \mathrm{k}, 1,6.126 \mathrm{~g}$ ); three other lamp fragments (Figure $6.155 \mathrm{q}-\mathrm{s}$ ) are of the same type; that these were used is indicated by the soot marks on their mouths. Also illustrated is a peculiar handle or a figurine fragment (Figure 6.156h) and an unusual base (Figure 6.155m). Several examples of imported pottery were found in Phase 1. These include Mycenaean stirrup jar fragments (Figures 6.153m, 6.156g), Cypriot WS milk bowls (Figure 6.1531) and a BRII jug (Figure 6.156f). It seems less likely that these examples are residual from Phase 3 as they are relatively large, and some are reconstructed from several fragments. Also illustrated from Phase 1 are a zoomorphic figurine depicting a ram (Figure 6.156i; see

T.

$0 \quad 10 \mathrm{~cm}$



FIGURE 6.153. Pottery and finds from Phase 1, Room 1. Cyp. WSII = Cypriot White Slip II ware; Myc. = Mycenaean. (opposite)

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| A | Bowl | $2470 / 1$ | GMI 4D F2 loc 2 |
| B | Bowl | $2461 / 1$ | GMI 4D (2A) |
| C | Bowl | $2463 / 5$ | GMI 4D (2A) |
| D | Bowl | $2463 / 3$ | GMI 4D (2A) |
| e | Bowl | $2463 / 2$ | GMI 4D (2A) |
| f | Bowl | $2463 / 1$ | GMI 4D (2A) |
| g | Bowl | $2463 / 4$ | GMI 4D (2A) |
| h | Bowl | $2463 / 6$ | GMI 4D (2A) |
| i | Bowl | $2470 / 2$ | GMI 4D F2 loc 2 |
| j | Krater; worked? | $2442 / 1$ | GMI 4D F1B loc 1 |
| k | Jar | $2461 / 2$ | GMI 4D (2A) |
| l | Milk bowl (Cyp. WSII) | Box 572/1 | GMI 4D F2 (1) |
| m | Stirrup jar(?)(Myc. IIIB) | box 842/1 | GMI 4D F2 (2) |
| n | Bronze spearhead/arrowhead | Reg. No. 1306 | GMI 4D W5 |
| o | Bone inlay | Reg. No. 1378 (SI Cat. No. 824) | GMI 4D (2A) |
| p | Bone inlay | Reg. No. 1379 (SI Cat. No. 825) | GMI 4D (2A) |
| q | Pumice | SCI 482 | GMI 4D (2C) 1 |

chapter 17), a perforated worked sherd (Figure 6.156k), and pumice (Figure 6.156j).

To summarize, the pottery from Phase 1 seems to reflect a late LBII ceramic horizon, rather similar to that of Phase 3 but possibly with more types continuing into the Iron IA, such as the carinated kraters. This assemblage clearly includes Mycenaean IIIB and Cypriot LCIII imports (see chapter 11) and clearly predates the Philistine Bichrome horizon. Thus, a date for this phase would correlate to Phases $8-7$ in Field III: LBII-Iron IA, or in absolute dating terms the late 13th to early 12th century BCE (maybe partly similar to Lachish, Level VI, e.g., Ussishkin, 2004; see Ben-Shlomo, 2003:232). According to Petrie's excavation, there was another Iron I phase above the XVIII Dynasty town, denoted the XXth Dynasty town (Petrie, 1928: pls. VII, VIII, bottom), probably representing the Iron I and possibly contemporary with the pottery kiln, dating to the Iron IB. As noted, the occurrence of Cypriot and Mycenaean imported pottery in Phase 1 could indicate either that the phase ended before the 12 th century or that it had a long duration (beginning in the 13th century and ending in the 12 th century) or that some imports occurred in the southern Levant during the early 12th century (the Lachish VI horizon; see chapter 11 on the dating of the imports).

## FINDS FROM UNCLEAR OR UNSTRATIFIED CONTEXTS

Several complete vessels or items of special interest that come from unclear or unstratified contexts are also illustrated (Figures 6.157, 6.158). Some come from contexts that have no documentation but were probably LBII contexts in Phase 3, Building I, mainly in Sq. 5F. As the vast majority of the exposed
remains from Field I are dated to the Late Bronze Age, most of these artifacts also are dated to the LB, although some items clearly date earlier or later.

A large fragment of a decorated biconical krater that came from topsoil is illustrated (Figure 6.158d), showing decoration in white and red paint (this and other such decorated kraters are discussed in detail in chapter 10). A complete miniature bowl (Figure 6.158c) is only $5-6 \mathrm{~cm}$ in diameter and is rather similar in form to typical LBII carinated bowls.

In addition, several other vessels are illustrated, including a complete deep bowl (Figure 6.158a) very similar to Figure 6.101c from Phase 3, the lower part of a krater, probably of an LBII type (Figure 6.158b), and a large LB cooking pot fragment (Figure 6.158e). A large body fragment of a ridged pithos (Figure 6.158j) was also found in an unclear context (see Figure 6.56m).

A thick fragment of a flat open vessel (Figure 6.158m) is covered with shallow prefiring perforations on one side and is smooth on the other. This is probably a baking tray, known to be used in the Bronze and Iron Ages in the southern Levant (see, e.g., Gadot and Yadin, 2009:236-237, Type BT; Dothan and Brandl, 2010a:261-262, photo 23.3 [Deir el-Balah]; Frankel, 2011:95-96, and references therein; see also Iron Age IIA Khirbet Qeiyafa, Kang and Garfinkel, 2009a:127, fig. 6.13:1,2). A conical vessel with a thick base (Figure 6.158f), a jug handle (Figure 6.158 k ), and two body sherds with sharp-ridged decoration (Figure $6.158 \mathrm{~h}-\mathrm{i}$ ) may date to the LBII but have no good parallels.

An item clearly not dating to the Late Bronze Age is a thick triangular handle (Figure 6.158n) belonging to a Chalcolithic churn (see, e.g., in Field III, Figure 3.14t). The Chalcolithic fabric is readily identifiable by the large dark grits in the clay.

A bowl fragment (Figure 6.158 g ) is made of a highly fired dark red clay; it is of an open, rounded form, and the outer rim is
a

b
 e

g
c
d



FIGURE 6.154. Pottery and finds from Phases 1, 2. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 4154/1 | GMI 1F P1 | 1 ? |
| b | Bowl | SI Cat. No. 913 | GMI 1F P1 | 1 ? |
| c | Bowl | 2678/1 | GMI 4E-4F (2) | 1 ? |
| d | Bowl | NA | GMI 2E (2) | 1 |
| e | Bowl; string cut | SI Cat. No. 911 | GMI 1F P1 | 1 ? |
| f | Bowl | 4158/1 | GMI 2F (1) | 1 |
| g | Bowl | 4154/2 | GMI 1F P1 | 1 ? |
| h | Bowl | 3457/1 | GMI 2E (4) | $1 / 3$ ? |
| i | Bowl | 2571/1 | GMI 4D (2) | 1 |
| j | Bowl | 4158/2 | GMI 2F (1) | 1 |
| k | Bowl? | 2998/1 | GMI 4F F2c | 1 |
| , | Bowl | 4174/1 | GMI 2F (1) | 1 |
| m | Krater/bowl | 4126/1 | GMI 1F (5) 1 | 1 |
| n | Bowl/krater | 2542/1 | GMI 4D (2) | 1 |
| o | Bowl/krater | 4154/3 | GMI 1F P1 | 1 ? |
| p | Krater | 4179/1 | GMI 1F (5) 1 | 1 |
| q | Krater | RV 66 | GMI 1F (4) 1 | 1 ? |
| r | Krater | 4176/1 | GMI 1F (2) 1 | 1 |
| s | Krater | 4126/3 | GMI 1F (5) 1 | 1 |
| t | Krater | RV 71 | GMI 4D (1A) | 1 |
| u | Cooking pot | 2675/1 | GMI 4E-4F (2) | 1 ? |

pulled down on the outside. This may resemble LBII bowls in the Egyptian tradition known as large bowls with ledged rims (see, e.g., Panitz-Cohen, 2006a: Type BL55; Aphek, Martin et al., 2009:367-369, Type EGB7, and references therein). However, the hard-fired metallic dark clay may indicate a much later date (maybe Byzantine or Islamic; see Schaefer, 1989: fig. 7:10). Also from the topsoil is a fragment of a miniature vessel attached to a perforated wheel-made body sherd (Figure 6.158o). This is a jar that is a spout of a zoomorphic vessel depicting a beast burdened with two jars on its sides (a well-known zoomorphic libation vessel of the Bronze and Iron Ages in the southern Levant; see chapter 17). An oblong hematite stone scale weight (weight of 12.1 g ) from the topsoil is also illustrated (Figure 6.158 p ). This is probably a typically shaped LBII scale weight type that appears in various weight values, found, for example, at Megiddo, Strata IX-VIII (Loud, 1948: pl. 168:9) and Ashdod, Stratum XIX (Dothan and Porath, 1993:31, fig. 6:17, pl. 31:16; Eran, 1993:125; see also further discussion in chapter 23).

Several objects of interest were found in unclear contexts of Field I and are discussed in the small finds section in chapters 17-23. These include plaque figurines (see chapter 17, Reg. Nos. 618, 1243 and Bag 3578), a bronze item that might be a figurine (Reg. No. 1332), jar handles with incised marks (Reg. Nos. 1978, 1980, 3817), several clay sealings with scarab impressions (Reg. Nos. 1202, 1227, 2037, 2182; also Reg. Nos. 2078, 3920, without impression), a bronze arrowhead (Reg. No. 1331), a crucible fragment (Reg. Nos. 2055, 2021), and a tuyère fragment (Reg. No. 2035).

## DISCUSSION AND SUMMARY

The main contribution of Field I to the excavations at Tell Jemmeh is the large horizontal exposure of the LBII levels, especially Buildings I and II in Phase 3. Other contributions are further evidence for the multiphase LB sequence and the MBIIB-C sequence under it in the trench in Sq. 3G, as well as the remains of the final LBII or Iron IA phase above Phase 3 (continuing Petrie's results).

Building I in Field I, Phase 3 at Tell Jemmeh (Figures 6.37, $6.38,6.103$ ) is one of the best-known examples of a relatively well preserved Late Bronze Age II house, especially in southern Israel. Although this structure could be a large domestic habitation, it includes several rare and special elements. These include the large paved courtyard, the indirect entrance, the unit/room with the plastered installation connecting to an outer sump (in Room C), and some metallurgic remains from Street J. As very few parallels exist for all elements appearing in this structure (large stone-paved courtyard, side entrance, inner depth, and a special hydraulic installation), one may suggest that it had a special, possibly public, function or that it was an elite, high-class residence or even a governor's residence.

The issue of determining the function and nature of an architectural unit in archaeological research is clearly complex and often very difficult or even impossible. Although certain palaces, temples, and private dwellings are easily identifiable in cultures according to their (often standard) plans and sizes, building types between these two extremes are harder to define


FIGURE 6.155. Pottery and finds from Phases 1 and 2.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Strainer bowl | Box 297/1 | GMI 2E W2 | 1A |
| b | Base/stand | 4126/2 | GMI 1F (5) 1 | 1 |
| c | Jar | 2542/2 | GMI 4D (2) | 1 |
| d | Jar/jug | 4174/2 | GMI 2F (1) | 1 |
| e | Jar | 3467/2 | GMI 2E (4) | 1/3? |
| f | Juglet/jug; incisions | 3467/1 | GMI 2E (4) | $1 / 3$ ? |
| g | Jar | 4122/1 | GMI 1F F2 (1) | 1 |
| h | Pithos; plastic decoration | 4147A/1 | GMI 1F (8) | $1 \mathrm{~B} / 3$ ? |
| i | Jar; red and white decoration | Box 266B/1 | GMI 4D (2) | 1 |
| j | Jar | 2542/3 | GMI 4D (2) | 1 |
| k | Amphoriskos | 4172/1 | GMI 2F (2) | $1 \mathrm{~B} / 3$ ? |
| 1 | Handle | 4172/2 | GMI 2F (2) | $1 \mathrm{~B} / 3$ ? |
| m | Base (closed vessel) | 4136/1 | GMI 1F (2) 1 | 1 |
| n | Jug | 4182/1 | GMI 2F (1) | 1 |
| o | Flask | 4131/1 | GMI 1F (4) 1 | 1 ? |
| p | Lamp | SI Cat. No. 912 | GMI 1F P1 | 1 ? |
| q | Lamp, soot | 2542/4 | GMI 4D (2) | 1 |
| r | Lamp | 4154/4 | GMI 1F P1 | 1 ? |
| S | Lamp, soot | 2998/2 | GMI 4F F2c | 1 |



FIGURE 6.156. Phase $1 / 3$ and unstratified pottery from Field I, Late Bronze Age. Cyp. BRII $=$ Cypriot Base Ring II ware; Myc. $=$ Mycenaean.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Sherd; red decoration | Box 353/1 | GMI 4F (5) | $1 / 3$ ? |
| b | Sherd; red decoration | Box 173/1 | GMI 2E (4) | $1 / 3 ?$ |
| c | Sherd; red decoration | Box 266A/2 | GMI 4D (1) | 1 |
| d | Sherd; red decoration | Box 266A/3 | GMI 4D (1) | 1 |
| e | Sherd; red decoration | Box 266A/4 | GMI 4D (1) | 1 |
| f | Jug (Cyp. BRII) | Box 686/1 | GMI 1F (2) 1 | 1 |
| g | Stirrup jar? (Myc. III) | Box 744/1 | GMI 4D (1) | 1 |
| h | Handle/figurine fragment | $3439 / 1$ | GMI 2E (4) | $1 / 3$ ? |
| i | Zoomorphic vessel; white slip | Reg. No. 1259 (SI Cat. No. 641) | GMI 2F (1) | 1 |
| j | Perforated sherd | Reg. No. 1699 | GMI 1F (5) | 1 |
| k | Pumice | SCI 484 | GMI 4D (1A) | 1 |

(see, e.g., Foucault-Forest, 1996, on MB-LB private houses; Gadot and Yasur-Landau, 2006; Shai et al., 2011b:111, and references therein). Therefore, in certain cases, terms such as "patrician houses" or "elite houses" (e.g., Albright, 1938; Wright, 1985:274; Oren, 1992:115; Ben-Dov, 1992) are often used. However, the classification of elite versus nonelite according to certain criteria, such as scale and energy expenditure in architectural elements (e.g., Mazar, 1990:246-247; Oren, 1992:115;

Bunimovitz, 1995: fig. 4), is not always justified (see, e.g., Wason, 1994:136-145). For example, a study of Iron Age II houses in the southern Levant (Faust, 1999a, 1999b) has suggested that the different sizes of domestic houses are related to family size and not to socioeconomic status, as houses are smaller in towns and larger in rural settings. Therefore, one should evaluate both the architectural aspects (i.e., size, quality of building, floor plan, syntax, etc.) and the human activities that took place in the building


FIGURE 6.157. A complete krater from an unclear context (RV 977, GMI (3)).
and in its immediate surroundings together. Note also that architectural units could have functioned in a variety of ways, and a simplistic division between domestic, industrial, public, and cultic space is not always justified (see, e.g., Janes, 1983:105-109; Horne, 1994:176-184; David and Kramer, 2001:296).

Shai et al. (2011b) raise several possible criteria for determining whether a structure is private/domestic or public, both in general and in the context of the Late Bronze Age Levant (Shai et al., 2011b:109-112, table 1). Such criteria include size, wall thickness, floor plan, space syntax, number of overlying floors (also reflecting the duration of usage of the structure), the finds, and relationship to other structures. Somewhat similar houses with the same general plan were excavated in LB Ashdod, Area B, Strata XVII-XV (Dothan and Freedman, 1967:74-79, plans 4, 5), Batash (Mazar, 1997:58-72, Building 315, although much smaller), Gezer and Tell es-Safi/Gath, Stratum E4b (Shai et al.,

2011b:112-115, figs. 4, 10; see their table 1 for further parallels); the area of most of these houses is on the same scale as Jemmeh's Building I, around 200-250 m². Certain Middle and Late Bronze Age houses from Tell el-'Ajjul (Petrie, 1934: pls. LXII-LXIII; Foucault-Forest, 1996:25-36, pls. 14-17) and Beit Mirsim, Stratum D (Albright, 1938: pls. 51, 55; Oren, 1992:116, fig. 14) may also show some similarities (the entrance through a large, although unpaved, courtyard from the street), although they are mostly fragmentary in their plans. In these houses there is also a side entrance into a large space or courtyard (although unpaved; in some cases this space is a pillared hall), but the rooms seem to flank it and do not constitute a high-depth structure as at Tell Jemmeh. Generally, it seems that Building I in Tell Jemmeh Field I is more of the patrician house type (Oren, 1992:115-117; here Figure 6.103) of the second millennium BCE rather than the domestic dwellings of this period (e.g., Ben-Dov,

FIGURE 6.158. Unstratified pottery and small finds from Field I. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl; soot | SI Cat. No. 614 | GMI TTI (1) | Unstratified? |
| b | Krater | RV 69 | GMI 5F F3A | Unknown |
| c | Miniature bowl | SI Cat. No. 412 | GMI 4D-5D (0) | Unstratified |
| d | Krater; red and white decoration | Box 305/1 | GMI 5E (2) | Unknown |
| e | Cooking pot | $2717 / 1$ | GMI 5E (2) | Unknown |
| f | Conical vessel | $2694 / 1$ | GMI 5E (4) 2 | Unknown |
| g | Bowl; black | $2516 / 1$ | GMI 4D (0) | Unstratified |
| h | Sherd with relief | $3449 / 1$ | GMI 2E (4) | 1/3? |
| i | Sherd with relief | $3449 / 2$ | GMI 2E (4) | 1/3? |
| j | Pithos; plastic decoration | $2716 / 1$ | GMI 5E (6) | Unknown |
| k | Jug(?) | Box 715/1 | RV 285 3G (0) | Unstratified |
| $l$ | Lamp; soot | RV 287 | GMI 5D (2) | Unstratified/3 |
| $m$ | Baking tray | $2416 / 1$ | GMI 5E (4) | Unknown |
| $n$ | Churn (Chalcolithic) | RV 283 | GMI 5D W4 | 1/3? |
| o | Zoomorphic vessel | Reg. No. 1042 (SI Cat. No. 803) | GMI 4E/4F (2) | Unknown |
| p | Hematite weight |  | GMI 1F (0) | Unstratified |

1992; Foucault-Forest, 1996). Note also that these buildings are different from the so-called governors' residences found in the LBII-Iron I southern Levant (Oren, 1992:117-120), such as at Aphek, Tel Sera', and other sites (possibly also Tell Jemmeh, Petrie, 1928: pl. VI, Building JF; see, e.g., Oren, 1992; Gadot, 2010; Shai et al., 2011b). For example, the latter have a larger size of over $400 \mathrm{~m}^{2}$ and a typical square, rather symmetrical plan, and their inner courtyard is relatively small. The governors' residences also usually have an outer court in front of the building's entrance; at Tell Jemmeh, to the east of Building I, open Area K might have been part of such a court, but the limited exposure in this area is too close to the edge of the building to prove such a
suggestion. The access syntax of Building I (Figure 6.38), similar to other LBII buildings mentioned above, does show control and restriction of access to some of the units, as passage through the courtyard is needed. However, the high depth in the northern section of Building I indicates a higher level of access restriction, which is usually associated with public structures, such as temples or palaces (see also Minoan villas; e.g., Preziosi and Hitchcock, 1999:111-114).

Regarding finds, Building I yielded a common LBII assemblage of pottery (including imported) and small finds (including figurines), and luxurious and cultic objects are not especially common. In fact, the fragmentary Building II yielded relatively

more special finds, especially Room F, which included items that could reflect administrative activities (a stamp, sealings, and a marked jar handle). Notably, in the remains above this room (in Phase 1, Rooms 1 and 2), special finds include bone inlays, a silver or lead earring, a stamp seal, and other finds (see above), and there is a possibility some Phase 1 items should also be assigned to Phase 3, Room F).

The occurrence of tabuns, or ovens, is also a domestic characteristic; however, the relatively large number of these installations, mostly located in one space (Unit L), may indicate a larger than domestic scale of food preparation, maybe even feasting. Other possibly "nondomestic" characteristics of Building I include, as noted, the plastered installation or bath and the metallurgic activities. Notably, at the Tell es-Safi building as well, a space near the entrance (Room and Installation 84011, Shai et al., 2011b:128) was possibly used for metallurgical activity in a way similar to that in Street J near Building I. The occurrence of various internal architectural changes as well as floor raisings in the building may attest to a long usage period, perhaps also indicating a nondomestic character. Thus, considering all available data on Building I, it seems there is a high likelihood that this was not a domestic residence of the most common type in the southern Levant; whether this was an elite residence, patrician's house, or some other sort of public building is still not clear.

In conclusion, the contribution of Field I is the exposure of one of the better and well-preserved examples of LBII southern Levantine or Canaanite elaborate residential architecture
(see more in chapter 34). This area possibly housed the elite of the Canaanite town of Yurza located on the border with Egypt. However, Egyptian influence in the material culture remains quite minimal. The buildings, which are basically largecourtyard buildings (on the very early tradition of courtyard buildings in the Near East, see, e.g., Ben-Shlomo and Garfinkel, 2009), show complexity in plan, a multitude of open and roofed units, and sophisticated installations. Some artifacts found in situ may reflect activities held in the different units, although the function of certain more unique installations still remains unclear to us.

## AUTHOR NOTE

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## NOTES

1. Room numbers in Field I were allocated consecutively in this case.
2. This is possibly also because the label "Layer 3" in Sq. 4D was used in both the 1976 and 1977 seasons. During the 1976 season it was used for the fill of Room 2 (denoted $\{76\}$ ) and later in the 1977 season (denoted $\{77\}$ ) for the debris below belonging to Phase 3, Building II, Room F.

## APPENDIX 6.1

TABLE 6.A1. List of contexts of Field I. The notation $\{\mathrm{xx}\}$ indicates the year of excavation when the layer number is repeated in various seasons. Recording of elevations was not systematic. In some cases only the upper or lower elevation was recorded, and in others it is questionable; the notation ( xx ) indicates estimated or recorded layer thickness.

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMI 2D (1) | Fill |  |  | Unknown |  |  |
| GMI 2D (2) | Fill |  |  | Unknown |  |  |
| GMI 3D (0) | Fill |  |  | None |  |  |
| GMI 3D (1) | Fill |  |  | Unknown |  |  |
| GMI 3D (2) | Fill |  |  | Unknown |  |  |
| GMI 3D (3) | Fill |  |  | 2-3? |  |  |
| GMI 3D (4) | Fill |  |  | 3 ? |  |  |
| GMI 3D (5) | Fill |  |  | 3 ? |  |  |
| GMI 3D (6) | Fill |  |  | 3 ? |  |  |
| GMI 3D (2) 1 | Fill |  |  | Unknown |  |  |
| GMI 3D (2) 2 | Fill |  |  | Unknown |  |  |
| GMI 3D (2A) 2 | Fill |  |  | Unknown |  |  |
| GMI 3D (2B) 2 | Fill |  |  | Unknown |  |  |
| GMI 4D (0) | Topsoil | 51.91 |  | None |  |  |
| GMI 4D (1) | Fill |  |  | 1 |  | Equals 5D (1) |
| GMI 4D (1A) | Fill |  |  | 1 |  |  |
| GMI 4D (2) | Fill | 52.50 | 52.86 | 1 |  |  |
| GMI 4D (3) \{76\} | Fill |  |  | 1 | Room 2 |  |
| GMI 4D (3) \{77\} | Fill |  |  | 3 | Room F |  |
| GMI 4D (3A) | Fill | 52.02 | 52.61 | 1 | Room 1 |  |
| GMI 4D (2A) | Fill |  |  | 1 | Room 1 |  |
| GMI 4D (2B) | Fill |  | 52.60 | 1 | Room 1 |  |
| GMI 4D T2 (1) | Fill |  |  | 1 | Room 1 |  |
| GMI 4D (2C) 1 | Fill |  |  | 1 | Room 1 |  |
| GMI 4D (2) 2 | Fill | 52.05 | 52.31 | 1 | Room 2 |  |
| GMI 4D (2A) 2 | Fill | 51.95 | 52.05 | 1 | Room 2 |  |
| GMI 4D (4) 3 | Fill | 51.01 | 51.68 | 3 | Room F |  |
| GMI 4D (4A) 3 | Fill | 51.01 | 51.05 | 3 | Room F |  |
| GMI 4D (4) 4 | Fill | 50.94 |  | 3 | Street J |  |
| GMI 4D (4) 5 | Fill |  |  | 3 | Street J |  |
| GMI 4D F1 | Bin | 51.08 | 52.24 | 1 | Room 1 |  |
| GMI 4D F1A (1) | Bin | 51.08 | 52.53 | 1 | Room 1 | East cell of bin F1 |
| GMI 4D F1B (1) | Bin | 51.08 | 52.46 | 1 | Room 1 | West cell of bin F1 |
| GMI 4D F2 (1) | Stones |  |  | 1 | Room 1 |  |
| GMI 4D F2 (2) | Stones/floor |  |  | 1 | Room 1 |  |
| GMI 4D F3 (1) | Bricks |  |  | 1 | Room 2 | Semicircular area with bricks (bin?) |
| GMI 4D F4 | Bricks |  |  | 1 | Room 1 | Possible blocked door in Wall 4 |
| GMI 4D-5D W1 | Wall | 53.22 | 53.52 | 1 |  | Petrie wall in southern part of square (equals 5D W5?) |
| GMI 4D W2 | Wall |  | 51.91 | 1 |  | Petrie wall? |
| GMI 4D W3 | Wall | 52.28 | 52.52 | 1 | Room 2 | Petrie's JR wall? |
| GMI 4D W4_1-W4_2 | Wall | 52.41 | 52.9 | 1 | Rooms 1-2 | Brick wall |
| GMI 4D W5 | Wall | 52.46 | 52.86 | 1 | Room 1 | Brick wall |

TABLE 6.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMI 4D W6 | Wall |  | 52.09 | 3 | Room F | Brick wall |
| GMI 4D W7 | Wall | 51.47 | 52.30 | 3 | Room F | Brick wall |
| GMI 4D W8 | Wall | 52.24 | 52.30 | 3 | Room F | Brick wall |
| GMI 5D (0) | Topsoil | 52.30 | 52.68 | None |  |  |
| GMI 5D (1) | Fill | 52.01 | 52.41 | None |  | Under wall 1, over wall 4 |
| GMI 5D (2) | Fill | 51.65 | 52.52 | None/3 |  | Bricks and ash |
| GMI 5D (3) | Fill | 51.65 | 51.85 | 3 |  |  |
| GMI 5D (3) 2 | Fill | 51.65 | 51.85 | 3 |  |  |
| GMI 5D (4) | Fill/wash |  |  | None |  |  |
| GMI 5D (4) 2 | Fill |  |  | 3 |  |  |
| GMI 5D (3A) | Fill |  |  | None/3 |  |  |
| GMI 5D (3B) | Fill |  |  | 3 |  |  |
| GMI 5D (5) 1 | Fill |  |  | None |  |  |
| GMI 5D (4) | Fill |  |  | 3 ? |  |  |
| GMI 5D TT1 2 | Fill | (0.5) |  | 3 | Street J |  |
| GMI 5D (5) 2 | Fill |  |  | None/3 | Street J |  |
| GMI 5D (6) 1 | Fill |  |  | 3 | Room G |  |
| GMI 5D (6A) 1 | Fill | (0.1) |  | 3 | Room G |  |
| GMI 5D (6) 2 | Fill | 51.58 | 51.79 | 3 | Street J |  |
| GMI 5D TT1 (7) 2 | Fill | 50.96 | 51.54 | 3 | Street J |  |
| GMI 5D TT1 (7A) | Fill | 51.15 | 51.40 | 3 | Street J |  |
| GMI 5D TT1/TT3 (7B) 2 | 2 Fill | 50.90 | 51.15 | 3 | Street J |  |
| GMI 5D TT1/TT3 (7C) 2 | 2 Fill | 51.00 | 51.23 | 3 | Street J/Area K |  |
| GMI 5D (8) 2 | Fill |  | 51.00 | 3 | Street J |  |
| GMI 5D (8A) 2 | Fill |  | 51.00 | 3 | Street J |  |
| GMI 5D (8B) 3 | Fill | 50.88 | 51.00 | 3 | Street J |  |
| GMI 5D (8C) 3 | Fill | 50.76 | 50.88 | 3/4 | Room H? |  |
| GMI 5D F1 | Yellow wash/ |  |  |  |  |  |
|  | sandstone |  |  | 3 |  |  |
| GMI 5D F1A | Sandstone blocks |  |  | 3 | Area K |  |
| GMI 5D F1A (2) | Sump | 50.96 | 51.23 | 3 | Area K |  |
| GMI 5D F1A (3) | Sump | 50.60 | 50.96 | 3 | Area K |  |
| GMI 5D F1B | Fill |  |  | 3 | Area K |  |
| GMI 5D F1C | Channel |  |  | 3 | Area K | Channel leading from F1A |
| GMI 5D F2 (1) | Floor | 51.15 | 51.15 | 3 | Room H | Plastered floor |
| GMI 5D F2 (2) | Floor | 51.15 |  | 3 | Room H | Plastered floor |
| GMI 5D F2 (3) | Floor | 51.05 | 51.15 | 3 | Room H | Plastered floor |
| GMI 5D F2 (4) | Floor | 51.05 |  | 3 | Room H | Plastered floor |
| GMI 5D F3 | Tabun lining |  | 51.98 | 3 | Room G |  |
| GMI 5D F3A | Tabun |  |  | 3 | Room G | Fill in F3 |
| GMI 5D F3B (1) | Tabun |  |  | 3 | Room G |  |
| GMI 5D F3B (2) | Tabun | 51.72 |  | 3 | Room G |  |
| GMI 5D F3C | Tabun |  |  | 3 | Room G |  |
| GMI 5D T3 F4 $\{75\}$ | Bone |  | 51.25 | 3 | Street J? |  |
| GMI 5D F4 D | Doorjamb/entrance | 50.94 | 51.39 | 3 | Room G |  |
| GMI 5D W1 | Wall | 51.81 | 53.41 | 1 |  | Petrie wall? |
| GMI 5D W2 | Wall | 51.75 | 51.91 | 1 |  | Petrie JR wall |
| GMI 5D W3 | Wall | 51.75 | 51.91 | 1 |  | Petrie JR wall |
| GMI 5D W4 | Wall | 51.40 | 51.91 | $1-3$ ? |  | Brick wall (equals W9) |

TABLE 6.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMI 5D W5 | Wall | 51.64 | 52.00 | 1-3? |  | Brick wall |
| GMI 5D W6 | Wall | 51.35 | 52.02 | 3 | Courtyard A | Brick wall |
| GMI 5D W7 | Wall | 51.35 | 51.56 | 3 | Courtyard A | Brick wall |
| GMI 5D W8 | Wall | 51.39 | 51.76 | 3 | Room G | Brick wall |
| GMI 5D W9 | Wall | 51.65 | 51.76 | 3 | Room G | Brick wall |
| GMI 5D W10 | Wall |  | 51.73 | 3 | Rooms G-F | Brick wall |
| GMI 5D W11 | Wall | 51.79 | 51.84 | 3 | Room H | Brick wall |
| GMI 5D W12 | Wall |  |  | 3B-4? |  | Brick wall |
| GMI 5D-4D W1 | Wall |  | 53.32 | 1 |  | Brick wall |
| GMI 2E (0) | Topsoil |  |  | None |  |  |
| GMI 2E (1A) | Fill |  |  | None/1 |  |  |
| GMI 2E (1B) | Fill | 53.69 |  | 1 |  |  |
| GMI 2E (1C) | Fill |  |  | 1 |  |  |
| GMI 2E (1D) | Fill |  |  | 1 |  |  |
| GMI 2E (2) | Fill | 53.50 | 53.70 | 1 |  |  |
| GMI 2E (1) 3 | Fill |  |  | 1B |  |  |
| GMI 2E (3) | Fill |  |  | 1A |  |  |
| GMI 2E (4) | Fill |  | 53.35 | $1-3$ ? |  |  |
| GMI 2E (4A) | Fill | 52.20 | 52.35 | 3 ? |  |  |
| GMI 2E (4B-XX) ${ }^{\text {a }}$ | Fill | 51.85 | 52.35-52.15 | 3 ? |  |  |
| GMI 2E (4-XX) ${ }^{\text {a }}$ | Fill | 52.05 |  | $1-3$ ? |  |  |
| GMI 2E F1 | Unknown |  |  | 1 ? |  |  |
| GMI 2E F2 | Unknown |  |  | 1 ? |  |  |
| GMI 2E F3 | Fill |  |  | ? |  |  |
| GMI 2E F4 | Bricks | 53.69 |  | 1 |  |  |
| GMI 2E F5 | Ash |  |  | 1 ? |  |  |
| GMI 2E W1 | Wall | 53.69 |  | 1 A ? |  | Brick wall |
| GMI 2E W1A | Wall |  |  | 1A? |  | Brick wall |
| GMI 2E W2 | Wall |  |  | 1A |  | Brick wall |
| GMI 2E W2A | Wall? |  | 53.80 | 1A |  | Brick wall |
| GMI 2E W2B | Bricks |  |  | 1A |  |  |
| GMI 2E W3 | Wall | 52.58 | 53.04 | 1B |  | Brick wall |
| GMI 2E W4 | Wall? |  |  | 1B |  | Brick wall |
| GMI 2E W5 | Wall | 52.62 | 52.86 | 1B |  | Brick wall |
| GMI 4E (1) | Fill? |  |  | Unknown |  | No records |
| GMI 4E (2) | Fill? |  |  | Unknown |  | No records |
| GMI 5E (0) | Fill? |  |  | Unknown |  | No records |
| GMI 5E (1) | Fill? |  |  | Unknown |  | No records |
| GMI 5E (2) | Fill? |  |  | Unknown |  | No records |
| GMI 5E (3) | Fill? |  |  | Unknown |  | No records |
| GMI 5E (4) | Fill? |  |  | Unknown |  | No records |
| GMI 5E (5) | Fill? |  |  | Unknown |  | No records |
| GMI 5E (6) | Fill? |  |  | Unknown |  | No records |
| GMI 5E (+) 2 | Fill? |  |  | Unknown |  | No records |
| GMI 5E (0) 2 | Fill? |  |  | Unknown |  | No records |
| GMI 5E (1) 2 | Fill? |  |  | Unknown |  | No records |
| GMI 5E (2) 2 | Fill? |  |  | Unknown |  | No records |
| GMI 5E (3) 2 | Fill? |  |  | Unknown |  | No records |
| GMI 5E (4) 2 | Fill? |  |  | Unknown |  | No records |

TABLE 6.A1 (continued)
$\left.\begin{array}{lccccc}\hline & & & & \\ \text { Context } & \text { Cower } \\ \text { Context type }\end{array} \quad \begin{array}{c}\text { Upper } \\ \text { level (m) }\end{array}\right)$

TABLE 6.A1 (continued)

|  |  | Lower |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Context | Context type | Upper <br> level (m) | level (m) |

TABLE 6.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMI 4F TT5 (1D) | Fill |  |  | 4 ? |  |  |
| GMI 4F TT5 (2) | Fill |  |  | 4 ? |  |  |
| GMI 4F TT5 (3) | Fill | 49.51 |  | 4 ? |  |  |
| GMI 4F TT5 (4) | Fill |  |  | 4 ? |  |  |
| GMI 4F TT1 F1 (1) | Wood remains |  | 52.30 | Unknown |  |  |
| GMI 4F TT1 F2 (2) | Ashy layer |  |  | None/1 |  |  |
| GMI 4F F2 | Ashy layer | 51.94 | 52.06 | 1 |  |  |
| GMI 4F F2A | Bricks |  |  | 1 |  |  |
| GMI 4F F2B | Ashy layer |  |  | 1 |  |  |
| GMI 4F F2C | Brick |  |  | 1 |  |  |
| GMI 4F F3 | Bricks |  |  | 3 | Courtyard A |  |
| GMI 4F F4 | Bricks | 51.31 | 51.41 | 3 | Unit D? |  |
| GMI 4F F5 | Bricks |  | 51.95 | 3 ? | Unit D |  |
| GMI 4F F6 | Paving | 51.90 | 52.03 | 2 ? |  |  |
| GMI 4F F7 | Ash pit |  |  | 2 ? |  |  |
| GMI 4F F8 | Layers? |  |  | 3B-4? |  |  |
| GMI 4F W1 | Paving | 51.64 | 51.76 | 3 | Courtyard A | Paving of Courtyard A |
| GMI 4F W2 | Paving | 51.23 | 51.42 | 3 | Unit D1 | Paving of Unit D |
| GMI 4F W3 | Fill |  | 51.72 | 3 ? |  |  |
| GMI 4F W4 | Wall? | 51.36 | 51.53 | 3 ? | Unit D? |  |
| GMI 4F W5 | Paving |  |  | 3 B ? | Unit D? | Stone paving |
| GMI 4F P1 | Pit? | 49.74 | 49.95 | None |  | Disturbance |
| GMI 5E P1 | Pit? |  |  | 3 ? | Building I | Lamp and bowl deposit? |
| GMI 5F (0) | Topsoil |  |  | None |  |  |
| GMI 5F (1) | Fill |  |  | Unknown |  |  |
| GMI 5F (2) | Fill |  |  | Unknown |  |  |
| GMI 5F (1) 1 | Fill? |  |  | None |  | No records |
| GMI 5F (1) 2 | Fill? |  |  | Unknown |  | No records |
| GMI 5F (3) 2 | Fill? |  |  | Unknown |  | No records |
| GMI 5F (4) 2 | Fill? |  |  | Unknown |  | No records |
| GMI 5F (5) 2 | Fill? |  |  | Unknown |  | No records |
| GMI 5F (5) | Fill? |  |  | Unknown |  | No records |
| GMI 5F (6) | Fill? |  |  | Unknown |  | No records |
| GMI 5F F2 | Unknown |  |  | Unknown |  | No records |
| GMI 5F F3 | Unknown |  |  | Unknown |  | No records |
| GMI 5F F3A | Unknown |  |  | Unknown |  | No records |
| GMI 5F F5 | Threshold |  |  | 3B-4 |  |  |
| GMI 5F W7 | Wall | 51.20 | 52.04 | 3 | Unit D3 |  |
| GMI 5F W88 | Wall |  |  | 3 | Unit D3 |  |
| GMI 6F F2 F2 | Pebbles | 51.51 | 51.65 | 3 | Area K |  |
| GMI 6F (1) | Fill | 51.19 | 51.47 | 3 ? |  |  |
| GMI 6F (2) | Fill | 50.94 | 51.19 | 3 | Area K? |  |
| GMI 6F (3) | Fill | 50.64 | 50.94 | 3-4? |  |  |
| GMI 6E-6F (0) | Topsoil | 51.47 | 52.04 | None |  |  |
| GMI 6E-6F (4) | Fill | 50.85 | 50.75 | 3-4? |  |  |
| GMI 6E-6F F1 | Trench | 51.15 | 52.00 | None |  | Excavation dump |
| GMI 6F P1 | Pit |  |  | None |  | Modern pit |
| GMI 6E (1) | Fill | 50.71 | 51.11 | 3 | Area K? |  |
| GMI 6E (2) | Fill | 50.24 | 50.71 | 3-4? |  |  |

TABLE 6.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMI 6E F2 | Installation; sump? | 49.67 | 51.68 | 3 | Area K |  |
| GMI 6E F4 | Pebbles | 51.51 | 51.65 | 3 | Area K |  |
| GMI 6E P2 | Pit |  |  | Unknown |  |  |
| GMI 3G (0) | Topsoil | 52.28 | 52.48 | None |  |  |
| GMI 3G (1A) 1 | Fill | 51.72 | 51.91 | 3A | Unit L |  |
| GMI 3G (1) 1 | Fill | 51.55 | 51.72 | 3 | Unit L | Level of tabun, F2 (contains six postholes?) |
| GMI 3G (2) 1 | Floor | 51.38 | 51.52 | 3(B?) | Unit L |  |
| GMI 3G (3) 1 | Floor/fill | 51.16 | 51.41 | 3-4? | Unit L |  |
| GMI 3G (4) 1 | Fill | 50.95 | 51.16 | 4 ? |  |  |
| GMI 3G (5) 1 | Fill | 50.85 | 50.95 | 4 |  |  |
| GMI 3G (6) 1 | Fill | 50.77 | 50.85 | 4-5 |  |  |
| GMI 3G (1) 3 | Fill | 50.45 | 50.79 | 5 |  |  |
| GMI 3G (2) 3 | Fill | 50.35 | 50.45 | 5 |  |  |
| GMI 3G (7) 2 | Fill | 50.45 | 50.63 | 5 |  |  |
| GMI 3G (8) 2 | Fill | 50.24 | 50.55 | 5 |  |  |
| GMI 3G (9) | Fill | 50.01 | 50.22 | 6 |  |  |
| GMI 3G (10) | Fill | 49.90 | 50.08 | 6 |  |  |
| GMI 3G (11) | Fill | 49.82 | 49.90 | 6 |  |  |
| GMI 3G (12) | Fill | 49.66 | 50.20 | 6 |  |  |
| GMI 3G (13) | Fill | 49.42 | 49.75 | 6 |  |  |
| GMI 3G (14) | Fill | 49.31 | 49.48 | 6 |  |  |
| GMI 3G (15) 1 | Fill | 49.22 | 49.34 | 6 |  |  |
| GMI 3G (15) 2 | Fill | 49.07 | 49.34 | 6 |  |  |
| GMI 3G (16) 1 | Fill | 48.90 | 49.22 | 6-7 |  |  |
| GMI 3G (16) 2 | Fill | 48.77 | 49.07 | 6-7 |  |  |
| GMI 3G (17) | Fill | 48.58 | 48.88 | 7 |  |  |
| GMI 3G (18) | Fill | 48.26 | 48.55 | 7 |  |  |
| GMI 3G (19) | Fill | 47.86 | 48.26 | 7 |  |  |
| GMI 3G (20) | Fill | 47.56 | 47.86 | 8 |  |  |
| GMI 3G (21) | Fill | 47.39 | 47.71 | 8 |  |  |
| GMI 3G (22) 1 | Fill | 47.57 | 47.75 | 8 |  |  |
| GMI 3G (23) 1 | Fill/floor? | 47.44 | 47.57 | 8 |  |  |
| GMI 3G (24) 1 | Floor? | 47.39 | 47.44 | 8 |  |  |
| GMI 3G (24) 2 | Fill |  | 47.55 | 8 |  |  |
| GMI 3G (25) 1 | Fill | 47.16 | 47.46 | 9 |  |  |
| GMI 3G (25) 2 | Fill | 47.30 | 47.40 | 9 |  |  |
| GMI 3G (26) | Fill | 47.02 | 47.40 | 9 |  |  |
| GMI 3G F1 | Installation | 51.70 | 51.90 | 3 A ? | Unit L? |  |
| GMI 3G F2 | Tabun | 51.61 | 51.97 | 3(A?) | Unit L |  |
| GMI 3G F3 | Pit |  |  | $1 ?$ |  | Equals P1 |
| GMI 3G F4 | Pit |  |  | $1 ?$ |  | Equals P2 |
| GMI 3G F5 | Bench | 51.15? | 51.30 | 3 ? | Unit L? |  |
| GMI 3G F6 | Bricks | 49.45 | 49.90 | 6 |  |  |
| GMI 3G F7 | Tabun |  | 48.76 | 7 |  |  |
| GMI 3G F8 | Installation |  |  | 8 |  |  |
| GMI 3G F9 | Tabun |  | 47.35 | 9 |  |  |
| GMI 3G F10 | Brick floor? | 46.95 | 47.23 | 9 |  |  |
| GMI 3G F11 | Pit | 46.87 | 47.37 | 9 |  | Pit with animal skeleton |

TABLE 6.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMI 3G F12 | Pit? | 47.02 | 47.23 | 9 |  |  |
| GMI 3G W1 | Wall | 51.57 | 51.67 | 3 | Unit L | Brick wall |
| GMI 3G W2 | Wall | 51.67? | 52.42 | 3 | Room D3 | Brick wall |
| GMI 3G W3 | Wall | 50.36 | 50.77 | 5 |  | Brick wall |
| GMI 3G W4 | Wall | 50.36? | 50.96 | 5 |  | Brick wall |
| GMI 3G W5 | Wall | 49.07 | 49.80 | 6 |  | Brick wall |
| GMI 3G W6 | Wall | 47.44 | 47.77 | 8 |  | Brick wall |
| GMI 3G W7 | Wall | 47.55 | 47.77 | 8 |  | Brick wall |
| GMI 3G P1 | Pit |  |  | 1 ? |  | Cuts W1 |
| GMI 3G P2 | Pit |  |  | 1 ? |  | Cuts W1 |
| GMI 3G P3 | Pit | 49.05 | 50.55 | 4 |  |  |
| GMI 3G P4 | Pit | 49.05 | 50.85 | 4 |  |  |
| GMI 3G P5 | Pit | 48.27 | 48.70 | 6 |  |  |
| GMI 3G P6 | Pit | 47.85 | 48.33 | 6-7? |  |  |
| GMI 3G P7 | Pit | 45.98 | 47.75 | 7-8? |  |  |
| GMI 3G P8 | Pit | 46.85 | 47.57 | 7-8? |  |  |
| GMI 3G P9 | Pit |  |  | 8 ? |  |  |
| GMI 4G (0) | Topsoil | 51.82 | 51.92 | None |  |  |
| GMI 4G TT1 (1) | Fill | 51.80 | 51.95 | None/3A? |  |  |
| GMI 4G TT1 (2) | Fill | 51.57 | 51.72 | 3 | Unit L |  |
| GMI 4G (1) 2 | Fill | 51.65 | 51.79 | 3 | Corridor/D3? |  |
| GMI 4G (2) 2 | Fill | 51.45 | 51.65 | 3 | Corridor/D3? |  |
| GMI 4G (3) 2 | Fill | 51.31 | 51.45 | 3 | Corridor/D3? |  |
| GMI 4G (4) 2 | Fill | 51.16 | 51.31 | 3 | Corridor/D3? |  |
| GMI 4G (5) 2 | Debris | 51.05 | 51.12 | 3-4? | Unit L entrance |  |
| GMI 4G (1) 1 | Fill | 51.51 | 51.86 | 3 | Unit L? |  |
| GMI 4G (2) 1 | Debris | 51.33 | 51.86 | 3 | Unit L | Ashy |
| GMI 4G (3) 1 | Debris/floor | 51.18 | 51.33 | 3 | Unit L | Fill and floor in and under Unit L |
| GMI 4G (4) 1 | Fill | 50.94 | 51.18 | 3-4? | Unit L? | Fill in Unit L and below floor |
| GMI 4G (1) 3 | Fill | 51.65 | 51.77 | 3 | Corridor/M1 | Ashy fill in corridor/M1 |
| GMI 4G (2) 3 | Debris/floor | 51.53 | 51.65 | 3(A?) | Corridor/M1 |  |
| GMI 4G (3) 3 | Fill | 51.31 | 51.53 | 3 | Unit L entrance |  |
| GMI 4G F1 | Bench? |  |  | 3 | Room D3? |  |
| GMI 4G F2 1 | Tabun | 51.18 | 51.34 | 3B | Unit L |  |
| GMI 4G F3 | Beam | 51.31 | 51.57 | 3 | Unit L entrance | Wooden beam in entrance to Unit L |
| GMI 4G F4 | Tabun? | 51.44 | 51.54 | 3(A?) | Unit L |  |
| GMI 4G W1 | Wall | 51.57 | 51.64 | 3 | Unit L | Brick wall |
| GMI 4G W2 | Wall | 51.76 | 51.79 | 3 | Unit L | Brick wall |
| GMI 4G W3 | Wall | 51.38 | 51.64 | 3 | Unit L | Brick wall |
| GMI 4G W4 | Wall | 51.67 | 51.80 | 3 | Room D3/M1 | Brick wall |
| GMI 5G (0) | Topsoil | 51.01 | 52.05 | None |  |  |
| GMI 5G (1) | Fill | 51.05 | 51.50 | 3 |  |  |
| GMI 5G (1) 3 | Fill | 51.66 | 51.83 | 3 | Unit M1 |  |
| GMI 5G (2) 3 | Fill/floor | 51.39 | 51.65 | 3 | Unit M1 |  |
| GMI 5G (3) 3 | Fill | 51.35 | 51.46 | 3 | Unit M1 |  |
| GMI 5G (1) 4 | Fill | 51.69 | 51.89 | 3 | Unit M2 |  |

TABLE 6.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMI 5G (2) 4 | Fill/debris | 51.57 | 51.68 | 3 | Unit M1/M2 |  |
| GMI 5G (3) 4 | Fill | 51.42 | 51.57 | 3 | Unit M2 |  |
| GMI 5G (1) 5 | Fill | 51.48 | 51.75 | 3 | Room D3 |  |
| GMI 5G (2) 5 | Fill | 51.19 | 51.48 | 3 | Room D3 |  |
| GMI 5G TT1 (1) | Fill | 51.50 | 51.73 | 3 | Room D3? |  |
| GMI 5G F5 | Bench/installation | 51.70 | 51.75 | 3 | Unit M2 |  |
| GMI 5G F6 | Bricks |  | 51.74 | 3 | Unit M2 |  |
| GMI 5G F7 | Wood beam | 51.41 | 51.46 | 3 | Unit M1/M2 | Beam laid in the floor |
| GMI 5G F8 | Bench/threshold | 51.44 | 51.55 | 3 | Unit M2 |  |
| GMI 5G F8A | Paving | 51.35 | 51.49 | 3 | Unit M2 |  |
| GMI 5G F9 | Brick paving | 51.43 | 51.53 | 3 | Unit M1 |  |
| GMI 5G W5 | Wall | 51.52 | 51.84 | 3 | Unit M1 | Brick wall |
| GMI 5G W6 | Wall | 51.45 | 51.84 | 3 | Unit M1/M2 | Brick wall |
| GMI 5G W7 | Wall |  | 52.04 | 3 | Room D3 | Brick wall |
| GMI 5G W8 | Wall | 51.55 |  | 3 | Room D3 | Brick wall |
| GMI 4H-5H (0) | Topsoil | 51.62 |  | None |  |  |
| GMI 4H (1) 7 | Fill | 51.45 | 51.61 | 3 | Room O |  |
| GMI 4H (2) 7 | Fill | 51.12 | 51.45 | 3 | Room O |  |
| GMI 4H (1) 8 | Fill | 51.71 | 51.73 | 3 | East of Building I, Room N |  |
| GMI 4H F10 | Pit | 51.66 | 51.80 | 1 ? |  |  |
| GMI 4H-4G F11 | Tabun | 51.57 | 51.89 | 3(A?) | Unit L |  |
| GMI 4H F12 | Wood beam |  | 51.62 | 3 | Room O |  |
| GMI 5H (1) | Fill |  | 51.62 | 3 | Room N |  |
| GMI 5H (1) 6 | Fill | 51.44 | 51.74 | 3 | Room N |  |
| GMI 5H (2) 6 | Floor/floor makeup | 51.33 | 51.44 | 3 | Room N |  |
| GMI 5H W9 | Wall | 51.60 | 51.81 | 3 | Room N | Brick wall |
| GMI 5H W10 | Wall | 51.50 | 51.74 | 3 | Room N | Brick wall |
| GMI 5H W11 | Wall |  | 51.70 | 3 | Room O | Brick wall |
| GMI 5H W12 | Wall |  | 51.75 | 3 | Room N | Brick wall |
| GMI 5H W13 | Wall | 51.60 | 51.70 | 3 | Room N | Brick wall |
| GMI TTA (0) | Topsoil | (0.3) |  | None |  |  |
| GMI TTA (1A) | Fill | 51.89 | 52.18 | 3 ? | Courtyard A |  |
| GMI TTA (1B) | Fill | 52.01 | 52.27 | 3 ? | Courtyard A |  |
| GMI TTA (2) | Fill | 51.51 | 51.89 | 3 | Courtyard A |  |
| GMI TTA (3) | Fill |  | 51.98 | Unknown |  |  |
| GMI TTA (4) | Fill |  | 51.68 | 3 | Courtyard A | Ashy |
| GMI TTA F1 | Paving | 51.66 | 51.82 | 3 | Courtyard A | Pavement of courtyard |
| GMI TTB (0) | Topsoil | 52.50 | 52.80 | None |  | Includes Petrie large stone bench mark at 52.50 m |
| GMI TTB (1) | Fill | 51.84 | 51.96 | 3 ? |  |  |
| GMI TTB (2) | Fill | 51.93 | 52.03 | 3 ? |  |  |
| GMI TTB (3) | Fill | 51.76 | 51.90 | 3 ? |  |  |
| GMI TTB (4) | Fill | 51.64 | 51.78 | 3 | Room C |  |
| GMI TTB (5) | Fill |  | 51.93 | Unknown |  |  |
| GMI TTB (6) | Fill |  | 51.67 | 3 | Room C |  |
| GMI TTB F1 | Paving |  | 51.43 | 3 | Courtyard A |  |
| GMI TTB W1 | Wall | 51.44 | 51.77 | 3 | Room C |  |
| GMI TTA1 (0) | Topsoil |  |  | None |  |  |

TABLE 6.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMI TTA1 (1) | Fill |  |  | 3 | Courtyard A |  |
| GMI TTA1 (2) | Bricks |  |  | 3 | Unknown |  |
| GMI TTA1 (3) | Bricks |  |  | 3 |  |  |
| GMI TTA1 W1 | Wall? |  |  | Unknown |  |  |
| GMI TTA1 W2-W3 | Fill |  |  | 3 |  |  |
| GMI TTC (0) | Topsoil |  |  | None |  |  |
| GMI TTC (1) | Fill |  | 52.01 | 3 ? |  |  |
| GMI TTC (2) | Fill | 51.87 | 52.00 | 3 ? |  |  |
| GMI TTC (3) | Fill | 51.73 | 51.87 | 3 | Room C |  |
| GMI TTC (4) | Fill |  | 51.62 | 3 | Room C |  |
| GMI TTC (5) | Fill |  |  | 3 ? | Room C? |  |
| GMI TTC F1 | Paving |  |  | 3 | Courtyard A | Courtyard paving |
| GMI TTC W2 | Paving |  |  | 3 | Unit D2 | Equals 4F W2 |
| GMI TTD (0) | Topsoil |  |  | None |  |  |
| GMI TTD (1) | Fill | 52.00 | 52.17 | None/3? |  |  |
| GMI TTD (2) | Fill | 51.87 | 51.95 | 3 |  |  |
| GMI TTD (3) | Fill |  | 51.87 | 3 |  |  |
| GMI TTD (4) | Fill |  |  | 3 |  |  |
| GMI TTD (5) | Fill | 51.47 | 51.54 | 3 |  |  |
| GMI TTD (6) | Fill |  | 51.61 | 3(B) | Courtyard A |  |
| GMI TTD F1 | Paving |  |  | 3 | Courtyard A | Courtyard paving |
| GMI TTD W1 | Wall? |  |  | 3 | Courtyard A |  |
| GMI TTD W2 | Wall? |  |  | 3 | Courtyard A |  |
| GMI WSPI | Unknown |  |  | Unknown |  | 1972 trench |

${ }^{\text {a }}$ Denotes something unclear in excavation notes.

## 7

# Field I Furnace (the Kiln), Square KB, and FUR 2-FUR 3 David Ben-Shlomo 

Field I Furnace (FUR) lies is the same low area of the tell as Field I (see Figure 7.1, left side, for its location in relation to Field I and the LBII courtyard building). However, as it lies $20-25 \mathrm{~m}$ northeast of the eastern edge of Field I and is not connected to it and not combined in the same grid, it is treated separately in this report. Thus, unfortunately, the phases and layers in this area could not be physically linked to the Field I phases, with each area having its own phasing sequence. Also discussed in this chapter is another nearby small field denoted as Field I, Square (Sq.) KB and two installations or kilns located in the same general area of Petrie's excavation, which were cleaned and reexcavated by the Smithsonian expedition (denoted FUR 2(II) and FUR 3(III)).

## FIELD I FUR: THE IRON I KILN AREA

The excavation in this area started after the remains of a well-preserved pottery kiln were discovered on the surface at the end of the 1974 season (Figure 7.2). The western face of the kiln (Figure 7.3) was exposed because of the erosion of Petrie's east balk, and it was noticed in late July 1974.

The kiln and Field I FUR (FUR 1) designated around it were excavated during the 1975-1978 seasons (Figure 7.4), beginning with an area of about $4.5 \times 3 \mathrm{~m}$ just surrounding the kiln. This was subsequently expanded about 1 m to the north to complete the excavation of the northern side of the kiln (Figure 7.3). During 1975, prior to the excavation of the kiln, a small area to the west of the kiln was also cleaned and excavated to a shallow level (Figure 7.3, front). In the 1978 season, the area was expanded some 3 m to the east (Figure 7.5); this was denoted also as Sq. FUR IB. The aim here was to continue the excavation of some architectural remains just above the kiln (see below). The total excavation area eventually measured about $8 \times 3 \mathrm{~m}$, and about $24 \mathrm{~m}^{2}$ were excavated. The area was supervised by Gus Van Beek (1975-1977), Deborah Weinstein (1975), Gary Rollefson (1976), and Bonnie Magness (1978); architects were Brian Lalor and David Sheehan.


FIGURE 7.1. Location of Field I FUR, on the left, above Field I (which is on the lower right), looking south.


FIGURE 7.2. The kiln as discovered in 1975.


FIGURE 7.3. The western face of the kiln as exposed, with a small area excavated west of the kiln, looking east.


FIGURE 7.4. The southern face of the kiln before excavation, looking north. Note the visible flues.

## GMI FUR Phase 4



Although the pottery kiln was the focus of the excavation, some earlier and later remains were exposed as well. The kiln was denoted Phase 3 (note that in 1975, Layer 2 was placed above Layer 1 ; thus, Layer 1 is Phase 3, and Phase 4 indicates remains below it), whereas the remains that predate it are assigned to Phase 4 (Figure 7.5), and the two construction phases that seem to postdate the kiln are denoted Phases 2 and 1 (Figures 7.45, 7.57).

The earliest walls in Field I FUR are quite similar in level and orientation to those of the higher walls (Phase 1A) in Field I above the courtyard of Building I (see chapter 6), but as noted, they could not be linked. It can be suggested, in principle, that this feature may belong to Petrie's J-K level (the XVIIIth Dynasty town; Petrie, 1928: pl. VI), yet according to the pottery (mainly Philistine Bichrome pottery, which is completely lacking from Field I), we suggest that the kiln, or at least the end date of its usage, postdates the higher Field I architecture (chapter 6, Phase 1).

## Phase 4

Phase 4 denotes the remains that underlie the kiln (Figures 7.5-7.10); these are the earliest remains excavated in this area. This includes a long wall seen under the base of the southern part of the kiln (Wall E1, Figures 7.7, 7.8, levels of 53.04-53.10 m). The wall is not straight and was exposed to a length of at least 4 m , continuing eastward into Sq. FUR IB. In the east, it lies parallel to and slightly under Wall E (Figure 7.12). Wall E abuts Wall E1 from the south and may connect to a lower phase of Wall D (Figure 7.6), standing 10 courses high. Walls D and E may have continued to be in use in Phase 3 together with the kiln (maybe also reflecting the early construction of the kiln). Phase 4 also includes Wall F1, a fragmentary east-west wall under and to the east of Wall F in Sq. FUR IB; the base of this wall is at 52.69 m or lower (Figure 7.6). About 1 m to the south and parallel to Wall F1 is Wall G, a fragmentary east-west wall of Phase 4 at levels of 52.32-52.88 m. Wall E1 seems to be aligned with Wall G (Figure 7.8), and these might have been the same wall with an entrance through it into a room or space that was 0.7 m wide. Fill layers under Wall B (Layers 9, 10) also belong to Phase 4 (see Figure 7.9).

Little pottery can be attributed to Phase 4 (Figure 7.10), making the repertoire quite limited. However several interesting special finds were uncovered here. The pottery includes typical Iron I open bowls (Figure 7.10a,b), rounded bowls (Figure 7.10c,d), and carinated bowls (Figure 7.10e,f). All of these bowl types were found elsewhere on the tell and were previously discussed (see chapters 3 and 6). A typical Iron I triangular, straight-rim cooking pot is also illustrated (Figure 7.10h). A jar rim (Figure 7.10i) and two button-shaped jar bases (Figure 7.10j,k) are typical of the late LBII-Iron I (see, e.g., Gadot and Yadin, 2009: Type SJ2). A decorated fragment (Figure 7.10l) belongs to a decorated biconical krater or jug (see chapter 10). A lamp (Figure 7.10n) was also found in Phase 4. A flat ceramic body fragment (Figure 7.10 m ) probably belongs to a fenestrated stand (see, e.g.,


FIGURE 7.6. Walls D and F in eastern extension, looking north.

Ashdod, Dothan and Ben-Shlomo, 2005:118, fig. 3.34:8,9); it is decorated with short incisions. A stone spindle whorl (Figure 7.10 p ) and a chalk mortar (Figure 7.10q; for these, see chapter 23) as well as a faience amulet depicting Bes were also found in Phase 4 (Figure 7.10o; see chapter 24, Cat. No. 8). Two scarabs were found in Locus 4, Layer 9 (Figure 7.10r,s), one reading, "Ptah the lord of truth" (Figure 7.10r). Both date to the late LBII (see chapter 27, Gamma Nos. 148, 154).

Although the pottery from Phase 4 includes some typical Iron I forms and hardly any Philistine Bichrome pottery, it may be tentatively dated to the Iron IA, although not enough pottery was recovered for a definite dating. Therefore, it is possible that Phase 4 is contemporary with the uppermost phase in Field I (Phase 1; see above) or Petrie's Level J-K. On the other hand, the pottery from Field I FUR, Phases 2 and 3 is quite similar, dating to the Iron IB, with most Philistine Bichrome pottery coming from Phase 2.


FIGURE 7.7. Southern wall of the kiln and Wall E1 below it, looking east.

## Phase 3 and the Pottery Kiln

Phase 3 (Figure 7.11) includes the well-preserved pottery kiln that was found standing in situ at a height of up to 1.5 m (Figures 7.7, 7.15, 7.22; for other Phase 3 remains, see Figures 7.11-7.14). The southern wall of the kiln (denoted Wall 1) stood 0.9 m high at $53.12-54.02 \mathrm{~m}$ (Figure 7.7). Wall 1 surrounds the kiln from the south; eight brick courses of the wall were preserved, with the arches built upon it (see Figures 7.18, 7.39). Layer 1 of the 1975 excavations represents the fill within the kiln. The southeastern part of the kiln is better preserved, with an arch made of $10-\mathrm{cm}$-thick bricks (Figures 7.15, 7.16, 7.18, 7.22); the northwestern arch (Feature 5, Figures 7.18, 7.19) is less preserved (running up to the balk and then exposed in the expanded excavations to the east). Other arches preserved include the SW arch (Feature 3), with 18 bricks, and Arches 2 and 3 (Feature 4; Figures 7.23, 7.26; see also Figures 7.17-7.20, 7.35). Three flues were excavated in the east section (Figures 7.21, 7.28-7.33, Feature 1).


FIGURE 7.8. Phase 4 in eastern extension in Sq. FUR IB, looking south; Walls F (right) and F1 (left) are in front, Walls E and E1 are in the far rear on the right, Wall D is on the right, and Wall G is in the center. (below)

Wall or Feature F in Sq. FUR I is probably the stoking hole wall in the lower part of the kiln, discovered at an elevation of 53.02 m . The kiln stoking hole was found blocked in the last phase of the kiln structure (Figures 7.34).

The kiln in Field I FUR is one of the best-preserved kilns in the Levant during the Bronze and Iron Ages (for a survey of kilns in the southern Levant during these periods, see, e.g., Killebrew, 1989, 1996a; Wood, 1990; Ben-Shlomo, 2006a:92-117). Although it was not preserved to its full height, it is preserved in places to a height of over 1 m , reflecting several functional levels or stages within the kiln and a sophisticated technological design. Therefore, several plans and a rather large number of field photos and sections of the kiln in various stages of the excavation, which began in 1975 (and was completed during the 1977 season), are presented here (Figures 7.15-7.36).

The final ground plan of the inner space of the pottery kiln indicates a symmetrical oval shape, with the western part rounded and the eastern part pointed (Figures 7.18, 7.39); it is 3.9 m long and 2.4 m at its widest. This space is created by a brick construction of wall of thickness varying from 0.3 to 0.7 m , with the eastern narrower end built of thinner walls. The walls are plastered from the interior, at least as seen on the betterpreserved southern side (Figures 7.15-7.17). Elements from the inner construction of the kiln were built of special small, narrow, flat bricks (see, e.g., Figures 7.24-7.26). These bricks are about 8 cm thick, have a rounded exterior, and were joined by a carefully laid layer of about $2-3 \mathrm{~cm}$ of mud. Sherds also fill the space in some of the joints between the arch bricks (Figure 7.24). Most of the outer walls were built of regular larger bricks or from mud without discerned bricks (see, e.g., Figures 7.29, 7.47). The southern wall of the kiln (Wall 1), standing about 1.2 m high, was built of flat-lying narrow bricks (Figures 7.7, 7.22). Several

GMI FUR
sections
FIGURE 7.9. Four sections of Sq. FUR IB.
arches built of narrow bricks were found in situ (on the northwest side), whereas others were found fallen inside the space of the kiln (Arches 2 and 3; Figures 7.23-7.26). The fallen arches also preserved their shape and indicate the method of construction of these vaults by narrow bricks with their narrow side up; Arch 1, probably complete, was built of 18 nearly intact bricks of these types. The "vessel floor" of the kiln (where the vessels were laid for firing) was not found intact during the excavation. However, fragments of perforated fired bricks (Figure 7.27), showing its substantial thickness, with holes about 8 cm in diameter, were found inside the kiln in various locations at the level of the fallen brick arches and are probably parts of this floor, which may have been built at an approximate height of 53.16 m (see reconstruction in Figures 7.37-7.39). Thus, it is assumed that most of these arches represent the supporting construction of the vessel floor of the kiln (Figure 7.37, reflecting an updraft kiln, but this is different from pillars supporting the floor in other kiln types; see, e.g., Ben-Shlomo, 2006a:112-113). Nevertheless, according to the shape of the edges of the side walls, it is probable that such arches supported the roof of the kiln as well (see reconstruction in Figures 7.37, 7.38). Altogether, remains of four arches were found (Figure 7.23), relatively equally spaced within the kiln; the two inner ones possibly represent arches supporting the vessel floor, whereas the two relatively outer ones (Arch 1 and possibly Arch 4; see Figure 7.35 in the section) represent arches supporting the roof (these are slightly higher and are bonded with the outer walling).

An element from the Tell Jemmeh kiln that is very rarely found in other Bronze and Iron Age kilns are the ventilation flues (Figures 7.28-7.33). These are tubes evident from plastered recesses or cavities (sized about $0.4 \times 0.2 \mathrm{~m}$ each) built in the side walls of the kiln (Figures 7.31-7.33); the southeastern flue (Figures $7.28,7.29$, Flue A) was built deeper inside the wall than the others. Three flues (southern and northern) were identified on each side of the kiln; they were symmetrically and equally spaced on both sides (Figures 7.18, 7.20, 7.35). Two additional unpreserved flues may have been located on the western side (see Figure 7.18). In each cavity there are two tubes with a roughly square section, each about $10-15 \mathrm{~cm}$ in width (Figures 7.28 , 7.30); they are separated by mud lining (flue dividing brick) and covered by small, thin bricks, which bulge into the inner part of the kiln and thus are protected from the inner space of the kiln. These tubes ran along the outer walls of the kilns, as clearly seen in the southern Wall 1 of the kiln (Figure 7.21), as well as on other fallen fragments of the kiln firing chamber walls (Figures 7.31, 7.32) and from the inside in the northern balk (see Flues A and B, Figures 7.28-7.30, and prior to further excavation in Figure 7.33). They functioned as heat convectors, distributing and circulating the heat to the sides of the kiln, thus achieving better firing (in comparison to heat coming only from below). An additional function of these elements is better air circulation for burning, as vents or chimneys (assuming they connect the fire box with outer air in the top of the kiln; see Figure 7.38), thus achieving a higher temperature and more oxidized firing. A technological question that should be considered is why the flues are divided into double tubes (Figure 7.28). This was possibly done
in order to enable regulating the air flow in the kiln, reducing it if one of the tubes was blocked. This partial blocking could have been done for a specific firing session or for part of it (for the use of flues in pottery kilns during the Bronze and Iron Ages in the Near East, see Bliss, 1894:45; Badè, 1928:28, pl. XII [Tell enNaṣbeh]; Rhodes, 1968:20; Swan, 1984:34-35; Wood, 1990:29, 31; for Late Bronze Age Syria, see Tell Sabi Abyad [Duistermaat, 2008:352,490] and Alalakh, Phase 1b [Yener and Bĭke Yaziciog${ }^{\smile}$ lu, 2010:17, fig. 2.12:2, Installation 2]).

In the continuation of the excavation and under the collapse of the brick arches (Figure 7.20), the deeper part of the kiln, probably representing the firing chamber, was unearthed (Figure 7.36). This area, in between and under the arches, was probably at least 0.8 m deeper than the floor; the lower part of this area was relatively flat (Figure 7.35 , section), but it is possible that a more rounded bottom pit was used in the original kiln design. In the area of the pointed eastern side of the structure, the kiln wall is represented by upright standing bricks, whereas several horizontally lying bricks were piled up, blocking a narrow opening (about 0.5 m wide). This is interpreted as the stoking hole or pit of the kiln (the place from which the firing and fueling was attended; Figure 7.34, in section), which was probably blocked in the last phase of the kiln's usage. The bricks overlaid flat-lying thin bricks representing the threshold of the pit (Wall or Feature F, Figure 7.32).

According to the excavation in its various stages and according to other known kilns, a complete reconstruction of this relatively large and sophisticated updraft kiln may be suggested (Figures 7.37-7.40) The vessel floor (or firing chamber floor) is a flat surface made of 15-20 bricks that were perforated before drying (Figure 7.27) to facilitate heat circulation. The holes are reconstructed as two groups of two lines of six parallel holes located in between the supporting arches, which are about 0.4 m apart on the chamber floor (Figure 7.37). The floor was supported by two brick arches, with the fire box located under the arches, totaling a depth of 1.3 m . Thus, this is clearly an updraft or "vertical" kiln (e.g., Olsen, 1973:68-69, fig. 3; Swan, 1984:29-34). The fire box floor is also flat, with its entrance and stoking hole along the east side. This orientation was probably deliberate as it agrees with the direction of the winds, running into the fire box (see Figure 7.40), in the lower part of the kiln. The firing chamber above the floor is reconstructed to a height of 2 m (inner height of 1.6 m ); the brick roofing and outer walls of the chamber were supported by two additional brick arches (see above). Note that the height of the kiln is somewhat speculative since the roof of the kiln was not preserved (Figure 7.38). The inner maximal width is about 1.9 m . The eight double-tube flues (six were found) run along the outer lining of the upper fire box and firing chamber (Figure 7.36), ventilating the top of the kiln (see Figure 7.38).

The lower part of the kiln and the fire box were probably built within a pit or natural cavity in the ground, whereas the outer walls of the kiln, appearing above ground from the level of the floor, were made of flat-lying bricks (Figure 7.7, see above). The northern side of the kiln seems to have been set into the existing sloping land contour (Figures $7.15,7.18$ ), and this could explain (rather than poor preservation) the fact that the northern

e


FIGURE 7.10. Pottery and small finds from Phase 4. NA = not available. (opposite)

| Part | Description | Bag/RV No. | Context |
| :---: | :---: | :---: | :---: |
| a | Bowl | 5696/2 | GMI FUR (10) 5 |
| b | Bowl; straw temper | 1474/1 | GMI FUR (9) 4 |
| c | Bowl | 5696/1 | GMI FUR (10) 5 |
| d | Bowl/chalice | 1474/3 | GMI FUR (9) 4 |
| e | Bowl/chalice | 1474/2 | GMI FUR (9) 4 |
| f | Bowl | 5645/1 | GMI FUR (10) 3 |
| g | Krater (warped) | 5645/2 | GMI FUR (10) 3 |
| h | Cooking pot | 1474/4 | GMI FUR (9) 4 |
| i | Jar | 1474/5 | GMI FUR (9) 4 |
| j | Jar | 1474/7 | GMI FUR (9) 4 |
| k | Jar | 1474/6 | GMI FUR (9) 4 |
| 1 | Sherd; red decoration | \#1 | GMI FUR (10) 3 |
| m | Sherd (stand?) | 1474/8 | GMI FUR (9) 4 |
| n | Lamp; soot | NA | GMI FUR (9) 4 |
| o | Amulet (faience) | Reg. No. 1139 | GMI FUR (10) 5 |
| p | Spindle whorl (stone) | Reg. No. 1113 | GMI FUR (10) 5 |
| q | Mortar (stone) | Reg. No. 2442 | GMI FUR (10) 5 |
| r | Scarab | Reg. No. 1168 (SI Cat. No. 948) | GMI FUR (9) 4 |
| s | Scarab | Reg. No. 1174 (SI Cat. No. 947) | GMI FUR (9) 4 |



FIGURE 7.11. Plan of Phase 3.


FIGURE 7.12. Wall E from above, looking west.


FIGURE 7.13. North balk of GMI FUR with Walls 2, E, and F above the kiln (lower left), looking north.


FIGURE 7.14. Balk between western and eastern sections of Field I FUR, looking north, with Wall E on the left and Wall D on the right.


FIGURE 7.15. The kiln in the midst of excavation, looking west.
wall was not free standing to a considerable height. Altogether, the height of the kiln structure is reconstructed at about 3.3 m , about 2 m of which were above ground (Figure 7.40). The method of loading the kiln is not completely clear; it might have been from above, opening the kiln's roof (as illustrated in Figure 7.40). Alternatively, an opening may have existed along the lesser-preserved northern side of the kiln. Interestingly, although slag was collected from all over the site (sometimes in large quantities), no substantial amounts of slag were found in the kiln or its vicinity, and no wasters were found either. This area was probably carefully cleaned at the time the kiln functioned.

The finds from inside the kiln and its surroundings include pottery (Figures 7.41, 7.43a-q) as well as gold foil found in the inner fill of the kiln (Figures 7.42, 7.43r, 1 cm long) and a scarab (Figure 7.43s) depicting a composition of a winged sun disc and two uraei, dated to the LBII (chapter 27, Gamma No. 146). Some animal bones were also found here (see chapter 33). Apparently, most of the finds from inside the kilns represent material disposed in it after it went out of use.

Other than the almost unique state of preservation of this kiln, this installation is also rather distinctive in the Levantine Bronze and Iron Age record in its construction: the support of the floor and roof by brick arches and especially the existence of divided flues. The size of this kiln is also comparatively quite large. Square installations from Phases 1a-1b at Alalakh (Late Bronze Age, Yener and Bı̆ke Yazicioğlu, 2010:18-19, 31-32) that are probably pottery kilns also seem to have rounded flues in their external walls (Yener and Bı̆ke Yazicioğlu, 2010: figs. 2.11:1,2, 2.12:1-3, Installations 1-3). These flues are wider in size and are not divided into two sections as at Tell Jemmeh. Parallels for perforated kiln brick floors come from various periods (see, e.g., Wood, 1990:27-29, fig. 6), such as at Tell Farah (N) (EB II, De Vaux, 1952: fig. 9:2), Sabi Abyad (LBII-Iron I, Duistermaat, 2008:368-369, 489-493, figs. B.1-B.5, B.21-B.27, Kilns Q, J,


FIGURE 7.16. Excavation in the kiln, looking west, with fallen brick arches inside.
K), and Sarepta (LBII, Pritchard, 1975: fig. 14). This was a common element in the architecture of ancient pottery kilns.

Although the structure of the Jemmeh kiln shows relatively high levels of technology and sophistication, it does not differ in its general oval shape and size from other contemporary kilns (similar to Kiln 23 from Megiddo, Guy and Engberg, 1938: fig. 89, although the Jemmeh kiln is somewhat larger). The square Iron I (Stratum VIIA) kiln at Tel Miqne (Killebrew, 1989: kiln 4104, ills. 177-179; Meehl et al., 2006:34, Stratum VIIA) may also have flues in the corners. Iron I kilns from Tel Miqne (Killebrew, 1989; Ben-Shlomo, 2006a:106-107, fig. 2.14) and Bronze Age kilns from the Aegean, such as at Gouves, Crete, and Miletus, are also quite sophisticated (see, e.g., Shaw et al., 1997; Shaw et al. 2001; Vallianou, 1997; Niemeier, 1998:31-32; Ben-Shlomo, 2006a:116-117) but are different in their shape and structure. These parallels may indicate that this kiln would fit well within the Iron Age I Philistine culture. Conversely, very well preserved late second millennium BCE (Middle Assyrian) pottery kilns at


FIGURE 7.17. The kiln after excavation of lower level, looking west; note Walls E and E1 in the front left.

Tell Sabi Abyad in Syria (Duistermaat, 2008:489-503, figs. B.3, B28-B.31) also have brick arches supporting the vessel floors and flues, showing sophistication similar to the Tell Jemmeh kiln of roughly the same date, and thus, the structure of the Tell Jemmeh kiln may not necessarily be related to Aegean influences.

The position of the kiln in relation to the rest of the site remains unclear, as the horizontal exposure of contemporary Iron I levels around it was very minimal. It is doubtful that this kiln was part of a large pottery workshop because of both its location in the center of the site in Field I and the lack of associated surface finds, such as remains of other kilns, large quantities of wasters, tournettes, piles of clay, potter's tools, etc. (although note the presence of a possibly unfinished pivot stone in Locus 2, Layer 0, Reg. No. 1030, as well as eight hammerstones found in Field I FUR; see chapter 23). The pivot of a potter's wheel was found on the site's surface (Figure 23.7). This sparse evidence may indicate that this was an isolated kiln serving a specific neighborhood or function.

In Sq. FUR IB to the east, Walls D and F probably also belong to Phase 3 (Figure 7.11). Wall D is a north-south brick wall


FIGURE 7.18. Plan of excavation in the kiln with walls around it.
standing 0.8 high ( $52.53-53.38 \mathrm{~m}$ ). As its base is quite low and it connects to Wall E (Figures 7.12, 7.13), it seems this wall was originally constructed in the previous phase, Phase 4. Wall F is an east-west brick wall adjoining Wall D and running into the eastern balk (Figure 7.14).

Pottery (and other finds) from inside the kiln (Figure 7.43) probably does not include wasters and thus was possibly deposited when the kiln went out of use or comes from an adjacent level and was mixed with the debris of the kiln structure when it started to collapse. The fills to the east and just above the kiln (Locus 2, Layers 0-4) were very rich in pottery, including Philistine Bichrome and other Iron I forms (Figures 7.52-7.56), but were attributed to Phase 2.

## Pottery and Small Finds from Phase 3

The Phase 3 pottery found within the kiln includes a nearly complete Philistine bell-shaped bowl (Figure 7.43e) with a red spiral decoration. Another Philistine Bichrome sherd from the kiln is a jug fragment (Figure 7.43 m ) with a fragmentary motif (see discussion in chapter 12). Other pottery from the
kiln includes open/rounded (Figure 7.43b,c) and carinated bowls (Figure 7.43a,d), typical Iron Age I shapes discussed further below in Phase 2 (Figure $7.52 \mathrm{~m}, \mathrm{n}$ ). One of the examples (Figure 7.43a) is a small bowl with a straight rim (which seems similar to Panitz-Cohen, 2006a: Type 58). Figure 7.43g is a small carinated krater or bowl with a thickened rim, of the common LBII-Iron I type (see discussion in chapters 3 and 6 ); another krater rim (Figure 7.43h) has a thickened, slightly slanting ledge rim and is a larger example of the same generic type (Panitz-Cohen, 2006a: Type KR1). Another similar bowl/ krater (Figure 7.43j) has two drilled holes near the rim. A carinated bowl decorated with red stripes on the inner everted rim (Figure 7.43f, which may have been white slipped) is probably a fragment of a large chalice. Carinated chalices are often decorated and are quite common in the Iron I (see, e.g., Beth Shemesh, Stratum III [Grant and Wright, 1938: pl. LIX:26], Qasile [Mazar, 1985a:48-49, Chalice 2], and Batash [PanitzCohen, 2006a: Type CH4, and references therein]). A slightly ridged rim fragment (Figure 7.431) is decorated on the outside by two wide horizontal red bands and may belong to a krater or a jug/jar neck (see possibly, e.g., Qasile [Mazar, 1985a: figs.


FIGURE 7.19. Plan of kiln with fallen arches, in the earlier stages of excavation.


FIGURE 7.20. Plan of kiln with fallen arches, in the later stages of excavation.


FIGURE 7.21. The southern kiln wall with flue on top, looking west.


FIGURE 7.22. The southern kiln wall with arch springing from it.


FIGURE 7.23. Fallen Arches 2, 3, and 4 (Features 2 and 3), looking north.


FIGURE 7.24. Fallen kiln arch bricks with sherds in the joins.


FIGURE 7.25. Close-up on arches fallen in kiln.


FIGURE 7.26. Brick Arches 2 and 3 in kiln, looking north.


FIGURE 7.27. A perforated brick from the chamber vessel floor of the kiln.


FIGURE 7.28. Close-up of Flue A from above; note division of flue into two.


FIGURE 7.29. Flue A, looking east.


FIGURE 7.30. Close-up of Flue B.


FIGURE 7.31. Kiln flues from the side in the front part of kiln.


FIGURE 7.32. Kiln flues and brick arches from the side in the eastern part of kiln.


FIGURE 7.33. Northern balk and kiln wall with flue interior.

## E. Elevation - stoke hole



FIGURE 7.34. Section in eastern side of stoking hole.


## Section A-A

FIGURE 7.35. East-west section in kiln, showing arches and flues.


FIGURE 7.36. Lining of the inner chamber of the kiln (in the rear, note brick behind mud lining), looking east.

22:24, 23:21] and Ashdod [Dothan and Ben-Shlomo, 2005: fig. 3.59:5]). A typical Iron I cooking pot rim (Figure 7.43i) has a vertical rim that is triangular on the exterior (see, e.g., Qasile, Stratum XI [Mazar, 1985a: fig. 23:14; Killebrew, 1999:84] and Batash, Stratum V [Panitz-Cohen, 2006a:71-72, Type CP4b, and references therein]; also see below, Phase 2, Figure 7.52s). A jar/jug rim (Figure 7.43k), a small flask (Figure 7.43o), and a trefoil rim fragment of a jug (Figure 7.43n) were also found in the kiln. A very thick handmade fragment (Figure 7.43p) with a


FIGURE 7.37. Isometric reconstruction of the kiln.
knob attached to is a fragment of a flat shallow basin or threading vat (see, e.g., Dothan and Ben-Shlomo, 2005:160); another such fragment was found outside the kiln (Figure 7.44r). Figure 7.43 q is probably the base of a large thick cylindrical stand


FIGURE 7.38. Reconstructed section of the kiln.


FIGURE 7.39. Isometric inner space of the kiln.


FIGURE 7.40. Reconstruction of the kiln in use and its vicinity.


FIGURE 7.41. Cooking pot in possible burial, TT1.


FIGURE 7.42. Gold foil found in kiln (Figure 7.43r, Reg. No. 1303).
(see, e.g., Ashdod, Stratum XII, Dothan and Ben-Shlomo, 2005: fig. 3.34:7).

The pottery from Phase 3 found outside the kiln (Figure 7.44) is generally similar to the assemblage from within the installation, with the exception of Philistine Bichrome pottery, which was hardly found here. Generally, bowl types are similar to those of Phases 2 and 1 discussed below and typical of the Iron I. These include open bowls with straight sides (Figure $7.44 \mathrm{a}-\mathrm{c}$ ), which continue LBII forms (see chapters 3 and 6; Panitz-Cohen, 2006a: Type BL50A; Gadot and Yadin, 2009: Type BO1). Rounded and hemispherical bowls (Figure 7.44d,e) also develop from LBII types (such as Field I, Figure 6.68d-k; see, e.g., Panitz-Cohen, 2006a: Type BL50b; Gadot and Yadin, 2009: Type BH1). Carinated bowls (Figure 7.44f,i) are also typical of the same period (e.g., Qasile, Mazar, 1985a: fig. 11:7, 8; Panitz-Cohen, 2006a:44-47, Type BL59). One example of a small, thin carinated bowl is possibly votive (Figure 7.44h), whereas another example (Figure 7.44i) is decorated by a rim band and two inner horizontal red bands. Carinated kraters with a slanting rim include an example with a handle (Figure 7.44 k ). One Philistine bell-shaped krater is also illustrated (Figure 7.44 j ); it is decorated by a triglyph of vertical and wavy lines (see chapter 12).

Several jar rims from Phase 3 are illustrated (Figure 7.441n ), the latter of which (Figure 7.44 n ) has a thickened rim and ridged neck (see, e.g., Ashdod, Strata XII-XI, Dothan and BenShlomo, 2005: figs. 3.31:5,6, 3.59:4,5). Another large rim fragment (Figure 7.44 p) may belong to a large basin or a pithos (e.g., Panitz-Cohen and Mazar, 2006: Type KR5). The base of a closed vessel (Figure 7.44o) has a thickened, flat base and conical body, probably a jar but with an unusual shape; it may also be a bottle or amphora base (e.g., Tel Mor, Barako, 2007: fig. 3.26:19). A body fragment with a perforation and the breakage mark of a spout on it (Figure 7.44q) is probably of a typical Philistine type jug known as a feeding bottle (see, e.g., Dothan, 1982:155-157, Type 7; Ben-Shlomo, 2006a:42), which usually displays a long, slanted spout attached to the middle of the body. A wide, thick handle (Figure 7.44s) with a very pronounced grooved outer surface may belong to a large jug or krater. A thick, flat, handmade, smoothed fragment (Figure 7.44 t ) seems to belong to a plaque, either from a plaque figurine or another type of object.

Other finds from Phase 3 (or Phase 3/4) include a possible hematite stone scale weight (Figure 7.44w), a flint rubber (Figure 7.44v), and a bronze arrowhead or spearhead with a bent shaft (Figure 7.44 u ). In addition to the scarab from the kiln (Figure 7.43s), two scarabs, similar to each other, were found in Locus 3, Layer 8 and were attributed to Phase $3 / 4$ (Figure $7.44 \mathrm{x}, \mathrm{y}$ ); they depict a scene with the god Ptah, and both date to the late LBII or 13th century BCE (see chapter 27, Gamma Nos. 152, 153).

## Phase 2

Phase 2 denotes remains just above the pottery kiln in Sqs. FUR I-IB (Figures 7.45-7.56). This includes Wall 2, a poorly
reported wall that is believed to run east-west and is built above and northeast of the kiln. The wall continues into the balk and may connect to Wall B (see below; it may have also been labeled Wall C; see Figure 7.46). East of the kiln and above it, Locus 2 was defined. In Sq. FUR I, Feature 2 was composed of stones and ash and may be remains of a hearth. In the eastern Sq. FUR IB, Wall B was found. This an east-west brick wall with stone foundations (Figures 7.9, 7.50); in its upper phase, it has the same alignment as Wall 2 in the west (but possibly above it). The stone foundations are made of natural pebbles of various sizes and were exposed for the complete length of the wall (Figure 7.51); Wall B was exposed to a length of 3 m and continues into the eastern balk. The upper phase is at levels of $54.81-55.01 \mathrm{~m}$, but a lower phase was excavated down to about 54.25 m (Layers $1-3$ in 1978 , Sq. FUR IB, Figure 7.9, in the east balk). Pit 1 may by lined with bricks (Figure 7.50) and thus does not cut Wall B, which means it can be allocated to Phase 2. The connection between the remains of this phase in the various locations in Field I FUR is somewhat unclear.

Phase 2 yielded a relatively rich assemblage of pottery (Figures 7.52-7.56), including large amounts of Philistine Bichrome pottery (Figures 7.54, 7.55), as well as local Levantine forms. Non-Philistine forms include open and rounded bowls with either simple rims (Figure 7.52d,e) or inverted rims (Figure 7.52b). A complete example has an unusual rounded base (Figure 7.52b). Open bowls with white slip and red bands on the interior (Figure $7.52 \mathrm{~g}-$; ; see also Figure $7.56 \mathrm{a}, \mathrm{c}$ ) can be considered either Philistine, as indicated by their decoration (see Qasile, Stratum XI [Mazar, 1985a: fig. 18:9,10], Ashdod, Stratum XII [Dothan and Ben-Shlomo, 2005:109, fig. 3.29:19], and Batash [Panitz-Cohen, 2006a: Type 58]), or Canaanite, according to their form. Rounded bowls include two complete examples (Figure $7.52 \mathrm{a}, \mathrm{c}$ ) with a simple rim, concave disk base, and a red band on the rim. Carinated bowls also appear, including a small complete example (Figure 7.52f) with an everted rim, red band on the inner rim, slight carination, and wide concave disk base. This bowl, as well as other fragments of carinated bowls (Figure $7.52 \mathrm{k}, 1, \mathrm{n}$ ), may belong to the typical Iron I carinated bowl type, evolving from LBII carinated bowls (see above, Phase 3, Figure $7.44 \mathrm{f}-\mathrm{i}$ ). Carinated kraters with an inward-slanting rim (Figure $7.52 \mathrm{~m}, \mathrm{o}, \mathrm{p}$ ) appear in this phase as well (see chapter 6, Phases 1 and 3, for this type); one example was preserved with a handle attached to the rim (Figure 7.52o) and was decorated with white slip and red bands inside. An example of a chalice (Figure 7.52q) is also shown; only the connection between the bowl and leg was preserved. Another fragment (Figure 7.52r) is similar in shape, but the connection is hollow, indicating this was possibly a funnel of some sort. A typical Iron I cooking pot (Figure 7.52s) has a vertical rim that is triangular on the exterior.

Jar fragments include an everted, thickened rim (Figure 7.53a) and a wide button base (Figure 7.53e). Several jugs appear in Phase 2. One common type is the cooking jug (Figure $7.53 b-d)$, with one nearly complete example (Figure 7.53b). It is characterized by an everted simple rim, a handle attached from the rim to the shoulder, a globular body, and a disk/ring


FIGURE 7.43. Pottery and finds from within the kiln. (opposite)

| Part | Description | Bag/RV No. | Context |
| :--- | :--- | :--- | :--- |
| a | Bowl; white slip | $1029 / 2$ | GMI FUR (1) |
| b | Bowl | $1029 / 1$ | GMI FUR (1) |
| c | Bowl | $1052 / 1$ | GMI FUR (1) |
| d | Bowl | $1052 / 2$ | GMI FUR (1) |
| e | BSB; white slip, red and black decoration | $5661 / 2$ | GMI FUR (1) |
| f | Chalice/bowl; red decoration | $5661 / 1$ | GMI FUR (1) |
| g | Krater/bowl | $1029 / 3$ | GMI FUR (1) |
| h | Krater | $1052 / 3$ | GMI FUR (1) |
| i | Cooking pot | $1052 / 4$ | GMI FUR (1) |
| j | Krater; drilled holes | $1435 / 1$ | GMI FUR F1 |
| k | Jar/jug | $1029 / 5$ | GMI FUR (1) |
| l | Krater/jug; red decoration | $1029 / 4$ | GMI FUR (1) |
| m | Jug; white slip, red and black decoration | $5661 / 3$ | GMI FUR (1) |
| n | Jug | $1029 / 6$ | GMI FUR (1) |
| o | Flask | $1046 / 1$ | GMI FUR (1) |
| p | Basin? | $1040 / 1$ | GMI FUR (1) |
| q | Stand | $1471 / 1$ | GMI FUR F5 |
| r | Gold foil | Reg. No. 1303 (SI Cat. No. 601) | GMI FUR (1) |
| s | Scarab | Reg. No. 1166 (SI Cat. No. 610) | GMI FUR (1) |

base. The examples have soot marks on various parts of the body, indicating the jug was used for cooking. Similar cooking jugs appearing in Iron I Philistia (see especially Killebrew, 1999; Yasur-Landau, 2005; Ben-Shlomo et al., 2008) indicate the influence of Aegean pottery forms and are especially important, as they attest to the Aegean/Cypriot character of the cooking habits of the Philistines; note that these also appear outside the main Philistine cities, such as at Tell Jemmeh and nearby Qubur Walaydah (see Lehmann et al., 2009: fig. 12:1-3).

Another type of jug is represented by an intact lower part (Figure 7.52f), with distinct wheel marks on the inner lower and outer body). The vessel, made of greenish clay, has a delicate ring base and a globular body with a pinched upper part, creating a wavy profile. This form of jug or pyxis (the latter with two handles) with a pinched body appears in Iron I Philistia and may be related to Philistine pottery (see Dothan, 1982:157-159, a juglet with a pinched body, and Qasile, Mazar, 1985a: figs. 11:26, 24:19). Two jug handles are also illustrated (Figure 7.53g,h); one (Figure 7.53 g ) is decorated with red bands over a white slip and is connected to a rim fragment; this probably belongs to a decorated Philistine jug (maybe a spouted strainer jug), with the pattern on the handle possibly part of a vegetative motif. Another handle has a perforation near its upper end, made before firing (Figure 7.53h).

Fragments of an elaborately decorated vessel (Figure 7.53k) are possibly of a biconical jug (or flask); it has radial straight lines with wavy lines in between them as well as "ladder" motifs. This pattern is not common on pilgrim flasks (see, however, Aphek, Stratum X12, Gadot and Yadin, 2009: fig. 8.10:3), yet it resembles patterns on Canaanite-style decorated biconical
kraters and jugs from the LBII-Iron I (see chapter 10). A decorated flask (Figure 7.53i, with two sides recovered) has a central spiral with groups of radial lines outspreading from it. The fabric is rather delicate and possibly not local. Similar pilgrim flasks are common in the Iron I southern Levant, with similar decorative patterns (see, e.g., Qasile, Stratum X, Mazar, 1985a: figs. 37:1, 42:10). Another decorated sherd (Figure 7.53j) may belong to a decorated krater.

Philistine Bichrome vessels include mostly bell-shaped bowls (Figure 7.54a-1); several examples are small bowls with degenerated horizontal handles (Figure 7.54i-l), including one nearly complete, undecorated example (Figure 7.54i). The bowls are mostly white slipped, and many are decorated with spirals in black or red as well as vertical wavy lines (e.g., Figure 7.54h). Figure 7.54 m is either a bowl or a body fragment of a jug decorated with a spiral.

Other common Philistine Bichrome types are bell-shaped kraters (most are rim or body fragment; Figure 7.55a-d). These are similarly decorated with spirals (Figure 7.55a-c), hatched lozenges (Figure 7.55a), and possibly a bird motif (Figure 7.55d). Several body sherds of closed vessels, probably jugs, are also decorated in the Philistine Bichrome style (Figure 7.55g-i); a hollowed false spout of a stirrup jar (Figure 7.55 m ) and a decorated neck (Figure 7.551), probably also of a stirrup jug, are also illustrated, as well as a jug handle (Figure 7.55n) decorated with Bichrome stripes. A neck and handle fragment (Figure 7.55j) is also decorated in Bichrome style (for further discussion of Philistine Bichrome pottery, see chapter 12).

In addition, several decorated bowls (mostly red stripes over white slip; Figure $7.56 \mathrm{a}-\mathrm{c}$ ) may be included in the Philistine


FIGURE 7.44. Pottery and finds from Phase 3. (opposite)

| Part | Description | Bag/RV No. | Context | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 5740/1 | GMI FUR (8) 3 | FUR 3/4 |
| b | Bowl | 5647/1 | GMI FUR (6) 2 | FUR 3 |
| c | Bowl | 5647/2 | GMI FUR (6) 2 | FUR 3 |
| d | Bowl; greenish clay | 1427/2 | GMI FUR (5) 2 | FUR 3 |
| e | Bowl | 5656/2 | GMI FUR (5) 2 | FUR 3 |
| f | Krater/bowl | 5740/2 | GMI FUR (8) 3 | FUR 3/4 |
| g | Bowl | 5647/4 | GMI FUR (6) 2 | FUR 3 |
| h | Bowl (votive?) | 5647/3 | GMI FUR (6) 2 | FUR 3 |
| i | Bowl/chalice; red decoration | \#1 | GMI FUR (6) 2 | FUR 3 |
| j | BS Krater; white slip, red decoration | 5691/1 | GMI FUR (6) 2 | FUR 3 |
| k | Krater | 5648/1 | GMI FUR (6) 2 | FUR 3 |
| 1 | Jar | 5655/2 | GMI FUR (5) 2 | FUR 3 |
| m | Jar | 5637/1 | GMI FUR (5) 1 | FUR 3 |
| n | Jar/jug | 5656/4 | GMI FUR (5) 2 | FUR 3 |
| o | Jar/bottle | 5655/1 | GMI FUR (5) 2 | FUR 3 |
| p | Basin/pithos rim | 5627/1 | GMI FUR (7) 3 | FUR 3/4 |
| q | Spouted jug (Philistine) | 5691/2 | GMI FUR (6) 2 | FUR 3 |
| r | Shallow basin, handmade | 5627/2 | GMI FUR (7) 3 | FUR 3/4 |
| s | Handle; plastic decoration | 5691/3 | GMI FUR (6) 2 | FUR 3 |
| t | Handmade plaque(?) fragment | 5644/2 | GMI FUR (5) 2 | FUR 3 |
| u | Bronze arrow/spear head; bent shaft | Reg. No. 1309 (SI Cat. No. 981) | GMI FUR (8) 3 | FUR 3/4 |
| v | Flint rubber/hammer stone | Reg. No. 847 | GMI FUR (5) 2 | FUR 3 |
| w | Scale weight(?) (stone, hematite?) | Reg. No. 1043 (SI Cat. No. 969) | GMI FUR (7) 3 | FUR 3/4 |
| x | Scarab | Reg. No. 1172 (SI Cat. No. 946) | GMI FUR (8) 3 | FUR 3/4 |
| y | Scarab | Reg. No. 1173 (SI Cat. No. 949) | GMI FUR (8) 3 | FUR 3/4 |

## GMI FUR Phase 2



FIGURE 7.45. Plan of Phase 2.


FIGURE 7.46. The northern wall of the kiln with Wall 2 above it and in balk, looking NE.


FIGURE 7.47. Wall 2 above the kiln (left), looking west.


FIGURE 7.48. North balk of Sq. FUR 1 during the excavation of the kiln.


FIGURE 7.49. Wall 2 and Feature 2 (stones and ash), looking north.


FIGURE 7.50. Wall B and Pit 1, looking west.


FIGURE 7.51. Stone foundation of Wall B, looking south.

Bichrome style, although their form does not differ from Canaanite types (such as rounded or open bowls). A rim of an open bowl (Figure 7.56b) has a horizontal double handle; the rim is thickened and covered by white slip. This bowl may also be considered Philistine, with parallels found at Ashdod, Stratum XI-X (Dothan, 1971: fig. 85:4; Dothan and Ben-Shlomo, 2005:168, fig. 3.68:8) and Qasile (Mazar, 1985a: fig. 23:26). The form is similar to strainer bowls; a similar handle from Tel Miqne was, however, defined as a Philistine Monochrome tray (Dothan and Zukerman, 2004: fig. 12:4). An unusual bowl fragment (Figure 7.56 c ) has an upper part and rim with prefiring perforations. It is decorated by white slip and red paint in the Philistine style; this may also have been some type of strainer bowl.

A red-slipped body fragment (Figure 7.56e) with painted bands is probably a fragment of a residual MBIIB-C imported Cypriot "Red-on-Red" bowl (see chapter 11). An incised jar handle (Figure 7.56h) and worked sherds (Figure 7.56f,g) were also found in this phase. A strange rounded fragment with one side pointed (Figure 7.56d) may be the base of a closed vessel (a rattle?).

## Remains of Phase 1

Phase 1 is the uppermost phase in the vicinity of the kiln, exposed mainly in the eastern extension, Sq. FUR IB (Figure 7.57), mostly near the north balk; it is thus poorly documented. In the north balk of Sq. FUR IB, Wall A1 was discovered, an east-west brick wall connecting to Wall A's northern extension, although it is somewhat above it (Figure 7.58, left). Wall A1 has a deep sand foundation and was reported to be five courses high; the lower courses are wider. The sand foundations have been suggested as a method to reduce earthquake damage during the Iron II at Tell Jemmeh (see chapters 4 and 8, in Fields II and IV; Van Beek, 1996:7*-8*). Wall A seems to be a thick north-south brick wall, possibly also related to Wall 2 above the kiln (see above); it is 1.2 m thick in the small section excavated; its upper phase is at an elevation of 55.82 m . Otherwise, the architecture of this phase was mostly eroded above the kiln and seems to continue northward to the unexcavated area (possibly also in Sq. KB; see below). Fill layers at levels of $55.02-55.27 \mathrm{~m}$ (Locus 3) and Sq. FUR IB, Features 1 and 2, which are bricky and ashy sediments, respectively, are also allocated to this phase. Pit 1 (also possibly termed Feature 2 in 1978), which may cut Wall B of Phase 2, likely belongs to Phase 1. This is a $1.6-\mathrm{m}$-wide pit at least 0.55 m deep, dug to a height of 54.95 m (Figure 7.50).

Hardly any pottery came from clear Phase 1 contexts (Figure 7.59; an everted jar neck in Figure 7.59c, possibly residual, is not indicative), and thus, this phase cannot be directly dated according to pottery. It should be noted, however, that no Iron IIA pottery was found in the kiln area whatsoever, including topsoil and unstratified contexts, except for, possibly, a complete carinated red-slipped and burnished bowl (Figure 7.59a). This may indicate that even the uppermost remains in Field I FUR

1 still date to the Iron IB. However, if this phase is linked with the adjacent Sq. KB, Phase 3, an Iron IIA date is more probable (see below). A partial chalice from Field I FUR, Layer 2 should be noted (Figure 7.59b) as well; it is covered with white slip and has remains of red decoration, with at least several horizontal bands distinguishable on the leg and interior, yet it might have had more elaborate motifs as well. Its bowl is broken, but the breakage of the lower portion shows distinct signs of reworking; this vessel probably had a secondary use, where it may have been placed upside-down.

Several other forms possibly from Phase 1 and unstratified contexts (mostly rarer ones) are illustrated (Figure 7.59), most of which can be dated to the Iron I. These include a long, narrow jug neck (Figure 7.59 d ) with white slip and a flaring open rim. These long-necked jugs are part of the Philistine Bichrome repertoire (the neck could resemble those of cylindrical bottles or gourd-shaped jugs as well; Dothan, 1982:172). Parallels can be found at Qasile, Strata XI-X (Mazar, 1985a:61, JG1, fig. 36:3) and Azor (Tombs D55, D63; Ben-Shlomo, 2012a: fig. 5.10:1-3). Another Philistine vessel is a fragment of a stirrup jar (Figure 7.59f), decorated in red over a white slip. A body sherd decorated in red (Figure 7.59e) is probably a fragment of a jug, also possibly Philistine; the decoration in red consists of a vertical wavy line between two straight lines under two horizontal lines. A handle and neck fragment (Figure 7.59h) may possibly belong to a flask or to a jug. It has fragmentary red decoration over a white slip and may belong to the Philistine Bichrome style. Another type of flask is represented by a spoon fragment (Figure 7.59i); it is a small, white-slipped, flat bowl with an attachment and perforation on one end. These vessels, composed of a flat, small bowl, are described as spoons and function as the mouth of a lentoid flask. Parallels, mostly Iron I, come, for example, from Qasile (e.g., Mazar, 1985a: fig. 20:13), Ashdod (Dothan and Ben-Shlomo, 2005: fig. 3.59:20), and Batash (Panitz-Cohen, 2006a:116-117, Type FL3, pl. 65:9, and references therein). A red-slipped carinated fragment with a handle attached to it (Figure 7.59 g ) may be the neck of a jug or part of a small, unidentifiable vessel. Another handmade carinated body fragment (Figure 7.59j) is of irregular shape, has a handle attached to it, and is decorated with black stripes over white slip (also on the handle). This is possibly a fragment of a zoomorphic vessel, maybe in the Philistine Bichrome style (see possibly similar Bichrome bovine vessels from Tel Miqne Iron I, Ben-Shlomo, 2008a). Another zoomorphic item is a stumpy, short leg of a zoomorphic vessel or figurine (Figure 7.59k); the leg has a concave base. These fragments are relatively rare at Tell Jemmeh (see chapter 17).

Three mud objects that may be defined as spools (Figure 7.591-n) were found in between Walls A and 2 and in Layer 2 in a Phase 1 or 2 context. These are cylindrical sun-dried objects (about 6.5 cm high in this case) with two flat edges and a somewhat squeezed area in the center. Such cylindrical clay objects are defined as loom weights, spools, or reels and are considered an Aegean-derived aspect of Philistine material culture (see further discussion in chapter 19, Figure 19.6a-e)


FIGURE 7.52. Pottery from Phase 2. (opposite)

| Part | Description | Bag/RV No. | Context | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 1070/1 | GMI FUR (2) 2 | FUR $2 / 3$ |
| b | Bowl | 1070/2 | GMI FUR (2) 2 | FUR 2/3 |
| c | Bowl | 1071/1 | GMI FUR (1) 2 | FUR 2 |
| d | Bowl | 1414/1 | GMI FUR (3) 2 | FUR 2/3 |
| e | Bowl | 5651/1 | GMI FUR (1) 2 | FUR 2 |
| f | Bowl | 1071/2 | GMI FUR (1) 2 | FUR 2 |
| g | Bowl; white slip, red decoration | \#1a | GMI FUR (2) 2 | FUR 2 |
| h | Bowl; white slip, red decoration | \#1a | GMI FUR (3) 2 | FUR 2/3 |
| i | Bowl; white slip, red decoration | \#9 | GMI FUR (1) 2 | FUR 2 |
| j | Bowl; white slip, red decoration | \#10 | GMI FUR (1) 2 | FUR 2 |
| k | Bowl | 5651/2 | GMI FUR (1) 2 | FUR 2 |
| 1 | Bowl | 1414/2 | GMI FUR (3) 2 | FUR 2/3 |
| m | Bowl/krater | 1414/3 | GMI FUR (3) 2 | FUR 2/3 |
| n | Bowl | 5651/3 | GMI FUR (1) 2 | FUR 2 |
| o | Krater; white slip, red decoration | \#1b | GMI FUR (1) 2 | FUR 2 |
| p | Krater | 5965/1 | GMI FUR (1) 2 | FUR 2 |
| q | Chalice | 1077/1 | GMI FUR (3) 2 | FUR 2/3 |
| r | Chalice/funnel? | 1077/2 | GMI FUR (3) 2 | FUR 2/3 |
| s | Cooking pot | 1430/1 | GMI FUR (4) 2 | FUR 2/3 |

## Summary

Summarizing the results from Field I FUR, the kiln structure dates to the Iron IB together with some remains of an earlier constructional phase and one or two later phases above it. According to the finds it seems, however, that the four phases can be all roughly dated to the Iron IB. All the pottery found in the kiln area gives a rather narrow dating, as no early LBII or Iron II pottery appears. The kiln, however, might have been short-lived and not used for more than a generation or so (possibly less). Thus, although this was a sophisticated installation, it was not used for a very long time, possibly because of its maintenance, which was not simple, and therefore, it was abandoned after a short period. The Philistine Bichrome pottery from Field I FUR (as well as the assemblage from Field III, Phases 6-5 and the larger assemblage from Petrie's excavation) and the use of cooking jugs in this period indicate that Tell Jemmeh was included in the Philistine territory during the Iron I, possibly a small Philistine town. Interestingly, Phases 4 and 3 yielded five Egyptian scarabs, a very large number for a domestic/industrial context in such a small exposure. Whether this reflects a relation to the pottery workshop on the site or to the Philistine population in Jemmeh is indeed an interesting question.

## REMAINS FROM FIELD I, SQUARE KB

Initially, the area denoted as GMI FUR Sq. KB was opened in continuation of Sq. FUR I to the east (see Figure 1.11 and
above); the maximal area opened was a $6 \times 6 \mathrm{~m}$ square. The aim was to expand the exposure of Iron Age levels possibly related to the pottery kiln to the east. However, it became apparent that most of the area adjacent to the kiln (in the north part of Sq. KB) was covered over by Petrie's excavation dumps. Therefore, most excavation efforts were focused on the southern part of the square. The remains of Petrie's excavation dump were mostly found in the eastern $1.5-2 \mathrm{~m}$ of the square and are represented by Layers 20, 21, and 22, Locus 1, as well as Feature 1 (see Figure 7.67). They can be seen as thick, dark accumulations of sherds (Figures 7.61, 7.68, 7.69) in the eastern and northern balks and are reported from a level of 57.04 m down to level 56.13 m or even deeper. The area was only excavated during the limited 1984 season and was supervised by R. Gardiner. ${ }^{1}$ The remains here are almost all somewhat later than those of Sq. GMI FUR and belong to the Iron II; the phasing here was numbered differently than in Field GMI FUR, but most likely, Phase 1 in GMI FUR is equivalent to Phase KB3.

## Phase KB3

The lower and best-preserved level defined in Sq. KB is denoted as Phase KB3 (Figures 7.60-7.70). The remains from this phase include several walls and installations in the central and western part of the square (Figure 7.60), many of which are not well defined. The eastern 2.5 m of the square is disturbed by dumps and various pits; Layers KB 27-35 belong to this phase, at heights of $55.08-55.77 \mathrm{~m}$. A relatively massive northeast-southwest brick wall was uncovered in the western part of the square (Wall 4, Figures 7.62, 7.63, 7.64, left); this wall is up to 1.0-1.7


FIGURE 7.53. Pottery from Phase 2.

| Part | Description | Bag/RV No. | Context | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Jar rim | $1430 / 2$ | GMI FUR (4) 2 | FUR 2/3 |
| b | Cooking jug; soot | $1078 / 1$ | GMI FUR (1) 2 | FUR 2 |
| c | Cooking jug; soot | $1455 / 1$ | GMI FUR Wall B | FUR 2 |
| d | Cooking jug? | $1421 / 1$ | GMI FUR (3) 2 | FUR 2/3 |
| e | Jar | $1071 / 3$ | GMI FUR (1) 2 | FUR 2 |
| f | Jug/pyxis; greenish clay | 1070 A/1 | GMI FUR F2 | FUR 2 |
| g | Jug; white slip, brown decoration | $5665 / 3$ | GMI FUR F2 | FUR 2 |
| h | Perforated handle (before firing) | $5965 / 2$ | GMI FUR (1) 2 | FUR 2 |
| i | Flask; red decoration (imported?) | A | GMI FUR (1) 2 | FUR 2 |
| j | Sherd; red decoration | B | GMI FUR (1) 2 | FUR 2 |
| k | Jug(?); red decoration |  | GMI FUR (3) 2 | FUR 2/3 |

m thick and seems to have plastered eastern and southern sides (see Figure 7.63 on the lower part of the wall); it stood on the north side to a height of at least eight courses. It seems to have a $2-\mathrm{m}$-long and $0.5-\mathrm{m}$-wide bench on its eastern face (Figure 7.63, center), although it may possibly be a large, wide entrance, possibly of a gate. The wall has a sand-filled foundation trench (Figure 7.66; see also Van Beek, 1996:3*, fig. 5, I KB Wall 4), which includes a trench filled with sand and capped with bricks on top. This method is presumed to have been used in the Iron II for reducing earthquake damage (see discussion in chapter 8). In the north, Wall 3 is a fragmentary wall forming a corner with Wall 4; this was possibly a continuation of the upper Wall A1 in Sq. FUR IB to the west (see above); thus, Phase KB3 may be linked with Phase FURI 1. Walls 4 and 3 may define a unit in the southwest, with a large entrance to this area. Here Locus 10 was defined, where Pit 10 (Figure 7.67) either may cut the western side of the wall or is somehow related to it. In the south, Walls 7 and 8 (Figure 7.60) form a corner of a structure continuing to the southwest. These walls are not thick, with Wall 7 exposed to a length of 5.5 m and standing three courses high; Wall 8 continues to the SW unexcavated area. To the northeast, Locus 7 was defined (Figure 7.64). Here Feature 11 at an elevation of 55.21-55.48 m denotes ash layers, and Feature $12(0.6 \times 0.7 \mathrm{~m}$; Figure 7.62, right) represents an apparently square-shaped installation made of stones lying near the outer corner of Walls 3 and 4 (the area is delimited by stones and has a depression in the center).

In the south, Locus 9 was defined. Here a fragmentary thin brick wall, Wall 5, delimits Feature 14 (Figures 7.63-7.65); brick remains may indicate that there could have been a parallel east-west wall 1.3 m to the south as well. These walls probably did not stand very high and were possibly separation walls in an open area. Feature 14 is a roughly rounded brick and stone construction, 1.2 m in diameter (Figure 7.65), which may have served as a large "fire pit" attached to Wall 6 from the north. Feature 14, at an elevation of 55.22 m , may be under the floor level of this phase and thus may belong to an earlier phase (Phase KB4?); alternatively, the installation was dug into the floor. To the SE lies Feature 15, a rectangular $0.8 \times 0.5 \mathrm{~m}$ brick "box" installation (Figures 7.64, center, 7.65, rear) attached to the southern part of Wall 6 at levels of 54.99-55.44 m, probably also dug into the floor. The frame is built of upright standing bricks. This may also have been a fire pit (possibly used for cooking), as indicated by the ashes found inside. In the east, the area is disturbed by Pits 5 and 6 and Petrie's dumps. Square KB, Phase KB3 seems to represent activities in an open area to the east and north of a possibly large structure.

Little pottery was recovered from clear contexts of Phase KB3 (Figure 7.70). A nearly complete red-slipped bowl has a slight carination (Figure 7.70a); good parallels come from Khirbet Qeiyafa of the early Iron IIA (Kang and Garfinkel, 2009a: fig. 6.3:24-26). Small finds from Phase KB3 include a large leg of a zoomorphic figurine (Figure 7.70d), a worked Philistine-style sherd, and a worked base (Figure $7.70 \mathrm{~b}, \mathrm{c}$ ), as well as a sealing fragment with a scarab impression (Figure 7.70e). The relative abundance of clay sealings, including those impressed with
stamp seals in Phase KB2 (see below), may indicate some administrative function or action carried out in the Iron Age II features exposed here. It is possible that this sealing could be related to those activities as well.

## Phase KB2

Above Phase KB3, Phase KB2 (Figure 7.71) included pits with several possible wall fragments; Layers 24-26 were assigned to this phase. As noted, Walls 1 and 2 may belong to this phase as well. Most of the area in this phase is covered by pits of various sizes and shapes that also cut each other (see Figures 7.68, 7.71). These pits were filled with many sherds (Figure 7.69) and were ashy at times; it is possible that some of these also represent dumps from Petrie's excavations and thus should be defined as nonstratified accumulations (see Figure 7.67). Some of the pits seem to have been dug from levels of $56.00-56.32 \mathrm{~m}$ (Pits 1, 2, and 3), most reaching 55.55 m . Features 5, 6, 7, and 9 seem to be pits filled with sherds. Feature 8 is a sandy layer, whereas Feature 9 has a bricky layer. Pits $6,7,8$, and 9 , which may belong to Phase KB3, are somewhat lower. Pit 6 cuts Pit 7 . Pits 4 and 5 were filled with sherds, especially jar fragments, and may be remains of Petrie's dump (Figure 7.74). Thus, it is not clear how much these remains indeed represent a living phase in the site or material in situ.

The pottery from these deposits is, nevertheless, relatively rich, including Late Philistine Decorated Ware (LPDW), which is red-slipped and burnished ware, and can be dated to the late Iron IIA and Iron IIB (Figure 7.72); only a small selection is illustrated. The pottery includes degenerated red-slipped bell-shaped bowls (Figure 7.72a-c), characterized by their attached handles (see further discussion in chapter 12); these were probably redeposited from earlier phases. Slightly carinated red-slipped (not burnished) bowls (Figure 7.72d-f) also appear; these are typical of the Iron IIA (e.g., Batash, Stratum IV [Mazar and PanitzCohen, 2001: Type BL24] and Ashdod, Stratum X [Dothan and Ben-Shlomo, 2005: figs. 3.69:14,17]; see also above, Phase KB3, Figure 7.70a). A cooking pot with a slightly inverted rim with an outer triangular shape and a handle attached to it was also found (Figure 7.72 h ). This appears to be a typical Iron IIA form as well (see, e.g., Mazar and Panitz-Cohen, 2001:81-84, Type CP15). A rim of a large multihandle krater (Figure 7.72g; see Mazar and Panitz-Cohen, 2001: Type KR35, Iron IIB, and chapter 8, Phases 8-5) may also be an Iron IIA form. Also illustrated is a red-slipped spout (Figure 7.72j) that possibly belongs to a feeding-bottle-type jug; a red-slipped rim fragment (Figure 7.72i) belongs to a trefoil-rimmed jug and is decorated with black stripes. A body fragment of an imported "Black-onRed" juglet (Figure 7.72k) was also found in Phase KB2 (see chapter 11). Four to seven clay sealings were also found in Phase KB2. Of these, two have scarab impressions (Figure 7.721,m), and up to five examples are more fragmentary and do not have evidence of an impression (Figure 7.72n and Reg. Nos. 2150, 2152, 2153; see chapter 20 for discussion of the sealings and their impressions).


FIGURE 7.54. Philistine pottery from Phase 2. BSB = bell-shaped bowl. (opposite)

| Part | Description | Bag/RV No. | Context | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | BSB, red decoration | 1 | GMI FUR (1) 2 | FUR 2 |
| b | BSB; white slip, red decoration | 2 A | GMI FUR (1) 2 | FUR 2 |
| c | BSB; black decoration | 2 | GMI FUR (1) 2 | FUR 2 |
| d | BSB; red decoration | 6 | GMI FUR (2) 2 | FUR 2 |
| e | BSB; red decoration | 4 | GMI FUR (1) 2 | FUR 2 |
| f | BSB; white slip, red and black decoration | $5665 / 1$ | GMI FUR F2 | FUR 2 |
| h | BSB; white slip, red and black decoration | 3 | GMI FUR (2) 2 | FUR 2 |
| i | BSB (degenerated) | $5665 / 2$ | GMI FUR F2 | FUR 2 |
| j | BSB; plain | $1073 / 1$ | GMI FUR F2 | FUR 2 |
| k | BSB; plain | 4 | GMI FUR (2) 2 | FUR 2 |
| l | BSB; white slip | 2 | GMI FUR (3) 2 | FUR 2/3 |
| m | Jug(?) (Philistine); red decoration | $5673 / 1$ | GMI FUR (1) 2 | FUR 2 |

## Phase KB1

The uppermost phase, Phase KB1 (Figure 7.73), is not well preserved. It includes Layers $22-23$ and a 0.7 -m-wide tabun (Feature 2, Figures 7.74-7.76), which was nearly completely preserved at an upper level of 56.41 m ; near it a jar (Feature 3, at an upper elevation of 56.43 m ; Figure 7.77 ) was possibly lying on the floor level. A complete storage jar (Figure 7.78f) was found here, and a complete hole-mouth jar was found nearby (Feature 6, Figure 7.78e). Feature 4, defining Locus 2 from the east (Figures 7.74, 7.72), may be a brick wall fragment, possibly belong to an earlier phase. Two walls (Walls 1 and 2) to the north and east of the tabun may belong to this phase (exposed at levels of $56.15-56.37 \mathrm{~m}$ ) or to Phase KB2. Wall 1 is an east-west brick wall exposed to a length of about 2.6 m , whereas Wall 2 is a fragmentary north-south wall forming a corner with Wall 1.

The finds and pottery from Phase KB1 indicate an Iron IIA-B date, including LPDW and many red-slipped and wheelburnished forms (Figure 7.78). The pottery includes several complete vessels (Figure 7.78e,f; see below). Several red-slipped and burnished open bowls (Figure 7.78a-d) have a slightly carinated bowl with a thickened rim, most of which are grooved below the rim's exterior. This is a typical Iron IIA coastal form (probably dating to the 9th century BCE) and is very common in Philistine and other sites (e.g., Lachish, Level V [Aharoni, 1975: pl. 41:14; Zimhoni, 1997a: fig. 3.65:13], Batash, Stratum IV [Mazar and Panitz-Cohen, 2001:41-42, Types BL11, BL26], Ashdod, Stratum X-IX [Dothan and Ben-Shlomo, 2005: fig. 3.82:9,12,14], and Tell es-Safi/Gath, Stratum A3 [Shai and Maeir, 2012]). A large red-slipped and burnished bowl (Figure 7.78b) has a thickened hammerhead rim and small, pointed knobs applied beneath it (see parallels at, e.g., Batash, Stratum IV [Mazar and PanitzCohen, 2001: pl. 80:11] and Ashdod, Stratum X-IX [Dothan and Ben-Shlomo, 2005: fig. 3.83:2,4]). A rounded bowl (Figure 7.78 d ) has black bands on the upper exterior.

A complete example (Figure 7.78f, from Feature 3) and several large fragments of storage jars are illustrated (Figure $7.78 \mathrm{~g}, \mathrm{~h}$ ). These have a short vertical neck (although not extremely short as in Iron IIB hole-mouth jars) that is sometimes ridged (Figure 7.78 g ; this example also has a postfiring line incised on the handle), a simple or gutter rim (Figure 7.78h; see Field IV, Figure 8.177, Type HM for this type), a softly carinated shoulder, rounded base, and, usually, two vertical handles. Some of these types continue throughout the Iron Age II (for the generic type, see Mazar and Panitz-Cohen, 2001: Type SJ7), although close parallels come from the Iron IIA, such as at Ashdod, Stratum X-IX (Dothan and Ben-Shlomo, 2005: fig. 3.84:1) and Khirbet Qeiyafa (Kang and Garfinkel, 2009a: fig. 6.23:1-3). Another completely intact vessel (Figure 7.78e) was also found in Phase KB1. This is a rather small vessel, about 40 cm high, with a simple, thickened, slightly everted rim and somewhat conic body with a pointed base; the shape resembles hole-mouth jars of the Iron IIB (see, e.g., Mazar and Panitz-Cohen, 2001:105-107; see also chapter 8 ), yet it is more conical in its shape, with a more pointed base and wider opening (see, possibly, Batash, Stratum II, Mazar and Panitz-Cohen, 2001: pl. 97:1). A decorated body sherd (Figure 7.78 k ) probably belongs to a LPDW decorated krater; it is red burnished and decorated with white bands (see further discussion in chapter 12). A vessel neck (Figure 7.78i) probably belongs to a globular jug (possibly similar to a jug from Batash, Mazar and Panitz-Cohen, 2001: Type JG26, pl. 88:12). A red-slipped spout (Figure 7.781) is probably part of a jug or flask. A bronze tool or spatula (Figure 7.78 m ) was also found (see chapter 21).

## INSTALLATIONS FUR 2 AND FUR 3

In the eastern part of Field I two installations excavated by Petrie (interpreted as kilns or furnaces) were still standing on the


FIGURE 7.55. Philistine pottery from Phase 2. BS = bell-shaped; us = unstratified. (opposite)

| Part | Description | Bag/RV No. | Context | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | BS krater; white slip, red and black decoration | 5 | GMI FUR (1) 2 | FUR 2 |
| b | BS krater; white slip, red and black decoration | 6 | GMI FUR (2) 2 | FUR 2 |
| c | BS krater; white slip, red and black decoration | 5 | GMI FUR (2) 2 | FUR 2 |
| d | BS krater; white slip, red and black decoration | A | GMI FUR (3) 2 | FUR 2/3 |
| e | Sherd; white slip, red and black decoration | 7 | GMI FUR (2) 2 | FUR 2 |
| f | Jug; red and black decoration | 6A | GMI FUR (1) 2 | FUR 2 |
| g | Sherd; red decoration | A | GMI FUR (2) 2 | FUR 2 |
| h | Jug; red and black decoration | 2A | GMI FUR (0) 2 | FUR 2/us |
| i | Sherd; white slip, red and black decoration | 8 | GMI FUR (1) 2 | FUR 2 |
| j | Stirrup jar(?); decoration | 3 | GMI FUR (0) 2 | FUR 2/us |
| k | Jug(?); red and black decoration | 2 | GMI FUR (0) 2 | FUR 2/us |
| 1 | Stirrup jar; red and black decoration | 8 | GMI FUR (2) 2 | FUR 2 |
| m | Stirrup jar; red decoration | 9 | GMI FUR (2) 2 | FUR 2 |
| n | Jug; red and black decoration | 7 | GMI FUR (1) 2 | FUR 2 |



b

$0 \quad 2 \mathrm{~cm}$

FIGURE 7.56. Pottery and small finds from Phase 2. Cyp. = Cypriot; af = after firing; us = unstratified.

| Part | Description | Bag/RV No. | Context | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Chalice?; red decoration | 11 | GMI FUR (1) 2 | FUR 2 |
| b | Bowl; white slip | 1 | GMI FUR (0) 2 | FUR 2/us |
| c | Bowl(?); white slip, red decoration | 12 | GMI FUR (1) 2 | FUR 2 |
| d | Base? | B | GMI FUR (3) 2 | FUR 2/3 |
| e | Decorated sherd (Cyp. MB, Red-on-Red) | Box 828 | GMI FUR (3) 2 | FUR 2/us |
| f | Worked sherd | Reg. No. 3604 | GMI FUR F2 | FUR 2 |
| g | Worked sherd | Reg. No. 3842 | GMI FUR (2) 2 | FUR 2 |
| h | Jar handle (incised af) | Reg. No. 1979 | GMI FUR F2 (2) | FUR 2 |



FIGURE 7.57. Plan of Phase 1.


FIGURE 7.58. Walls A (right) and A1, looking SW.
surface and were cleaned and reexcavated (Figures 7.79-7.91). These two features lie quite close to each other (Figure 7.79). The cleaning of these features, conducted during the 1976 season and supervised by John F. Merkel, was undertaken in order to collect some evidence for metallurgical studies. The assumption was that these installations might have been metal (bronze or iron) furnaces (as reported by Petrie, 1928:14, pls. VI, bottom, VII, XXV:3-6). They were dated by Petrie to the 12 th- 9 th centuries BCE and were denoted as iron and sword furnaces, yet not much further evidence for metallurgic activity in these areas is given in the report.

## Installation GMI FUR 2

The southern installation, GMI FUR 2 (Figure 7.80-7.84), is about $2 \times 1.5 \mathrm{~m}$ in size (possibly Petrie's Furnace 187.5 dated by him to 1100 BCE, the Iron I) and was excavated by removing the debris above the clay lining and brick floor of the kiln (Figure 7.82). The southern wall of this kiln was uncovered (Figure 7.80, Wall 1), and a layer of horizontal sherds was reached (Layer 2, Locus 1, Figure 7.83). Another wall fragment (labeled Wall 2) was exposed about 1.5 m south of Wall 1, with the same orientation, and the debris between the wall was excavated (Loci 1 and 2, Layers 1, 2). In this area, some vitrified pottery was recovered as well as some large slag fragments (samples SCI 1686, SCI 1688). A section through the kiln floor was cut here (Figure 7.81). Both the finds and shape of the structure seem to indicate this installation was not for metallurgical use but may have been a pottery kiln, although the complete plan of the installation is not known.

The pottery from here includes mostly a mixture of Iron IIA and IIB forms (Figure 7.84). This includes rounded (Figure 7.84a) and carinated bowls (Figure $7.84 \mathrm{~b}, \mathrm{c}$ ), most of which are red slipped (Figure 7.84d,e, with hand burnishing on the interior); a large krater rim with a handle is illustrated as well (Figure 7.84f). Two cooking pots (Figure $7.84 \mathrm{~g}, \mathrm{~h}$ ) have everted rims with an outer gutter. This type is common in the Iron IIB, i.e., the 8th-7th centuries BCE (see chapter 8, Type CP2; e.g., Lachish, Level IV [Zimhoni, 1997a: fig. 3.38:7], Ashdod, Strata VIII-VII [Dothan, 1971: fig. 37:23; Dothan and Ben-Shlomo, 2005: figs. 3.90:1], and Batash, Stratum II [Mazar and Panitz-Cohen, 2001:85-87, Type CP10, and references therein]). Other sherds include jar fragments (Figure $7.84 \mathrm{i}-\mathrm{j}, \mathrm{n}, \mathrm{o}$ ) of the Iron IIB-C, such as sackshaped jars (see below; see also chapter 8 and, e.g., Batash, Strata III-II, Mazar and Panitz-Cohen, 2001: Types SJ7b, SJ7d). A larger jar fragment has a folded rim (Figure 7.84i), a type more common in the Iron I-IIA. Two large fragments of cylindrical hole-mouth jars with hammerhead rims were also found (Figure $7.841, \mathrm{~m}$ ). Hole-mouth jars are typical of the Iron IIB (see Field IV, chapter 8; see also, e.g., Batash, Mazar and Panitz-Cohen, 2001:105-107, Type SJ10a). A shallow, handmade, thick vessel fragment, possibly a basin fragment (Figure 7.84p), has a knob on its rim and is similar to one found in the pottery kiln (see

Figure 7.43p). According to the pottery, only a general Iron IIB date can be given to installation GMI FUR 2.

## Installation GMI FUR 3

The second installation examined was GMI FUR 3 (Figures 7.85-7.91; Petrie, 1928: pl. XXV:5, also Furnace 192.0, dated by him to 870 BCE, Iron IIA), which is located north of installation FUR 2 (Figure 7.79). According to Petrie, the plan may relate to the "Assyrian" walls (Petrie, 1928: pl. IX, Furnace GB, pl . XXV:5, left). This is a larger installation, measuring $2.6 \times 2$ m in size (Figures 7.85-7.87). Here the debris built up over a $1.4 \times 0.9 \mathrm{~m}$ platform was cleared; this platform is surrounded by walls, of which the western wall was newly exposed (Wall 1, Figure 7.89). An ash layer with pottery and other finds was excavated in the southwest corner of FUR 3 directly above the platform (Layer 1, Locus 1, level of 55.85 m ). Again, the finds and shape of the structure do not indicate this installation had clear metallurgical use, but it may also be a pottery kiln or another type of installation; the shape of the bricks may indicate a relationship to Assyrian architecture.

The pottery from this installation and its vicinity includes only a few indicative Iron IIB forms (Figure 7.91). The pottery includes open bowls with simple (Figure 7.91a) or triangular rims (Figure 7.91c, red burnished on the interior and exterior). The latter is a typical Iron II (especially Iron IIC) form (see chapter 8 and, e.g., Batash, Strata IV-II, Mazar and Panitz-Cohen, 2001:39-40, Type BL13, and references therein). A large, open, red-slipped, and burnished bowl or platter (Figure 7.91b) with a groove under the thickened rim is also illustrated (see, e.g., Batash, Strata IV-III, Mazar and Panitz-Cohen, 2001: Type BL26, and references therein). A cooking pot with a short, straight neck and a handle (Figure 7.91d) is an Iron IIB-C form as well (see Batash, Strata III-II, Mazar and Panitz-Cohen, 2001: Type CP12, and references therein). Again, according to the pottery, only a general Iron IIB-C date can be given to installation GMI FUR 3.

## AUTHOR NOTE

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## NOTE

1. All the recorded elevations in the KB plan were relative, and the 0 level was fixed at 57.39 m ; these numbers are to be added to the reported "benchmark" at 55.15 m to get absolute heights.


FIGURE 7.59. Pottery and finds from Phase 1. us = unstratified. (opposite)

| Part | Description | Bag/RV No. | Context | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl; red slip, burnish | 1463/1 | GMI FUR (0) 3 | FUR 1/2/us |
| b | Chalice; white slip, base worked | 1031/1 | GMI FUR (2) | FUR 1/2 |
| c | Jar | 1055/1 | GMI FUR (2) | FUR 1/2 |
| d | Jug; white slip | 5629/1 | GMI FUR (+) | FUR us |
| e | Jug; red decoration | 5666/1 | GMI FUR (1) 3 | FUR 1/2 |
| f | Stirrup jar; red decoration | 5667/1 | GMI FUR (7) 3 | FUR 1-2/us |
| g | Jug(?); red slip | 5680/1 | GMI FUR WA | FUR 1? |
| h | Flask(?); white slip, red decoration | 5629/2 | GMI FUR (+) | FUR us |
| i | Spoon flask; white slip | 5735/1 | GMI FUR (0) | FUR us |
| j | Zoomorphic vessel(?); red and black decoration | 5667/2 | GMI FUR (0) 3 | FUR 1-2/us |
| k | Zoomorphic leg | 5792/1 | GMI FUR (0) 2 | FUR 2/us |
| 1 | Loom weight (spool) | Reg. No. 1677 | GMI FUR between Wall A and W2 | FUR 1/2 |
| m | Loom weight (spool) | Reg. No. 1676 | GMI FUR between Wall A and W2 | FUR 1/2 |
| n | Loom weight (spool) | Reg. No. 3063 | GMI FUR (2) | FUR 1/2 |

## GMI KB Phase 3



FIGURE 7.60. Plan of GMI Sq. KB, Phase KB3.


FIGURE 7.61. Square KB, lower phase, looking north: Wall 4 is on the left, with Feature 12 behind it, and Pits 5 and 6 are on the right. Note the layers of Petrie's dump on the right in the eastern balk.


FIGURE 7.62. Square KB, lower level: Wall 4 (rear) and Feature 12 (lower left), looking south.


FIGURE 7.63. Square $K B$, lower phase: brick box installation (Feature 15; front left), with Feature 14 behind it and Wall 4 (rear), looking west.


FIGURE 7.64. Features 14 (front left) and 15 (front right) of Sq. KB, lower phase, looking NE.


FIGURE 7.65. Close-up of Feature 14 (with Feature 15 behind it), looking east.


FIGURE 7.66. Square KB , looking southwest: Wall 4 is in the center, and to its right is its western side with the foundation trench and Pit 10; to the right (east) lies Field GMI FUR.


FIGURE 7.67. Pit 10 and west side of Wall 4, looking east; note the sand layer in section and Petrie's dump in section on the far side.


FIGURE 7.68. Northwest section of GMI Sq. KB.


FIGURE 7.69. Southwestern balk of GMI Sq. KB with sherd layers.


FIGURE 7.70. Pottery and finds from Phase KB3.

| Part | Description | Bag/RV No. | Context | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl; red slip | $602 / 1$ | GMI KB F13 9 | KB3 |
| b | Worked perforated base | Reg. No. 3428 | GMI KB F13 9 | KB3 |
| c | Worked sherd (Philistine) | Reg. No. 6001 | GMI KB (28) | KB3? |
| d | Figurine leg | Reg. No. 1250 | GMI KB (35) 7 | KB3 |
| e | Sealing; scarab impression | Reg. No. 1220 (SI Cat. No. 1122) | GMI KB (33) 7 | KB3 |



FIGURE 7.71. Plan of GMI Sq. KB, Phase KB2.


FIGURE 7.72. Pottery and finds from Phase KB 2. BSB = bell-shaped; BoR = Black on Red.

| Part | Description | Bag/RV No. | Context | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | BSB, red slip | 1320 A/1 | GMI KB (26) 5 | KB2 |
| b | BSB (degenerated) | $608 / 2$ | GMI KB P3 | KB2 |
| c | BSB, red slip | $1320 \mathrm{~A} / 2$ | GMI KB (26) 5 | KB2 |
| d | Bowl; red slip, burnish | RV 679 | GMI KB F5 | KB2? |
| e | Bowl, red slip | $608 / 3$ | GMI KB P3 | KB2 |
| f | Bowl, red slip | $608 / 1$ | GMI KB P3 | KB2 |
| g | Krater | $605 / 1$ | GMI KB (25) | KB2 |
| h | Cooking pot | $726 / 1$ | GMI KB P4 | KB2? |
| i | Jug; red slip | $608 / 4$ | GMI KB P3 | KB2 |
| j | Spout, red slip | $746 / 1$ | GMI KB P4 | KB2? |
| k | Juglet (BoR) | Box 546/1 | GMI KB (25) | KB2 |
| l | Sealing; scarab impression | Reg. No. 1206 (SI Cat. No. 1114) | GMI KB (26) 5 | KB2 |
| m | Sealing | Reg. No. 1207 (SI Cat. No. 1111) | GMI KB P2 | KB2? |
| n | Sealing | Reg. 2154 | GMI KB (26) 5 | KB2 |



FIGURE 7.73. Plan of GMI Sq. KB, Phase KB1.


FIGURE 7.74. Square KB, Pits 5 and 6, from above.


FIGURE 7.75. Tabun (Feature 2; rear) and jar (Feature 3; in front) in GMI Sq. KB, with Walls 1 and 2 on the right, looking NW.


FIGURE 7.76. Close-up of the tabun, Feature 2 in Sq. KB.


FIGURE 7.77. Close-up of the jar, Feature 3 in Sq. GMI KB, looking NW.

0.10 cm

m
FIGURE 7.78. Pottery and finds from Phase KB 1. LPDW = Late Philistine Decorated Ware.

| Part | Description | Bag/RV No. | Context |
| :--- | :--- | :--- | :--- |
| a | Bowl; red slip, burnish | $709 / 1$ | GMI KB (23) 3 |
| b | Bowl/krater; red slip | $713 / 1$ | GMI KB (23) 2 |
| c | Bowl/krater; red slip, white decoration | $709 / 2$ | GMI KB (23) 3 |
| d | Bowl; red slip, burnish, black bands (LPDW?) | RV 683 | GMI KB (23) 2 |
| e | Jar (hole-mouth?) | RV 1001 | GMI KB F3 2 |
| f | Jar | RV 1003 | GMI KB F6 4 |
| g | Jar | RV 684 | GMI KB F6 |
| h | Jar | $708 / 2$ | GMI KB (23) 3 |
| i | Jar/jug | $708 / 3$ | GMI KB (23) 3 |
| j | Jar | $708 / 1$ | GMI KB (23) 3 |
| k | Krater (?); red slip, burnish, white decoration (LPDW) | $713 / 2$ | GMI KB (23) 2 |
| $l$ | Spout(?); red decoration | $709 / 3$ | GMI KB (23) 3 |
| $m$ | Bronze tool/spatula | Reg. No. 1311 (SI Cat. No. 1106) | GMI KB (22) 2 |



FIGURE 7.79. Installations FUR 2 and FUR 3 (in front) in Field I.


FIGURE 7.81. Plan and section of GMI FUR 2 at the end of its excavation.

FIGURE 7.80. Plan of GMI FUR 2 during its excavation.


FIGURE 7.82. Installation FUR 2, before its excavation, looking west.


FIGURE 7.83. Sherd layer in GMI FUR 2, looking north.


FIGURE 7.84. Pottery from installation FUR 2.

| Part | Description | Bag/RV No. | Context |
| :--- | :--- | :--- | :--- |
| a | Bowl; red slip | $1232 / 1$ | GMI FURII (2) |
| b | Bowl | 1232 A/1 | GMI FURII (2) |
| c | Bowl, red slip | $1232 / 1$ | GMI FURII (2) |
| d | Bowl; red slip, hand burnish | $1038 / 1$ | GMI FURII (2) |
| e | Bowl; red slip, burnish | $1233 / 1$ | GMI FURII W1 |
| f | Krater | $1587 / 1$ | GMI FURII (2) 1 |
| g | Cooking pot | $1036 / 3$ | GMI FURII (1) 1 |
| h | Cooking pot | $1036 / 1$ | GMI FURII (1) 1 |
| i | Jar | $1581 / 1$ | GMI FURII (2) 1 |
| j | Jar | $1036 / 2$ | GMI FURII (1) 1 |
| k | Jar | $1232 / 3$ | GMI FURII (2) |
| l | Hole-mouth jar | $1588 / 1$ | GMI FURII (2) 2 |
| m | Hole-mouth jar | $1580 / 1$ | GMI FURII (2) 2 |
| n | Jar | $1582 / 1$ | GMI FURII (2) 2 |
| o | Jar | $1036 / 5$ | GMI FURII (1) 1 |
| p | Threading platform/vat/basin | $1587 / 2$ | GMI FURII (2) 1 |



FIGURE 7.85. Installation FUR 3, before its excavation, looking north.


FIGURE 7.86. Installation FUR 3, looking west.


FIGURE 7.87. Plan and section of GMI FUR 3.


FIGURE 7.88. Installation FUR 3 after cleaning, looking north.


FIGURE 7.89. Installation FUR 3 floor on platform, looking north.


FIGURE 7.90. Southern wall of GMI FUR 3, looking south.


FIGURE 7.91. Pottery from installation FUR 3.

| Part | Description | Bag/RV No. | Context |
| :--- | :--- | :--- | :--- |
| a | Bowl; red slip, burnish | $1237 / 1$ | GMI FURIII (1) |
| b | Bowl; red slip, burnish | $1237 / 4$ | GMI FURIII (1) |
| c | Bowl; red slip, burnish | $1237 / 3$ | GMI FURIII (1) |
| d | Cooking pot | $1237 / 6$ | GMI FURIII (1) |

## APPENDIX 7.1

TABLE 7.A1. List of contexts of Field I FUR 1-FUR 3. The notation $\{x x\}$ indicates the year of excavation when the layer number is repeated in various seasons. Recording of elevations was not systematic. In some cases only the upper or lower elevation was recorded, and in others it is questionable.
$\left.\begin{array}{lccccl}\hline & & \text { Lower }\end{array} \quad \begin{array}{c}\text { Upper } \\ \text { level (m) }\end{array}\right)$

TABLE 7.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase/ period | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMI FUR WD | Wall | 52.53 | 53.38 | 3 ? | East of kiln | Brick wall |
| GMI FUR WE | Wall | 53.07 | 53.25 | 3-4? |  | Brick wall |
| GMI FUR WE1 | Wall | 53.04 | 53.14 | 3-4? |  | Brick wall |
| GMI FUR WF | Wall | 53.04 | 53.29 | 3 ? |  | Brick wall |
| GMI FUR WF1 | Wall | 52.69 | 53.24 | 4 |  | Brick wall |
| GMI FUR Wall G | Wall | 52.47 | 52.88 | 4 |  | Brick wall |
| GMI FUR P1 | Pit | 54.95? |  | 1?-2? |  |  |
| GMI FUR 2 |  |  |  |  |  |  |
| GMI FUR II (1) | Fill | 55.85 | 55.97 | Iron II | Above FUR II |  |
| GMI FUR II (1) 1 | Fill | 55.74 | 56.07 | Iron II | South of FUR II |  |
| GMI FUR II (2) | Fill | 55.60 | 55.74 | Iron II | South of FUR II |  |
| GMI FUR II (2) 1 | Fill | 55.60 | 55.71 | Iron II | South of FUR II |  |
| GMI FUR II (2) 2 | Fill |  | 55.60 | Iron II | South of FUR II |  |
| GMI FUR II W1 | Wall |  | 56.07 | Iron II |  | South wall of FUR II |
| GMI FUR II W2 | Wall |  | 55.71 | Iron II | South of FUR II |  |
| GMI FUR 3 |  |  |  |  |  |  |
| GMI FUR III (1) | Fill | 55.85 | 56.07 | Iron II | Above FUR III |  |
| GMI FUR III (1) 1 | Fill |  | 55.85 | Iron II | FUR III platform |  |
| GMI FUR III W1 | Wall | 55.89 | 56.17 | Iron II |  | West wall of FUR III |

TABLE 7.A2. List of contexts of Field I, Square KB. Recording of elevations was not systematic. In some cases only the upper or lower elevation was recorded, and in others it is questionable.

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Notes |
| :--- | :---: | :---: | :---: | :---: | :---: |
| GMI KB TT1 | Petrie dump |  |  | None |  |
| GMI KB (0) | Topsoil |  |  | None |  |
| GMI KB (20 | Petrie dump | 56.70 | 57.04 | None |  |
| GMI KB (20) 1 | Petrie dump | 56.43 | 56.53 | None |  |
| GMI KB (21) | Fill | 56.44 | 56.58 | None |  |
| GMI KB (22) 2 | Fill | 56.29 | 56.44 | KB1 |  |
| GMI KB (22) 3 | Fill | 56.35 | 56.48 | KB1 |  |
| GMI KB (22) 4 | Petrie dump | 56.13 | 56.48 | None |  |
| GMI KB (23) 2 | Fill | 56.18 | 56.29 | KB1 |  |
| GMI KB (23) 3 | Fill | 56.19 | 56.35 | KB1 |  |
| GMI KB (23) 4) | Fill | 56.32 | 56.32 | KB1 |  |
| GMI KB (23) | Fill |  |  | KB2 |  |
| GMI KB (24) | Fill | 56.07 | 56.12 | KB1-2 |  |
| GMI KB (25) | Fill | 55.96 | 56.13 | KB2 |  |
| GMI KB (26) 5 | Fill | 55.77 | 56.12 | KB2 |  |
| GMI KB (26) 6 | Fill |  | 56.18 | KB2-3? |  |
| GMI KB TT2 (27) | Fill | 55.62 | 55.77 | KB3 |  |
| GMI KB (28) | Fill | 55.48 | 55.62 | KB3? |  |
| GMI KB (29) 7 | Fill | 55.45 | 55.48 | KB3 | Locus 7 is south of W3 |

TABLE 7.A2 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: |
| GMI KB (30) 7 | Fill | 55.41 | 55.45 | KB3 |  |
| GMI KB (31) 7 | Fill | 55.41 | 55.45 | KB3 |  |
| GMI KB (32) 7 | Fill | 55.26 | 55.41 | KB3 |  |
| GMI KB (33) 7 | Fill | 55.25 | 55.36 | KB3 |  |
| GMI KB (34) 7 | Fill | 55.19 | 55.34 | KB3 |  |
| GMI KB (35) 7 | Fill | 55.08 | 55.34 | KB3 |  |
| GMI KB (29) 8 | Fill | 55.39 | 55.43 | KB3 | Locus 8 is south of P9 |
| GMI KB (30) 8 | Fill | 55.33 | 55.39 | KB3 |  |
| GMI KB (31) 8 | Fill | 55.28 | 55.33 | KB3 |  |
| GMI KB (32) 8 | Fill | 55.22 | 55.28 | KB3 |  |
| GMI KB (29) 9 | Fill | 55.33 | 55.43 | KB3 | Locus 9 is between W4 and F14-15 |
| GMI KB (30) 9 | Fill | 55.28 | 55.33 | KB3 |  |
| GMI KB (32) 9 | Fill | 55.21 | 55.29 | KB3 |  |
| GMI KB TT3 | Fill | 55.24 | 55.43 | KB3 |  |
| GMI KB TT4 | Fill | 55.35 | 55.77 | KB3? |  |
| GMI KB F1 | Petrie dump | 56.57 | 56.70 | None |  |
| GMI KB F2 2 | Tabun | 56.11? | 56.41 | KB1 |  |
| GMI KB F3 2 | Jar | 56.33 | 56.46 | KB1 |  |
| GMI KB F4 | Bricks | 56.29 | 56.55 | KB1 |  |
| GMI KB F5 4 | Sherds/pit | 56.03 | 56.32 | KB2? |  |
| GMI KB F6 4 | Pit/sherds | 55.99 | 56.33 | KB1 |  |
| GMI KB F7 | Pit? | 56.01 | 56.07 | KB2? | Shallow depression, possibly plastered |
| GMI KB F8 | Sandy area | 56.01 | 56.14 | KB2? | compact sandy area |
| GMI KB F9 | Pit? | 55.67 | 56.05 | KB2? |  |
| GMI KB F9 2 | Pit? | 55.67 | 56.00 | KB2? |  |
| GMI KB F10 | Bricky area | 55.69 | 56.01 | KB2? |  |
| GMI KB F11 7 | Ashes | 55.21 | 55.48 | KB3 |  |
| GMI KB F12 7 | Installation | 55.18 | 55.41 | KB3 |  |
| GMI KB F13 9 | Installation | 55.17 | 55.45 | KB3 |  |
| GMI KB F14 9 | Installation | 55.00 | 55.22 | KB3-4? |  |
| GMI KB F15 9 | Installation | 54.99 | 55.44 | KB3 |  |
| GMI KB W1 | Wall | 56.15 | 56.37 | KB1-2 | Brick wall |
| GMI KB W2 | Wall | 56.18 | 56.3 | KB1-2 | Brick wall |
| GMI KB W3 | Wall | 55.84 | 55.94 |  | Brick wall, probably continuation of FUR Wall A1 |
| GMI KB W4 | Wall | 55.26 | 55.57 | KB3 | Brick wall |
| GMI KB W5 | Wall | 55.1? | 55.43 | KB3 | Brick wall |
| GMI KB W6 | Wall | 55.10 | 55.43 | KB3 | Brick wall |
| GMI KB W7 | Wall | 54.80 | 55.08 | KB3 | Brick wall |
| GMI KB W8 | Wall |  | 55.25 | KB3 | Brick wall |
| GMI KB P1 | Pit | 56.00 | 56.25 | KB2? |  |
| GMI KB P2 | Pit | 55.55 | 55.97 | KB2? |  |
| GMI KB P3 | Pit | 55.89 | 55.98 | KB2 |  |
| GMI KB P4 | Pit/dump | 55.54 | 56.02 | KB2? |  |
| GMI KB P5 | Pit/dump | 55.72 | 56.06 | KB2 |  |
| GMI KB P6 | Pit | 55.61 | 55.74 | KB2 |  |
| GMI KB P7 | Pit |  | 55.71 | KB2? |  |

TABLE 7.A2 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Notes |
| :--- | :---: | :---: | :---: | :---: | :---: |
| GMI KB P8 | Pit | 55.17 | 55.43 | KB2-3? |  |
| GMI KB P9 | Pit | 55.34 | 55.43 | KB2-3? |  |
| GMI KB P10 10 | Pit | 55.16 | 55.45 | KB3? |  |
| GMI KB P11 10 | Pit? | 55.19 | 55.50 | KB3? |  |
| GMI KB P12 10 | Pit? | 54.82 | 55.19 | KB3? |  |

# Results from Field IV: The Iron II and Later Periods David Ben-Sblomo 

## INTRODUCTION

Field IV was the initial and main excavation field of the Smithsonian Institution Tell Jemmeh excavations. This was especially true in terms of the number of excavation days invested and finds recovered. As this was the only field of excavation during the first season (1970), the field was not assigned a separate field number and was denoted during the excavation and afterward as simply "GM." In this report the field is denoted Field IV.

The field lies in the upper tell near one of the central northern slopes (Figure 8.1). To the northeast, the tell suffered severe erosion caused by the flooding of the Besor River, limiting the extent of the excavations in Field IV. Field IV was excavated a total of 10 seasons: during all the 1970-1978 seasons and in the 1984 season in Sq. 2B. However, most of the architecture, especially the "Assyrian" vaulted building and the granary, was uncovered already during the 1970-1972 seasons. During the 1972-1975 seasons, Squares (Sqs.; or partial squares) $00 \mathrm{~A}, 0 \mathrm{~A}, 00 \mathrm{~B}$, and 0 B were opened to complement the excavation of several rooms in Building I (as these squares lie to the west of the "1X" line of squares, they were labeled 0X and 00X; Figure 8.2). During 1975-1978 and 1984, the main aim was to probe the earlier Iron Age levels lying below the main building phases.

Many square supervisors participated in the excavations of Field IV and include (among others) Ron Gardiner, W. T. Potts, Linda B. Linsberg, Leon Marfoe, W. Meyer, David E. Weil, Y.L. (unknown; Sq. 2B, 1970), Lucy Foley, Jerry Schaefer, Egon Lass, Gary Rollefson, Alison Kraskey, Deborah Weinstein, Diane Fenicle, Roger Trick, Fran Weiss, Wendy Nimer, and Jennifer Schmertz. Architects were Brian Lalor, David Sheehan, and R. Seligman. Altogether, 14 squares were excavated here (Sqs. 0A, 00A, 0B, 00B, 1A, 2A, $1 \mathrm{~B}, 2 \mathrm{~B}, 3 \mathrm{~B}, 1 \mathrm{C}, 2 \mathrm{C}, 1 \mathrm{D}, 2 \mathrm{D}, 1 \mathrm{E})$. Most balks were eventually removed to achieve a more complete exposure of the architecture. Some of the squares were only partially excavated $(0 \mathrm{~A}, 00 \mathrm{~A}, 0 \mathrm{~B}, 00 \mathrm{~B}$, and 1 E$)$. Altogether, an area about $300 \mathrm{~m}^{2}$ or slightly larger was excavated in this field (Figure 8.2).

In an early stage of the excavation, the area was roughly divided into two subareas, according to the major remains: the post-Iron Age granary (including Sqs. 1C, 2C, 1D, and 2D) and the Assyrian (vaulted) building, labeled Building I here (including mostly Sqs. 0A, 00A, 0B, 00B, 1A, 1B, and 2A; see Figure 8.2). These two architectural features were not dismantled, and therefore, levels below the main vaulted building (Building I) were


FIGURE 8.1. Field IV at the beginning of excavation, 1970, showing location on the tell.


FIGURE 8.2. General plan of Field IV excavation squares.
only significantly reached in Sqs. 2A, 2B, and 3B. In this report, the entire area will be discussed as one integral unit.

The phases appearing in the different squares of Field IV are summarized in Table 8.1.It should be noted that the surface of Field IV was somewhat sloped, sloping down to the east or northeast; there seems to be a height difference, where the upper level of Sq. 0A is 2.6 m higher than that of Sq. 3B (from 61.70 to 59.10 m , steeper in the area of Sq. 3B). In any case, pre-Iron Age levels were not reached in any of the squares.

The earlier phases (Phases 11-9 dated to the Iron IIA), which will be discussed first, were only reached in small trenches
in Sq. 2B (Figure 8.3), whereas Phase 8-7 (dating to the Iron IIB) were also reached in Sq. 2A; the pottery of Phases $11-8$ with be briefly discussed according to the phases. Phases 6-5 (the Iron IIB-C) had a much larger exposure and are discussed separately. One section discusses the unique architectural techniques found in the late Iron Age II in Field IV and their Neo-Assyrian counterparts. Another section will discuss the pottery of Phases 7-5 and summarize the Iron II pottery from Field IV according to its morphological typology. This will be followed by a discussion of the later remains from Phases 4-1 (Persian to Crusader-Mamluk), including separate discussions of the pottery of each period.
TABLE 8.1. General phasing of remains uncovered in the squares of Field IV. Symbols and abbreviations are as follows: plus ( + ) = represented; minus $(-)=$ not represented; question mark (?) = possibly represented; c. = century; Blds. $=$ buildings.

| Square and characteristics | Phase 1 | Phase 2 | Phase 3 | Phase 4 | Phase 5 | Phase 6 | Phase 7 | Phase 8 | Phase 9 | Phase 10 | Phase 11 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 00A | + | - | ? | ? | + | - | - | - | - | - | - |
| 0 A | - | - | + | + | + | - | - | - | - | - | - |
| 00B | + | - | + | + | + | - | - | - | - | - | - |
| 0B | + | - | + | + | + | - | - | - | - | - | - |
| 1A | + | + | + | + | + | - | - | - | - | - | - |
| 2 A | + | + | + | + | + | + | + | + | - | - | - |
| 1B | + | - | + | ? | + | + | - | - | - | - | - |
| 2B | + | + | + | + | + | + | + | + | + | + | + |
| 3B | + | - | + | + | + | + | + | - | - | - | - |
| 1 C | + | + | + | + | + | + | ? | - | - | - | - |
| 2C | + | ? | + | + | + | - | - | - | - | - | - |
| 1D | + | + | + | + | + | - | - | - | - | - | - |
| 2D | + | - | + | + | - | - | - | - | - | - | - |
| 1 E | - | - | - | - | + | + | - | - | - | - | - |
| Main features | Pits | Wall fragments | Walls, granary | Walls, granary? | Blds. I, II, III(?) | Blds. I(?), <br> II, III | Blds. II-III(?) | Rooms $A^{*}-B^{*}$ | Rooms $C^{*}-D^{*}$ | Feature 57 | Trenches |
| Suggested date | Mamluk? | Persian- <br> Hellenistic? | Persian | Iron IIC(?)/ <br> Persian | Iron IIC | Iron IIB-C | Iron IIB-C | Iron IIB | Iron IIA | Iron IIA | Iron IIA |
| Absolute date BCE | 13th-14th c. <br> CE? | 4th-3rd c. <br> BCE? | $\begin{aligned} & \text { 5-4th c. } \\ & \text { BCE } \end{aligned}$ | Late 7th or 7 th(?) -5 th c. | Early 7th c. BCE | 8th-early <br> 7th c. BCE | 8th-early <br> 7th c. BCE | Early 8th c. BCE | 9th-8th c. <br> BCE | 10th-9th c. <br> BCE | $\begin{aligned} & \text { 10th- } \\ & 9 \text { th c. BCE } \end{aligned}$ |



FIGURE 8.3. Test trench in Sq. 2B.

## THE EARLIER IRON AGE II PHASES IN SQS. 2A, 2B, AND 3B (PHASES 11-7)

## Phase 11

The earliest phase in Field IV, Phase 11, was only reached in two small trenches in Sq. 2B, in Layers 64-66 and in Test Trench 10, Layers $1-5$ (a $0.8 \times 1.5 \mathrm{~m}$ trench on the west side of the square, elevations of about $54.10-54.90 \mathrm{~m}$, excavated in the 1984 season; Figures 8.3, 8.10). No architectural remains were uncovered in this small area (Figure 8.4); the relevant layers lie under the features of Phase 10 (mainly the "firebox," Feature 57; see below; a large slag fragment was found here, SCI 1648).

The pottery from this phase (Figures 8.5, 8.6) comprises a mixture of some residual Iron IB (as Figure 8.5a) and mostly Iron IIA pottery, which is largely red slipped (and sometimes burnished). It seems that the earlier sherds are more common at the lower levels of the trench. The assemblage from Sq. 2B TT10 and Layers 64-65 includes degenerated Philistine pottery (Figure $8.5 \mathrm{~b}-\mathrm{g}$ ), such as a red-slipped bowl fragment with a slightly
carinated profile and a degenerated horizontal handle. The slip covers both inner and outer surfaces on the sherds, but there is no burnish. The only complete bowl (Figure 8.5d) may also be a degenerated bell-shaped Philistine-style bowl (see chapter 12). The bowl is red slipped and has a straight rim with two grooves under it, a degenerated horizontal handle attached to the upper rim, and a ring base. Similar bowls appear in Petrie's excavations (Petrie, 1928: pl. XLIX:18d,18e) but are quite rare elsewhere. Other bowls that also indicate continuity (or are even residual) from the Iron IB are carinated bowls with an everted rim and sharp carination in the upper body (Figure $8.5 \mathrm{~h}-\mathrm{i}$, possibly also Figure 8.5o). Similar bowls were found at, e.g., Ashdod, Stratum XI (Dothan and Ben-Shlomo, 2005:152, fig. 3.57:8-15, and more parallels therein). An open bowl with a simple rim (Figure 8.5 n ) is not very indicative and could be residual from early Iron Age levels. A white-slipped krater fragment (Figure 8.5p) may belong to a degenerated form of a Philistine bell-shaped krater. Carinated kraters with thickened rims (Figure 8.5q,r), some with handles attached to the rim (Figure 8.5s), also belong to the Iron Age IB repertoire (see chapters 3 and 7, Figures 3.165e, 7.44f,g;


FIGURE 8.4. Plan of Phase 11, Test Trench 10 in Sq. 2B.
for parallels see, e.g., Qasile, Stratum XII, Mazar, 1985a: figs 15:26, 17:17). Another carinated bowl/krater (Figure 8.5j) has a more slanted rim, making it more similar to Iron IIA forms (see, e.g., Batash, Stratum IV, Mazar and Panitz-Cohen, 2001: Type KR14c). A thinner carinated bowl (Figure 8.5k) appears as well. A krater rim with a thick ledge rim (Figure 8.5t) may have a parallel at Ashdod, Stratum XI (Dothan and Ben-Shlomo, 2005: fig. 3.57:23). Several red-slipped bowls (Figure 8.51,m) indicate later types as well. A bowl sherd with a groove under the rim (Figure 8.51) may represent a common Iron IIA type in Philistia (see, e.g., Tell es-Safi, Stratum A3 [Shai and Maeir, 2012: Type BL2.1] and Ashdod, Strata X-IX [Dothan and Ben-Shlomo, 2005:188, fig. 3.82:5, and references therein]); similarly, a slightly carinated bowl (Figure 8.5 m ; see, e.g., Ashdod, Stratum X, Dothan and Ben-Shlomo, 2005: fig. 3.69:14,17) also likely dates to this period.

The two cooking pots illustrated from Phase 11 (Figure 8.6a,b) are both small rim fragments. One (Figure 8.6a) has a thin, relatively vertical rim, possibly similar to Batash, Stratum V, Type CP20 (Mazar and Panitz-Cohen, 2001:81, pl. 79:5). The
second example is a different type and has a thickened/folded, slightly inverted rim (Figure 8.6b), seemingly of an Iron IIA type (see, e.g., Batash, Stratum IV, Mazar and Panitz-Cohen, 2001: Type CP4). Two jar necks (Figure 8.6c,d) have a rather straight neck and simple to slightly thickened rim; these are common in both late Iron I and IIA (e.g., Qasile, Stratum X [Mazar, 1985a: fig. 48:11,14] and Ashdod, Stratum X [Dothan and Ben-Shlomo, 2005: fig. 3.71:1]). A fragment of a red-slipped jar shoulder with an attached handle (Figure 8.6e) was also found in Phase 11; this type is known from Iron IIA Philistia (see Ashdod, Stratum X, Dothan and Ben-Shlomo, 2005: fig. 3.71:7). Sealing or bulla fragments, one with a seal and textile impression, were also found in Phase 11 (Figure 8.6 f and Reg. No. 2184).

Phase 10

## Architecture

This phase (Figures 8.7-8.12) was uncovered in a roughly $5 \times 3 \mathrm{~m}$ trench in Sq. 2B during the 1984 season (Figures 8.3,


FIGURE 8.5. Pottery from Phase 11. $\mathrm{BSB}=$ bell-shaped bowl; $\mathrm{BS}=$ bell-shaped; $\mathrm{rs}=$ red slipped; $\mathrm{rsb}=$ red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | BSB; white slip | $2684 / 1$ | GM 2B TT10 |
| b | BSB; rs | $5217 / 3$ | GM 2B (64) |
| c | BSB; rs | 4983 A/3 | GM 2B (64) |
| d | BSB; rsb | NA | GM 2B TT10 |
| e | BSB; rs | $2684 / 3$ | GM 2B TT10 |
| f | Bowl; rs | $5217 / 6$ | GM 2B (64) |
| g | BSB; rs | $2684 / 2$ | GM 2B TT10 |
| h | Bowl | $5147 / 1$ | GM 2B TT10 (3) |
| i | Bowl | $5147 / 2$ | GM 2B TT10 (3) |
| j | Bowl/krater | $5211 / 1$ | GM 2B (64) |
| k | Bowl | $5175 / 2$ | GM 2B TT10 (2) |
| l | Bowl; rs | $5217 / 4$ | GM 2B (64) |
| m | Bowl; rs | $5217 / 5$ | GM 2B (64) |
| n | Bowl | $5175 / 1$ | GM 2B TT10 (2) |
| o | Bowl? | $5164 / 1$ | GM 2B (64) |
| p | BS krater(?); white slip | $2684 / 4$ | GM 2B TT10 |
| q | Krater | $5162 / 2$ | GM 2B (65) |
| r | Krater | $5211 / 2$ | GM 2B (64) |
| s | Krater | $5164 / 2$ | GM 2B (64) |
| t | Krater | $5162 / 1$ | GM 2B (65) |



FIGURE 8.6. Finds from Phase 11.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Cooking pot | $5175 / 4$ | GM 2B TT10 (2) |
| b | Cooking pot | $5175 / 3$ | GM 2B TT10 (2) |
| c | Jar | $5211 / 3$ | GM 2B (64) |
| d | Jar | $5162 / 3$ | GM 2B (65) |
| e | Jar, red slip | $5217 / 7$ | GM 2B (64) |
| f | Sealing | Reg. No. 2174 | GM 2B (64) |

+ Tell Jemmeh
Field IV Phase 10

2

$2 m$

FIGURE 8.7. Plan of Phase 10.


FIGURE 8.8. Phase 10: Feature 57 and Walls 36, 38.


FIGURE 8.9. Pit 35 filled with pottery sherds.

## Jemmeh IV

2 B west section


FIGURE 8.10. West balk section of lower Sq. 2B.
8.7). The remains include a brick fire installation (Feature 57, Figure 8.8) confined between two brick walls (Walls 38 and 36). Feature 57 (Figure 8.8, elevations of $55.20-55.60 \mathrm{~m}$ ) is a square built installation, seemingly the firebox of an oven (or possibly a kiln?), leaning on Wall 36 on the southeast and confined by Wall 38 in northwest. In the northeast, fragmentary Wall 37 is possibly also part of the installation; at the bottom of Wall 36, an unusually large 62 cm brick was laid. The installation (measuring about $1.8 \times 0.8 \mathrm{~m}$ ) is made of upright standing bricks, creating two cells measuring internally $0.6 \times 0.8 \mathrm{~m}$ and $0.5 \times 0.6$ m , respectively. Both cells were filled with ash and some slag and may have opened to the west where their wall is curved. A possible additional elongated cell lies behind them (Wall 37). A large fragment of a coarse clay basin was found here. Feature 57 was covered by a 0.3 m fill layer (Layer 60); Layers 61-63 also belong to this phase ( $55.00-55.60 \mathrm{~m}$ ), along with Layers 45-48 in Locus 2. In a test trench under Walls 22 and 26 (see Figure 8.10; see also Figure 8.30, Section $\mathrm{A}-\mathrm{A}_{1}$ ), Wall 30 was discovered lying beneath Wall 26 of Phase 9 and the fill layer that probably also belongs to that phase; it is a brick wall preserved to nearly 1 m in height (elevations of at least $54.75-55.55 \mathrm{~m}$ ).

Several pits (Pits 35, 36, 37, Figure 8.9) to the west of Feature 57 cut each other, reaching levels of $55.20-54.80 \mathrm{~m}$. Pit 36 (Figure 8.10) is a 1.7 -m-wide rounded pit filled with ash and brick fragments (possibly a fire pit); it seems to cut into Wall 38, Pit 35 (Figure 8.9) and Layer 63, but it is not clear from which level the pits were dug. They may represent an intermediate phase between Phases 9 and 10 (Phases "10A" and "10B").

## Pottery and Finds

The pottery of Phase 10 (Figures 8.11-8.12) was collected from within the firebox installation, Layers 45-47 around it, and Pit 35 (Figure 8.9 , which is possibly somewhat later and is thus denoted Phase 10A). Generally, these sherds reflect pottery similar to that of Phase 11, with some probably residual Iron IB sherds and several Iron IIA forms, mostly red slipped (Figure $8.11 \mathrm{k}-\mathrm{s})$. A rounded bowl with a simple rim (Figure 8.11a) is also primarily an Iron I form (e.g., Panitz-Cohen, 2006a: Type BL50b); the soot remains on its rim indicate that it was possibly used also as a lamp (see, e.g., Beth Shemesh [Grant and Wright, 1938: pl. LIX:29-31] and Ashdod, Stratum XI


FIGURE 8.11. Pottery from Phase 10. Phil = Philistine; rs = red slipped; rsb $=$ red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl; soot | 2870/1 | GM 2B (46) 2 | 10 |  |
| b | BSB; white slip, red decoration | 6436A/2 | GM 2B (47) 2 | 10 |  |
| c | Bowl; white slip, brown decoration (Phil?) | 6436A/1 | GM 2B (47) 2 | 10 |  |
| d | BSB; rs | 2354/2 | GM 2B (45) 2 | 10 |  |
| e | Bowl | 2884/2 | GM 2B (47) 2 | 10 |  |
| f | Bowl | 2884/1 | GM 2B (47) 2 | 10 |  |
| g | Bowl; red decoration, burnish | 5226/1 | GM 2B W37 | 10 | Firebox room |
| h | Bowl; rsb (brown slip) | 2354/1 | GM 2B (45) 2 | 10 |  |
| i | Bowl | 2870/2 | GM 2B (46) 2 | 10 |  |
| j | Bowl; rs, hand burnish | 1861A/1 | GM 2B F57 | 10 | Firebox room |
| k | Bowl; rs | 2884/3 | GM 2B (47) 2 | 10 |  |
| 1 | Bowl; rsb | 6436/1 | GM 2B (46) 2 | 10 |  |
| m | Bowl; rsb | 6436/2 | GM 2B (46) 2 | 10 |  |
| n | Bowl; rs | 5178/2 | GM 2B P35 | 10B? |  |
| o | Bowl; rsb | 5217B/1 | GM 2B (62) 4 | 10 | Firebox room |
| p | Bowl; rsb | 5217B/2 | GM 2B (60) | 10 |  |
| q | Bowl; rs | 5178/3 | GM 2B P35 | 10B? |  |
| r | Bowl; rs | $5178 / 1$ | GM 2B P35 | 10B? |  |
| s | Bowl; rs, hand burnish | 5228/1 | GM 2B (60) | 10 |  |

[Dothan and Ben-Shlomo, 2005:151, fig. 3.57:4,6]). Residual sherds include a fragment of a Philistine Bichrome bell-shaped bowl with a spiral motif (Figure 8.11b), bowls with high, sharp carination (Figure 8.11e,f), and possibly another bowl (Figure 8.11i) that is similar to Figure 8.5i from Phase 11. An open bowl with a thickened rim (Figure 8.11c) is white slipped and has a brown band on the rim; this is also probably an Iron Age IB sherd, decorated in Bichrome style (see, e.g., Qasile, Stratum XII [Mazar, 1985a: fig. 16:4,15] and Ashdod, Stratum XII [Dothan and Ben-Shlomo, 2005: fig. 3.29:20]). Slightly carinated, degenerated bell-shaped bowls with red slip and burnish (Figure $8.11 \mathrm{~d}, \mathrm{~h}$ ) also appear, yet these could date to the early Iron IIA as well (see, for example, Masos, House 554, Fritz and Kempinski, 1983: pl. 157:1). A small, slightly carinated bowl (Figure 8.11 g ) is decorated vertical red bands and burnish; this may be an Iron I form as well.

Iron IIA forms include slightly carinated open bowls with a thickened rim and inner and outer red slip (Figure 8.11j-1); often these are hand burnished, usually on the interior (Figure 8.11j, roughly similar to the example from Phase 11, Figure 8.5 m ); parallels can be found at Lachish, Levels IV-V (Zimhoni, 1997a: fig. 3.14:204), Tel Masos, Stratum II (Fritz and Kempinski, 1983: pl. 135:2), Batash, Stratum IV (Mazar and Panitz-Cohen, 2001: Type BL25), and Ashdod, Strata X-IX (Dothan and BenShlomo, 2005: figs. 3.69:14, 3.82:6). A somewhat similar type is small (12-18 cm in diameter), carinated bowls with simple rims and inner and outer red slip (Figure 8.11n-p); parallels comes, for example, from Batash (possibly Mazar and Panitz-Cohen, 2001: Type BL24) and Ashdod, Strata X-IX (Dothan and Porath, 1982: figs. 1:3, 10:8); note that this form continues in the Iron IIB (e.g., Mazar and Panitz-Cohen, 2001: Type BL27).

Another group of carinated bowls, including two nearly complete profiles, is characterized by a thicker red slip with mostly hand but also wheel burnish, at times creating a glossy appearance (Figure $8.11 \mathrm{q}-\mathrm{s}$ ). The rim is vertical and slightly thickened from both sides; the section of the rim and neck is vertical and grooved or ridged on its outer surface; the body of the bowl has a very sharp carination on the lower part with a rounded outer profile. One example (Figure 8.11s) has densely patterned hand burnishing covering the entire lower part; the inside is also burnished but without this pattern. Another example has a very small degenerated horizontal handle applied on the neck (Figure 8.11q), which occurs in other examples as well (Phase 9, Figure $8.26 \mathrm{~h}-\mathrm{p}$ ). This type continues to appear with more numerous and complete examples in Phase 9 (Figure $8.26 \mathrm{~h}, \mathrm{k}$ ), where they appear with a rounded base; the diameter of these bowls is between 20 and 30 cm (see Figure 8.176, Type BL5A). The globular lower body and the degenerated horizontal handle might recall Philistine bell-shaped bowls. The grooving and sharp carination, as well as the rounded base, recall later Assyrian-style bowls. Plain bowls from the Iron IIA have similar profiles (e.g., Yavneh Favissa, Panitz-Cohen, 2010: fig. 7.1:20,21, with either a rounded or ring base). Other parallels for these bowls come from Ashdod, Strata X-IX (Dothan and Ben-Shlomo, 2005: fig. 3.82:18, possibly also Dothan, 1971:
fig. 37:4, Stratum VIII), possibly Batash, Stratum IV (Mazar and Panitz-Cohen, 2001: pl. 86:14, Type 17a), and the Yavneh Favissa (Panitz-Cohen, 2010: fig. 7.2:3); this bowl type is also common at Tell Farah (S) and Tel Sera’ (G. Lehmann, Ben-Gurion University, personal communication). It should be noted that the profile, especially the upper part, is also somewhat similar to contemporary red-slipped bowls with vertical handles (such as at Tel Masos, Stratum II, Fritz and Kempinski, 1983: pls. 160:2, 162:1). It seems, however, that this type, with its "metallic" attributes, is a hybrid form (see chapter 12). Note that this type is also well defined in the mathematical analysis (chapter 16, Type 5, Figure 16.7), as it clusters on a different branch from other bowl types (for more on this type, see chapters 12 and 16).

Only one krater is illustrated from Phase 10 (Figure 8.12a). It has a thickened rim and rather vertical profile, recalling Iron IIA shapes derived from bell-shaped kraters (such as at Batash, Stratum IV [Mazar and Panitz-Cohen, 2001:59, Type KR3] and Ashdod, Stratum X [Dothan and Ben-Shlomo, 2005: fig. 3.70:3-4]). A single cooking pot illustrated from Phase 10 (Figure 8.12b) has a vertical thickened/folded rim, which appears to be a typical Iron IIA type (e.g., Lachish, Levels IV-V [Zimhoni, 1997a: fig. 3.41:4] and Batash, Stratum IV [Mazar and PanitzCohen, 2001:80, Type CP4]).

Two jars from Phase 10 are illustrated (Figure 8.12c,d). One example is a jar base (Figure 8.12d; also see Figure 8.177, Type JR4), apparently of a typical Iron IB-IIA type (e.g., Qasile, Stratum X [Mazar, 1985a: fig. 48:11,12], Lachish, Levels V-IV [Zimhoni, 1997a: fig. 3.46:11], Ashdod, Stratum X [Dothan and Ben-Shlomo, 2005: fig. 71:1,5,6], and Khirbet Qeiyafa [Kang and Garfinkel, 2009a:137, fig. 6.23]). Another jar (Figure 8.12c) is thicker, has a slightly inverted rim, and has a rib in the middle of the neck; it is made of a pinkish, well-fired clay. This type was described at Lachish, Levels V-IV as having the same fabric (Zimhoni, 1997a:138, fig. 3.53:3-6). A rim fragment with a thick vertical handle attached to it (Figure 8.12e) is probably of a large jug.

Two examples of spout fragments of red-slipped strainerspouted jugs are illustrated (Figure $8.12 \mathrm{f}, \mathrm{g}$ ). Additional Iron II Philistine types include jug fragments (one a spouted jug, Figure 8.12 g ) decorated in the Late Philistine Decorated Ware (LPDW), or Ashdod ware, style (Figure $8.12 \mathrm{~g}-\mathrm{i}$ ). These have thick red slip and vertical burnishing and, in one case, horizontal black bands (Figure 8.12 h ; this body sherd could also belong to an amphora in the LPDW style; see chapter 12 and Ben-Shlomo et al. 2004). A large and thick vessel fragment made of coarse clay (Figure 8.12j) has a thickened rim and a nearly vertical profile; this is either part of a stand or the rim of a basin.

A jar handle marked after firing (Figure 8.12k) is also illustrated. Other finds from Phase 10 illustrated elsewhere include a miniature wheel (Figure 19.8 g ), a clay item with textile impressions (Figure 19.10h, possibly a sealing), several clay sealings (Figures $20.2 \mathrm{~h}, 20.3 \mathrm{e}$ ), and a worked base from a redslipped bowl (Figure 18.2 g ), which may have been used as a lid (see, e.g., Ashdod, Stratum XII, Dothan and Ben-Shlomo, 2005: fig. 3.37:3).


FIGURE 8.12. Pottery from Phase 10. SSJ = strainer-spouted jug; LPDW = Late Philistine Decorated Ware; rs = red slipped; rsb = red slipped and burnished; af = after firing.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Krater | 5159/1 | GM 2B (60) | 10 |  |
| b | Cooking pot | 2884/4 | GM 2B (47) 2 | 10 |  |
| c | Jar | 5159/4 | GM 2B (60) | 10 |  |
| d | Jar | 5159/3 | GM 2B (60) | 10 |  |
| e | Jug | 5159/2 | GM 2B (60) | 10 |  |
| f | SSJ spout; rs | 5178/4 | GM 2B P35 | 10B? |  |
| g | SSJ spout; rs | 5200/1 | GM 2B (61) 3 | 10 | Firebox room |
| h | Jug/amphora; rsb, vertical burnish, black decoration, LPDW | 5212A/1 | GM 2B (60) | 10 |  |
| i | Jug; rsb, vertical burnish, LPDW | 5216/1 | GM 2B (60) | 10 |  |
| , | Stand/basin? | 5206/1 | GM 2B P35 | 10B? |  |
| k | Jar (incised af) | Reg. No. 2181 | GM 2B (60) | 10 |  |

## Remains of Phase 9

## Architecture

Partial areas of two adjoining walled units, attributed to Phase 9, were exposed in Sq. 2B (Figures 8.13-8.16); the units were denoted Room C* and Room D* (Figure 8.13). It should be noted that because of the small exposure, the actual function of these spaces and the larger structures they belong to cannot be ascertained, and therefore, these titles are purely technical. Two northeast-southwest brick walls that are located on the edges of the excavated area confine this space (Walls 28 and 29, Figures $8.10,8.13,8.24$ ); as their outer faces lie within the balks
and were not excavated, their thickness is not certain, although they were likely relatively thick. Furthermore, they have wide and deep sand-filled foundation trenches (Features 48 and 47, Figures 8.14, 8.16-8.21; see below). Wall 29's foundation trench ("sand bin"), labeled Feature 47 (Figures 8.17-8.21), was filled with sand to stabilize the wall, as can be seen in the section (Figures 8.10, 8.24); it cuts Layers 57-60. Wall 28's foundation trench, Feature 48, was probably continued by Feature 56, relating to Wall 35, and was also filled with sand (Figures 8.10, 8.18-8.21, Wall 28 was excavated in 1978, whereas its probable continuation, Wall 35, was excavated in 1984; see also Van Beek, 2007:489-492, figs. 14.27-14.30). These trenches are 0.3 m thick on each side of the wall and were filled with sand and


FIGURE 8.13. Plan of Phase 9.


B


FIGURE 8.14. Wall 35 and the drainage channel, Feature 55, on upper left (on right, probably foundation trench, Feature 47, after cleaning).


FIGURE 8.15. Close-up of the drainage channel, Feature 55, from the south.


FIGURE 8.16. Square 2B with Room C*, looking north.


FIGURE 8.17. Eastern part of foundation trench, Feature 47.
baulk (SW face) below W26, under "Room A" Section R


FIGURE 8.18. Square 2B, section of lower south balk.


FIGURE 8.19. Close-up of foundation trench (Feature 48) and Wall 28.


FIGURE 8.20. Foundation trench, Feature 48; Wall 27 and Feature 50 (Phase 8) are above, in the rear.
brick fragments. They may have reflected a construction technique of the later phases (see below and Petrie, 1928:6, pl. XXV, top right; Van Beek, 1996). Wall 35 also has a mortar plaster, $3-5 \mathrm{~cm}$ thick. On the northern excavated edge of Wall 35, a well-preserved drainage channel was excavated (Feature 55, Figures 8.8.14-8.15, 8.22, 8.23; see also Van Beek, 2007:494, fig. 14.31). It was built of two or three rectangular (hued) sandstone slabs that cover it and was paved with limestone cobbles (for well-built drainages in Neo-Assyrian royal architecture, see, e.g., Tell Halaf, Oppenheim, 1950:127, figs. 63, 110). It is not completely clear, however, whether this drain relates to Wall 35 or to Wall 23 of Phase 8 above it. The drainage installation would have been fitted at the very base of the wall (level of 56.59 m ).

Wall 26 (Figure 8.16) is a cross wall connecting Walls 28 and 29 and dividing the space into a southwestern unit (Room $C^{*}$ ) and a northeastern unit (Room D*, Figure 8.13). Interestingly, it seems that Wall 26 is cut by both foundation trenches of Walls 28 and 29 and Features 47 and 48, as if they were dug after it was constructed, possibly as a later reinforcement of these walls, although it may be possible that the wall was put out of use at this stage. Room $C^{*}$ is about 2.6 m wide and was only excavated to a length of 1 m ; Layers 43 and 44 in Locus 2 are probably debris layers or fills in this room excavated to a height of approximately 55.50 m , yet no clear floor was defined here. To the northeast of Wall 26, Room $\mathrm{D}^{*}$ was defined, spanning
approximately 2 m in width. Layer 57 represents the fill of Room D*, whereas Layers 58 and 58A are probably debris and floor levels at elevations of $55.80-56.25 \mathrm{~m}$ and are very rich in Iron II red-slipped and burnished pottery (Figures 8.26-8.28). The section (Figures 8.10, 8.21, 8.23) seems to indicate that these levels cover the sand fill in the foundation trenches (Features 47 and 56 ), and in turn the fill layer below (Layer 60, Figure 8.10) is cut by these trenches. If Layers 58-59 are also cut by these trenches, then the foundations trenches (Features 47, 56, and 48) probably belong to Walls 23 and 25 of Phase 8 (Figure 8.30, Rooms A* and $\mathrm{B}^{*}$; see below), lying above Wall 28 (35) and Wall 29 (Figure 8.24). Pit 17 (Figures 8.25, 8.26, unclear phase) also cuts these layers in the south. Layer 59, with an ashy lens and tabun fragments, may belong to the floor level. A relatively large amount of pottery and other finds (Figures 8.26-8.29), including eight clay sealings (Reg. Nos. 1219, 2166-2168, 2170-2173; see chapter 20), was found in Room D*.

## Pottery and Finds from Phase 9

The vast majority of the pottery illustrated from Phase 9 (Figures 8.26-8.28) comes from Room D* (Figure 8.13), mostly Sq. 2 B , Layers 57 , 58 , and 58 A , which are probably debris on a floor. In some cases, pottery from debris levels where it was not clear whether they belonged to Phase 9 or 8 (such as Sq. 2B,



FIGURE 8.22. Square 2B, north section.

Feature 46) was also included, as these levels clearly belonged to the same space (Room D*). Generally, the pottery of Phase 9 is quite similar to that of Phases 11-10. However, Iron IB forms hardly appear (although note, for example, a degenerated bellshaped bowl rim [Figure 8.26a] and possibly a delicate everted rim of a red-slipped and burnished bowl [Figure 8.26b]). Several new forms of the late Iron IIA appear in this phase as well, some of which continue to appear in the Iron IIB (Phases 8-7).

Most of the assemblage is composed of bowls (Figure 8.26), including several nearly complete examples. The vast majority of the bowls are red slipped (with dark red to reddish brown slip) and burnished. The prominent style of burnishing is hand burnishing, combined with sections of wheel burnish. Small bowls with a slightly carinated to rounded profile, vertical rim, and grooves under the rim are common (Figure $8.26 \mathrm{c}-\mathrm{f}$ ); this is a typical Iron IIA form (e.g., Zimhoni, 1997a: fig. 3.10:3-5,9,10; Mazar and Panitz-Cohen, 2001:37, Type 26a). A complete, delicate, deep bowl with a rounded profile (Figure 8.26d) has a 13 cm diameter, a glossy burnish covering the inner and outer surfaces, two fine grooves beneath the rim, and a seemingly delicate ring base. Possible parallels come from Ashdod, Strata X-IX (Dothan and Porath, 1982: fig. 13:7; Dothan and Ben-Shlomo,

2005:191, figs. 3.82:23-24, 3.88:11) and Lachish, Level IV (Zimhoni, 1997a: figs. 3.10:10, 3.57:3). Simple rounded bowls with red slip and burnish also appear (Figure 8.26 g ). Carinated bowls with thickened rims (Figure $8.26 \mathrm{q}, \mathrm{s}$ ) continue to appear (see Phases $11-10$, Figures $8.5 \mathrm{~m}, 8.11 \mathrm{k}, \mathrm{l}$ ), along with other carinated red-slipped bowls (Figure 8.26r).

The metallic-style red-slipped and burnished carinated bowls, with a lower globular shape and grooves under the rim, appearing first in Phase 10 (see Figure 8.11q-s and chapter 12), appear in larger numbers and more complete examples in Phase 9 (for complete examples, see Figure 8.26h,k; fragments include Figure $8.26 \mathrm{i}, \mathrm{j}, 1-\mathrm{p}$ ). One complete example (Figure 8.26 k ) shows a rounded thin base; the rim is more bulging inward. Two almost complete examples (Figure 8.26h,i) have degenerated/small horizontal handles attached to the lower part of the neck. Several red-slipped bowl bases are also illustrated: one example is of a delicate disk base (Figure 8.26w), and another is of a delicate ring base (Figure 8.26u). The third base illustrated (Figure 8.26 v ) has three pronounced sharp ridges, probably wheel made, with only external slip. This fragment indicates a different shape and surface treatment; the ridges may recall later Assyrian-style ridged-base bowls (see Assyrian pottery, Figures 13.5a, 13.61, m).

## Jemmeh IV <br> 2B north section



FIGURE 8.23. Square 2B, north section, showing lower levels.

Several red-slipped and burnished large bowls or kraters are illustrated (Figure 8.27a-c). All three examples shown are red slipped and burnished on the interior and exterior and have thick ledge or hammerhead rims; there is a slight carination under the rim and a rounded carination in the lower part. This type is popular during the late Iron IIA (e.g., Batash, Strata IV-III [Mazar and Panitz-Cohen, 2001:63-64, Types 14a, 14b, 14d], Lachish, Levels V-IV [Zimhoni, 1997a:104, figs. 3.27-28], and Ashdod, Strata X-IX [Dothan and Ben-Shlomo, 2005: figs. 3.69:19, 3.83:3, and references therein]), continuing into the Iron IIB as well (e.g., Ashdod, Strata IX-VIII, Dothan and Ben-Shlomo, 2005: fig. 93.89:2). Carinated kraters or large bowls without slip are rare (Figure 8.26 t ; also possibly Figure 8.27 d , which is made of a coarser cooking pot fabric; see below). A large vessel (krater?) with a very thick ledge rim (Figure 8.27 g ) is also illustrated; two other thick rims (Figure $8.27 \mathrm{e}, \mathrm{f}$ ) are possibly of large kraters with a more carinated body (possibly similar to examples from Batash, Mazar and Panitz-Cohen, 2001: Type 14c).

Only one chalice from Phase 9 is illustrated (Figure 8.27 h ). It has a small carinated bowl with an everted rim, a type common
in the Iron II (e.g., Zimhoni, 1997a: fig. 3.33:1-4; Mazar and Panitz-Cohen, 2001:54, Type CH4; Dothan and Ben-Shlomo, 2005: fig. 3.83:8, and references therein).

Apparently, all three cooking pot rims illustrated from Phase 9 (Figure 8.27i-k) seem to be of the same type: these have a flat, wide, thick rim that slants inward and are made of a cooking pot fabric rich in calcareous grits. Complete examples from other sites indicate that this type had two loop handles and a shallow rounded body. Parallels, for example, come from Lachish, Levels V-IV (Zimhoni, 1997a:126-128, CP6, CP7, figs. 3.42:5-8, 3.43:1-2) and Batash, Stratum IV (Mazar and Panitz-Cohen, 2001:81-82, Type CP15) and are well dated to the Iron IIA (see Figure 8.176, Type CP1).

Several jar rims and necks are illustrated (Figure 8.28a-e), of which some (Figure $8.28 \mathrm{a}, \mathrm{b}$ ) are the typical jar form appearing previously in Phase 11 (e.g., Figure 8.6c,d), with slight variations in rim and neck shape. The ribbed neck type (Phase 10, Figure 8.12c) also appears (Figure 8.28c). Another thickened rim (Figure 8.28f) has a groove and seems to belong to a large jar or krater. One jar handle has a finger impression (Figure 8.28i)


FIGURE 8.24. Square 2B, west balk.


FIGURE 8.25. Square 2B, south balk with ash layer Pit 17.
made before firing, whereas another (Figure 8.28j) has two small perforations, probably drilled after firing. A significant assemblage of Iron IIA jar handles with prefired finger impressions was discovered at Khirbet Qeiyafa (e.g., Kang and Garfinkel, 2009a:137, fig. 6.24; for further discussion of marked jars handles, see chapter 19).

Two rim fragments made of well-fired clay (Figure 8.28 g ,h, the former is made of whitish fabric) probably belong to hole-mouth-like jars; these have a smooth, thickened rim slightly slanted outward. Cylindrical hole-mouth jars are very common in southern Israel in the Iron IIB (see, e.g., Amiran, 1969:241, and discussion in Mazar and Panitz-Cohen, 2001:105-107, Type SJ10), where most have ridged rims, but examples of more ovoid-type hole-mouth jars with smooth rims appear during the Iron IIA as well (see, e.g., Arad, Stratum XI [Herzog et al., 1984: fig. 9:14] and Lachish, Level IV [Zimhoni, 1997a: fig. 3.33:6]).

As in Phase 10, several fragments of strainer-spouted jugs with red slip and burnish were found (Figure 8.281,m). A handle with at least three red stripes on it (Figure 8.28 k ) probably belongs to a jug. An upper neck fragment of a jug (Figure 8.28n) has a ridge in its upper body; similar jugs were found at Batash, Stratum IV (Mazar and Panitz-Cohen, 2001:101, pl. 81:15, Type JG30). A narrower jug neck with a slightly thickened rim (Figure 8.280 ) is red slipped with vertical burnish. This may belong to the globular jugs with narrow necks, typical of the Iron IIA LPDW (e.g., Arad, Stratum XII [Herzog et al., 1984: fig. 5:8] and Ashdod, Strata X-IX [Dothan and Ben-Shlomo, 2005:196, fig. 3.86:9, and references therein]). A thick disk base with red slip and vertical burnish (Figure 8.28q) belongs to a jug as well. Only one example of a dipper juglet was found in Phase 9 (Figure 8.28 p); it has a simple rim and a handle attached to it (for this type, see Mazar and Panitz-Cohen, 2001:124-125, Type JT7a). A thick cylindrical fragment (Figure 8.28r) may be the base of a vessel, possibly a jug. Also illustrated is a body sherd with a loop handle belonging to a closed vessel decorated in white slip, with red horizontal and vertical bands (Figure 8.28s); this is probably an amphoriskos (see parallels from, e.g., Ashdod, Stratum XII, Dothan and Ben-Shlomo, 2005: fig. 3.31:8), possibly residual from Iron I levels, which the decoration style seems to imply.

To summarize, it seems that the majority of Phase 9 pottery forms point to a late Iron IIA date (possibly 9th century BCE), as seen primarily in the cooking pots and the red-slipped and hand-burnished bowls and kraters. Generally, Phases 11, 10, and 9 can be seen as representing an Iron IIA horizon in Field IV at Tell Jemmeh (contemporary, for example, with Lachish, Levels V-IV; Ashdod, Strata X-IX; Batash, Stratum IV; and Tell es-Safi, Phases A4-A3), with the majority of the pottery in these phases dating to the latter part of the period.

Small finds from Phase 9 include 10 small, rounded, worked sherds from Layer 58A (e.g., Figure 8.29a, Reg. Nos. 33313340), a worked base of a jug (see Figure 18.2f), two seal impressions (Figure $8.29 \mathrm{~b}, \mathrm{c}$ ), another sealing with an impression of a fine stamp seal depicting a caprid (Figure 8.29 d ; see chapter 20, Figure 20.3c), and an ivory/bone club pendant (Figure 8.29e; other small finds include Figure 22.2 g and possibly Figure $25.5 \mathrm{~m})$.

## Remains of Phase 8

## Architecture

Phase 8 was primarily exposed in Sq. 2B, with only a few wall fragments reached in Sq. 2A (Walls 2A and 13A and possibly Wall 11; Figures 8.30-8.43). Two units or rooms can be defined in this phase (Figure 8.30), although the walls of these units were only excavated from their inner faces in Sq. 2B (denoted Rooms A* and B*, Figures 8.30-8.43). The area is divided by Wall 22 into two rectangular units, possibly rooms; the southwestern one is Room A*, and the northeastern one is Room $\mathrm{B}^{*}$. Room $\mathrm{A}^{*}$ is delineated by Walls 21, 22, 25, and 27 and seems to be a complete room of this phase, measuring $2.0 \times 4.9 \mathrm{~m}$ (Figure 8.31-8.36). There may be evidence that the roof of this room was supported by vaults, as some remains of fallen vaults were found between Walls 21 and 22 (Figure 8.30, Section A-A 1 , Figures 8.34, 8.35, Feature 45, levels of 56.81$56.95 \mathrm{~m})$. These are characterized by fallen fragments of walls made of special bricks laid upright, with one narrower side (which is wedge shaped; these are called voussoirs; see below), and mortar filling in the gaps created between the bricks; the bricks are also plastered. This resembles a typical technique of vaulting that will be discussed further below in Phase 5. In some places, the arches are still visibly attached to Wall 21 (Figures $8.33,8.37$ ) and possibly to the northeastern wall of Room A* (Wall 25). On the sides of the pit, vaulting integrated into the walls can be seen clearly (Figure 8.34). Wall 22 was well preserved and built with one row of stretcher bricks, five to six courses, standing about 1 m high (see Figures 8.30, 8.38, level of 56.56-57.52 m).

Under the fallen vaults in the northwestern part of Room A*, a patch of pebbled floor was excavated around a level of 56.50 m (Feature 46, Figures 8.31, 8.32, 8.36). The floor is composed of a thin layer of small pebbles ( $1-7 \mathrm{~cm}$ ) about $1 \times 2 \mathrm{~m}$ in area (seemingly continues beneath Room B*, Figures 8.39, 8.40; Layer 55 is the bedding of this floor). The pebble surface, denoted Feature 51, is visible in the SW part of the room, beneath the fallen vaulting of Walls 21-22. Wall 27, lying mostly in the balk, is probably the northwestern wall of Room A*; a row of stones near the inner face of the wall (Feature 50, level of 56.89 m , Figure 8.20) may be a foundation of the wall or an installation/wall related to it. The northern corner of Room A* was not excavated. A possible entrance or a passage to the room was located along the southern Wall 25.

Most of the pottery that can be attributed to Phase 8 does not originate from a clear architectural context. Several bowl, cooking pot, and jar fragments were found in Room A* (Figures $8.41 \mathrm{~m}, 8.42 \mathrm{a}$ ); in addition, a complete LPDW amphora (Figure 8.43a) was found in Layer 42, possibly belonging to Phase 8 as well. Remains of brick from an upper floor were possibly also found here (Feature 43, with square bricks); note also that Walls 21 and 22 are not exactly parallel. The main problem in this unit is that it was disturbed, at least partially, by a large pit (Pit 10, Feature 44, Figures 8.33 , 8.38) that is possibly more than 2 m wide and cuts both Walls 21 and 22; two other pits, Pits/Features


14 and 15 , also disturb the southeast part of the room. It is possible that this space/room was filled after usage. Nevertheless, it is likely that much of the material from this area, which is quite rich in pottery and finds, is probably from debris and floor levels of the original space (such as Layer 42, Locus 2; Layer 42; and Locus 6 north of the pit).

To the northeast of Wall 22, another rectangular space was defined, labeled Room B* (Figures 8.38-8.40), with inner dimensions of approximately $2.3 \times 3.3 \mathrm{~m}$. Wall 22 adjoins Wall 25 in the south and Wall 23 in the north, which in turn adjoins Wall 24, a thin brick wall that may delineate a bin in the NE (Figure 8.21). This wall lies above Wall 28/35 of Phase 9, and the wide sand-filled foundation trench seen below (see Figure 8.10, Feature 56) may relate to the drainage channel (Feature

55, Figures $8.14,8.15,8.23)$. The entrance to this space seems to have been through Wall 23 in the NW and/or Wall 24 in the northeast (Figure 8.39). Room B* had a white plaster, chalky floor, with patches of ash (Figures 8.39, 8.40, possibly Loci 3 and 4 , Layer 42 , down to 56.55 m ) that possibly represent a phytolith layer on a floor. In the southern portion, there was a patch of pebble floor (Feature 51, Figure 8.36). Only a few bowls and one jar base can be attributed to the Room B* floor (see Figures 8.41 b,i.j, 8.42i).

The remains from Phase 8 indicate that vaulted-type architecture may have existed in Field IV even three phases below the main Phase 5 of Buildings I and II (see below); they show a different orientation and may represent large structures lying below the upper phases.

FIGURE 8.26. Bowls from Phase 9. rs = red slipped; rsb = red slipped and burnished. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :--- | :--- | :--- | :--- | :--- | :--- |
| a | BSB; rs | $5008 / 2$ | GM 2B (58A) | 9 | Room D* |
| b | Bowl; rsb | $4983 / 1$ | GM 2B (58)(58A) | 9 | Room D* |
| c | Bowl; rsb | $4983 / 8$ | GM 2B (58)(58A) | 9 | Room D* |
| d | Bowl; rsb | $5227 / 1$ | GM 2B (58)(58A) | 9 | Room D* |
| e | Bowl; rsb | $5003 / 1$ | GM 2B (57) | 9 | Room D* |
| f | Bowl; rs | $4983 / 2$ | GM 2B (58)(58A) | 9 | Room D* |
| g | Bowl; rsb | $4983 / 4$ | GM 2B (58)(58A) | 9 | Room D* |
| h | Bowl; rsb | $5227 / 3$ | GM 2B (58)(58A) | 9 | Room D* |
| i | Bowl; rsb | $4975 / 1$ | GM 2B (58A) | 9 | Room D* |
| j | Bowl; rsb | $5227 / 4$ | GM 2B (58)(58A) | 9 | Room D* |
| k | Bowl; rsb | $5227 / 2$ | GM 2B (58)(58A) | 9 | Room D* |
| l | Bowl; rs | $4983 / 6$ | GM 2B (58)(58A) | 9 | Room D* |
| m | Bowl; rsb | $4983 / 9$ | GM 2B (58)(58A) | 9 | Room D* |
| n | Bowl; rsb | $4983 / 4$ | GM 2B (58)(58A) | 9 | Room D* |
| o | Bowl; rsb | $5003 / 2$ | GM 2B (57) | 9 | Room D* |
| p | Bowl; rsb | $5209 / 2$ | GM 2B F46 | $9 / 8$ | Room A* |
| q | Bowl; rsb | $4983 / 7$ | GM 2B (58)(58A) | 9 | Room D* |
| r | Bowl(?); rsb | $5209 / 1$ | GM 2B F46 | $9 / 8$ | Room A* |
| s | Bowl; rsb | $4975 / 2$ | GM 2B (58A) | 9 | Room D* |
| t | Bowl/krater? | $5008 / 1$ | GM 2B (58A) | 9 | Room D* |
| u | Bowl; rs | $5003 / 3$ | GM 2B (57) | 9 | Room D* |
| v | Bowl; rs | $4975 / 6$ | GM 2B (58A) | 9 | Room D* |
| w | Bowl; rsb | $4983 / 10$ | GM 2B (58)(58A) | 9 | Room D* |
|  |  |  |  |  |  |

## Pottery and Finds from Phase 8

The assemblage of pottery from Phase 8 (Figures 8.41-8.43) is somewhat smaller than that of Phase 9, with only a few sherds originating from clear architectural contexts, namely, the lower vaulted Room A* and Room B*. Most of the pottery, including three or four complete/nearly complete vessels (Figures 8.41h, $8.42 \mathrm{k}, 8.43 \mathrm{a}, \mathrm{c}$ ), comes from fills not allocated to specific architectural units (some of these may represent mixed Phase 8 and 7 material). Generally, few Iron IIA forms appearing in Phases 11-9 continue to appear. A number of new forms, dating later (Iron IIB), appear in this phase. The amount of red burnish on bowls and other types decreases during this phase as well (see Table 8.3).

One example of a red-slipped and burnished, deep, rounded bowl with a groove under the rim (Figure 8.41a) is a common Iron IIA type continuing into the Iron IIB (e.g., Batash, Strata IV and III, Mazar and Panitz-Cohen, 2001:35, pl. 13:10, Type 37, and references therein). Also illustrated are a small, rounded, nonslipped bowl (Figure 8.41b), which may be a plain, thick, carinated bowl (Figure 8.41 m ), and a carinated bowl with grooves under the rim (Figure 8.41c; see Phases 11-9 for this type, Figure $8.26 \mathrm{c}-\mathrm{f})$. Another type of bowl common in both late Iron IIA and IIB is a carinated bowl with an everted rim (Figure 8.41e), often with red slip on the interior and the upper part of the exterior (Mazar and PanitzCohen, 2001:41-2, Type 27, Strata IV-III; see also Lachish,

Levels V-IV [Zimhoni, 1997a: fig. 3.21] and Ashdod, Strata X-VIII [Dothan, 1971: fig. 45:5-7, Dothan and Ben-Shlomo, 2005: fig. 3.82:17,19]).

Several examples of red-slipped and burnished, small, shallow, open bowls with a slightly thickened and slanting rim were found in this phase (and, in general, in Phase 7-8 contexts; see Figure $8.41 \mathrm{f}, \mathrm{g}$ ). These are more common in Iron IIB (e.g., Lachish, Level III [Zimhoni, 1997b: fig. 5.4:7,10], 'Eton, Stratum II [Zimhoni, 1997c: fig. 4.3:7], Arad, Strata IX-VIII [SingerAvitz, 2002:128, Type B3]; however, also see earlier examples from Ashdod, Strata X-IX, Dothan and Ben-Shlomo, 2005: fig. 3.82:4). A large open bowl ( 30 cm in diameter) with a simple, slightly slanted rim (similar to a folded or wedge rim; Figure 8.41 h ) has red slip and hand burnishing on the inside and upper exterior. This type is more common in the Iron IIB (see Figure 8.176, Type BL4; e.g., Lachish, Level III [Zimhoni, 1997b: fig. 5.4:16-20, nonslipped], Tel 'Eton, Stratum I [Zimhoni, 1997c: fig. 4.6:2], and Batash, Stratum III [Mazar and Panitz-Cohen, 2001:39, Type BL13, and references therein]) but also appears in late Iron IIA. A small ledge rim (Figure 8.42a) may belong to a large krater (see, possibly, Lachish, Levels V-IV, Zimhoni, 1997a: fig. 3.32:6-8) or a cooking pot.

Two examples of large multihandled kraters were also found in Phase 8 (Figure 8.41o,p). These are large barrel-shaped vessels with four or more loop handles attached to the thickened grooved rim or beneath it. This is a common type in Iron IIA-B in southern Israel (see below, Phases 7-5, Figure 8.176, Type


FIGURE 8.27. Pottery from Phase 9 (Room D*). rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Krater/bowl; rs | $4975 / 5$ | GM 2B (58A) |
| b | Krater/bowl; rsb | $4975 / 4$ | GM 2B (58A) |
| c | Krater/bowl; rsb | $4975 / 3$ | GM 2B (58A) |
| d | Krater/cooking pot? | $5006 / 1$ | GM 2B (58) |
| e | Krater? | $5153 / 2$ | GM 2B (58) |
| f | Krater? | $5153 / 1$ | GM 2B (58) |
| g | Krater? | $5172 / 1$ | GM 2B (58A) |
| h | Chalice | $5166 / 1$ | GM 2B (59) |
| i | Cooking pot | 5003 A/1 | GM 2B (57) |
| j | Cooking pot | $5006 / 3$ | GM 2B (58) |
| k | Cooking pot | $5006 / 2$ | GM 2B (58) |

KR2, and, e.g., Batash, Stratum III [Mazar and Panitz-Cohen, 2001:68-71, Type KR35] and Tell es-Safi/Gath, Stratum A3 [Shai and Maeir, 2012:322, Types KR2, KR3]). These kraters, reaching a height of $40-50 \mathrm{~cm}$, were probably storage vessels rather than tableware.

Several chalices from Phase 8 are illustrated; one example is the thick stem of a chalice foot (Figure 8.41n). Another is a rounded, carinated bowl with an everted rim and incisions on the lower part (Figure 8.41 k ). Another possible chalice (Figure 8.41i) is represented by an everted rim fragment of a shallow open bowl.

Several fragments of cooking pots were found in Phase 8 (Figure $8.42 \mathrm{~b}-\mathrm{d}$ ). One example (Figure 8.42 c ) belongs to the flat-rim (large in this case) type typical of the Iron IIA (see Type

CP1 below and Phase 9, Figure 8.27i-k); another fragment made of similar fabric (Figure 8.42b) has a folded, slightly ridged rim (also similar to Batash, Stratum IV, Mazar and Panitz-Cohen, 2001: Type CP15). Another fragment (Figure 8.42d) has a more vertical triangular rim somewhat similar to Type CP10 at Batash (Mazar and Panitz-Cohen, 2001:86, photo 42), a type appearing in the Iron IIB but more common in the Iron IIC.

Several jar rims illustrated (Figure $8.42 \mathrm{e}-\mathrm{g}$ ) are all of different types. Figure 8.42 e is a short, vertical neck (see Lachish, Level IV [Zimhoni, 1997a: fig. 3.50:6] and Batash, Strata III-II [Mazar and Panitz-Cohen, 2001: Type SJ7b]). Another fragment (Figure 8.42 g ) has a ribbed neck similar to examples from Phases 10-9 (see Figures 8.12c, 8.177, Type JR4). A short, vertical, thick rim (Figure 8.42 f ) has a gutter along its upper rim; this type is very


FIGURE 8.28. Pottery from Phase 9. SSJ = strainer-spouted jug; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Jar | 5209/5 | GM 2B F46 | 9/8 | Room A* |
| b | Jar/jug | 5209/4 | GM 2B F46 | $9 / 8$ | Room A* |
| c | Jar | 5209/3 | GM 2B F46 | 9/8 | Room A* |
| d | Jar | 5153/5 | GM 2B (58) | 9 | Room D* |
| e | Jar | 5153/4 | GM 2B (58) | 9 | Room D* |
| f | Jar/krater | 5153/3 | GM 2B (58) | 9 | Room D* |
| g | Hole-mouth jar | 5153/6 | GM 2B (58) | 9 | Room D* |
| h | Hole-mouth jar | 5153/6A | GM 2B (58) | 9 | Room D* |
| i | Thumbed jar handle | 5008/3 | GM 2B (58A) | 9 | Room D* |
| j | Jar handle, two perforations | 5003A/2 | GM 2B (57) | 9 | Room D* |
| k | Jug; red decoration | 1861/1 | GM 2B F56 | 9 | Room D* |
| 1 | SSJ; rsb | 5003/4 | GM 2B (57) | 9 | Room D* |
| m | SSJ; rsb | 4983/11 | GM 2B (58)(58A) | 9 | Room D* |
| n | Jug | 5166/2 | GM 2B (59) | 9 | Room D* |
| o | Jug; rsb | 4986/1 | GM 2B (58) | 9 | Room D* |
| p | Juglet | 5166/4 | GM 2B (59) | 9 | Room D* |
| q | Jug; rsb | 4975/7 | GM 2B (58A) | 9 | Room D* |
| r | Base? | 5166/3 | GM 2B (58) 7 | 9/10 | Room D* |
| s | Amphoriskos(?); white slip, red decoration | 5209/6 | GM 2B F46 | 9/8 | Room A* |



FIGURE 8.29. Finds from Phase 9 (Room D*).

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Worked sherd | Reg. No. 3331 | GM 2B (58A) |
| b | Sealing | Reg. No. 2168 | GM 2B (58A) |
| c | Sealing | Reg. No. 2170 | GM 2B (58) |
| d | Sealing | Reg. No. 1219 | GM 2B (59) |
| e | Ivory pendant | Reg. No. 1117 | GM 2B (58) |



FIGURE 8.30. Plan of Phase 8.


FIGURE 8.31. Pebbled floor and Feature 46 in Sq. 2B, Room A*; Wall 22 in the rear.

FIGURE 8.32. Pebbled floor, Feature 46 in Sq. 2 B , Room A*, looking south.


FIGURE 8.33. Pit 10 in Room A* and Wall 21 above it, looking west.


FIGURE 8.34. Fallen vaults (Feature 45) in Room A*, looking south.


FIGURE 8.35. Close-up of fallen vaults in Room A*.


FIGURE 8.36. Pebbles (Feature 51) in Room A*.


FIGURE 8.37. Close-up of Wall 21 in Sq. 2B, showing mortar.


FIGURE 8.38. Phase 8: Room B* in front, with Wall 22 and Pit 10 behind it.


FIGURE 8.39. Room $\mathrm{B}^{*}$, looking northwest, with possible entrance in Wall 25 and chalky floor below.

FIGURE 8.40. Chalky floor in Room B*, Sq. 2B, Phase 8. (right)



FIGURE 8.41. Pottery from Phase 8. rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl; rsb | 2325/1 | GM 2B P10 | 8 |  |
| b | Bowl | 1816/2 | GM 2B (42) 4 | 8 | Room B* |
| c | Bowl; rsb | 1815/1 | GM 2B (42) 5 | 8 |  |
| d | Bowl; rsb | 2325/5 | GM 2B P10 | 8 |  |
| e | Bowl; rs | 2325/3 | GM 2B P10 | 8 |  |
| f | Bowl; rs | 2325/2 | GM 2B P10 | 8 |  |
| g | Bowl; rsb | 2325/4 | GM 2B P10 | 8 |  |
| h | Bowl; rsb | RV 1007 | GM 2B (1) 6 | 8 ? | Room $\mathrm{A}^{*}$ ? |
| i | Bowl | 1816/1 | GM 2B (42) 4 | 8 | Room B* |
| j | Bowl?; white slip | 6412/1 | GM 2B (42) 3 | 8 | Room B* |
| k | Bowl/chalice | 1214/1 | GM 2B (1) 6 | 8? | Room $\mathrm{A}^{*}$ ? |
| , | Bowl/chalice | 5168/1 | GM 2B (42) 2 | 8 | Room $\mathrm{A}^{*}$ ? |
| m | Bowl/jar? | 1196/1 | GM 2B (42) 2 | 8 | Room $\mathrm{A}^{*}$ ? |
| n | Chalice | 5168/2 | GM 2B (42) 2 | 8 | Room $\mathrm{A}^{*}$ ? |
| o | Krater (KR2) | 4212/1 | GM 2B (41) 3 | 8/7 | Outside Rooms A*-B* |
| p | Krater (KR2) | RV 56 | GM 2B (42) 2 | 8 | Room A* ? |



FIGURE 8.42. Pottery from Phase 8. rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Krater/cooking pot | 1196/2 | GM 2B (42) 2 | 8 | Room A*? |
| b | Cooking pot | 1815/2 | GM 2B (42) 5 | 8 |  |
| c | Cooking pot | 5208/1 | GM 2B (42) 6 | 8 |  |
| d | Cooking pot | 1827/1 | GM 2B Room A | 8 |  |
| e | Jar | 1196/4 | GM 2B (42) 2 | 8 | Room A*? |
| f | Jar/jug | 1196/3 | GM 2B (42) 2 | 8 | Room A*? |
| g | Jar | 1827/2 | GM 2B Room A | 8 |  |
| h | Jar | 1214/2 | GM 2B (1) 6 | 8 ? | Room A*? |
| i | Jar(?) base? | 6412/3 | GM 2B (42) 3 | 8 | Room B* |
| J | Jug/amphoriskos; rsb, vertical burnish, white decoration | 1852/1 | GM 2B 'Room A' | 8 |  |
| k | Jug, rs | 1848/1 | GM 2B (42) | 8 ? | Room A*? |
| 1 | Jug, rsb | RV 47 | GM 2B (42) | 8? |  |

common in the Iron IIB-C, Phases 7,6 , and 5 , and will be discussed below (see Figure 8.177, Type JR3). The thick handle of a storage jar with two prominent ridges is also illustrated (Figure 8.42h). A thick, coarse, angular pottery fragment (Figure 8.42i) may be the base of some sort of a jar or pithos.

Several other fragments of closed vessels were found in Phase 8 (Figures $8.42 \mathrm{j}-1,8.43 \mathrm{a}-\mathrm{e}$ ). Figure 8.42 k is the complete lower portion of a red-slipped and vertically burnished, thin, closed vessel, probably some sort of jug with a pyriform or dateshaped body. It has a rounded base with a pointed "nipple" at
the bottom; there are groups of incisions on the lower part as well, and parallel coil/wheel marks are visible on the surface of the vessel. This shape recalls a more elaborately decorated LPDW date-shaped vessel from Ashdod, Strata X-IX (Dothan and Ben-Shlomo, 2005:176-178, fig. 3.73:1). Another large body fragment (Figure 8.42j) has one complete vertical handle and a somewhat globular shape; it is red slipped and vertically burnished, and there are remnants of what seem to be white bands on it. This is probably a jug or an amphoriskos, possibly decorated in LPDW style (see chapter 12). Another fragment of
a red-slipped jug is also illustrated (Figure 8.421). A red-slipped basket handle attached to the neck of a strainer-spouted jug is also illustrated (Figure 8.43d); this is a Philistine form found in late Iron I and Iron IIA (see, e.g., Dothan, 1982: fig. 59; see also Qasile, Stratum X, Mazar, 1985a: fig. 35:3).

The only complete vessel from Phase 8 (Figure 8.43a), found in Sq. 2B, Layer 42 and Wall 11 (Phase 6), is a fully restored, red-slipped and vertically burnished LPDW amphora. The neck is cylindrical, with a thickened rim and two loop handles attached from a ridge in the middle of the neck to the shoulder; the body is globular, and the base is rounded to slightly pointed. The vessel is decorated with sets of horizontal, parallel black bands delimiting white bands on the neck and on the body. This is typical LPDW, or Ashdod ware, form, surface treatment, and decoration (see Ben-Shlomo et al., 2004, and chapter 12). An elongated cylindrical neck of an amphora (Figure 8.43b) is also red slipped and vertically burnished; the rim seems to be everted. The handle preserved was attached to a delicate ridge in the mid neck to the shoulder and is in itself ridged; the vessel has a wide neck diameter typical of amphorae decorated in
the LPDW style (similar to Figure 8.43a; for a detailed discussion of the form, see Ben-Shlomo, 2006a:53, fig. 1.29, especially Type AM1B, fig. 1.29:8, with the rounded base from Tell esSafi/Gath). Several examples of LPDW globular amphorae were excavated at Tell es-Safi, Stratum A3, including four or five complete vessels (Ornan, 1986:100-102, No. 49, top row; Shai and Maeir, 2012: Type JG8; another amphora was recovered in a survey conducted by Amiran and Aharoni; see Ben-Shlomo, 2006a: fig. 1.29:4).

A nearly complete globular jug was found in Sq. 2B, Layer 41, Locus 3 (Figure 8.43c). The jug has a narrow neck and ridged rim with a handle attached to it; the base is missing. Parallels come from Ashdod, Strata IX-VII (Dothan and Freedman, 1967: figs. 39:7, 40:17; Dothan and Ben-Shlomo, 2005: fig. 3.85:9, in LPDW style) and Batash, Stratum III (Mazar and Panitz-Cohen, 2001:116-117, pl. 90:17, Type JG13); note that the example from Jemmeh is not slipped. Figure 8.43 d is the neck of a red-slipped and burnished jug with a basket handle attached to the rim. This is possibly a strainer-spouted jug, a Philistine form (likely residual) that appears with red slip or


FIGURE 8.43. Pottery from Phase 8 . SSJ = strainer-spouted jug; LPDW = Late Philistine Decorated Ware; rs $=$ red slipped; rsb $=$ red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :--- | :--- | :--- | :--- | :--- | :--- |
| a | Amphora (LPDW) | RonList 1 | GM 2B (42) | $8 ?$ | Room A*? |
| b | Amphora, rsb, vertical burnish | $1843 / 1$ | GM 2B P10 | 8 |  |
| c | Jug | RV 1028 | GM 2B (41) 3 | $8-7$ ? | Rooms A*-B*? |
| d | Jug (SSJ?), rsb | RV 289/1 | GM 2B (42) | $8 ?$ | Room A*? |
| e | Jug/bottle, rs | $1851 / 1$ | GM 2B Room A | 8 |  |
| f | Baking tray? | $6412 / 2$ | GM 2B (42) 3 | 8 | Room B* |

LPDW decoration during the late Iron I and early Iron II (see, e.g., Qasile, Strata X and IX, Mazar, 1985a: figs. 35:3, 54:25; see chapter 12). The wheel-made base of a large closed vessel (Figure 8.43e) has its lower part shaped as a pointed button; the outer surface is red slipped. This is probably the base of a large jug or amphora (maybe a large bottle) that was not freestanding (parallels for this base shape are very rare, although see possibly Ashdod, Strata IX-VIII [Dothan and Ben-Shlomo, 2005: fig. 3.88:14] and Kadesh Barnea, Stratum 2 [Cohen and BernickGreenberg, 2007: fig. 11.121:22]).

The small fragment of a flat, thick plate, probably a baking tray (Figure 8.43f), was also found in Phase 8 ; it is made of gritty cooking ware fabric. Few baking trays were found in Tell Jemmeh (as Figure 6.157 m ) and are found in various Iron Age sites, mostly identified as Judean (such as Khirbet Qeiyafa, Kang and Garfinkel, 2009a:127, figs. 6.13:1-2, 6.14, 6.15, and more parallels therein), although they were also discovered in Ashdod, Stratum VII (Dothan, 1971: fig. 58:12-14) and Batash, Stratum V (Iron I, Panitz-Cohen and Mazar, 2006: pl. 72:16). Small finds from Phase 8 (not illustrated) include two rounded worked sherds (Reg. Nos. 1784a, 1784b) and a bronze piece (Reg. No. 84).

To summarize, it seems that most of the pottery assemblage belonging to Phase 8 can also be dated to the late Iron IIA, with several forms similar to Phase 9, especially bowls and kraters. However, there are enough forms that date later and are more common during the Iron IIB (such as some jar and jug types). The presence of LPDW in this phase is also more substantial than in previous phases. Therefore, Phase 8 may reflect the end of the Iron IIA and the Iron IIB period (8th century BCE).

## Remains of Phase 7

Phase 7 (Figure 8.44-8.66) may represent the uppermost architectural phase predating and underlying Buildings I and II of Phase 5 (possibly already erected in Phase 6), yet the pottery from this phase highly resembles that of Phase 6. The remains of Phase 7 in Sq. 2B are much more fragmentary because of smaller exposure and some pit disturbance. Certain internal subphasing (two local phases were discerned, Phases 7B and 7A, Figures $8.44,8.45)$ also complicates the interpretation of the remains. Other remains of this phase were unearthed in Sq. 2A and possibly in Sq. 3B. Thus, the scattered remains and the abundance of minor local architectural changes create an uncertainty regarding the designation of specific layers and features either to upper phases of Phase 7 or to the lower phases of Phase 6 , as will be seen below.

Beneath Rooms A and B of Building II, Phase 6 (see below), a series of fragmentary walls may have confined a space. In the west, fragmentary Walls 19 and 20 create a corner of what may be a room lying above Room A* (Figure 8.47). To the northwest of Wall 20, a row of stones (Feature 38, at a level of 57.99 m , Figure 8.48) was attached to the face of the wall, possibly as a reinforcement (similar to Sq. 2B, Feature 50 in Phase 8). In this area (Locus 4), near the wall, half of a tabun was excavated (Feature 37 , Figures $8.45,8.48$ ), continuing into the balk; however,
because of its high elevation ( 58.15 m ) it may belong to the higher subphase of Phase 7 (designated Phase 7A in Sq. 2A). Pottery from Locus 4 (Figure $8.61 \mathrm{f}-\mathrm{q}$ ) includes fragments of bowls, kraters (including a rim of a large krater with a ridged rim, Figure 8.611), cooking pots, jars, and a jug or juglet (Figure 8.61i,j,p). Several loom weights (Figures $8.61 \mathrm{q}, 19.7 \mathrm{~h}, \mathrm{j}$ ) and a nearly complete bronze fibula were also found here (Figure 8.61r).

Wall 19 is at least two courses wide, has square bricks, and underlies or is cut by the northeast massive back wall of Building I (Wall 5, Figure 8.48; see also Sq. 1C, Wall 8). The lower wall is aligned with Wall 5 of Building I, and thus, the possibility that the two walls were contemporary at some stage cannot be ruled out. To the northeast, a fragmentary wall (Wall 18) cut by Pit 10 (Figure 8.47) may be related to the same phase. Wall 18 on the north end may adjoin unclear wall remains from Sq. 2C (denoted Wall 18A?); in turn, Feature 17 adjoins Sq. 2B, Wall 10 in the east, which confines this entire space from the southeast (Figure 8.49). In this area, Layer 41, a thick fill layer 0.7-1.0 m deep, is cut by Pit 17 (Figure 8.25) but is rich with pottery (along with Feature 39); this context may contain mixed finds from both Phases 7 and 8 (see Figure 8.25, Phase 8). A complete decorated jug (Figure 8.66a) was found here, among other pottery fragments illustrated (Figure 8.66).

More Phase 7 remains were uncovered in Sq. 2A. These include Walls $6,7,11,12$, and 13 and a space denoted Building III. A somewhat condensed accumulation of walls was excavated here, creating a complicated stratigraphic scene (Figure 8.50). A possible solution is a local finer subphasing of Phase 7 in this area. In an upper phase (Phase 7A, Figure 8.45) Wall 8, which is parallel to Wall 10 in Sq. 2B but above it, is already cut by the massive rear wall (Wall 5A) of Building II (Figures 8.54, 8.55). Fragmentary Wall 9 in Sq. 2A forms a corner with Wall 8 and overlies Wall 11 of Phase 7B (Figures 8.44, 8.57); in the south it forms a corner with the fragmentary Wall 10 above it (Sq. 2A, Figure 8.57), which continues to exist in Phase 6. In this area, denoted as Building III, there were rich floor levels relating to both subphases. However, most of the pottery seems to come from an area outside of the building (see Sq. 2A, Layer 30, Figures $8.50,8.51,8.62-8.64$ ), whereas only a few bowl sherds, a cooking pot, and a possible decanter jug (Figure 8.61a-e) come from within the building. Square 2A, Layer 29 represents the debris layer, and Layer $30(57.37-57.70 \mathrm{~m})$ is likely the floor level of the lower phase (7B, under Wall 8, Figure 8.51), lying between Wall 10 and Wall 6 of Building III and reaching Wall 13 below Wall 8. This layer yielded many complete jars and other pottery (at least seven complete jars, Figure 8.63a-f, also RV 8, RV 15 , RV 44, not illustrated), as well as a complete lamp (Figure 8.64c). Layers 31 and 31A, lying on cobble Layer 32 (level 56.86-57.29 m), may in turn indicate a lower floor phase (Phase 7C?). In this area, there was an opening, possibly leading through to Building II, Room B, in the lower phases of Sq. 2B, Wall 10 (Figure 8.50) and Sq. 2A, Wall 8. In an upper phase (or possibly a lower stage of Phase 6), what seems to be a bin (2.2 m long and running under Wall 10) was discovered in the southeast of Building II, outside Room A. The installation is built of a narrow wall of upright standing bricks (Sq. 2B, Feature


FIGURE 8.44. Plan of Phase 7B.


FIGURE 8.45. Plan of Phase 7A.


FIGURE 8.46. Phase 7, with massive Wall 5 of Building I on the right towering above it, looking south.


FIGURE 8.47. Upper part of Pit 10 in Sq. 2B.

FIGURE 8.48. Squares 2B-1C, Phase 7: Feature 38 (the line of stones in the center) and a tabun (Feature 37) on the right in balk, with a wall of Building I in the rear, looking west. (right)



FIGURE 8.49. Threshold/doorway in Sq. 2B, Wall 10 (and Sq. 2A, Wall 13 below and adjoining; Phase 7B).


FIGURE 8.50. Square 2A from above, showing remains of Phases 5-7; the north is to the right, and the floor layer, Layer 30, is on the lower left.


FIGURE 8.51. Floor level, Layer 30, in Sq. 2A under Wall 5, looking south, with complete jars on the floor.


FIGURE 8.52. Square 2A, Phase 7, pebble layer, Layer 32 between Wall 6 (front) and Wall 13, looking northwest; this level was reached at the end of the 1976 season.


FIGURE 8.53. Square 2A, Phase 7A, Feature 20 (line of bricks) and Wall 14 under it (Phase 7B), looking northeast.

20, Figure 8.53 ) and may connect to Sq. 2A, Wall 6. In turn, Wall 13, a northeast-southwest wall beneath Wall 10 of Sq. $2 B$, is built in same orientation but somewhat to the southwest, representing a lower subphase. The wall is stepped by channels (possibly because of erosion), and this area seems to be a threshold in Wall 10 or below it, possibly an entrance to the area described above (under Building II). As noted above, Wall 13A of Phase 8 underlies Wall 13. To the south, Walls 6 and 7 create a right corner, possibly defining a possible room of Building III. The walls are plastered from the inside, and the floor, Layer 30, abuts it from the outside. In the confined southeastern area of Sq. 2A (Locus 3), Layers 29-30, at a level of up to 57.33 m , debris was discovered along with the floor level (Feature 1), which is made up of a line of three bricks with mortar. South of Wall 7, Locus 4 (including Layers 29A and 30), with a floor at Layer 30 (elevation 57.30 m ), yielded many pottery vessels, loom weights (a series of at least nine mostly complete doughnut-shaped loom weights made of unbaked mud, Reg. Nos. 1560-1568; see Figure 19.7a), and a possible hearth.

Feature 20 (Figure 8.53, level of 57.70 m ) is a narrow wall of upright bricks (probably a bin) that is 2.2 m long and runs under Wall 10 and possibly connects to Sq. 2A, Wall 6, seemingly


FIGURE 8.54. Square 2A, foundation trench of Wall 5A of Building I cutting Wall 8.
of a later stage of Phase 7 or Phase 6. Wall 10 in Sq. 3B (see Figure 8.101) lies beneath Phase 6 remains around it and may also belong to Phase 7 . This feature between Walls 7 and 8 , creating a small box with Wall 9, may belong to Phase 6B or to Phase 7A. Pits 1 and 2 in Sq. 2A are probably Iron Age pits in this area and may also belong to Phase 6 .

The pottery from this area (including Sq. 2A, Layers 29, 30, and 31, denoted outside of Building III, Figure 8.51) includes a rich assemblage, dating mostly to the Iron IIB (Figures 8.628.64; see below), such as small open and carinated bowls (Figure 8.62a- k , all red slipped and burnished), including several small carinated red-slipped and burnished bowls (Figure $8.62 \mathrm{f}-\mathrm{k}$ ), various bowls with thickened rims (Figure 8.62b,c), cooking pots with gutter rims (Figure 8.62o,p), storage jars (Figure 8.63a-f), and jugs and juglets (Figure $8.63 \mathrm{~h}-\mathrm{k}$ ), including a "black juglet" (Figure 8.63j). Two complete doughnut-shaped loom weights


FIGURE 8.55. Square 2A, close-up of foundation trench of Wall 5A of Building I cutting Wall 8.
from Sq. 2A, Layer 30, Locus 4 should also be noted (Figure $19.7 \mathrm{~h}, \mathrm{j}$; another similar object was found in a Phase 6-7 fill, Reg. No. 1486). A sealing with an impression of an Iron IIA seal was found (Figure 20.3a), as well as several stone items (Figure $8.64 \mathrm{e}-\mathrm{g}$, a handstone, spindle whorl, and a weight; see chapter 23). Also from Layer 30, small finds include a worked base (see Figure 18.2e), a large pyramidical loom weight (see Figure 19.6j), an iron knife preserved with its rivets (Figure 8.64d), and a large piece of slag (SCI 860).

The pottery assemblages of Phases 7,6 , and 5 are rather similar, and therefore, their typology will be discussed in more detail together below, after the description of the architecture of Phase 5. Notable types typical of Phase 7 (Figures 8.61-8.66) and dated to the Iron IIB include large kraters with ledge rims and multiple handles (Figures 8.611, 8.65d,e), cooking pots with gutter rims (Figures 8.61i,j), hole-mouth jars (Figure 8.651), jars with gutter rims (Figure 8.63d), and various juglets and bottles (Figure 8.63j,k). Other types include a closed krater or large bowl with three handles attached to its base (Figure 8.65n) decorated in LPDW style and a jar base with a perforation made after firing (Figure 8.65 k ). Generally, it should be noted that there is a rise in the number of LPDW vessels in Phase 7, which continue


FIGURE 8.56. Square 2A, Wall 8 with plaster/mortar.
to appear in Phase 6 (see Figures 8.64a,b, 8.66a,b,e,m,n, and chapter 12).

## GENERAL DESCRIPTION OF THE LATE IRON AGE II (IRON IIB_C) REMAINS, PHASES 5-6

The remains of Phases 5 and 6 in Field IV dating to the late Iron IIB and Iron IIC have a similar architectural layout. Remains of at least two building (Buildings I and II), with another one or two additional buildings also possibly belonging to these phases (Buildings III and IV), were uncovered. None of the structures were completely excavated. The relationship between the buildings is not always very clear, although it will be argued here that they were contemporary. It thus seems that the area was rather densely built, with several remains that may carry the fingerprint


FIGURE 8.57. Square 2A, Phase 7A, Walls 9 and 10 making a corner, on right massive Wall 5A of Building I, looking south.


FIGURE 8.58. Bricks lying on narrow side, ("trimmed" or "stripped bricks") in Sq. 2A, Wall 8; Wall 5A of Building I in the back.


FIGURE 8.59. Corner of Walls 9 and 10 in Sq. 2A from the side; Building I, Wall 5 is above, looking south.


FIGURE 8.60. Floor level, Locus 4, Layer 30 in Sq. 2A, under Wall 5, looking northwest.


FIGURE 8.61. Pottery from Phase 7, Building III and Locus 4. Bld = building; rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance | Architecture |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl; rsb | $3686 / 2$ | GM 2A (30) 3 | Bld III |
| b | Bowl; rs? | $3689 / 1$ | GM 2A (29) 33 | Bld III |
| c | Bowl; rb | $3686 / 1$ | GM 2A (30) 33 | Bld III |
| d | Cooking pot | $3689 / 2$ | GM 2A (29) 33 | Bld III |
| e | Decanter? | $3689 / 3$ | GM 2A (29) 33 | Bld III |
| f | Bowl; rs | $3677 / 1$ | GM 2A (30) 4 | Locus 4 |
| g | Bowl; rsb | $3543 / 1$ | GM 2A (30) 4 | Locus 4 |
| h | Bowl/chalice; rsb | $3677 / 2$ | GM 2A (30) 4 | Locus 4 |
| i | Cooking pot | $3548 / 1$ | GM 2A (30) 4 | Locus 4 |
| j | Cooking pot | $3548 / 4$ | GM 2A (30) 4 | Locus 4 |
| k | Krater/cooking pot | $3531 / 1$ | GM 2A (30) 4 | Locus 4 |
| l | Krater (KR2) | $3536 / 1$ | GM 2A (30) 4 | Locus 4 |
| m | Jar | $3548 / 2$ | GM 2A (30) 4 | Locus 4 |
| n | Jar | $3677 / 3$ | GM 2A (30) 4 | Locus 4 |
| o | Jar | $3548 / 3$ | GM 2A (30) 4 | Locus 4 |
| p | Jug/juglet; rsb | $3543 / 2$ | Locus 4 |  |
| q | Loom weight | Reg. No. 1562 | GM 2A (30) 4 | Locus 4 |
| r | Fibula pin (bronze) | Reg. No. 1348 (SI Cat. No. 734) | GM 2A (30) 4 | Locus 4 |



FIGURE 8.62. Pottery from Phase 7, outside Building III. rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl; rsb | 3768/2 | GM 2A (30) | 7(B?) |
| b | Bowl; rsb | 3550/2 | GM 2A (31) | 7 |
| c | Bowl; rsb (inside) | 3768/5 | GM 2A (30) | 7(B?) |
| d | Bowl; rsb | 3768/6 | GM 2A (30) | 7(B?) |
| , | Bowl | 3549/3 | GM 2A (30) | 7(B?) |
| f | Bowl; rsb | 3768/1 | GM 2A (30) | 7(B?) |
| g | Bowl; rsb | 3768/4 | GM 2A (30) | 7(B?) |
| h | Bowl; rsb (inside/outside) | 3768/3 | GM 2A (30) | 7(B?) |
| i | Bowl; rs | 3768/7 | GM 2A (30) | 7(B?) |
| j | Bowl; rs | 3550/1 | GM 2A (31) | 7 |
| k | Bowl; rs inside, partly outside | 3562/1 | GM 2A (29) | 7(A?) |
| 1 | Bowl | 3541/1 | GM 2A (30) | 7(B?) |
| m | Bowl | 3549/2 | GM 2A (30) | 7(B?) |
| n | Bowl? | 3549/1 | GM 2A (30) | 7(B?) |
| o | Cooking pot | 3562/2 | GM 2A (29) | 7(A?) |
| p | Cooking pot | 3768/8 | GM 2A (30) | 7(B?) |

of Assyrian building techniques (see below). It was therefore assumed that this area, or at least portions of it, was part of an Assyrian administrative center (e.g., Van Beek, 1973, 1993a).

## Remains of Phase 6

Phase 6 remains (Figures 8.67-8.89) were excavated in Sqs. $2 \mathrm{~A}, 1 \mathrm{~B}, 2 \mathrm{~B}, 3 \mathrm{~B}, 1 \mathrm{C}$, and 1 E and may represent the lower phase of the main Assyrian Buildings I and II (Figures 8.90, 8.91). Therefore, Phases 6 and 5 will be described in general here, and
subsequently, the main buildings will be described in more detail separately. Although Building I of Phase 5 was not dismantled, it seems probable that it existed without many changes (or at least its outer frame) in Phase 6 as well (as Phase 6 walls keep a generally compatible orientation with this outline). However, the areas to the north and east of this building, especially Building II, underwent a series of architectural changes between Phases 7, 6, and 5, with Phases 6 and 7 integrating several subphases or local changes, internal walls, floor raising, etc. (see Figures 8.44-8.45, $8.67-8.68$ ). The area beneath the granary, farther to the east,


FIGURE 8.63. Pottery from Phase 7 outside Building III.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Jar | RV 42 | GM 2A (30) | $7(\mathrm{~B}$ ? $)$ |
| b | Jar | RV 10 | GM 2A (30) | $7(\mathrm{~B} ?)$ |
| c | Jar | RV 11 | GM 2A (30) | $7(\mathrm{~B}$ ? $)$ |
| d | Jar | RV 1009 | GM 2A (30) | $7(\mathrm{~B} ?)$ |
| e | Jar | RV 40 | GM 2A (30) | $7(\mathrm{~B}$ ? $)$ |
| f | Jar | RV 1025 | GM 2A (30) | $7(\mathrm{~B} ?)$ |
| g | Jar | Box 120 | GM 2A (29) | $7(\mathrm{~A} ?)$ |
| h | Jug? | $3549 / 4$ | GM 2A (30) | $7(\mathrm{~B} ?)$ |
| i | Juglet; red slip | $3691 / 1$ | GM 2A (29) | $7(\mathrm{~A} ?)$ |
| j | Juglet; black | RV 94 | GM 2A (29) | $7(\mathrm{~A} ?)$ |
| k | Juglet; red slip, burnish | RV 135 (SI Cat. No. 735) | GM 2A (30) | $7(\mathrm{~B} ?)$ |



FIGURE 8.64. Finds from Phase 7 outside Building III.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Sherd; red slip, burnish | $3551 / 2$ | GM 2A (30) | 7(B?) |
| b | Sherd; red slip | $3551 / 1$ | GM 2A (30) | $7(\mathrm{~B}$ ?) |
| c | Lamp; soot | SI Cat. No. 1125 | GM 2A (29) | 7(A?) |
| d | Iron knife | Reg. No. 1288 (SI Cat. No. 731) | GM 2A (30) | $7(\mathrm{~B}$ ?) |
| e | Handstone; sandstone | NA | GM 2A (30) | $7(\mathrm{~B}$ ?) |
| f | Stone weight(?); steatite? | Reg. No. 1020 | GM 2A (30) | 7(B?) |
| g | Spindle whorl; stone | Reg. No. 1046 | GM 2A (31A) | 7(B?) |



FIGURE 8.65. Pottery from Phase 7. rs = red slipped; rsb = red slipped and burnished; $\mathrm{af}=$ after firing. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl; rs (outside), burnish | 6360/1 | GM 2B (40) 3 | 7? |
| b | Bowl; rsb | 6366/1 | GM 2B (39) 3 | 7? |
| c | Bowl | 4999/1 | GM 2B W10 | 7 |
| d | Krater | 6366/2 | GM 2B (39) 3 | $7 ?$ |
| e | Krater | 1210/2 | GM 2B (40) 3 | 7 |
| f | Jar | 1199/1 | GM 2B (41) 3 | 8/7 |
| g | Jar | 4999/2 | GM 2B W10 | 7 |
| h | Jar | 1195/1 | GM 2B (40) 3 | 7 |
| i | Jar | 1217/1 | GM 2B (40) 3 | 7 |
| , | Jar | 4220/1 | GM 2B (41) | $7 ?$ |
| k | Jar, perforated base (af) | 1210/4 | GM 2B (40) 3 | 7 |
| 1 | Hole-mouth jar | 1279/1 | GM 2B (40) 3 | 7 |
| m | Hole-mouth jar | 1210/1 | GM 2B (40) 3 | 7 |
| n | Vessel/krater(?); rs, vertical burnish | 1846B/1 | GM 2B (40) 4 | 7? |

was not excavated. As noted above, it was difficult at times to determine whether a given local element belonged to an upper subphase of Phase 7 or a lower one of Phase 6.

## Building II

Building II, lying mostly in Sqs. 1B, 2B, and 2C (Figures 8.70-8.76), which is adjacent to Building I from the northeast, was partly excavated and is composed mainly of Room A (Figures $8.70,8.92$ ), a large rectangular unit 8 m long and 3.8 m wide (internally $6.5 \times 2.4 \mathrm{~m}$ ), at least in Phase 5 . This room is very long, and it is uncertain whether there was any support for the roof in the form of pillars or vaulting or whether this was an open area or a small courtyard. If this was a courtyard, one could possibly relate it to the adjacent Building I, serving as its outer courtyard. On the other hand, the double walling existing between these two buildings and the lack of passage strengthen the possibility that these were two independent structures (see also Figures 8.156, 8.157).

To the northeast of Room A, another unit was denoted Room B (Figures 8.74-8.76), and to the east a partial unit was labeled Room C (Figure 8.91). In Phase 5, the southwestern wall of Building II (Wall 5A) perfectly abuts the external wall of Building I (Wall 5), indicating the contemporaneity of the two buildings. However, in earlier phases, a separate southwestern wall of Building II, Room A was not identified, meaning the room was probably smaller.

In the lower phase of Room A (Phase 6B?), Wall 11 runs under Wall 9A, defining a $2.5-\mathrm{m}$-wide room; it is possible that Feature 18 (Figures 8.70-8.72), a thin wall parallel to wall Feature 17 (Figure 8.73), may be a $5.5-\mathrm{m}$-long partition wall, adjoining Wall 10 in the southwest but above it. Feature 17 (Figure 8.73 , level 58.47 m ) is composed of a group of plastered bricks in the same area, cut by a pit (Feature 7), which may be an installation or remains of a plastered wall or a brick floor. The northwest brick wall of Building II, Room A (Sq. 1C, Wall 7,
same as Feature 25 in Sq. 2B, Figures $8.69,8.70$ ) relates to Wall 11 of a lower phase (Phase 6B or 7), which was found under Wall 5, although it is much narrower and cut by Wall E of Building I (Figure 8.69). Features 21, 25, and 26 in Sq. 2B are also various fragmentary brick walls/features in Room A, all of unclear designation. Although in the lower stage of Phase 6 in Room A (Building II) no clear floor level was defined in Sq. 2B (but note that Feature 12 may be such a floor), a partial cobble floor was preserved in Sq. 1B (Feature 25, Figure 8.70, levels of 58.05-58.66 $\mathrm{m})$. This feature is assigned to an upper stage (Layers 35 and 36 in Sq. 2B, Locus 3) as the cobbles (Sq. 1B, Feature 25; there is no number for these cobbles in Sq. 2B) run over Wall 11 (Figure 8.70), and at this stage Wall 9A (under Wall 9 of Phase 5) may have served as the northeast wall of the room. In Sq. 1C, Locus 2, Layer 7 and Locus 4, Layers 24A and 25-29 are assigned to Phase VI, Building II, Room A in this phase (Figure 8.21); a foundation trench (Sq. 1C FT3) was also identified for Wall 7, the northwestern wall of the room (note that in 1976-1977, the areas excavated in Field IV, Sq. 1C were given Sq. 2B numbers).

Only a few bowls, a krater, cooking pots, and jar fragments (Figure 8.84a-n), as well as a lamp fragment (Figure 8.84) and a more complete lamp (Figure 8.84t), can be securely attributed to Building II, Room A of Phase 6. In addition to the ceramic finds, a stone spindle or weight was found here (Figure 23.4h; see chapter 23). From the cobble floor, five grinders (Reg. Nos. 2874-2878), two handstones (Reg. Nos. 2871-2872), and a pivot stone (Reg. No. 2213) were recovered (see chapter 23 for a discussion of these items). Whether they were in secondary use, were redeposited in the cobble pavement, or indicate artifact usage within this space is not clear.

The situation in Building II, Room B to the northeast is even more complex in this phase, mostly because it was very fragmentarily excavated and documented. It is difficult to reconstruct the size of Room B in this phase or even know if it was a closed space. A series of chalky floor levels was excavated in this area (probably including phytolith layers), including Sq. 2B, Locus 2,


FIGURE 8.66. Pottery from Phase 7. SSJ = strainer-spouted jug; LPDW = Late Philistine Decorated Ware; rs = red slipped; rsb = red slipped and burnished; bf = before firing.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jug; rs, vertical burnish (LPDW?) | RV 1013 (SI Cat. No. 981) | GM 2B (41) |
| b | Amphora/jug; rs, vertical burnish | $6366 / 4$ | GM 2B (39) 3 |
| c | Jug; soot | $6366 / 3$ | GM 2B (39) 3 |
| d | Jug | $1191 / 2$ | GM 2B (41) |
| e | Jug/amphoriskos; rs, vertical burnish | 1846 A/1 | GM 2B (41) |
| f | Bottle/juglet? | $1217 / 3$ | GM 2B (40) 3 |
| g | Bottle/juglet? (same vessel as f?) | $1217 / 2$ | GM 2B (40) 3 |
| h | Juglet; rs | $4976 / 1$ | GM 2B (60)/ GM 2B (4) 3 |
| i | Juglet; rs | $4999 / 3$ | GM 2B W10 |
| j | Jug; rs | $6360 / 3$ | GM 2B (40) 3 |
| k | Base | $6360 / 2$ | GM 2B (40) 3 |
| l | Perforated jar(?) base (bf) | $1191 / 1$ | GM 2B (41) |
| m | Jar; rs, vertical burnish, black and cream decoration | na | GM 2B (42) \& (40) 4 |
| n | SSJ; rs, vertical burnish | $1850 / 1$ | GM 2B (41) |
| o | Stand? | Box 126 | GM 2A F19 |



FIGURE 8.67. Plan of Phase 6B.


FIGURE 6.68. Plan of Phase 6A.


FIGURE 8.69. Wall 7 in Sq. 2C under Wall 5 of Phase 6 (with stones).


FIGURE 8.70. Building II, Room A, Phase 6A, cobble floor (Feature 25) covering Wall 11 of Phase 6B, looking northwest.


FIGURE 8.71. Wall 5 of Building II, Room A(?) in Sq. 1C, looking southwest.


FIGURE 8.72. Wall 9A in Building II, Room A, looking north. (left)


FIGURE 8.73. Bricks (Feature 17) cut by Feature 7 in Sq. 2A, looking west.


FIGURE 8.74. Building II, Room B, Features 27, 28, and 29 (Sq. 2B), looking north.


FIGURE 8.75. Feature 27 (Sq. 2B), looking west.


FIGURE 8.76. Square 2B: Feature 27 in Building II, Room B.

Layers 36, 36A, and 37-41 (Figure 8.74-8.76, possibly also Layers 43-44; see a shell layer in Figure 8.78 and a cooking vessel found in situ in Layer 36, Figure 8.79). These thin layers reach a level of 57.77 m , indicating that Layers 38-41 likely belong to the lower stage of Phase 6 (Phase 6B) or to Phase 7. Wall 12 (adjoining Wall 11), Feature $17 \mathrm{~A}($ ? ) and Feature 22 seem to be wall fragments in this area. Feature 27 (Figures 8.74-8.76) is a circular area of cobbles in Locus 2, Layer 37, up to 0.3 m deep, near a tabun. Feature 28 (Figures 8.74) is a patch of cobbles in Layer 38 in Building II, Room B, and Feature 29 is a possible rectangular bin one brick thick; it is parallel to Wall 14, 1-1.5 m away from it (Figure 8.74). Wall 14 (Figure 8.77) is a brick wall made up of a single line of bricks, possibly adjoining Wall 11, and seems to relate to Locus 2, Layer 36; it only appears in the middle of the square. The documentation of this area was incomplete, and therefore, it does not appear on the plan.

Quite a few pottery vessels, mostly fragmentary, may belong to the space denoted as Building II, Room B (Figure 8.85),


FIGURE 8.77. Wall 14 in Sq. 2B, looking north.
some from fills of indecisive Phase 7 or Phase 6 allocation; these include various types of rounded and carinated bowls (Figure $8.85 \mathrm{a}-\mathrm{k}$ ), both plain red slipped and burnished. Also found here are cooking pot rims of various types (Figure $8.85 \mathrm{~s}-\mathrm{u}$ ), jar rims and necks (Figure 8.86a-h), a pithos rim (Figure 8.86i), jugs (Figure 8.86 j-o), a juglet (Figure 8.86p), a lamp (Figure 8.87e), and several decorated sherds (Figure $8.87 \mathrm{c}, \mathrm{d}$ ). Two additional important pottery vessels may originate from Room B in either a Phase 7 or 6 context: large fragments of a LPDW jar (Figure 8.87a) and a decorated large flask/jug (figure 8.87b). The ring base of a red-slipped and vertically burnished jug or amphora is also illustrated (Figure 8.86n). These vessels are characterized by a thick red slip, vertical burnishing, and linear decoration in black and white paint; these are discussed in further detail in chapter 12 (a similarly decorated flask/jug was found at Tel Masos, Stratum I, dated to the early Iron IIA; Fritz and Kempinski, 1983: pl. 145:1).

Small finds from Building II include, e.g., three clay stoppers (Figure 8.87 g and Reg. Nos. 1670-1671, two conical in shape and one disk shaped) and a tribladed complete bronze arrowhead (Figure 21.1o). A silver earring (Figure 8.84v) and an


FIGURE 8.78. Square 2B, Layer 36, Locus 2A, looking north; note layer with shells (lower left).


FIGURE 8.79. Square 2B, Layer 36, with a cooking vessel in situ.


FIGURE 8.80. Square 3B, Walls 12 and 13 of Phase 6; Wall 12 is cut by Pit 5A, and Wall 4 is on the bottom right.

Egyptian blue bead (Figures $8.84 \mathrm{u}, 22.4 \mathrm{r}$ ) were also found in Building II fill.

In the southern corner of Sq. 2C, Wall 8 (and possibly Wall 11) may define an additional room of Building II (defined as Room C). Here Feature 23 is a layer of bricks under Sq. 2C, Wall 8 , possibly forming a brick floor or remains of vaulting (possibly related to Feature 5 in Sq. 2B, a brick floor or vaulting designated to Phase 5; see below). Related to this space in Phase 6 are Sq. 2C, Locus 5A, Layer 1 and Locus 4, Layers 2-5 (excavated in 1977), as well as foundation trenches FT1 and FT2.

In Sq. 2A in the southeast of Building I, Wall 10 probably continued to be used in the subsequent phases. Locus 1, Layers 24-28 are fill and debris layers between levels of 58.22 and 58.66 m in this area (note that, generally, levels in Sq. 2A are about 0.5 m lower than those in Sq. 2B because of the natural slope of the mound). Pottery found in Sq. 2A, Locus 1 includes rounded and carinated bowls with red slip and burnish (Figure $8.89 \mathrm{a}, \mathrm{c}, \mathrm{e}-\mathrm{g}$ ), as well as red-slipped and plain open bowls (Figure $8.89 \mathrm{~b}, \mathrm{~d})$. A strainer bowl or "burner" (Figure 8.89 h ; for Iron IIA strainer cups from Qeiyafa, see Kang and Garfinkel, 2009a:125, fig. 6.5:8-9), a large burnished flask (Figure 8.89j), and a small
unusual vessel with a thick wall and two small pierced handles attached to the rim (Figure 8.89 k ) were also found in Locus 1.

## Remains in Sq. 3B (Building III)

Several architectural remains from this phase were uncovered in Sq. 3B (Figures 8.80-8.83, 8.101). This area, which lies to the southeast of the long southeastern wall of Building II (denoted Wall 7 in Sq. 2B and then Wall 5 in Phase 6 and Wall 4 in Phase 5 in Sq. 3B; see Wall 5 at the bottom of Pit 4, Figure 8.82), was denoted as Building III (Figure 8.91), although there is no clear evidence this was an independent building (it could have been a part of Building II, for example). Abutting Walls 12 and 13 (or possibly one thick wall) separate two units: Unit 1 to the southwest and Unit 2 to the northeast (Figure 8.80). There is little information about Unit 1 as the balk between Sqs. 2B and 3B was not removed, and furthermore, Feature 7 (a large ashfilled pit/feature in Sq. 2A) cuts this area from a post-Iron Age level (probably Phase 4). Nevertheless, a $1 \times 1 \mathrm{~m}$ area with large flat pebbles at an elevation of 58.53 m (Figure 8.81, Floor 2?) may be an installation or a floor of the unit in Phase 6. A thick,


FIGURE 8.81. Square 3B, north section.
coarse ceramic item found here (Figure 8.871) may be a spout or funnel applied to some vessel.

The space denoted as Building III, Unit 2 includes a clearer floor level (Layer 11 and Locus 1, Layer 11, 58.41-58.62 m, Figures 8.80, 8.101). The southeastern wall of Unit 2 (Wall 8) runs to the balk and has a wide foundation trench, possibly serving as a more massive outer wall. Two lines of stretcher bricks (Walls 6 and 7) may be thin separation walls in this unit, which was divided into Loci 1 and 2. The floor level in Locus 1 yielded an ostracon (SI Cat. No. 507; see Figure 32.1a; Naveh, 1985:11, fig. 2:1, IAA No. 84-208, possibly a list of Semitic and Philistine names), as well as several red burnished and other vessels (Figure
8.88). In the northern corner, Wall 10 (Figure 8.101; the wall is covered by the floor of Layer 11) probably belongs to an earlier phase (Phase 7; see above) together with Locus 2, Layers 12 and 13. Two complete juglets were found in Locus 2, Layer 12 (Figure 8.83).

The pottery found in Building III, Unit 2 includes the common rounded and carinated red-slipped and burnished bowls (Figure 8.88a-e), red-slipped and burnished kraters (Figure $8.88 \mathrm{f}, \mathrm{g}$ ), a large krater (Figure 8.88i), a cooking pot (Figure 8.88j), and jar and jug rims (Figure 8.881-o). Of special interest are a bowl fragment with a rising handle (Figure 8.88 k ), possibly a scoop (for Iron IIA scoops from Qeiyafa, see Kang and


FIGURE 8.82. Square 3B, Wall 5 at the bottom of Pit 4.


FIGURE 8.83. Square 3B: two juglets in Locus 2, Layer 12.

Garfinkel, 2009a:125, fig. 6.6:10,11; these are more common at Iron IIB-C, Tel Miqne, Stratum IB-C, Gitin, 1993; see also Mazar and Panitz-Cohen, 2001:50, Type BL18), and a completely intact small bottle (Figure 8.88p). This vessel is characterized by a swollen neck, thickened everted rim, biconical body, and pointed base. Parallels are rare, with a somewhat similar bottle found at Iron I Ashdod, Stratum XIII (Dothan and Ben-Shlomo, 2005: fig. 3.7:2). Two pear-shaped terracotta beads were also found here (Figure 22.5 f ; see chapter 22), as well as a stone scale weight (weight of 31.1 g , Figure 8.88 q ; see chapter 23) and a scarab (Figure 8.88 r; see chapter 27, Gamma No. 155, Figure 27.6a), which dates to the period between the LBII and Iron II.

Another possible remain of Phase 6 is in Sq. 1E, where Wall 1B (and Feature 1) lies under Wall 1A of Phase 5 (Figure 8.90). Generally, the pottery of Phase 6 (Figures 8.84-8.89) is largely similar to that of Phases 7 and 5 (discussed below). Nevertheless, no Assyrian-style or "palace ware" pottery, commonly found in Phase 5, was found in Phase 6. The quantity of red-slipped and burnished pottery is still high, especially bowls and jugs, but seems to be decreasing (about $45 \%$; see Table 8.3 below). Several examples of LPDW or Ashdod ware vessels come from this phase as well. The vast majority of the forms can be dated to the Iron IIB.

## Remains of Phase 5

Phase 5 (Figures 8.90, 8.91), which is probably the latest Iron Age phase in Field IV, is dominated by the vaulted Building I, which will be described separately in detail (Figures 8.908.175). This phase, including Building I, Building II, and possibly upper layers of Building III, displays an array of well-built and planned structures. Buildings II and III will be described prior to Building I, as these were already defined in Phases 7-6.

## Building II

There is a possibility that the area of Building II excavated is only a small part of the building, which extended to the north, south, and southeast. If that is the case, the areas denoted here as Building III could have been part of the same building (Figure 8.91). In particular, in the southeast in Sqs. 1C, 2C, 1D, and 2D, the area occupied by the circular granary (see below), which was not dismantled, is unknown to us. It is possible that the post-Iron Age granary was built upon an open area within this building, a large inner courtyard, as it would have facilitated the building without the need to dismantle earlier walls. ${ }^{1}$ Thus, Building II (Figures 8.92-8.98) may be reconstructed as a structure with a large open courtyard (empty of architectural features save for Sq. 2B, Feature 5 and Sq. 2C, fragmentary Walls 8 and 11) surrounded by elongated rooms, of which only Room A (and maybe fragmentary Room B) was excavated, as seen in Figure 8.91. Such a courtyard could have been up to 12.5 m wide (NW-SE) and possibly larger, but if Sq. 2C, Wall 8 is taken into account, it would have been smaller, at a width of 9 m . The space in Sq. 3B denoted as Building III, Unit 2 may have been another such elongated room, and the walls surviving in Sqs. 1C-1D, Phase 5 (see

Figures 8.99-8.106) could represent fragments of such rooms in the northwestern wing of the building. Note that two ostraca were found in this area, one in Phase 6 (Figure 32.1a) and one (on bone) in Phase 5 (Figure 8.106h). Such structures are typical of Neo-Assyrian administrative architecture (as seen in examples from Assyria at Dur Sharrukin, Nimrud, Nineveh, and Arslan Tash and in the southern Levant at Ayelet Ha-Shahar, Megiddo, Stratum III, Tel Miqne, etc.; see below and Reich, 1992). However, because of the small area excavated in this phase this suggestion is rather speculative.

In fact, in Building II, only Room A was completely excavated (Figures 8.92); it measures $8.0 \times 3.8 \mathrm{~m}$ externally and 6.5 $\times 2.5 \mathrm{~m}$ internally, with a relatively well preserved floor made of large- and medium-sized relatively flat cobbles at $58.71-58.87 \mathrm{~m}$ (Sq. 2B, Feature 12, Figure 8.92). The walls around the paving in Sqs. 1B and 2B were preserved to a height of $0.8-1.2 \mathrm{~m}$ above the floor (Walls 5A, 7, and 6 is Sq. 2B and Wall 7 in Sq. 1B, Figures $8.90,8.92$ ). Wall 9 in Sq. 2B was the northeastern wall of the room overlying Wall 9A directly under it (and Wall 11 below). It is not clear where the entrance to the room was, possibly in the northern corner in Sq. 1B; the wall was poorly preserved under the $1 \mathrm{~B}-1 \mathrm{C}$ balk (possibly several stones here relate to the entrance). In Sq. 1B, only the lower cobble floor was identified (see Phase 6A, Sq. 1B, Feature 25 above), and Locus 1, Layers 16-17 above it probably relate to Phase 5. Feature 16 is a brick-lined installation (quarter circle bin?) under a similarly oriented installation (Feature 11) in the southern corner of Building II, Room A ( $58.60-58.98 \mathrm{~m}$, Figure 8.93). Feature 10 is two bricks standing with mortar in between them. Layers 30-35 in Loci 1A and 1B in Sq. 2B belong to this phase, at heights ranging from 59.73 m to at least 59.00 m . Pit 5, Layers 1-8 in Sq. 2B may represent debris layers in Building II, Room A rather than an ash-filled pit; such thick debris layers (with an accumulation of 1 m ) probably represent several phases in this room. A line of bricks southwest of the middle of Wall 9 (Feature 8) may be a 0.6 -m-high partition wall representing one of these later subphases. In the upper layer (Layer 30), there was not a clear distinction between Room A and Room B to the northeast of Wall 9, and the floor levels of these two units may have been mixed (Loci 1A and 2A, as the reconstruction of the jar in Figure 8.95b indicates).

The pottery from Building II (see Table 8.4), Room A in Phase 5 (Figures 8.94, 8.95) includes red-slipped and plain bowls (Figure 8.94a-f, the last of which may be the upper bowl of a chalice), a nearly complete cooking pot (Type CP2, Figure 8.94 o), a chalice (Figure 8.94 m ), juglets (Figure $8.95 \mathrm{f}, \mathrm{g}$ ), and several storage jars (Figure 8.95a-e). An Assyrian-style bowl (Figure 8.94 k ) and a beaker (Figure 8.94n) were also found here; the bowl shown in Figure 8.94j, with white slip and brown bands, is related to this ware too. An iron ball (Figure 8.95i), an iron tool fragment (Figure 8.95 h ), and a bronze earring (Reg. No. 1332; see chapter 22) were also found here.

There was clearly a Phase 5 floor in Building II, Room B, but it was not very well defined. In Sq. 2B, Loci 2A and 2B were excavated in this room in Layers 31-35 (possibly also Layer 36 in Locus 2B; see Figures 8.78, 8.79), down to a level of 58.73 m . This area yielded two nearly complete jars (Figure 8.97a and

possibly Figure 8.98c) and other restorable vessels. Locus 2 B , Layer 31 was also a floor level, as well as Layer 31 in the north balk. Feature 9 may be a 0.9 -m-wide tabun in this area (Feature 14 may be another tabun in Room B). Two nearly complete cooking pots found in the room (Figure 8.96i,j) may relate to the tabun and indicate the function of the unit. An area of $3 \times 1.8$ m between Wall 9 and Wall 8 in Sq. 2C is covered by vault-type bricks (Sq. 2B, Feature 5; Sq. 2C, Wall 7, top level 59.86 m ). These are vertical standing bricks, probably representing a fallen vault or a brick floor fallen from a second story above. Note that Wall 8 in Sq. 2C, the northeastern wall of Building II, Room B, is cut by the foundation trench of Wall 3 of the granary (Figure 8.217 , Sq. 2C, east section, as well as the bricks, Sq. 2B, Feature 5), one of the only places where the stratigraphic relationship between the granary and the Iron Age phases can be clearly seen in Field IV.

The pottery from Building II, Room B in Phase 5 (Figures 8.96, 8.97) includes open and carinated red-slipped and plain bowls (Figure 8.96a-f), kraters (Figure $8.96 \mathrm{~g}, \mathrm{~h}$ ), two nearly complete cooking pots (Figure 8.96i,j), several jars (Figure 8.97a-e, including a complete tapered-base jar, Type JR2, Figure 8.97a), a nearly complete jug (Figure 8.97f), a complete juglet (Figure 8.97i), a complete lamp (Figure 8.97j), a mortarium bowl (Figure 8.98b), and a group of Assyrian-style bowl fragments (Figure 8.96k-q). It should be noted that Assyrian-style pottery was found in Building II in both Rooms A and B, although generally in smaller quantities than in several contexts of Building I (see below). At least 10 worked sherds were found in this area (Figure 8.98e andReg. Nos. 3372-3378), as well as a complete clay pyramidical loom weight (Figure 8.97 k ), two complete iron arrowheads (Figure 8.971,m r), an iron nail (Figure 8.97n), a bone/ivory disk (Figure 8.97o), a scarab (Figure 8.97 p; see chapter 27, Gamma No. 145, Figure

FIGURE 8.84. Pottery and other finds from Phase 6, Building II, Room A. Bld = building; rs = red slipped; rsb = red slipped and burnished. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 6367/1 | GM 2B (36) 3 | 6/7? | Bld II, Room A? |
| b | Bowl; rsb (inside/outside) | 6367/2 | GM 2B (36) 3 | 6/7? | Bld II, Room A? |
| c | Bowl; rsb | RV 255A/1 | GM 2B (35) 3 | 6 ? | Bld II, Room A |
| d | Bowl; rim band | RV 129 | GM 2B (37) 3 | 6 | Bld II, Room A |
| e | Krater; rsb | 6367/5 | GM 2B (36) 3 | 6/7? | Bld II, Room A? |
| f | Bowl; rsb | 6367/4 | GM 2B (36) 3 | 6/7? | Bld II, Room A? |
| g | Bowl; rs | 1627/1 | GM 1C (2) 7 | 6 | Bld II, Room A |
| h | Bowl; rsb | 6367/3 | GM 2B (36) 3 | 6/7? | Bld II, Room A? |
| , | Bowl | 6356/1 | GM 2B (37) 3 | 6 | Bld II, Room A |
| j | Bowl; rsb | 3020/2 | GM 1C (28) 4 | 6? | Bld II, Room A? |
| k | Cooking pot | 6371/1 | GM 2B (36) 3 | 6/7? | Bld II, Room A? |
| 1 | Jar | 6356/2 | GM 2B (37) 3 | 6 | Bld II, Room A |
| m | Jar | 6356/3 | GM 2B (37) 3 | 6 | Bld II, Room A |
| n | Jar | 6371/2 | GM 2B (36) 3 | 6/7? | Bld II, Room A? |
| o | Jug; rsb | 1867A/1 | GM 2B (38A) 3 | 6 ? | Bld II, Room B? |
| p | Juglet | 1627/2 | GM 1C (2) 7 | 6 | Bld II, Room A |
| q | Decanter | 6356/4 | GM 2B (37) 3 | 6 | Bld II, Room A |
| r | Juglet; rsb | 6371/3 | GM 2B (36) 3 | 6/7? | Bld II, Room A? |
| s | Lamp | 6367/6 | GM 2B (36) 3 | 6/7? | Bld II, Room A? |
| t | Lamp; soot | RV 200 | GM 2B (37) 3 | 6 | Bld II, Room A |
| u | Faience bead | Reg. No. 775 | GM 2B (37) 3 | 6 | Bld II, Room A |
| v | Silver earring | Reg. No. 1304 | GM 2B (36) 3 | 6 | Bld II, Room A |

27.3e; a date of LBII or Iron IIA is suggested), and an ostracon (Reg. No. 1956; see chapter 32, Figure 32.1c).

## Possible Building II Remains and Building I Surroundings

To the southeast of Building I, in Sq. 2A, Feature 18 covered an area of 0.7 m (Figure 8.99 , level of 58.72 m ) filled with sherds and vessels, including a complete large hole-mouth multihandled krater (see Figure 8.174k), a cooking pot (Figure 8.174l), and some iron slag, sealed by Layer 22; this may be the remains of a hearth and a related floor in an open area. Near the cooking pot (Figures 8.99, 8.1741), the upper part of a chalice-like thick vessel was found, possibly a stand or a funnel (Figure 8.174p) that had a wide perforation in its center; both vessels had soot marks on their exterior and may have been used together (the pot could have been put on the stand for cooking over a fire). As noted above, in Sq. 3B to the east (Building III?), Walls 9 and 11 overlie Walls 12 and 13, and rich floor levels of Layer 10 were excavated at elevations of 58.70-58.80 m (Figures 8.100-8.102, 8.104-8.106), yielding several complete storage jars (Figure $8.105 \mathrm{a}-\mathrm{c}$ and RV 22) and other vessels (Figures 8.104, 8.105, including red-slipped and burnished bowls, kraters, a cooking pot, jugs, and flasks), as well as other artifacts (such as a bone spatula, Figure $8.106 f$ ). This area was generally rich in finds, including a horse and rider figurine (Figure 8.106a). At least 11 rounded worked sherds (e.g., Figure 8.106 b and Reg. Nos. 1737-1743, 3092-3095) were found here in this phase, as well
as five pyramidical clay loom weights (e.g., Figure 8.106d and Reg. Nos. 1521, 1523, 1578, 1579), two of which were complete, a bronze nail fragment (Figure 21.4h), and an iron spear point (Figure 8.106e). A very interesting find from this area is a polished bone (Figure 8.106h from GM 3B (9), Reg. No. 4138, measurements of $2.8 \times 1.7 \times 0.2 \mathrm{~cm}$ ) with a Hebrew inscription in ink on it: the letters $ש(\operatorname{shin})$ and possibly $\boldsymbol{N}$ (aleph) seem to be written (see chapter 33, Figure 33.3).

In Sq. 0B, southwest of Building I, a cobbled area was located adjacent to the outer wall of the building (Figure 8.103, Locus 4). In Sqs. 1D and 1E, several walls of Phase 5 (possibly built already in Phase 6) were excavated, some sealed by Phase $3-4$ remains. These include Walls 3 and 6 in Sq. 1D, which create a T shape (Figure 8.90), and Wall 1 (also Wall 1A) in Sq. 1E, which is aligned with Wall 6 (Wall 6 was preserved to at least 1 m high and was built with mortar between header and stretcher courses, a typical Assyrian technique; see below). Feature 22 is possibly the foundation trench of Wall 6, and Locus 2, Layers 26-31 in Sq. 1D are attributed to Phase 5 fills (in a trench between the granary wall and Wall 6). A large quantity of worked sherds, mostly small rounded ones, were found in these fill layers (at least 83 items, e.g., GM 1D (31) 2, 16 items; Reg. Nos. 2577-2592, 2487-2500, 1822-1831, 1838-1852, 3757-3787; see chapter 18). These walls may be remains of an additional building (Building IV?), possibly indicating a sort of casemate structure continuing into the west balk (the inner width between Sq. 1D, Wall 6 and Sq. 1E, Wall 1 is about 1 m ), or, as suggested above, part of a western wing of a large courtyard building,


FIGURE 8.85. Pottery from Phase 6, Building II, Room B. Bld = building; rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl; rsb | 6673/1 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| b | Bowl; rsb | 1250/1 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| c | Bowl; rsb | 1246/1 | GM 2B (38) 2 | 6/7? | Bld II, Room B? |
| d | Bowl; rsb | 1840/1 | GM 2B (41) 2, Room A | 6/7? | Bld II, Room B? |
| e | Bowl; rs | 1280/1 | GM 2B (1) 5 | 6/7? | Bld II, Room B? |
| f | Bowl/krater | 1250/2 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| g | Bowl; rsb | 2857/2 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| h | Bowl; rsb | 6673/2 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| i | Bowl | 6673/3 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| j | Bowl | 2857/1 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| k | Bowl | 1280/2 | GM 2B (1) 5 | 6/7? | Bld II, Room B? |
| 1 | Bowl; rsb | 2362/1 | GM 2B (41) 2 | 6/7? | Bld II, Room B? |
| m | Bowl; rsb | 2362/1A | GM 2B (41) 2 | 6/7? | Bld II, Room B? |
| n | Bowl | 1218/1 | GM 2B F29 | 6 | Bld II, Room B |
| o | Chalice; rsb | 2314/1 | GM 2B (36) 2 | 6 | Bld II, Room B? |
| p | Bowl/chalice | 6357/1 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| q | Krater | 4210/1 | GM 2B (41) 2 | 6/7? | Bld II, Room B? |
| r | Krater? | 1198/1 | GM 2B (41) 2 | 6/7? | Bld II, Room B? |
| s | Cooking pot, soot | 6357/2 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| t | Cooking pot | 1246/2 | GM 2B (38) 2 | 6/7? | Bld II, Room B? |
| u | Cooking pot | 1289/1 | GM 2B (41) 2 | 6/7? | Bld II, Room B? |



FIGURE 8.86. Pottery from Phase 6, Building II, Room B(?). Bld = building; rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Jar | 4210/3 | GM 2B (41) 2 | 6/7? | Bld II, Room B? |
| b | Jar | 4210/2 | GM 2B (41) 2 | 6/7? | Bld II, Room B? |
| c | Jar | 1250/3 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| d | Jar | 2314/2 | GM 2B (36) 2 | 6 | Bld II, Room B? |
| e | Jar | 1250/6 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| f | Jar/krater | 1250/4 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| g | Jar | 2857/3 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| h | Jar/jug | 1218/2 | GM 2B F29 | 6 | Bld II, Room B |
| i | Pithos? | 1198/2 | GM 2B (41) 2 | 6/7? | Bld II, Room B? |
| j | Jar/jug | 2857/5 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| k | Jar/jug | 1246/3 | GM 2B (38) 2 | 6/7? | Bld II, Room B? |
| 1 | Jar/jug | 2857/4 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| m | Jug | 6357/3 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| n | Jug, rsb | 1847/1 | GM 2B (44) 2 | 6/7? | Bld II, Room B? |
| o | Jug(?), rsb | 1250/5 | GM 2B (37) 2 | 6 | Bld II, Room B? |
| p | Juglet, rs | 2362/2 | GM 2B (41) 2 | 6/7? | Bld II, Room B? |



FIGURE 8.87. Pottery and finds from Phase 6, Building II. Bld = building; rs = red slipped.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :--- | :--- | :--- | :--- | :--- | :--- |
| a | Jar; rs, vertical burnish, white/black decoration | $1867 / 1$ | GM 2B (41) 2 | $6 / 7$ ? | Bld II, Room B? |
| b | Flask/jug; rs, vertical burnish, white/black decoration | $1853 / 1$ | GM 2B (41) 2, P10 | $6 / 7$ ? | Bld II, Room B? |
| c | Sherd; rs, vertical burnish | Box 94 | GM 2B (37) 2 | 6 | Bld II, Room B |
| d | Sherd; rs, white/black decoration | $2362 / 3$ | GM 2B (41) 2 | $6 / 7$ ? | Bld II, Room B? |
| e | Lamp; soot | $2857 / 6$ | GM 2B (37) 2 | 6 | Bld II, Room B? |
| f | Lamp | $2314 / 3$ | GM 2B (36) 2 | 6 | Bld II, Room B? |
| g | Stopper | Reg. No. 1669 | GM 2B (36A) 2 | 6 | Bld II, Room B? |



FIGURE 8.88. Pottery and finds from Phase 6, Building III, Unit 2. rs = red slipped; rsb = red slipped and burnished

| Part | Description | Bag/RV No. | Provenance |
| :---: | :---: | :---: | :---: |
| a | Bowl; rsb | 3499/1 | GM 3B (11) 2 |
| b | Bowl; rsb | 3509/1 | GM 3B (11) |
| c | Bowl; rsb | 3509/2 | GM 3B (11) |
| d | Bowl; rsb | 3499/2 | GM 3B (11) 2 |
| e | Bowl; rsb | 3499/3 | GM 3B (11) 2 |
| f | Krater; rs | 3499/5 | GM 3B (11) 2 |
| g | Bowl/krater; brown slip | 3499/4 | GM 3B (11) 2 |
| h | Bowl | 3500/1 | GM 3B (11) 2 |
| i | Krater | 3500/3 | GM 3B (11) 2 |
| j | Cooking pot; soot | 3500/2 | GM 3B (11) 2 |
| k | Scoop? | 3500/8 | GM 3B (11) 2 |
| 1 | Jar | 3500/6 | GM 3B (11) 2 |
| m | Jar | 3500/5 | GM 3B (11) 2 |
| n | Jug(?); rs | 3500/7 | GM 3B (11) 2 |
| o | Jug/krater | 3500/4 | GM 3B (11) 2 |
| p | Bottle | RV 164 (SI Cat. No. 519) | GM 3B (11) 1 |
| q | Scale weight; stone | Reg. No. 1019 | GM 3B (11) 2 |
| r | Scarab | Reg. No. 1175 (SI Cat. No. 511) | GM 3B (11) |



FIGURE 8.89. Pottery from Phase 6. rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :--- | :--- | :--- | :--- | :--- | :--- |
| a | Bowl; rsb | $3537 / 3$ | GM 2A P2-1 | 6 | Locus 1 |
| b | Bowl | $3533 / 1$ | GM 2A P2-1 | 6 | Locus 1 |
| c | Bowl/krater; rsb (inside) | $3561 / 1$ | GM 2A (27) 1 | 6 | Locus 1 |
| d | Bowl | $3537 / 1$ | GM 2A P2-1 | 6 | Locus 1 |
| e | Bowl; rsb (inside) | $3537 / 2$ | GM 2A P2-1 | 6 | Locus 1 |
| f | Bowl/chalice; rs | $3683 / 1$ | GM 2A F20 | $6 / 7 A$ | Unit 1 |
| g | Bowl; rsb | $3537 / 4$ | GM 2A P2-1 | 6 | Locus 1 |
| h | Strainer bowl | Box 124 | GM 2A (29) 4 | 6 ? | Locus 4 |
| i | Jug(?) | $3718 / 1$ | GM 2A P1A-1 | 6 | Locus 1 |
| j | Flask; burnish | RV 61 | GM 2A (27) 1 | 6 | Locus 1 |
| k | Bowl/pyxis | $3537 / 5$ | GM 2A P2-1 | 6 | Locus 1 |
| l | Handmade vessel (funnel?) | $3705 / 1$ | GM 2A F20 | $6 / 7 A$ | Unit 1 |

Building II. Wall 6 in Sq. 1C is parallel to Wall 6 in Sq. 1D and may belong also to this structure as a wall segment seen in the western balk of Sq. 00B (Wall 3, Figure 8.161 ) some 10 m to the southwest. Two pieces of iron slag or bloom were found here (see Figure 21.6i, SCI 1569). It is possible that some iron working activity was conducted in the room or nearby, as these items are not found elsewhere at the site.

## Building I

Building I (Figures 8.90, 8.91, 8.107-8.165) is the most well preserved and impressive building of the late Iron Age levels
at Field IV (see, e.g., Van Beek, 1973, 1983, 1993a, 1993b), exposed in Sqs. 00A, 0A, 00B, 0B, 1A, 2A, and 1B. Nevertheless, the building was not excavated fully, and its complete plan is unknown to us. The exceptional nature of this building can particularly be noted in its spectacular preservation, allowing two stories to be exposed. Particularly impressive is the lower story, with its ceiling supported by vaults (Figures 8.107, 8.108). Nevertheless, as noted, the building was not completely excavated: it seems that only about half of it was unearthed, with all its southern part eroded. The orientation of this rectangular building is northeast-southwest (with the short side on the northeast) and is likely to exist in both Phases 6 and 5; the


FIGURE 8.90. Plan of Phase 5.
plan presented here is mainly of Phase 5 (Figures 8.90-8.91), the later of the phases preserved. Notably, there are no clear signs of destruction in most units of this building. Judging by the portion of the lower story that was exposed, the width of Building I was just above 10 m , and its length is at least 12.5 m . In the west, it is cut by erosion, whereas in the south the excavation borders the areas of Petrie's trenches (see Figure 8.158). It should be noted that Building I also suffered significant disturbance from
upper phases, especially from large pits of Phase 1 (see Figure 8.243 , e.g., Sq. 1A, TT11, Pit 2; Sq. 1A, Pits 3-4; Sq. 0B, Pit 4; Sq. 00A, Pits 3, 7, 8). These pits may indicate quarrying of building materials, such as clay bricks, from the Iron Age building in later periods.

The northeast wall of Building I (Sq. 1B, Wall 7; Sq. 2A, Wall 5 ; Figures $8.111,8.112$ ) perfectly abuts the wall of Building II (Sq. 2B, Wall 5A, Room A) and possibly abuts the


FIGURE 8.91. Schematic plan of Field IV, Buildings I-III.
southeast the wall of Building III in its lower phase (Phase 6). The deep foundations of this well-built wall (although only 0.8 m wide) can be seen in Sq. 2A, cutting Phase $6 \mathrm{~B}-7 \mathrm{~A}$ remains (see Figures $8.46,8.54,8.55,8.58-8.60$ ). It was built by combining a row of header bricks with a row of stretcher-laid bricks, with the gap filled by mortar. However, these are placed intermediately along the wall (in segments of about $2.5-3 \mathrm{~m}$ each); thus, the stretcher bricks are on the outer face of the wall in some places and on the inner face in others (this arrangement of bricks can be seen in the lower courses in the section of the wall as well, e.g., Figures 8.46, 8.54). In Sq. 2B (Wall 5A), where lower remains of Phases $7-10$ were excavated, this wall was exposed to a height of over 2 m preserved at least 20 courses high (Figure 8.46; of these, 16 are full courses). Only a
short segment of 1.5 m of the southeast wall of Building I was exposed in Sq. 2A (which continues into the southern balk). The long northeast wall of Building I was exposed for a length of 10 m (Figures 8.90, 8.108, 8.146, 8.159, 8.160; in Sq. 1B, Wall C; Sq. 0B, Wall 3; Sq. 00A, Wall 1; Sq. 00B, Wall 2). The wall was eroded in the western corner of the excavated area (thus, the southwestern wall of Building I is completely unknown to us). It is also about $0.8-1 \mathrm{~m}$ wide, built in most places by two header-placed bricks, yet stretcher bricks were also occasionally used. This irregularity in the construction may indicate repairs made in the wall over the course of its usage. In Sq. 0B the foundation trench of this wall was excavated (Feature 4, Figure 8.161), preserved with a "capping" of three bricks (Feature 3) covering the top of the trench. Another similar section of the


FIGURE 8.92. Room A, Building II, cobble floor (Feature 12).


FIGURE 8.93. Cobbles in Room A of Building II and bin feature (Feature 11; equals Features 16?), Sq. 2B.


FIGURE 8.94. Pottery from Building II, Room A (Phase 5). AS = Assyrian-style pottery; rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl; rsb | $6615 / 1$ | GM 2B F11 1B |
| b | Bowl; rsb | $6646 / 1$ | GM 2B (33) 1A |
| c | Bowl/krater; rs | $6662 / 2 \mathrm{~A}$ | GM 2B (33) 1B |
| d | Bowl; rsb | $6615 / 2$ | GM 2B F11 1B |
| e | Bowl; rs | $3858 / 1$ | GM 1B EBR (16) 1 |
| f | Bowl/chalice | $3858 / 2$ | GM 1B EBR (16) 1 |
| g | Bowl | $3869 / 1$ | GM 1B EBR (17) 1 |
| h | Bowl/krater; burnish inside | $6646 / 2$ | GM 2B (33) 1A |
| i | Bowl; white slip, brown decoration | $5908 \mathrm{~A} / 1$ | GM 1B NBR (16) |
| j | Bowl | $1617 / 1$ | GM 1B (16) 1 |
| k | Bowl; reddish clay (AS) | Box 423A/1 | GM 2B TT3 (2A) 1 |
| l | Miniature bowl? | $6646 / 3$ | GM 2B (33) 1A |
| m | Chalice; red paint | $1617 / 2$ | GM 1B (16) 1 |
| n | Beaker; whitish clay (AS) | Box 411A/1 | GM 2B TT3 (2A) 1 |
| o | Cooking pot | RV 181 | GM 2B (34) 1A |
| p | Krater/jar? | 7140 | GM 2B (31) 1A |

brick-capped foundation trench of this wall was excavated in Sq. 00B (Features 4 and 5, Figure 8.161).

It is suggested that the lower well-preserved story was the basement floor of the building, whereas the less well preserved story above it was the ground floor (Figure 8.109). Thus, the inner ground floor is less clear, and mainly the basement floor plan will be described. On this floor, six units or rooms were defined (Rooms A-F, Figures 8.107, 8.109); of these, three were completely excavated (Rooms A-C). Room D is only known in its northern corner, and Rooms E-F were partly excavated in the extension of the excavation in Sqs. 0A, 00A, 0B, and 00B
to the southwest. The location of the entrance to the building is not clear, but an entrance from the northwest near the northern corner of Room A through Wall C of Sq. 1B may be suggested. This entrance may be indicated by several flat stones recorded in Wall C of Sq. 1B (possibly Figures $8.110,8.111$ ), which may have served as a threshold or support for a door. It should be noted in this regard that the use of stones is very rare in Building I. However, if this is the basement level of the structure, an entrance from the outside to this space should not be expected. Moreover, remains of a staircase leading from the ground/first floor to the basement/lower floor were not detected.


FIGURE 8.95. Pottery and other finds from Building II, Room A (Phase 5).

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jar | RV 5 | GM 2B (30) 1B |
| b | Jar | RV 1021 | GM 2B (30) 1A and 2A |
| c | Jar | $1976 / 1$ | GM 2B W9 |
| d | Jar | $6662 / 3$ | GM 2B (33) 1B |
| e | Jar | $6662 / 4$ | GM 2B (33) 1B |
| f | Juglet | RV 154 (SI Cat. No. 360) | GM 2B TT3 (2A) |
| g | Bottle/juglet? | $3869 / 2$ | GM 1B EBR (17) 1 |
| h | Iron piece/tool | Reg. No. 317 | GM 2B (35) 1A |
| i | Iron ball | Reg. No. 315 | GM 2B (32) 1A |
| j | Spindle weight; stone | Reg. No. 1047 | GM 1B NBR (16) 1 |

The six rooms, of which five were extensively excavated, are all rectangular and comprise three smaller rooms (Figure 8.107, Rooms A-C) on the northeast side and three larger and longer rooms (Rooms D-F) placed to the northwest of them; each set of long and short rooms (A-F, B-E, C-D) is interconnected by a passageway, although no other connections between rooms were discerned. Some of the rooms contained a rather significant amount of pottery (see below), although it was usually not found on the floors (for pottery found in Building I, see also Table 8.4 below).

## Room A

Room A (Figures $8.111-8.120$ ) is about $2 \times 3.4 \mathrm{~m}$ in its inner dimensions and was completely excavated in Sqs. 1B and 0B. It is defined by outer Walls C (Sq. 1B) in the northwest and E in the northeast and inner Walls D in the southeast and G in the southwest. The inner walls are built of half bricks or of headerlaid bricks (different from the outer ones; see above). The tops of the walls of Room A (Figure 8.111) are preserved to a height of 2.3-2.7 m above the lower/basement floor (at 60.12-60.85 m , Figure 8.112), which is made of bricks at a level of 58.10 m
(Feature 21). The fill and debris in the room were excavated in Sq. 1B in Layers 10-15, Locus 2 (Layer 11, TT2) and contained ash and many Assyrian-style vessels (see Figures 8.117, 8.118), most of which had probably fallen from the upper/ground floor. The lower floor is made of closely laid vertical bricks sized $30 \times$ 50 cm (Figure 8.112). In the southwest, through Wall G, the passage between Rooms A and F was completely preserved (Figures $8.119,8.120$, Feature 23). This passage or doorway is about 1.5 m high and about $0.45-0.7 \mathrm{~m}$ wide. The opening of an earlier stage was 0.7 m wide, whereas a later one was reduced to a width of 0.45 m (Figure 8.120). The upper part of the passage is created by two bricks lying diagonally or in an arch (Figure 8.119); however, this is not a complete arch, and the arched bricks are not placed in a stable position. This instability may have caused the later reduction of the passage width. Feature 22 denotes the vaulting of the walls above the floor (Figures 8.113, 8.114), which is very well preserved and built of vertically laid bricks.

Pottery from Room A (Figures 8.115-8.116) includes open and carinated red-slipped and plain bowls (Figure 8.115a-f), a red-slipped bowl imitating Assyrian-style bowls (Figure 8.115h), a bowl with a large bar handle (Figure 8.115i), a krater and cooking


FIGURE 8.96. Pottery from Building II, Room B (Phase 5). AS = Assyrian-style pottery; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl; rsb | $2808 / 1$ | GM 2B (35) 2A | 5 |
| b | Bowl; rsb | $6661 / 1$ | GM 2B (35) 2B | $5(6 ?)$ |
| c | Bowl; rsb | $2808 / 2$ | GM 2B (35) 2A | 5 |
| d | Bowl; rsb | $2808 / 3$ | GM 2B (35) 2A | 5 |
| e | Bowl; rsb | $6661 / 2$ | GM 2B (35) 2B | $5(6 ?)$ |
| f | Bowl; rsb | $6661 / 3$ | GM 2B (35) 2B | $5(6 ?)$ |
| g | Krater? | $2606 / 3$ | GM 2B NBR (31) 2A | 5 |
| h | Krater/hole-mouth jar | $7107 / 1$ | GM 2B (31) 2A | 5 |
| i | Cooking pot; soot | RV 3 | GM 2B NBR (31) 2A | 5 |
| j | Cooking pot; soot | RV 1006 | GM 2B (35) 2A | 5 |
| k | Bowl; whitish (AS) | Box 400A/1 | GM 2B NBR (31) 2A | 5 |
| l | Bowl; whitish clay (AS) | Box 400A/2 | GM 2B NBR (31) 2A | 5 |
| m | Bowl; whitish (AS) | Box 60/3 | GM 2B TT3 (2A) 1 | 5 |
| n | Bowl; whitish clay (AS) | Box 60/5 | GM 2B TT3 (2A) 1 | 5 |
| o | Bowl; whitish (AS) | Box 60/4 | GM 2B TT3 (2A) 1 | 5 |
| p | Bowl; reddish clay (AS) | Box 60/1 | GM 2B TT3 (2A) 1 | 5 |
| q | Bowl; whitish clay (AS) | Box 60/2 | GM 2B TT3 (2A) 1 | 5 |



FIGURE 8.97. Pottery and other finds from Building II, Room B (Phase 5). rs = red slipped.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jar | RV 1020 (SI Cat. No. 621) | GM 2B NBR (31) 2A |
| b | Jar | $7130 / 1$ | GM 2B (31) 2A |
| c | Jug/jar; red and white decoration, rs inside | $2808 / 4$ | GM 2B (35) 2A |
| d | Jar | $2820 / 1$ | GM 2B (35) 2A |
| e | Jar | $2820 / 2$ | GM 2B (35) 2A |
| f | Jug; soot | RV 57 | GM 2B (31) 2A |
| g | Jug | $2820 / 3$ | GM 2B (35) 2A |
| h | Perforated sherd(?) | $2820 / 4$ | GM 2B (35) 2A |
| i | Juglet, soot | RV 145 (SI Cat. No. 619) | GM 2A NBR (31) 2A |
| j | Lamp | RV 157 | GM 2B WBR (31) 2A |
| k | Loom weight | Reg. No. 3060 | GM 2B NBR (31) 2A |
| l | Iron arrowhead | Reg. No. 1276 (SI Cat. No. 636) | GM 2B NBR (31) 2A |
| m | Bronze arrowhead | Reg. No. 1330 (SI Cat. No. 637) | GM 2B NBR (31) 2A |
| n | Iron nail | Reg. No. 321 | GM 2B (35) 1A |
| o | Disk (bone/ivory) | Reg. No. 1422 | GM 2B (32) 2A |
| p | Scarab | Reg. No. 1164 (SI Cat. No. 754) | GM 2B (35) 2B |



FIGURE 8.98. Pottery from Building II (Phase 5).

| Part | Description | Bag/RV No. | Provenance | Architecture |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl; red slip | $1608 / 1$ | GM 2C W8 | Room C? |
| b | Mortarium bowl | $7099 / 1$ | GM 2B (30) 2A | Room A/B? |
| c | Jar | RV 26 | GM 2B (30) 2A | Room A/B? |
| d | Sherd; red slip, burnish, black decoration | $6584 / 1$ | GM 2B (36) 2B | Room B? |
| e | Worked sherd | Reg. No. 1784 | GM 2B (30) 2A | Room A/B? |



FIGURE 8.99. Square 2A, Feature 18, with possible stone hearth and complete vessels.


FIGURE 8.100. Square 3B, Building III, Layer 10 (floor level) with finds including loom weights (dark) and a figurine (on right), looking east.


FIGURE 8.101. Square 3B, Building III(?): with Wall 8 in the left front, Wall 5 on the right, and Wall 9 in the center, looking west (Wall 10 of Phase 7 is on the bottom; note reversal of direction arrow).


FIGURE 8.102. Square 3B, Pit 5A cutting Wall 9.


FIGURE 8.103. Square 3B, Feature 3 with sherds and rubble stones, looking west.


FIGURE 8.104. Pottery from Building III, Unit 2. NA = not available; rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl | $3512 / 1$ | GM 3B (9) |
| b | Bowl | NA | GM 3B (10) |
| c | Bowl; rs | $3495 / 2$ | GM 3B (9) |
| d | Bowl; rs | $3495 / 1$ | GM 3B (9) |
| e | Bowl; rsb | $3327 / 1$ | GM 3B (10) |
| f | Bowl; rsb | $3495 / 4$ | GM 3B (9) |
| g | Bowl; rsb | $3495 / 3$ | GM 3B (9) |
| h | Bowl; rsb | $3327 / 2$ | GM 3B (10) |
| i | Bowl | $3512 / 2$ | GM 3B (9) |
| j | Bowl | $3512 / 4$ | GM 3B (9) |
| k | Bowl? | $3512 / 3$ | GM 3B $(9)$ |
| l | Cooking pot | $3495 / 5$ | GM 3B $(9)$ |

pots (Figure 8.115r-t), jars rims (Figure 8.116a-d), and jugs and juglets (Figure 8.116e,f). Especially notable are the many examples of Assyrian-style pottery (Figure $8.115 \mathrm{k}-\mathrm{p}$ ), including four complete or nearly complete thin bowls (Figure $8.115 \mathrm{k}-\mathrm{n}$ ). The lower part of a dimpled beaker was also found here (Figure 8.115q).

In Sqs. 1B and 1C, several fill layers possibly also reflect the fill in Room A, possibly of the upper floor deposit, especially Sq. 1B, Layers 10-11, Locus 1 (Layer 10, however, also contains Persian period sherds and thus is mixed) and Test Trench 3. The
quite large amount of pottery found in these layers was denoted as "above Room A" and illustrated separately (Figures 8.117, 8.118). These layers, although mixed, could have represented the upper or ground floor remains collapsing on the vaulted basement levels on Room A. Especially noteworthy is the large amount of Assyrian-style pottery coming from these contexts (Figures 8.117, 8.118); altogether, at least 40 fragments are illustrated, including several complete or nearly complete thin bowls


FIGURE 8.105. Pottery from Building III, Unit 2.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jar | RV 7 | GM 3B (10) |
| b | Jar | RV 1023 | GM 3B (9) |
| c | Jar | RV 12 | GM 3B (10) |
| d | Jar/jug | $3327 / 3$ | GM 3B (10) |
| e | Jar/jug | $3512 / 5$ | GM 3B (9) |
| f | Jar; red slip | $3318 / 1$ | GM 3B (10) |
| g | Jar | $3512 / 6$ | GM 3B (9) |
| h | Jar | $3516 / 1$ | GM 3B (10) |
| i | Jug/small amphora | RV 144 | GM 3B (10) and (9) |
| j | Jug | $3327 / 4$ | GM 3B (10) |
| k | Jug | $3327 / 5$ | GM 3B (10) |
| l | Jug; red slip, burnish | $3495 / 8$ | GM 3B 99 |
| m | Juglet | $3512 / 7$ | GM 3B (9) |
| n | Flask | $3495 / 6$ | GM 3B $(9)$ |
| o | Flask? | $3495 / 7$ | GM 3B $(9)$ |
| p | Lamp, soot | RV 205 | GM 3B (10) |



FIGURE 8.106. Finds from Building III, Unit 2.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Figurine | Reg. No. 1247 | GM 3B (10) |
| b | Worked sherd | Reg. No. 1741 | GM 3B (9) |
| c | Jar (marked) | Reg. No. 3109 | GM 3B (9) |
| d | Loom weight | Reg. No. 1522 | GM 3B (9) |
| e | Iron spear point | Reg. No. 1286 (SI Cat. No. 508) | GM 3B (9) |
| f | Spatula; bone | Reg. No. 1456 | GM 3B (10) |
| g | Clay bead | Reg. No. 825 | GM 3B (10) |
| h | Polished bone with inscription | Reg. No. 4138 | GM 3B (9) |

(Figures 8.117c, 8.118a,b,d), thicker bowls (Figure 8.118e-j), and at least five dimpled beakers (Figure 8.1181-r).

A large grinding stone (Figure 8.1160) was found in the northwestern side of Room A. This might indicate that domestic activities also took place here. Interestingly, this grinding stone, made of sandstone, seems to have been incompletely made (see chapter 23). Other small finds from Room A include a figurine head (Figure 8.116i), at least 12 small, rounded worked sherds (Figure 8.116j and Reg. Nos. 3656-3664, 3635-3636), two cylindrical clay objects, possibly perforated weights (Figure 8.116k,l), a clay plug/sealing with textile impression (Figure 8.116 m ), and two bone spatulas (Figures 8.116n, 25.41). A concentration of 126 faience disk beads were found in the room (Figure 8.116q) and were part of a necklace; an additional four faience beads were also possibly part of a necklace, as well as other beads found together, including five carnelian beads (Figure 8.116p; see chapter 22). A complete iron spear butt (Figure 21.2c) comes from the fill above the room. An ostracon was found in Building I, Room A (GM 1B (14) 2); it is written in Aramaic script (Figure 32.4e, Reg. No. 1957, and Naveh, 1985:19, fig. 5, pl. 4D).

## Room B

Room B (Figures 8.121-8.128) measures internally about $2.5 \times 3.4 \mathrm{~m}$ and was completely excavated in Sqs. 1A, 2A, and 1B (Figures 8.121, 8.122). It is defined by outer Wall 5 (Sq. 2A; Sq. 1A, Wall 7?) from the northeast and inner Wall D (Sq. 1B; Sq. 1A, Wall 8?) from the northwest, Wall 5 from the southwest, and Wall 8A from the southeast. The walls all show some signs of mud plastering and are preserved $1.4-2.25 \mathrm{~m}$ above the brick floor level (at $58.17-58.21 \mathrm{~m}$, in one place down to 59.76 m ; Figure 8.121 ); the vaulting is well preserved as well (Figure 8.122). The floor is built similarly to that in Room A, with the debris in Room B excavated in Sq. 1A, Locus 8, Layers 2-4 (see Figure 8.123). The vaulted ceiling of Room B was completely exposed and was supported by poles during excavation (Figure 8.122). Between Rooms B and E, the doorway was well preserved (Figures 8.124-8.127, Locus 9, Layers 1-7, 58.22-60.39 $\mathrm{m})$. This doorway is about 2.2 m high and 0.7 m wide, with an arched upper part built with typical voussoirs (Figure 8.127, see section; this was also denoted as Wall 4); the bricks in the vaults


FIGURE 8.107. Plan of Building I, showing vaults and rooms.
are grooved, possibly containing mortar (Figure 8.126). This doorway seems to be larger and better built than the one preserved between Rooms A and F (see Figures 8.119, 8.120) and is possibly similar to the early stage of the latter; therefore, this is a proper doorway, whereas the connection between Rooms A and F may be termed a passage. Note that both these passageways are floored by three header-laid bricks that are perpendicularly oriented to the main room flooring (Figures 8.109, 8.126).

The debris and floor of Room B were relatively empty of finds compared to Rooms A and F (Figure 8.128). Pottery from Room B includes rounded, open and carinated red-slipped bowls (Figure $8.128 \mathrm{a}-\mathrm{g}$ ) as well as plain bowls and kraters (Figure $8.128 \mathrm{~d}, \mathrm{~h}-\mathrm{n}$ ), jar rims (Figure $8.128 \mathrm{o}-\mathrm{r}$ ), and a jug and juglet (Figure $8.128 \mathrm{~s}, \mathrm{t}$ ). Small finds from Room B include worked sherds (Figure 8.128 u , v; altogether 14 in a layer above the room, Reg. Nos. 3140-3153, and 11 in Room B, Reg. Nos. 3155-3165), an iron ring/bracelet (Reg. No. 437; see chapter 22 on jewelry), and an iron nail (Figure 8.128w).

## Room C

Room C (Figures 8.129-8.135) is about $1.6 \times 3.3 \mathrm{~m}$ in its internal dimensions and was almost completely excavated in Sqs. 1 A and 2 A (Figures 8.129-8.131). It seems that Rooms A and C create a certain symmetry on the long axis of Building I, being smaller rooms than Room B in between (a similar symmetry may exist between Rooms F and D, as Room E is wider than Room F). The room is defined by outer Wall 5 (Sq. 2A) in the northeast and Wall 5A in the southeast and inner Wall 8A (Sq. 1A) in the northwest and Wall 8B in the southeast (with only its corner excavated; Figure 8.129); the southern corner of Room C was not excavated and lies in the southern balk. The tops of the walls in this case are only $0.6-1.3 \mathrm{~m}$ above the floor level; Wall 4-4A represents the well-preserved vaulting in the northeast, standing about 1 m high (Figure 8.129; in the southeast wall the vaulted is very clear, Figure 8.132). Here again the floor is made of three rows of stretcher-laid $0.5-\mathrm{m}$-long bricks at levels of 58.28-58.42


FIGURE 8.108. Building I from above, looking north.
m (Figures 8.129, 8.130). The fill and debris of Room C were excavated in Sq. 2A, TT8, Layers 1-4 and Feature 14, Layers 1-4 (also including parts of the vaulting; Figure 8.131). The floor level was also excavated in Feature 14, Layer 5, where two complete storage jars were found (Figures 8.133, 8.134, 8.135h; one of the jars was not recovered for illustration) in the center of the room. One of the jars lay horizontally on the floor, and the other, adjacent to it vertically, had its mouth upward, as if dug into the floor (Figure 8.134). One possibility is that these two similar sack-shaped storage jars, typical of the 7th century BCE (see below, Type JR1), were found in situ on the basement floor of the building. Another possibility is that they fell from the ground floor. The latter option seems to explain better their orientation and location on the floor. In the southwestern part of the room, possible remains of the passage from Room C to Room D were discerned (Sq. 1A, Locus 7, Layer 12, debris at 59.53 m and Feature 14, Locus 1, Layer 4).

Pottery from Room C (Figure 8.135) includes several bowls, a krater, a cooking pot, jars, and juglet and jug fragments (Figure $8.135 \mathrm{a}-\mathrm{m}$ ), as well as a large white-slipped chalice fragment
(Figure 8.135 n ) with its bowl perforated. An incised jar handle (Figure 8.135o) and a complete three-bladed bronze arrowhead came from Room C as well (Figure 8.135p). A scarab was probably also found in Room C (Figure 8.135 q; see chapter 27, Gamma 140, Figure 27.2f); a 26th Dynasty date of 664-600 BCE is suggested for this scarab. If correct, this date could be a terminus post quem for the abandonment of Phase 5 and Building I.

## Room D

Room D was not excavated and is reconstructed to be to the southwest of Room C, lying in the southern balk. Only its northern corner was partly defined in Sq. 1A. It is reconstructed to be similar to Room F (see below).

## Room E

Room E (Figures 8.136-8.144) is a long, rectangular room, measuring internally at least $4.9 \times 2.5 \mathrm{~m}$, and was partially excavated in Sqs. 1A and 0A (Figure 8.137). This internal room is


FIGURE 8.109. Floor plan of Building I, showing lower floors.


FIGURE 8.110. Eroded remains of Wall 1, Sq. 0A in west balk.


FIGURE 8.111. Building I, Room A, upper and lower floors from above, Sq. 1B.


FIGURE 8.112. Building I, Room A, upper and lower floors from above, looking east, Sq. 1B.


FIGURE 8.113. Building I, Room A, northeast wall and vault.


FIGURE 8.114. Building I, Room A, northwest wall and fallen(?) vault.
defined by Wall 2 in Sq. 0A in the northwest, Wall 5 of Sq. 1A in the northeast, and Wall 8 A in the southeast. The tops of the walls are preserved to about $1.6-1.9 \mathrm{~m}$ above the brick floor, which was partly preserved (Figure 8.138). The floor is at levels of $58.25-57.95 \mathrm{~m}$, and the debris was excavated in Sq. 0A, Layers 8-9 and Sq. 1A, Locus 10, Layers 1-4. Square 0A, Layer 9 $(59.40 \mathrm{~m})$ includes the fill in Room E and its brick floor (with bricks measuring $0.46 \times 0.21 \mathrm{~m}$, laid as headers and stretchers). In the southwest, also possibly cut by Petrie's excavations, Feature 2 in Sq. 0A is the tumbled vaulting of Rooms E and F. The bricks lay in a northeast-southwest orientation (Figures 8.1398.140 ), opposite the line of vaulting elsewhere in the building. Thus, this may be the remains of the brick ground floor above rather than the vaulting. Feature 1 in Locus 10 (excavated in 1973) may be the remains of a $0.7-\mathrm{m}$-wide round tabun (comprising an ashy area and a thin mud wall) in the northern corner of the room (Feature 1, Figures 8.141, 8.142). The floor in this
room may not have been completely paved with bricks (see Figure 8.140), as the possible existence of the tabun testifies. As noted, a well-preserved doorway was excavated between this room and Room B (Figures 8.124-8.127).

Pottery from Room E (Figure 8.143) includes a bowl (Figure 8.143a), two large hole-mouth (multihandled?) kraters (Figure $8.143 \mathrm{~b}, \mathrm{c}$, the latter of which is a complete example), a cooking pot (Figure 8.143d), several nearly complete jars (Figure 8.143ek), and a juglet (Figure 8.1431). Also illustrated are a residual Philistine Bichrome sherd from the Iron I (Figure 8.143 m ) and a body sherd with a plastic rope decoration from a handmade vessel (Figure 8.143n).

In Room E, an inscription (see chapter 32, Figure 32.1e, Reg. No. 1958, possibly mentioning almonds: šqd.bl.qb,דקש. ( בק.לב (denoted RV 33). Only body sherds from this jar were recovered, but it is probably a typical bag-shaped jar (Type JR1; see


FIGURE 8.115. Pottery from Building I, Room A. AS = Assyrian-style pottery; rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance |
| :---: | :---: | :---: | :---: |
| a | Bowl | 5920/1 | GM 1B (14) 2 |
| b | Bowl; rsb (outside) | 5880/1 | GM 1B (15) 1 |
| c | Bowl;, rsb | 5883/1 | GM 1B (14) 2 |
| d | Bowl; rsb | 5916/1 | GM 1B (11) 2 |
| e | Bowl; rsb (outside) | 5883/2 | GM 1B (14) 2 |
| f | Bowl/krater; rsb | 5883/3 | GM 1B (14) 2 |
| g | Bowl; rsb | SI Cat. No. 488 | GM 1B (14) 2 |
| h | Bowl/bottle; rs | RV 112 | GM 1B (14a) 2 |
| 1 | Bowl; wheel burnish | RV 134 | GM 1B (11) 2 |
| j | Base | 5883/5 | GM 1B (14) 2 |
| k | Bowl; whitish clay (AS) | SI Cat. No. 217.3 | GM 1B (11) 2 |
| 1 | Bowl; reddish clay, burnish outside (AS) | SI Cat. No. 217.1 | GM 1B (11) 2 |
| m | Bowl; pinkish-whitish clay (AS) | SI Cat. No. 217 (IAA 71-335, IMJ) | GM 1B (11) 2 |
| n | Bowl; reddish clay (AS) | Box 405A/1 | GM 1B (11) 2 |
| o | Bowl; whitish (AS) | Box 408A/1 | GM 1B (11) 2 |
| p | Bowl; whitish (AS) | Box 406A/1 | GM 1B (11) 2 |
| q | Beaker; whitish (AS) | SI Cat. No. 245.2 | GM 1B F14 |
| r | Krater | 5916/2 | GM 1B (11) 2 |
| s | Cooking pot | 5883/4 | GM 1B (14) 2 |
| t | Cooking jug/pot | 5893/1 | GM 1B (15a) 1 |



FIGURE 8.116. Finds from Building I, Room A.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jar | $5920 / 3$ | GM 1B (14) 2 |
| b | Jar | $5880 / 2$ | GM 1B (15) 1 |
| c | Jar | $1592 / 2$ | GM 1B Wall F \{F15\} |
| d | Jar | $5920 / 4$ | GM 1B (14) 2 |
| e | Jug | $5916 / 3$ | GM 1B (11) 2 |
| f | Juglet; rs | RV 137 | GM 0B-2B Room A |
| g | Lamp; soot | $5893 / 2$ | GM 1B (15a) 1 |
| h | Handmade vessel (jar?) | $5920 / 5$ | GM 1B (14) 2 |
| i | Figurine | Reg. No. 1245 | GM 1B (14) 2 |
| j | Worked sherd | Reg. No. 3655 | GM 1B (14) 2 |
| k | Weight/loom weight | Reg. No. 1650 | GM 1B (11) 2 |
| l | Loom weight | Reg. No. 1943 | GM 1B (11) 2 |
| m | Clay plug/sealing | Reg. No. 2143 | GM 1B (15) 1 |
| n | Spatula; bone | Reg. No. 1452 | GM 1B (11) 2 |
| o | Grinding stone; sandstone | Reg. No. 895 | GM 1B F10 |
| p | Beads (carnelian, faience) | Reg. No. 819a | GM 1B (14) |
| q | Beads (faience) | Reg. No. 819 | GM 1B (14) |



FIGURE 8.117. Assyrian-style pottery from above Building I, Room A.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Bowl; reddish clay | Box 31/9 | GM 1B (11) 1 | 5 |
| b | Bowl; reddish clay | Box 404A/1 | GM 1B (11) 1 | 5 |
| c | Bowl; whitish clay | SI Cat. No. 458 | GM 0B (8) 5 | 5? |
| d | Bowl; whitish clay | Box 401A/1 | GM 1B TT2 | 5? |
| e | Bowl; whitish clay | Box 402A/1 | GM 1B (11) 1 | 5 |
| f | Bowl; whitish clay | Box 39/2 | GM 1B TT3 (1) | 5 |
| g | Bowl; whitish clay | Box 39/1 | GM 1B TT3 (1) | 5 |
| h | Bowl; reddish clay, white outside | Box 403A/1 | GM 1B (11) 1 | 5 |
| i | Bowl/beaker; reddish clay | Box 32/4 | GM 1B (11) 1 | 5 |
| j | Bowl; coarse reddish clay | Box 32/8 | GM 1B (11) 1 | 5 |
| k | Bowl; reddish clay | Box 300C/1 | GM 1B (10) 1 | 4/5? |
| 1 | Bowl; whitish clay | Box 32/2 | GM 1B (11) 1 | 5 |
| m | Bowl/beaker; whitish clay | Box 31/3 | GM 1B (11) 1 | 5 |
| n | Bowl/beaker; whitish clay | Box 31/4 | GM 1B (11) 1 | 5 |
| o | Bowl/beaker; whitish clay | Box 31/1 | GM 1B (11) 1 | 5 |
| p | Bowl/beaker; whitish clay | Box 31/5 | GM 1B (11) 1 | 5 |
| q | Bowl/beaker; reddish clay | Box 31/7 | GM 1B (11) 1 | 5 |
| r | Bowl/beaker; whitish clay | Box 31/2 | GM 1B (11) 1 | 5 |
| s | Bowl; reddish clay | Box 32/7 | GM 1B (11) 1 | 5 |
| t | Bowl; reddish clay | Box 32/3 | GM 1B (11) 1 | 5 |
| u | Bowl; whitish clay | Box 32/5 | GM 1B (11) 1 | 5 |
| v | Bowl; reddish clay, white outside | Box 407A/1 | GM 1B (11) 1 | 5 |
| w | Beaker(?); whitish clay | Box 301A/1 | GM 1B (11) 1 | 5 |
| x | Bowl; whitish clay | Box 408B/1 | GM 1B (10) 1 | 5 |
| y | Bowl; reddish clay | Box 32/1A | GM 1B (11) 1 | 5 |
| z | Bowl/beaker; reddish clay | Box 31/6 | GM 1B (11) 1 | 5 |
| aa | Bowl; reddish clay | Box 410A/1 | GM 1B (11) 1 | 5 |
| bb | Bowl; whitish clay | Box 38/1 | GM 1B TT2 | 5 |



FIGURE 8.118. Assyrian-style pottery from above Building I, Room A. NA = not available.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl whitish clay | NA | GM 1B TT3 (1) | 5 |
| b | Bowl, whitish clay | SI Cat. No. 221 | GM 1B TT2 | 5 ? |
| c | Bowl/beaker, reddish clay | Box 31/8 | GM 1B (11) 1 | 5 |
| d | Bowl, burnish, reddish clay | SI Cat. No. 217.2 | GM 1B TT2 | 5 ? |
| e | Bowl, reddish clay | Box 32/6 | GM 1B (11) 1 | 5 |
| f | Bowl, reddish clay | Box 300C/2 | GM 1B (10) 1 | $4 / 5$ ? |
| g | Bowl, reddish clay | Box 141A/1 | GM 'Room A' | 5 ? |
| h | Bowl, reddish clay | Box 138/1 | GM 1B (10) 1 | $4 / 5$ ? |
| i | Bowl | Box 31/10 | GM 1B (11) 1 | 5 |
| j | Bowl, whitish clay | Box 39/3 | GM 1B TT3 (1) | 5 |
| k | Bowl, reddish clay | Box 300A/1 | GM 1B (11) 1 | 5 |
| l | Beaker, whitish clay | SI Cat. No. 245 | GM 1B TT2 | 5 ? |
| m | Beaker, whitish clay | Box 422A/1 | GM 1B TT2 | 5 ? |
| n | Beaker, whitish clay | SI Cat. No. 245.1 | GM 1B TT3 (1) | 5 |
| o | Sherd, reddish clay | Box 31/12 | GM 1B (11) 1 | 5 |
| p | Sherd, reddish clay | Box 31/11 | GM 1B (11) 1 | 5 |
| q | Sherd, whitish clay | Box 38/2 | GM 1B TT2 | 5 |
| r | Sherd, reddish clay | Box 38/3 | GM 1B TT2 | 5 |



FIGURE 8.119. Passage between Building I, Rooms A and F from Room A (Sq. 1B).
below), similar to at least three other jars from the room (Figure $8.143 \mathrm{e}, \mathrm{g}$ ). A large conical stopper made of unbaked clay (Figure 8.144a) should also be noted, and it may have sealed such a jar.

Small finds from Room E (Figure 8.144) include a perforated cylindrical object, maybe a kernos fragment (Figure 8.144b), and quite a few metal objects, including three iron arrowheads (Figure $8.144 \mathrm{c}-\mathrm{e}$ ), an iron blade fragment (Figure 21.5e), an iron hook (Figure 8.144f), a bronze shallow bowl or spoon (Figure 8.144 g ), and a stone pendant (Figure 8.144 h ) and beads (Reg. Nos. 733, 799, 810), as well as a bronze earring (Reg. No. 1942A; see chapter 22).

## Room F

Room F (Figures $8.145-8.155$ ) is about 1.7 by at least 7.3 m in its internal measurements, and it was partly excavated in Sqs. $0 \mathrm{~A}, 00 \mathrm{~A}$, an 0B (Figures 8.90, 8.107); the western part in Sq. 00 A is heavily eroded (Figure 8.110). This long, narrow room is defined by outer Wall 1 of Sq. 00A in the northwest, inner Wall 2 in the southeast (this wall is plastered in several segments), and Wall G of Sq. 1B in the northeast (also Sq. 0B, Wall 6); as noted, the passage between Rooms F and A was excavated and


FIGURE 8.120. Section of doorway between Rooms A and F.
fully preserved along Wall G (Figures 8.119, 8.120). The walls in this room stand at least 2.2 m above the room's brick floor (at 58.12 m ), and the vaulting is very well preserved (Figures 8.145, 8.148: Sq. 0A, Feature 2; Sq. 00A, Feature 4; and Sq. 0B, Feature 5); this may be seen is Sq. 0A as well (Figure 8.137, Room E). The brick floor did not contain any installations and was built of three rows of 50 cm bricks (Figures $8.145,8.146$ ). The remains in Sq. 00A were heavily eroded in the west. Wall 3 in Sq. OB (60.87-59.14 m) is probably part of the vaulting as well as possibly the flooring of the ground floor above (Figures 8.147, 8.148 , such as Sq. 00A, Feature 4), as the bricks lie in a direction perpendicular to the voussoirs in the arches. The fill and debris in this room were excavated in Sq. 00A as one unit (Layer 1, Locus 3, Figure 8.149), with an accumulation up to 2.65 m from 58.11 to 60.30 m . In Sq. 0B, the debris was excavated in


FIGURE 8.121. Building I, Room B, Sq. 1A, Walls 4 and 5 and brick floor, looking east.


FIGURE 8.122. Building I, Room B, vaults supported by poles and brick floor, looking northeast.


FIGURE 8.124. Doorway between Rooms E and B in Building I, from Room E (Sq. 1A).


FIGURE 8.125. Doorway in Sq. 1A, Locus 7, Layer 12, looking west.


FIGURE 8.126. Inside doorway between Rooms B and E (Sq. 1A, Locus 9, Layer 1).


FIGURE 8.127. Section of doorway between Rooms E and B in Building I.

Locus 4, Layers 13A-16. This thick layer yielded many pottery vessels and small finds; some probably come from the ground/ upper floor, whereas others come from the basement/lower floor, but as the whole layer was excavated as one unit, it is impossible to separate the two.

The rich pottery assemblage from Room F mostly comes from the thick fill in Layer 1 in Locus 3 in Sq. 00A (Figures 8.150-8.153) and includes mainly open and carinated redslipped and plain bowls (Figure 8.150a-n), rims of large holemouth kraters (Figure $8.150 \mathrm{o}-\mathrm{q}$ ), two chalice fragments (Figure $8.151 \mathrm{i}, \mathrm{j}$ ), and several cooking pots fragments (Figure 8.150s-z). Several storage jars (Figure 8.152a-j) include one intact jar (Figure 8.152a), a bag-shaped jar (Figure 8.152b), and Phoenicianstyle storage jar fragments (Figure 8.152j). Several jugs and juglets (Figure $8.152 \mathrm{k}-\mathrm{p}$ ), a complete mortarium bowl with a flat base (Figure 8.151k), and a red-slipped spoon flask (Figure 8.152 q) were also retrieved. Several Assyrian-style vessels were also found in Room F (Figure 8.151a-h), including a complete thin-ribbed bowl (Figure 8.151a) and two complete open bowls (Figure $8.151 \mathrm{~g}, \mathrm{~h}$ ). Two unclear pottery objects (Figure 8.153a,b) are illustrated as well. An Ionian cup and an Attic sherd (Figures 14.1 h, 14.3 b; also Figure 14.2a) originating from this fill are probably intrusive.

Small finds from Room F (Figure 8.153) include a molded female figurine (Figure 8.153c), worked sherds (Figure 8.153d and Reg. Nos. 3172, 3178), several pyramidical clay weights, including two complete examples (Figure 8.153e,f and Reg. Nos. $1583,1599,1674$ ), a stone pyxis(?) (Figure 8.153 k ), a limestone mortar fragment (Figure 8.153 j ), two iron points/nails (Figure $8.153 \mathrm{~g}, \mathrm{~h}$ ), a bronze piece with a textile attached to it (Reg. No. 2026), a pillar-shaped terracotta bead (Reg. No. 824; see chapter 22), and a bone spatula (Figure 8.153i; see chapter 25); two worked astragali were also found here (see chapter 33). The faunal remains also indicate cooking and/or food consumption activities (or possibly food storage, as suggested in chapter 33) in Room F. Of the 193 bones studied from Building I, 174 were found in Room F, including four fish bones (see chapter 33, Table 33.12); these were rarely found elsewhere. A total of 82 Cerastoderma glaucum shells (common sea shells) were identified in this room as well (see Appendix 33.1).

## THE ARCHITECTURE OF PHASE 5 AND ITS NEO-ASSYRIAN CHARACTERISTICS

In this section, the architectural characteristics of the structures at Tell Jemmeh Field IV, Phase 5 will be summarized and then compared to Neo-Assyrian architectural traditions. As noted, if the level of Building I, Rooms A-F is the basement floor of the building, the inner ground floor plan can hardly be reconstructed, as only patches of the brick floors were preserved. Nevertheless, if it is assumed that the ground floor follows the basement plan, a reconstruction may be suggested (Figures 8.109, 8.157); another option would be to reconstruct the ground floor like that of Building II (see Figure 8.156). The connection between Building I and the upper phase of Building II seems apparent as the two buildings perfectly abut each other; possibly, they complemented each other in an array of administrative structures. Note that the pebble floor of Room A (Phase 5, Figure 8.92) in Building II is about $0.6-0.7 \mathrm{~m}$ higher than the floor levels of the rooms in Building I. Thus, if we assume that both buildings were contemporary, the lower floor in Building I is not a full story under the ground floor of Building II. It is possible, therefore, that the lower floor was a ground floor, and the floor above the vaulting in Building I was an upper floor. However, it is still possible that because of a natural slope (the area does slope up to 1.5 m to the east in this area; see above), the lower Building I floor was located underground as a basement floor (see Figures 8.156, 8.157). The nearby area was excavated by Petrie (1928: pl. IX), but the plan contemporary with Field IV, Phase 5 is difficult to reconstruct (see Figure 8.158). Level E-F of Petrie's excavations shows certain similarities to Building I and II, although it is dated earlier (his XXIInd Dynasty town, or Stratum E-F). Similar architecture, both in plan, size, and brick laying technique, can probably be seen in Buildings ET-EW-EY and EB-EG (Petrie, 1928:6-7, pl. IX and possibly also pl. X, although there dated earlier, to the XXIInd Dynasty). Both these layers in Petrie's excavation (Layers E-F and C-D, the XXIInd and XXIIIrd Dynasty towns) probably illustrate the massive use


FIGURE 8.128. Finds from Building I, Room B. rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance |
| :---: | :---: | :---: | :---: |
| a | Bowl; rs (inside) | 3063/1 | GM 1A (2) 8 |
| b | Bowl; rsb | 3050/3 | GM 1A (3) 8 |
| c | Bowl; rs | 3050/2 | GM 1A (3) 8 |
| d | Bowl | SI Cat. No. 77.7 | GM 1A (3) 8 |
| e | Bowl; rsb | 3063/3 | GM 1A (2) 8 |
| f | Bowl; rsb (outside) | 3063/4 | GM 1A (2) 8 |
| g | Bowl; rs | 3050/1 | GM 1A (3) 8 |
| h | Bowl/cooking pot | 3063/6 | GM 1A (2) 8 |
| , | Bowl | 3050/4 | GM 1A (3) 8 |
| j | Krater/bowl | 3063/5 | GM 1A (2) 8 |
| k | Bowl; rs | 3038/1 | GM 1A (1) 9 |
| 1 | Krater/bowl | 3063/2 | GM 1A (2) 8 |
| m | Krater | 3050/5 | GM 1A (3) 8 |
| n | Krater? | 3063/7 | GM 1A (2) 8 |
| o | Jar | 1390/1 | GM 1A (2) 8 |
| p | Jar | 3050/6 | GM 1A (3) 8 |
| q | Jar; soot | 3050/7 | GM 1A (3) 8 |
| r | Jar | 3038/2 | GM 1A (1) 9 |
| s | Jug; rs | 3063/8 | GM 1A (2) 8 |
| t | Juglet | 5618/1 | GM 1A (1) 9 |
| u | Worked sherd | Reg. No. 3155 | GM 1A (2) 8 |
| v | Worked sherd | Reg. No. 3156 | GM 1A (2) 8 |
| w | Iron nail | Reg. No. 274 | GM 1A (3) 8 |



FIGURE 8.129. Building I, Room C, Sq. 2A, northwest wall, vaults, and brick floor, looking northeast.
of Assyrian-style brick laying and Assyrian-style palace ware pottery (Petrie, 1928:6-7, pl. XII, top). Also, buildings denoted as dating to the 7th century BCE (Petrie, 1928: pl. XI; Reich, 1996) that were probably also used during the Persian period (according to Attic pottery found in them) may have been at least partly erected during the period contemporary with Phase 5. Petrie's Building B, the "residence," may particularly be dated to this period and may show certain Assyrian influences in its
plan, which comprises a large courtyard and elongated rooms surrounding it (see Mattingly, 1980; Reich, 1996; see also further discussion in the synthesis in chapter 34).

Although Building I was not violently destroyed and the ground floor was barely preserved, there is a significant assemblage of pottery and small finds from the building. The finds from the different rooms are compared in Table 8.2. Rooms A and F (which are connected) show more intensive and diversified


FIGURE 8.130. Building I, Room C (Sq. 2A, vaults and brick floor).


FIGURE 8.131. Building I, Room C, close-up on Feature 14, Layer 5 , looking east.


FIGURE 8.132. Vault in southwestern wall of Room C.


FIGURE 8.133. Two storage jars on floor of Room C during excavation.


FIGURE 8.134. Close-up of the two storage jars.


FIGURE 8.135. Finds from Building I, Room C. Bld = building; AS = Assyrian-style pottery; rs = red slipped; af = after firing.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl; rs | 2655/1 | GM 2A F14 (3) | 5 | Bld I, Room C |
| b | Bowl | 2627/1 | GM 2A F14 (2) | 5 | Bld I, Room C |
| c | Jug? | 2627/2 | GM 2A F14 (2) | 5 | Bld I, Room C |
| d | Bowl | 2655/2 | GM 2A F14 (3) | 5 | Bld I, Room C |
| e | Bowl/beaker; reddish, white outside (AS) | Box 247/1 | GM 2A TT4 (6) | 5? | Bld I, Room C? |
| f | Cooking pot? | 2629/1 | GM 2A F14 (1) | 5 | Bld I, Room C |
| g | Krater/jar | 2651/1 | GM 2A F14 (2) | 5 | Bld I, Room C |
| h | Jar | SI Cat. No. 377 | GM 2A F14 | 5 | Bld I, Room C |
| i | Jar | 2627/3 | GM 2A F14 (2) | 5 | Bld I, Room C |
| j | Jar | 2639/1 | GM 2A F14 (3) | 5 | Bld I, Room C |
| k | Jar | 2639/2 | GM 2A F14 (3) | 5 | Bld I, Room C |
| 1 | Juglet/bottle | 2639/3 | GM 2A F14 (3) | 5 | Bld I, Room C |
| m | Jug; vertical burnish | 4096/1 | GM 2A W4 FT | 5 | Bld I, Room C FT |
| n | Chalice, perforated, thick white slip | RV 143 (SI Cat. No. 366) | GM 2A F14 (3) | 5 | Bld I, Room C |
| o | Jar/jug handle + mark, af | Reg. No. 1969 | GM 2A F14 (2) | 5 | Bld I, Room C |
| p | Bronze arrowhead | Reg. No. 1010 (SI Cat. No. 169) | GM 2A F14 1 | 5 | Bld I, Room C |
| q | Scarab | Reg. No. 1159 (SI Cat. No. 235) | GM 1A (12) 7 | 5 | Bld I, Room C? |



FIGURE 8.136. Square 1A, Locus10, Layer 1A, brick tumble in Building I, Room E.


FIGURE 8.137. Close-up of vaults in Building I, Room E (Sq. 0A).


FIGURE 8.138. Room E from the inside, showing vaults (doorway to Room B?).


FIGURE 8.139. Room E from the inside and Sq. 1A, Wall 4.


FIGURE 8.140. Square 1A: Building I, Room E, vaults supported by poles and brick floor, looking northeast.


FIGURE 8.141. Inside Room E (Sq. 1A, Locus 10, Layer 4), looking north; note tabun remains on the right.


FIGURE 8.142. Close-up of tabun remains, Sq. 1A, Feature 1 in Building I, Room E.
activities (storage, cooking, Assyrian-style pottery, jewelry). Two inscriptions were found, one in Room A and one in Room E; Room C yielded a scarab.

The subsequent question is how to characterize this building in terms of cultural significance and function according to its plan, building techniques, and finds. The affiliation of all these aspects with the Neo-Assyrian Empire of the late 8th century BCE has already been raised on several occasions in the past (e.g., Van Beek, 1973, 1993a) but should be reexamined here, as the data are now presented in full. Building I at Jemmeh, with its three elongated units, may resemble in its plan several auxiliary buildings (Figure 34.2), probably used for storage, found at NeoAssyrian palaces such as at Kalah/Nimrud (e.g., Mallowan, 1966: figs. 35, 42, NW palace, NE area) and Arslan Tash (Turner, 1968: pl. XVII, Rooms XXXII-XLII; these rooms are much larger than Jemmeh Building I and were interpreted as magazines by the excavator [Thureau-Dangin et al., 1931:30] and by Turner as a shrine). Another possibly similar structure was recorded from Palace F at Khorsabad (Loud and Altman, 1938: pl. 72: Rooms 27-31). The fort at Nush-i Jan, a Median site in western central Iran (ca. 750-600 BCE), also has a roughly similar plan to Jemmeh Building I, yet the Iranian structure is much more massive
(see Figure 34.2g; Stronach and Roaf, 2007: fig. 4.1). Also, in Syria, much earlier, in the Khabur valley at Tell Sheikh Hamad (see Figure 34.2f; Pfälzner, 1995; Pucci, 2008:55, figs. 2, 3), a structure with at least 12 rooms has a somewhat similar plan (but larger in size); it was dated to the 13th and 12th centuries BCE, the Middle Assyrian period. The lower floor had a brick paving and contained grain sacks and wooden beams, and an archive with hundreds of tablets was located in its upper story. The structure had arched doorways similar to those found at Tell Jemmeh. At 8th century BCE Zincirli, an auxiliary building next to the Upper Palace, used as a storeroom (where some wine jars were found), has a similar plan (von Luschan, 1893-1911: pl. 22; Frankfort, 1970:283, fig. 330). Its full size ( $25 \times 15 \mathrm{~m}$ ) was completely uncovered.

Examples for the more typical Neo-Assyrian palace architecture (see, e.g., Amiran and Dunayevsky, 1958) in the southern Levant include Ayelet Ha-Shahar, near Hazor (Reich, 1975:234,236), and Ashdod-Ad Halom (Kogan-Zehavi, 2005:89; 2007; see chapter 34). Such architecture does occur in various Assyrian royal or administrative centers in the Levant and has been discussed in research on several occasions (see Bloom, 1988:8386; Reich, 1992:214-220; Stern, 2003:222-224; Kogan-Zehavi,


FIGURE 8.143. Pottery from Building I, Room E.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl; red slip, burnish | $4863 / 1$ | GM 0A (9) |
| b | Krater | $3072 / 1$ | GM 1A (1A) 10 |
| c | Krater (KR2) | RV 992 (SI Cat. No. 456) | GM 0A/1A |
| d | Cooking pot; soot | RV 182 | GM 0A (9) |
| e | Jar | RV 43 | GM 0A (9) |
| f | Jar | RV 27 | GM 1A (1) 10 |
| g | Jar | $3036 / 2$ | GM 1A (1) 10 |
| h | Jar | $3036 / 1$ | GM 1A (1) 10 |
| i | Jar | $4863 / 2$ | GM 0A (9) |
| j | Jar | $4863 / 3$ | GM 0A (9) |
| k | Jar | $3072 / 2$ | GM 1A (1A) 10 |
| l | Juglet | $1387 / 1$ | GM 1A (1) 10 |
| m | Sherd (Philistine) | Box 81 | GM 1A (1) 10 |
| n | Sherd | $3034 / 1$ |  |



FIGURE 8.144. Finds from Building I, Room E.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Stopper | Reg. No. 1942 | GM 0A (9) |
| b | Cylindrical object, kernos? | Reg. No. 1661 | GM 1A (1) 10 |
| c | Iron arrowhead | Reg. No. 1281 (SI Cat. No. 465) | GM 0A (9) |
| d | Iron point | Reg. No. 1282 (SI Cat. No. 468) | GM 1A (1) 10 |
| e | Iron arrowhead | Reg. No. 1292 (SI Cat. No. 440) | GM 0A (9) |
| f | Iron hook | Reg. No. 249 | GM 1A (1) 10 |
| g | Bronze spoon/bowl | Reg. No. 1355 (SI Cat. No. 463) | GM 0A (9) |
| h | Pendant; stone | Reg. No. 808 | GM 1A (1) 10 |



FIGURE 8.145. Floor of upper story and vaulting in Building I, Room F (Sq. 00A, Feature 4), looking northwest.


FIGURE 8.146. Floor of upper story and vaulting in Room F (Sqs. 00A-00B), looking south.


FIGURE 8.147. Square 00A: vault in Room F, looking east.


FIGURE 8.148. Close-up on vaults in Room F (Feature 4).


FIGURE 8.149. Fill in Room F (Sq. 00A, Locus 3, Layer 1).


FIGURE 8.150. Pottery from Building I, Room F. NA = not available; rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl; rsb | $4882 / 1$ | GM 00A (1) 3 |
| b | Bowl; rsb | $4882 / 3$ | GM 00A (1) 3 |
| c | Bowl; rs | $5332 / 3$ | GM 0B (14) Room F |
| d | Bowl; rsb | $4882 / 2$ | GM 00A (1) 3 |
| e | Bowl; rs | $5332 / 1$ | GM 0B (14) Room F |
| f | Bowl; rs | $5332 / 4 \mathrm{~A}$ | GM 0B (14) Room F |
| g | Bowl; rs | $5332 / 2$ | GM 0B (14) Room F |
| h | Bowl; rsb | $4882 / 5$ | GM 00A (1) 3 |
| i | Bowl; rs | $4882 / 6$ | GM 00A (1) 3 |
| j | Bowl; brown slip inside | $4882 / 7$ | GM 00A (1) 3 |
| k | Bowl; rsb | $4882 / 4$ | GM 00A (1) 3 |
| l | Bowl; soot | RV 737A | GM 00A (1) 3 |
| m | Bowl | RV 737 | GM 00A (1) 3 |
| n | Bowl/jug; white slip | $4602 / 1$ | GM 0B (16) 4 |
| o | Krater | $4853 / 1$ | GM 00A (1) 3 |
| p | Krater | $4874 / 1$ | GM 00A F4 |
| q | Krater | $4853 / 1$ | GM 00A (1) 3 |
| r | Bowl/krater; rs outside | $4882 / 9$ | GM 00A (1) 3 |
| s | Cooking pot; soot | RV 253/1 | GM 00A (1) 3 |
| t | Cooking pot | $4854 / 2$ | GM 00A (1) 3 |
| u | Cooking pot | $4854 / 4$ | GM 00A (1) 3 |
| v | Cooking pot; soot | RV 250 | GM 00A (1) 3 |
| w | Cooking pot | RV 250A | GM 00A (1) 3 |
| x | Cooking pot | $4854 / 3$ | GM 00A (1) 3 |
| y | Cooking pot | NA | GM 00A (1) 3 |
| z | Cooking pot | GM 0B (14) Room F |  |



FIGURE 8.151. Pottery from Building I, Room F. AS = Assyrian-style pottery.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl; whitish clay with grits (AS) | SI Cat. No. 532 | GM 00A (1) 3 |
| b | Bowl; burnish (AS) | RV 120 | GM 00A (1) 3 |
| c | Bowl (AS) | RV 116 | GM 00A (1) 3 |
| d | Bowl; reddish clay (AS) | Box 114/2 | GM 00A (1) 3 |
| e | Bowl; coarse reddish clay (AS) | Box 114/1 | GM 00A (1) 3 |
| f | Bowl; reddish clay (AS) | SI Cat. No. 530 | GM 00A Room F |
| g | Bowl; burnished (AS) | SI Cat. No. 531 | GM 00A (1) 3 |
| h | Bowl; reddish clay (AS) | SI Cat. No. 536 | GM 00A (1) 3 |
| i | Chalice | 48545 | GM 00A (1) 3 |
| j | Chalice; white slip | 4854/6 | GM 00A (1) 3 |
| k | Mortarium bowl | RV 708 (SI Cat. No. 482.23) | GM 00A (1) 3 |

2007:60-78). One of the best examples is the more recently discovered structure north of Tel Ashdod, Ad Halom junction (Kogan-Zehavi, 2005, 2006, 2007), which was most probably an administrative palace or fortress built on an up to 2-m-high brick podium (Kogan-Zehavi, 2007:36-39, 79-80, table 3, fig. 8). At this site other Assyrian elements include a bathroom (KoganZehavi, 2007:41-42, 81-83, fig. 9), the use of the Sargonic cubit for the square bricks (Kogan-Zehavi, 2007:83; the same measurements used in Khorsabad, $40 \times 40 \times 10 \mathrm{~cm}$ ), brick flooring, and the general reconstructed plan of a large courtyard surrounded by elongated rooms (Kogan-Zehavi, 2007:79-85, fig. 12). It should be noted, however, that only a small portion of the Assyrian structure north of Tel Ashdod has been excavated thus far.

Other examples of Neo-Assyrian-style architecture in the southern Levant include the building of high rectilinear podiums and palaces or fortresses built on them (see, e.g., Reich, 1992:208-210, 214-222) with certain architectural characteristics (such as the large courtyard surrounded by long rooms), which may have been found also at Megiddo, Stratum III (Lamon and Shipton, 1939:77-83, fig. 89), Rishon Le-Zion (Levy et al., 2004), and Ruqeish (Oren, 1993a: Phases II-III). Other examples show plans (or fragments) of a large courtyard surrounded by elongated rooms (see also Table 34.1): Hazor, Area B (Reich, 1993: fig. 12), Megiddo, Stratum III (Lamon and

Shipton, 1939:77-83, fig. 89; Bloom, 1988:94-99; Peersman, 2000), Tell Farah (N), Level VIId (Chambon, 1984:44-46, pls. 19-20, courtyard Palace 148), Balakhiyah in Gaza (Humbert and Sadeq, 2000:105-120), Tel Sera' (Oren, 1993b), Tel Haror (Oren, 1993c), Tell Abu Salima (Petrie and Ellis, 1937; Reich, 1992:221, fig. 17; Stern, 2003:223), and Busayrah (Bennet, 1982). Possible examples include Tel Dothan (Free, 1959:24; Master et al., 2005:102-115, House 14, fig. 10.25, although there dated to earlier in the 9 th century BCE), the ground plan of Tel Miqne Building 650 of Stratum IB, and the Stratum II-I complexes at Lachish (see Bloom, 1988:99-109). The actual building of garrisons or forts is also mentioned in various Neo-Assyrian texts (especially see Parker, 1997: Nimrud Letter 67).

It should be noted, therefore, that so far, no architectural elements at Tell Jemmeh clearly indicate palatial Assyrian architecture, i.e., the classic plan of large courtyards and surrounding elongated rooms all built on a podium. Moreover, the basic plan of Building I with its elongated and square units could possibly also fit Levantine structures, such as Palace 6000 at Megiddo (e.g., Peersman, 2000; Lehmann and Killebrew, 2010) dated to the Iron IIA (for reservations regarding the Assyrian attributes of the Jemmeh vaulted building, see Bloom, 1988:109-114). However, the possible reconstruction of Building II in Phase 5 as a courtyard structure flanked by elongated rooms may relate to


FIGURE 8.152. Pottery from Building I, Room F. NA = not available; rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jar | RV 995 (SI Cat. No. 529) | GM 00A (1) 3 |
| b | Jar | $1405 / 1$ | GM 00A (1) 3 |
| c | Jar | $4853 / 4$ | GM 00A (1) 3 |
| d | Jar/jug | $4853 / 6$ | GM 00A (1) 3 |
| e | Jar | $4853 / 7$ | GM 00A (1) 3 |
| f | Jar | $4853 / 5$ | GM 00A (1) 3 |
| g | Jar | $4854 / 7$ | GM 00A (1) 3 |
| h | Jar | RV 253A | GM 00A (1) 3 |
| i | Jar | NA | GM 0B (5) 4 |
| j | Jar | J332/5 | GM 0B (14) Room F |
| k | Jug; soot | $1409 / 1$ | GM 00A (1) 3 |
| l | Jug; soot | $1410 / 1$ | GM 00A (1) 3 |
| m | Jug; soot | $1408 / 1$ | GM 00A (1) 3 |
| n | Juglet; soot | RV 153 (SI Cat. No. 517) | GM 00A Room F |
| o | Juglet | GM 00A (1) 3 |  |
| P | Jug; rsb (white decoration?) | RV 2754 | GM 00A (1) 3 |
| q | Spoon flask; rs | $4882 / 10$ | GM 00A (1) 3 |



FIGURE 8.153. Finds from Building I, Room F.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Perforated ceramic object | $4602 / 2$ | GM 0B (16) 4 |
| b | Spout? | $5332 / 9$ | GM 0B (14) Room F |
| c | Figurine | Reg. No. 1244 | GM 0B (15a) 4 |
| d | Worked sherd | Reg. No. 1748 | GM 00A Room F |
| e | Loom weight | Reg. No. 1514 | GM 0B (14) Room F |
| f | Loom weight | Reg. No. 1572 | GM 0B (14) Room F |
| g | Iron point | Reg. No. 1283 (SI Cat. No. 466) | GM 0B (14) Room F |
| h | Iron nail(?) | Reg. No. 268 | GM 00A (1) 3 |
| i | Spatula; bone | Reg. No. 1472 | GM 00A (1) 3 |
| j | Limestone bowl/mortar | Reg. No. 680 (SI Cat. No. 541) | GM 00A (1) 3 |
| k | Pyxis(?); stone | Reg. No. 2197 | GM 00A Room F |



FIGURE 8.154. Sections through rooms in Building I (Section A-A 1 , SE-NW).


FIGURE 8.155. Sections through rooms in Building I (SW-NE?).


FIGURE 8.156. Reconstruction and section of Buildings I and II.


FIGURE 8.158. Late Iron Age remains in Petrie's and the Smithsonian's excavations in Field IV (approximate orientations and locations).

TABLE 8.2. Finds from the different rooms of Building I (Phase 5).

| Finds | Room A | Room B | Room C | Room E | Room F |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Installations | Brick floor | Brick floor | Brick floor | Tabun | Brick floor |
| Pottery and <br> small finds | Assyrian-style <br> figurine, mud <br> weights, ground <br> stone, necklaces | Worked sherds, <br> metals | Jars, arrowhead, <br> scarab | Jars, metals, <br> arrowhead | Jars, cooking pots, Assyrian- <br> style figurine, worked <br> sherds, mud weights, stone, <br> metals |
| Fauna |  |  |  | Shell, fish bones |  |
| Inscriptions | Ostracon, Reg. <br> No. 1957 |  |  | Nnscribed jar, Reg. |  |

Neo-Assyrian palatial architecture. In fact, the main links between Tell Jemmeh and the Neo-Assyrian administrative architectural traditions lie in the building techniques reflected by the remains of Field IV at Tell Jemmeh. Therefore, this aspect will be discussed in more detail in the next section.

## SPECIAL CONSTRUCTION AND BUILDING TECHNIQUES EVIDENCED IN FIELD IV

A more detailed discussion of building techniques found in the late Iron Age remains in Field IV (especially in Building I, Phase 5; see also Figures $8.154-8.155,8.159-8.167$ ) will be presented here. This discussion is warranted for two main reasons: (1) Certain building techniques discovered at Tell Jemmeh Field IV are highly uncommon for the Iron Age Levant. (2) Examining these techniques may help us both clarify the function of the structures under discussion and examine whether "alien" cultural and ethnic components could indicate an Assyrian administrative presence at the site (and possibly its nature). The techniques discussed include brick wall construction, vaulting, flooring, and roofing.

## Brick Construction

The late Iron Age buildings are made exclusively of mud bricks, used for walling, flooring, and arch vaulting (and possibly roofing); different bricks and techniques were used for each of these functions. The strength of the late Iron Age basement walls and other structures at Tell Jemmeh can indeed be evidenced by their standing to almost full height in certain places until present day. Walls are built exclusively of mud brick and show several distinctive features. In many cases at Tell Jemmeh walls were preserved up to a height of 2 m or more, containing 20 or more well-preserved courses (as Figure 8.46). Stone foundations are rarely used. In several cases, the foundation trenches were identified as well (as in Figures 8.17-8.20, 8.159-8.161). These were relatively wide, having a margin of $10-20 \mathrm{~cm}$ on
each side of the wall (Figure 8.159). The trench was filled with sand, possibly up to the level of the floor at the time of construction. In several cases in Fields I (Sq. KB, Figure 7.66) and IV (Figure 8.161), a capping, or several flat-lying bricks, was used, probably to protect and stabilize the trench and sand in it. The function of the sand-filled foundation trench was probably to strengthen the walls, giving them a certain flexibility that could prevent collapsing as in the case of an earthquake or sliding of soil (see Van Beek, 1996). Notably, stone foundations for the brick walls were used, although rarely (see possibly Figure 8.48) and apparently not in major walls. It should be noted that the walls in Buildings I-III in Field IV are not very wide (rarely above 1 m in thickness), including major outer walls. Possibly, at least in Building I, the stability of the building was based on the inner vaulting as well as on the fact that much of the building was built under ground, rather than on the thickness of the outer walls.

Two types of bricks were commonly used at Tell Jemmeh (Figures 8.168-8.172): rectangular bricks used in most late Iron Age walls, which commonly measure $50 \times 20 \times 14 \mathrm{~cm}$, and square bricks measuring $40 \times 40 \mathrm{~cm}$ or larger, which were more often used for floors or for vaulting. (Square bricks are also more typical of Persian period architecture of Phases 2-4.) The rectangular late Iron Age bricks could also be distinguished by their clay, having a finer chocolate clay-like appearance, creating a shining look (in contrast to more sandy-grained bricks from earlier periods; see, e.g., Figures $8.17,8.19,8.37$ ); these were also very standardized in shape and size. The appearance of the bricks as well as the manner in which the walls were constructed enabled the distinct identification of late Iron Age architecture in the field, differentiating it clearly from post-Iron Age (i.e., Persian period) architecture.

The bricks were laid in the walls in various fashions. One example is laying the bricks as headers; that is, the width of the wall is determined by the length of the brick: in narrow walls (especially in earlier periods; see also Field III, chapter 3), one row was laid (creating a $0.5-\mathrm{m}$-thick wall), whereas wider walls were created by two rows (Figures $8.59,8.77$ ), creating an $\sim 1-\mathrm{m}$-wide wall. Bricks could also be laid as stretchers with the long side
along the wall; in this case at least two rows of bricks were used (Figures 8.54, 8.58); commonly, a mixture of headers (mostly one, in the middle of the wall) and stretchers (either one or two on outer sides of the wall) was used in walls (e.g., Figures 8.46, $8.57,8.58$ ). In order to strengthen the wall, the orientation was changed between courses (see, e.g., Sq. 2B, Wall 5, Figure 8.46), along with intermediate patterning within the same course (see, e.g., Figure 8.57); these methods were used until modern times in brick masonry (see, e.g., Wright, 1985: fig. 301, 2005: fig. 156; Van Beek, 2007:266-272).

## Vaulting

The most outstanding building technique discovered in Field IV, especially in Building I, is the mud brick vaulting, or arch building. The basic function of the vaults is to carry the weight of the floor in a multistoried building. Special bricks, called voussoirs, were used for the vaulting; they have a narrower side and are wedge shaped (Figures 8.132, 8.162, 8.163, 8.165). The term is used in Medieval architecture, also called keystone-shaped bricks [see also claveau, e.g., Aurenche, 1977:57]. According
to several well-preserved examples, the typical size of these was either 20 cm square bricks (as in Room C, Figure 8.132) or $50-\mathrm{cm}$-long rectangular bricks (as in Room A, Figures 8.114, $8.162,8.166)$. The narrower side, placed on the bottom, was 21 cm wide, whereas the upper part was 27 cm wide; the thickness was about $12-20 \mathrm{~cm}$. In the doorways, more elongated bricks were used (Figures 8.120, 8.127, 8.166, 8.167; "ribbed bricks," Van Beek, 1987, 2007:257-259, figs. 11.37, 11.46); they were $42-52 \mathrm{~cm}$ long on their long curved side, 20 cm wide, and 12 cm thick (see Figure 8.166 and an individual brick in Figure 8.167). It should be noted that at Tell Jemmeh, this technique is evident as early as Phase 8 in Field IV (see Figures 8.30, 8.34, 8.35), a phase predating the Neo-Assyrian period at the site.

Parallels for this type of vaulting are otherwise confined to Mesopotamia, Iran, and central Asia, where it appears at a number of sites, notably in structures at Nush-i Jan, in central western Iran, which dates to the late 8th and 7th centuries BCE (Stronach, 1969:13, fig. 2, pl. Vb; Stronach and Roaf, 2007:190-191, pls. 11-13; Van Beek, 2007:357-358, fig. 11.45). For doorways, see Nush-i Jan (Stronach and Roaf, 2007:184-185, pl. 43a,b), Nimrud (Mallowan, 1966: figs. 360, 380), Dur Sharrukin (Loud


FIGURE 8.159. Square 00A: foundation trench of Wall 1, Feature 6, looking east.


FIGURE 8.160. Square 00A: foundation trench of Wall 1, Feature 6.


FIGURE 8.161. Square 00B: Features 4 and 5 (foundation trench and capping), looking southeast.


FIGURE 8.162. Close-up of vaults in northwest wall of Building I, Room A.


FIGURE 8.163. Reconstruction of vaulting supporting a floor in Building I.


FIGURE 8.164. Mortar in between the bricks in vaults.


FIGURE 8.165. Mortar between voussoirs in Sq. 00A (Feature 4).


FIGURE 8.166. Square 1A: mortar between grooved bricks in a vault.
and Altman, 1938: pl. 40c), and Tell Hama, Period E (Building V, Fugmann, 1958: figs. 336-338).

The voussoirs were closely laid vertically in the vault with a mortar layer $2-3 \mathrm{~cm}$ thick in between bricks (Figure 8.166). Because of the arched structure, a gap between the bricks was filled with mortar, creating a "keying" pattern on the upper and lower faces of the bricks (as well as the upper keystone brick; see Figure $8.167, \sim 3 \mathrm{~cm}$ grooves). The lower layer was often plastered with a thick layer of mud mortar (Figures 8.114, 8.132, 8.164, 8.165). To achieve greater strength in the vaults when several rows of voussoirs were used, the gaps between the bricks were not aligned between the rows (Figures 8.129, 8.132, Rooms A and C). In several cases, at least two courses of voussoirs were used in vaults (as in Room F, Sq. 0A, Figures 8.137, 8.154, 8.155, 8.163, section showing two courses attached to each other). In Room E (Figure 8.137) it seems that the two courses observed may indicate an upper larger vault, possibly supported by a smaller undervault.

In most cases, the arch can be seen springing from within the outer wall of the room (such as Figures 8.108, 8.121, 8.129; see also Phase 8, Figures 8.30, 8.33) and not from the floor; this technique would strengthen its stability. This technique is also referred to as the "pitched-brick" vaulting method (Van Beek, 2007:345-357, figs. 11.36, 11.37; see also Oates, 1972), in which the vault bricks are set at an angle inclined to the room's rear wall. This technique is known so far only from Assyrian sites and earlier Mesopotamia.

In certain cases, if the room was large (such as possibly in Building II, Sq. 2B, Feature 5; see Figures 8.129, 8.155), additional walls within the room may have been used, but none were preserved. Generally, vaults may have been built in a way where they intersected in the upper space of the room in order to support the floor and ceiling (Figure 8.108, possibly Figure 8.111); however, often the vaults are clearly located parallel to the walls (as in Room A, Figure 8.112), and thus, this was possibly the general custom. The tilted flat bricks seen in the wall of Room


FIGURE 8.167. A grooved brick from the vaults.

A (Figures $8.114,8.154$ ) are either a fallen vault made of square bricks or a different type of vault; here the floor of the upper story (ground floor?) can be clearly seen as being supported by the vault.

In the two cases of the arched doorways or passages laid within the inner walls of Building I (see Figures 8.119, 8.124, 8.154), a somewhat different technique was used: arched bricked were laid horizontally, with a large key or gap at the top filled with mortar (Figure 8.124, Room B to Room E; see also Nimrud, Mallowan, 1966: fig. 360). In the passage between Rooms A and F, two rows of voussoirs measuring $33-38 \mathrm{~cm}$ were laid on top of each other (Figures $8.119,8.120$ ). These techniques are probably not as strong as the regular vaulting, yet as the element carries only the weight of the wall above it and not the entire floor, they may have been sufficient.

## Flooring

The flooring of the rooms was either bricks, pebbles, or beaten earth. In Building I, the flooring is almost exclusively made of bricks. More commonly, rectangular bricks were used, laid in several parallel rows (e.g., Figures 8.56, 8.112, 8.129, 8.134), seemingly underlying the walls above them (Figure 8.129); square bricks were also used in floors, although rarely (see possibly Figures $8.56,8.129,8.185$ ). The bricks were placed rather closely together on the floor; they were filled with mortar in various cases where cavities occurred (Figure 8.134). This brick flooring was used in the basement floor as well as in the ground floor in Building I, where they were supported completely by the brick vaults. It should be noted that when concentrations of clusters of fallen bricks were found (see Figure 8.136), it was difficult to ascertain whether they belonged to vaults or to floors, as vertically closely placed square bricks were used in both cases (as in Sq. 2B, Feature 5; see above). Pebble floors are used in Building II in addition to beaten earth floors, the most commonly used floor type in the Levant (see, e.g., Figure 8.92).

## Roofing

Roofing is rarely seen, with only a few examples of fragments of bricks or clay lumps with large imprints of straw, which may be parts of roofing (see, e.g., Field III in the LBII Phase 11, Figure 3.102). Possibly, vaults were also used to carry the roof of the structure.

## Neo-Assyrian Building Techniques

The question arises whether the rather unusual building techniques seen in Field IV as well as the ground plan of the structure could indicate the presence of Assyrian administration and/ or Assyrian architects at Tell Jemmeh. For this, the late Assyrian evidence from core Assyria should be examined. The examination of palatial late Assyrian architecture and building techniques from several important Assyrian centers of the 9th to 7th centuries BCE, such as Kalah Nimrud (Mallowan, 1966), Nineveh, Tell Halaf (Oppenheim, 1950), Khorsabad Dur-Sharrukin (Loud, 1936a; Loud and Altman, 1938), and Arslan Tash (ThureauDangin et al., 1931), indicates certain similarities to the results from Tell Jemmeh. Brick arches and vaults ("true arches"; e.g., Wright, 1985: fig. 285D) are well known at Mesopotamian sites as well as in Early Dynastic Egypt from as early as the third millennium BCE (see, e.g., Oates, 1973; Gibson, 1980:19-28; Wright, 1985:335, the Royal tombs at Ur; see Van Beek, 2007:316-366 for techniques and the history of brick arches and vaulting). However, brick arches are also known in the Middle Bronze Age Levant such as from the MBII gates at Dan and Ashkelon (e.g., Biran, 1994: figs. 44-45; Stager et al., 2008:221-224, fig. 14.3). This building technique, however, was more intensely used during the late Assyrian period, appearing in a variety of building types and not only in public buildings or built tombs (for example,
in the architecture of Khorsabad Dur-Sharrukin, Loud, 1936a, 1936b; Loud and Altman, 1938: pl. 40c; Turner, 1970).

Three rooms of a vaulted mud brick complex were unearthed in a recent excavation at Nimrud (Hussein and Suleiman, 2000:154-6, Figs. 24-27; Hussein, 2002: figs. 18, 24-26, 2008:83-90, fig. $12 \mathrm{~h}-\mathrm{k}$ ); these rooms were narrow and rectangular, similar to those found at Jemmeh Building I. However, the Nimrud structure belonged to a burial complex and was probably somewhat earlier, with some inscribed finds dated to Ashurnasirpal II ( $883-859$ BCE). The same can be said of similar Neo-Assyrian vaulted tombs at Assur (Hausleiter, 1999a: fig. 4) and Humaidat near Mosul (Ibrahim, 2002).

The use of large-scale brick flooring with square bricks is common at some sites, such as Assurnasirpal II's palace at Nimrud (Mallowan, 1966: figs. 42, 137, 138, 186), Tell Halaf (e.g., Oppenheim, 1950: figs. 34, 58, 59,100, 101,109, pls. 23, 5052), Khorsabad (e.g., Loud and Altman, 1938: pls. 83, 84), and the Til Barsib palace (Thureau-Dangin and Dunand, 1936: Plan B). Also, the general aspects of brick work and arrangement of bricks in the walls has parallels at Tell Halaf (e.g., Oppenheim, 1950:137-143). A large courtyard building from Tell Halaf also illustrates an example of a seemingly vaulted basement under the main floor (Oppenheim, 1950:203-208, fig. 103; a similar construction at the Nimrud "burnt palace" is discussed by Mallowan, 1966: fig. 187; see also Loud and Altman, 1938:32-33; Turner, 1970:183). Elaborate brick vaulting with voussoirs is also well known, although with a somewhat earlier date than at Jemmeh (dated possibly to the 9th century BCE, but see Jemmeh Phase 8 above), e.g., at Tell Halaf (Oppenheim, 1950: figs. 50, 53, 54, pls. 22, 24, 28, bottom, 31, bottom) and Nimrud (e.g., Mallowan, 1966: fig. 187). Brick arches were also used as "drain doors" in Assyrian royal architecture (e.g., Nimrud, Mallowan, 1966: figs. 316-317, 365). Note also that at Nimrud,


FIGURE 8.168. Square 2B east section, upper levels.


FIGURE 8.169. Square 2B north section, upper levels.

Jemmeh IV
2 B south section


FIGURE 8.170. Square 2B south section, upper levels.


FIGURE 8.171. Square 2B west section, upper levels.
for example, brick flooring and vaulting also appears in private houses (e.g., Mallowan, 1954:139-140, pls. XXVIIII-XXIX, especially Room 18 , lower left section, 1966:184-190, figs. 120, 121); there several elongated rooms in private houses, quite similar to the vaulted rooms of Tell Jemmeh Building I, were vaulted by brick barrel vaults (see also Layard, 1853:4). See Loud and Altman (1938:14-33, pl. 87) for a discussion of Neo-Assyrian building techniques, such as a brick vaulted drain in Khorsabad.

These resemblances show strong connections with the NeoAssyrian culture and are combined with the appearance of large quantities of Assyrian-style pottery at Tell Jemmeh. The significance of these features will be further discussed in chapters 13 and 34 .

## POTTERY AND DATING OF PHASE 5

The pottery assemblage of Phase 5 (Figures 8.115, 8.128, $8.135,8.143,8.144,8.150-8.152,8.173-8.175)$ is the largest and richest of Field IV, mainly because this phase was exposed in the largest area (as Building I was not dismantled). Generally, the Phase 5 pottery shows many resemblances to the pottery of Phases 7 and 6; most bowls and cooking pot types are similar. However, there are several notable differences (see below as well), particularly the decrease of red slip and burnish on bowls,
the rarity of remnants of Iron IIA types (which are quite common in Phases 7-6), and the appearance of several late types, which are more typical of the Iron IIC (such as the tapering base jar, the decanter, and the mortarium bowl). Most notable is the emergence of Assyrian-style pottery, lacking in Phases 6 and 7 and appearing in significant quantities in Phase 5. A scarab found in Phase 5 (see Figure 8.135q and chapter 27, Gamma No. 140) is also dated to 664-600 BCE and may give the earliest possible date for this phase as well within the 7th century BCE.

## POTTERY OF PHASES 7, 6, AND 5 (THE LATE IRON AGE II): TYPOLOGICAL DISCUSSION

This section will describe the pottery from Phases 7-5 according to their morphological typology. This is not a comprehensive typological classification of the pottery from the site; rather, it is a representative discussion that will be used primarily to date these phases more accurately and examine the exact regional characteristics of the assemblage. Therefore, certain major and common morphological types were given "type numbers" (see Figures $8.176,8.177$ ) to facilitate the discussion and the quantitative assessment (see Tables 8.3, 8.4). Other pottery types were not given type numbers.

57.00

FIGURE 8.172. Square 2A south section.


FIGURE 8.173. Pottery from Phase 5. Bld = building; AS = Assyrian-style pottery; rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance | Architecture |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl; rsb | $4897 / 2$ | GM 00A (7) 1 | Outside Bld I? |
| b | Bowl; rs inside and outside | $4897 / 1$ | GM 00A (7) 1 | Outside Bld I? |
| c | Bowl; rsb | $4897 / 4$ | GM 00A (7) 1 | Outside Bld I? |
| d | Bowl; rsb | $4897 / 3$ | GM 00A (7) 1 | Outside Bld I? |
| e | Bowl; rsb | $4897 / 7$ | GM 00A (7) 1 | Outside Bld I? |
| f | Bowl | $4897 / 6$ | GM 00A (7) 1 | Outside Bld I? |
| g | Krater | $4897 / 8$ | GM 00A (7) 1 | Outside Bld I? |
| h | Bowl; whitish clay (AS) | Box 111/1 | GM 00A (8) | Outside Bld I |
| i | Bowl; whitish clay (AS) | Box 111/2 | GM 00A (8) | Outside Bld I |
| j | Jar | $4897 / 9$ | GM 00A (7) 1 | Outside Bld I? |
| k | Jar | $4897 / 10$ | GM 00A (7) 1 | Outside Bld I? |
| l | Figurine | Reg. No. 1241 | GM 00A (7) 1 | Outside Bld I |
| m | Bowl; rs | $4594 / 1$ | GM 0B (15) 4 | Locus 4 |
| n | Bowl; rs | $4594 / 2$ | GM 0B (15) 4 | Locus 4 |
| o | Bowl | $4594 / 3$ | GM 0B (15) 4 | Locus 4 |
| p | Jar | $4594 / 4$ | GM 0B (15) 4 | Locus 4 |
| q | Jar | $4594 / 5$ | GM 0B (15) 4 | Locus 4 |

## Bows

The most common bowls are small rounded red-slipped bowls (BL1), carinated red-slipped bowls with thickened or plain, thin rims (BL2, BL3), and bowls with ledge/hammerhead rims (BL4). Open bowls of various types also appear in small numbers (BL6, BL7). An Iron IIA bowl type, mostly from Phases 9-8, was also included in this typology for purposes of quantitative analysis (BL5; see Figures 8.26, 8.41).

## Type BL 1

Small rounded bowls with red slip and burnish appear in Phase 7 (Type BL1, Figures 8.61b, 8.62a,b), Phase 6 (Figures 8.84a-c,f, $8.85 \mathrm{a}, \mathrm{b}, 8.88 \mathrm{a}-\mathrm{d}$ [the former unslipped]), and Phase 5 (Figures 8.104a-d, 8.115a [unslipped], 8.128a, 8.150a,b, 8.173b); they seem to decrease in relative quantity in Phase 5 (from $25 \%$ in Phase 6 to about $12 \%$ in Phase 5; see Table 8.3). Their diameter is usually $12-18 \mathrm{~cm}$; few complete examples were found (although see Figure 8.84f), but according to parallels, these bowls have a delicate ring or disk base. The rim is usually simple and vertical, although in some cases it is slightly inverted (Figure 8.88a, 8.173b). A few cases have delicate grooves under the rim (Figure 8.85 c , possibly Figure 8.85 e ). The body is rounded to hemispherical. The surface treatment of most of these bowls includes red slip and hand burnish (mostly delicate) on the outer and inner surfaces of the bowl (see, e.g., Figure 8.84b for inner burnish); some cases have no burnish (Figure 8.128a) or only red slip on the exterior (Figure 8.61b), whereas others have exterior red slip or interior red slip and burnish (Figure 8.84f) or are plain on both sides (Figures 8.84a, 8.104b). A deep rounded bowl with a simple rim and no slip (Figure 8.115a) was found in Phase 5.

Red-slipped rounded bowls (Type BL1) may be more common during the Iron IIB (see also Iron IIA, Phases 11-8, Figures $8.11 \mathrm{a}, 8.26 \mathrm{~d}$, with grooves under the rim) but continue to appear during the Iron IIC. Parallels for this common form come, for example, from Lachish, Levels V-IV (Zimhoni, 1997a:75, fig. 3.5:2-5,7-16), Ashdod, Stratum VIII (Dothan, 1971: figs. 49:12,15,18; Dothan and Porath, 1982: fig. 13:9), Ashkelon, 604 BCE destruction level (Stager et al., 2011:72-73, Bowl 1), and Batash, Strata IV-III (Mazar and Panitz-Cohen, 2001:25, Type BL25).

An almost complete red-slipped and burnished bowl (Figure 8.85 d ) comes from a Phase 6-7 fill layer of Building II. The bowl has a simple, slightly thickened, incurving rim, two delicate grooves under the rim, a rounded body, and a delicate flat disk base. Surface treatment includes red slip and burnish on the outer and inner surfaces; on the inside there is irregular hand burnish on the lower part and horizontal burnish on the upper part. Rounded bowls with inverted rims also appear in Phase 5 (Figure 8.150 f ); these are red slipped and burnished on the interior and exterior. This form is common in the Iron IIA, usually with thin red slip and no burnish (see, e.g., Lachish, Level V [Zimhoni, 1997a: fig. 3.5:3] and Batash, Stratum IV [Mazar and Panitz-Cohen, 2001:34, Type BL25]), yet appears with red
burnish also in the Iron IIB-C (see, e.g., Kadesh Barnea, Stratum 2, Cohen and Bernick-Greenberg, 2007: pl. 11.84:1). Good parallels for Figure 8.85d (mostly Iron IIA) come, for example, from Tell Safi, Stratum A4 (Zukerman, 2012: pl. 13.16:8), Lachish, Level IV (Zimhoni, 1997a: fig. 3.8:9), Ashdod, Strata X-VIII (Dothan, 1971: figs. 37:11, 39:16-18; Dothan and Ben-Shlomo, 2005: figs. 3.82:7,9, 3.88:9,10) and Gezer, Stratum VIIA (Gitin, 1990: pl. 10:2). This is therefore likely a late Iron IIA form (a rounded bowl but somewhat different from Type BL1).

A complete thin, straight-sided bowl with a flat base (Figure 8.84 c ) that is similar in profile to Type BL1 was found in Phase 6. The bowl is irregularly hand burnished on the interior and exterior. This type of bowl, with a more rounded base, appears at Lachish, Levels IV-III (e.g., Zimhoni, 1997a: fig. 3.61:1-8, 1997b: fig. 5.4:5), Arad, Stratum VIII (Singer-Avitz, 2002:130, Type B17, fig. 37:2-5), Ashdod, Stratum VIII (Dothan, 1971: fig. 39:21-24), and Ashkelon, 604 BCE destruction level (Stager et al., 2011:78, Bowl 5, figs. 5.17, 5.18). These appear mostly during the Iron IIB-C; note, however, that these examples usually have no red slip on the interior.

## Carinated Bowls (Type BL2)

A rather common carinated bowl type appearing in Phases $7-5$ is a small, thin carinated bowl with red slip and burnish (Type BL2A, Figure 8.176; the thicker version is Type BL2B). These appear in Phase 7 (Figures 8.61f, 8.62f,g, 8.65a,b), Phase 6 (Figure 8.88d,e), and Phase 5 (Figures 8.96b, 8.104c,d, 8.115g, $8.135 \mathrm{a}, 8.143 \mathrm{a}, 8.150 \mathrm{a}-\mathrm{d})$. No complete examples were found, but their diameter is probably $14-18 \mathrm{~cm}$. According to fragments preserved, the body has a low carination, and the rims are simple and everted; according to more complete parallels, the bases are ring shaped. The surface treatment includes a dark red slip and delicate hand burnish on the inner side, mostly on the entire surface, whereas on the exterior, the red slip covers only the upper parts, typically above the carination line (e.g., Figure $8.62 \mathrm{k})$. Similar bowls appear already in Phase 8 (Figure 8.41d) and seem less common in Phase 5.

Parallels for this type come, for example, from Lachish, Level IV (Zimhoni, 1997a:96, Type BL16, figs. 3.21:23, 3.24:1,2, 3.61:14), 'Eton, Stratum II (Zimhoni, 1997c: fig. 4.3:6), Ashdod, Strata X-IX and VIIIb (Dothan, 1971: fig. 45:5-7; Dothan and Ben-Shlomo, 2005: fig. 3.82:17), Gezer, Stratum VB (Gitin, 1990: pl. 22:7,8), and Batash, Strata IV-III (Mazar and Panitz-Cohen, 2001:41-42, Type BL27, and references therein). Generally, the type is quite common during the Iron IIA but continues into the Iron IIB (seemingly not appearing in the Iron IIC; see Mazar and Panitz-Cohen, 2001:42). Some small rim fragments that have no carination (e.g., Phase 7, Figures 8.61a, 8.62g, 8.65a; Phase 5, Figures $8.94 \mathrm{a}, 8.128 \mathrm{~b}, 8.150 \mathrm{~b}, \mathrm{c}$ ) are assumed to belong to this type but could belong to a different type (e.g., straight-rimmed or straight-sided bowls).

Another common carinated bowl type of the Iron II (Figure 8.176, Type BL2B) is thicker than Type BL2A and has a midbody sharp carination. Many of these bowls are red slipped and burnished with examples from Phase 7 (Figure 8.62i-k), Phase


FIGURE 8.174. Pottery from Phase 5. rs = red slipped; rsb = red slipped and burnished.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :--- | :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $2644 / 4$ | GM 2A (23B) | 5 ? |  |
| b | Bowl; brown slip | $2644 / 3$ | GM 2A (23B) | 5 ? |  |
| c | Bowl; rsb | $2644 / 1$ | GM 2A (23B) | 5 ? |  |
| d | Bowl; rsb | $3972 / 2$ | GM 1D (31B) 2 | 5 |  |
| e | Bowl; rs | $2644 / 2$ | GM 2A (23B) | 5 ? |  |
| f | Bowl/mortarium? | $5360 / 1$ | GM 00B F5 | 5 |  |
| g | Bowl; rsb | $1397 / 1$ | GM 2B (33) 2A | 5 ? |  |
| h | bowl; brown slip inside | $2644 / 5$ | GM 2A (23B) | 5 ? |  |
| i | Bowl; rsb | RV 115 | GM 1B TT3 (1) 2 | 5 | Building I? |
| j | Mortarium | GI Cat. No. 287.52 | GM 1C (8) 1 | 5 ? |  |
| k | Krater | GV 2A F18 | 5 | Unit 1 |  |
| l | Cooking pot; soot | RV 53 | GM 2A F18 | $5 ?$ | Unit 1 |
| m | Cooking pot; soot | $2665 / 1$ | GM 2A (24) | 5 ? |  |
| n | Cooking pot | $6636 / 1$ | GM 2B (33) 2B | 5 |  |
| o | Cooking pot? | GM 00B F5 | 5 |  |  |
| p | Stand/funnel(?); soot | RV 54 | GM 2A F18 | $5 ?$ | Unit 1 |



FIGURE 8.175. Pottery from Phase 5.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :---: | :---: | :---: | :---: | :---: |
| a | Jar | RV 1022 | GM 2B (31) 2B | 5 |
| b | Juglet | RV 158 (SI Cat. No. 941) | GM 2B Room B | 5? /8? |
| c | Juglet | RV 156 (SI Cat. No. 942) | GM 2B Room B | 5? /8? |
| d | Juglet; soot | 1388/1 | GM 1A (4) 11 | 5? |
| e | Date-shaped vessel; whitish clay, brown decoration | NA | GM 2B (30) | 5? |
| f | Juglet | RV 159 | GM 2B (30) 2B | 5 |
| g | Jug/bottle? | 1726/2 | GM 1C (24) 4 | 5 |
| h | Jug base? | 1726/1 | GM 1C (24) 4 | 5 |
| i | Jar; "x" incised before firing | 4731/1 | GM 1C (22) 4 | 5 ? |
| j | Bottle | 3972/1 | GM 1D (31B) 2 | 5 |
| k | Handle; white slip | 3974/1 | GM 1D (31C) 2 | 5 |
| 1 | Zoomorphic vessel | 3409/1 | GM 1D (19B) | 5? |

6 (Figure 8.89f,g), and Phase 5 (Figures 8.96e, 8.128e, 8.135a, 8.150); see also an unslipped example from Phase 10 (Figure 8.11e) and a red-slipped example from Phase 8 (Figure 8.41e). Parallels for this form (mainly Iron IIA-B) are very common, for example, at Lachish, Levels IV-V (Zimhoni, 1997a:96, fig. 3.21:15-24), Ashdod, Strata X-VII (e.g., Dothan, 1971: fig. 45:5-7; Dothan and Ben-Shlomo, 2005:190, fig. 3.82:17), Batash, Strata IV-III (Mazar and Panitz-Cohen, 2001:41-42, Type BL27, and references therein), and Tell es-Safi/Gath, Stratum A3 (Shai and Maeir, 2012:319-320, Types BL3.2, 3.3, 3.5).

## Bowls with Thickened Rims (Type BL3)

Several bowls with thickened rims appear (Figure 8.176, Type BL3). These are often red slipped and burnished and, in most cases, carinated in their upper part, and their rim is relatively vertical (although several rims are too small to show any carination). Examples come from Phase 7 (Figures 8.61g, 8.62b), Phase 6 (Figures $8.84 \mathrm{~g}, 8.85 \mathrm{e}, \mathrm{j}, \mathrm{k}, 8.89 \mathrm{~b}$, the latter three being unslipped), and Phase 5 (Figure 8.115 c). In most cases both the outer and inner surfaces are covered by red slip and burnish. Some examples have an inner slip and burnish with only the
upper exterior being slipped (as Figure 8.115c). One example may have a knob attached under the rim (Phase 7, Figure 8.62b).

Type BL3 bowls are somewhat similar to the typical late Iron IIA-B red-slipped and burnished carinated bowls with grooves under the rim (e.g., Ashdod [Dothan, 1971: fig. 45:12], Batash [Mazar and Panitz-Cohen, 2001: Types 26, 26a], and Tell es-Safi, Stratum A3 [Shai and Maeir, 2012:319, Type BL2.1]) but are smaller and rarely appear with grooves (possibly Figure 8.61c). Better parallels come, for example, from Lachish, Levels V-IV (Zimhoni, 1997a: fig. 3.17:1-8), Ashdod, Stratum VIII (Dothan, 1971: fig. 39:30), Gezer, Stratum VIA (Gitin, 1990: pl. 20:10,12), Batash, Strata IV-III (Mazar and Panitz-Cohen, 2001:40, Type 11), and 'Eton, Strata II-I (Zimhoni, 1997c: figs. 4.1:6, 4.4:9). This type is common in the Iron IIA and probably continues in the Iron IIB but disappears in the Iron IIC; it could be possible that some of the small examples from Phase 5 are residual.

## Other Carinated Bowls

Examples of other various carinated bowls include unslipped bowls from Phase 7 (Figure 8.621-m). Figure 8.62m,


FIGURE 8.176. Typology of Iron II pottery (open vessels).



JG1


JG2


JGT1

FIGURE 8.177. Typology of Iron II pottery (closed vessels).

| TABLE 8.3. Iron II types and wares according to phases in Field IV. HM = hole-mouth; RS = red slipped; RSB = red slipped and burnished; Phil = Philistine; B AS = Assyrian-style pottery. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Types |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Wares |  |  |  |  |
| Phase | BL1 | BL2 | BL3 | BL4 | BL5 ${ }^{\text {a }}$ | BL6 | KR1 | KR2 | CP1 | CP2 | CP3 | JR1 ${ }^{\text {b }}$ | JR2 ${ }^{\text {b }}$ | JR3 | JR4 | HM | RS | RSB | Phil BC | Phil RS | AS | Total |
| Phase 5 | 90 | 29 | 8 | 21 | 2 | 10 | 5 | 14 | 1 | 12 | 12 | 69 | 33 | 20 | 0 | 2 | $\begin{aligned} & 26 \\ & (3.4 \%) \end{aligned}$ | $\begin{aligned} & 142 \\ & (18.5 \%) \end{aligned}$ | 0 | 0 | $\begin{aligned} & 35 \\ & (4.6 \%) \end{aligned}$ | 766 |
| Phase 6 | 81 | 11 | 7 | 7 | 3 | 3 | 4 | 3 | 1 | 6 | 3 | 11 | 3 | 26 | 0 | 0 | $\begin{aligned} & 18 \\ & (5.6 \%) \end{aligned}$ | $\begin{aligned} & 127 \\ & (39.3 \%) \end{aligned}$ | 0 | 1 | 0 | 323 |
| Phase 7 | 43 | 14 | 7 | 2 | 1 | 0 | 2 | 6 | 2 | 9 | 1 | 11 | 3 | 9 | 0 | 1 | 9 (4\%) | $\begin{aligned} & 79 \\ & (35.3 \%) \end{aligned}$ | 0 | 0 | 0 | 224 |
| Phase 8 | 2 | 1 | 2 | 2 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 0 | 1 | 3 | 0 | 1 (2\%) | $\begin{aligned} & 11 \\ & (22.4 \%) \end{aligned}$ | 0 | 0 | 0 | 49 |
| Phase 9 | 26 | 7 | 15 | 0 | 46 | 0 | 8 | 4 | 22 | 0 | 0 | 1 | 0 | 1 | 15 | 2 | $\begin{aligned} & 20 \\ & (6.6 \%) \end{aligned}$ | $\begin{aligned} & 183 \\ & (60 \%) \end{aligned}$ | 0 | 4 | 0 | 305 |
| Phase 10 | 2 | 7 | 6 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | $\begin{aligned} & 15 \\ & (16.3 \%) \end{aligned}$ | $\begin{aligned} & 24 \\ & (26.1 \%) \end{aligned}$ | 1 | 2 | 0 | 92 |
| Phase 11 | 6 | 9 | 11 | 0 | 5 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | $\begin{aligned} & 52 \\ & (17.3 \%) \end{aligned}$ | $\begin{aligned} & 81 \\ & (26.9 \%) \end{aligned}$ | 7 | 10 | 0 | 301 |
| Total | 393 | 104 | 77 | 54 | 65 | 23 | 26 | 41 | 31 | 44 | 27 | 158 | 71 | 87 | 20 | 7 | $\begin{aligned} & 169 \\ & (8.2 \%) \end{aligned}$ | $\begin{aligned} & 844 \\ & (40.1 \%) \end{aligned}$ | 8 | 17 | $\begin{aligned} & 35 \\ & (1.7 \%) \end{aligned}$ | 2,060 |

[^1]TABLE 8.4. Iron II types and wares according to architectural elements in Phase $5 . \mathrm{Bld}=$ Building; $\mathrm{HM}=$ hole-mouth; $\mathrm{RS}=$ red slipped; RSB $=$ red slipped and burnished;
Phil = Philistine; $\mathrm{BC}=$ Bichrome; $\mathrm{AS}=$ Assyrian-style pottery.

| Context | Types |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Wares |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Phase | BL1 | BL2 | BL3 | BL4 | BL5 | BL6 | KR1 | KR2 | CP1 | CP2 | CP3 | JR1 | JR2 | JR3 | JR4 | HM | RS | RSB | $\begin{aligned} & \text { Phil } \\ & \text { BC } \end{aligned}$ | $\begin{aligned} & \text { Phil } \\ & \text { RS } \end{aligned}$ | AS | Total |
| Bld I, Room A | 5 | 22 | 7 | 8 | 4 | 0 | 1 | 2 | 4 | 0 | 1 | 1 | 18 | 4 | 3 | 0 | 2 | 7 | 27 | 0 | 0 | 6 | 192 |
| Bld I, Room B | 5 | 9 | 2 | 3 | 6 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 8 | 11 | 4 | 0 | 0 | 6 | 13 | 0 | 0 | 0 | 97 |
| Bld I, Room C | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 11 |
| Bld I, Room E | 5 | 10 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 8 | 1 | 3 | 0 | 0 | 2 | 13 | 0 | 0 | 0 | 52 |
| Bld I, Room F | 5 | 12 | 3 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 3 | 4 | 4 | 2 | 2 | 0 | 0 | 3 | 23 | 0 | 0 | 11 | 61 |
| Bld II | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 7 | 10 |
| Bld II, Room A | 5 | 2 | 2 | 0 | 3 | 0 | 2 | 1 | 0 | 0 | 4 | 1 | 6 | 3 | 5 | 0 | 0 | 0 | 8 | 0 | 0 | 3 | 63 |
| Bld II, Room B | 5 | 9 | 1 | 2 | 2 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 4 | 5 | 2 | 0 | 0 | 3 | 11 | 0 | 0 | 0 | 67 |
| Bld III(?), Unit 2 | 5 | 14 | 4 | 2 | 3 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 11 | 5 | 0 | 0 | 0 | 1 | 18 | 0 | 0 | 0 | 86 |
| Bld II | 6 | 6 | 3 | 3 | 2 | 2 | 3 | 0 | 0 | 0 | 3 | 2 | 1 | 0 | 3 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 47 |
| Bld III(?), Unit 2 | 6 | 59 | 2 | 2 | 2 | 1 | 0 | 2 | 2 | 0 | 2 | 0 | 4 | 0 | 7 | 0 | 0 | 6 | 67 | 0 | 0 | 0 | 126 |

with an everted rim, seems to be similar to earlier carinated types of the Iron I and IIA (see, e.g., Figure 8.5 h) and may be residual; another example (Figure 8.621, possibly also Figure 8.62e) has a simple straight rim and high carination, with parallels mostly in the Iron IIB-C (e.g., Lachish, Level III [Zimhoni, 1997b: fig. 5.4:14], Ashdod, Strata X-VII [Dothan, 1971: fig. 39:5,6; Dothan and Ben-Shlomo, 2005: figs. 3.82:2, 3.98:6], and Batash, Strata III-II [Mazar and Panitz-Cohen, 2001:43-44, Type BL22]). An example from Phase 6 (Figure 8.88h) has a thickened rim, straight neck, and sharp carination; a similar type appears in Phases 9-8 (Figures 8.176, Type BL5, $8.26 \mathrm{k}-\mathrm{p}$; see also Gezer, Gitin, 1990: pl. 24:9) but without red slip. Another bowl from Phase 6 (Figure 8.84 j ) is of the type of bell-shaped bowls with grooves under the rim and red slip and burnish, as in Phases 9-8 (Figures 8.176, Type BSB, 8.5e, 8.11d; see above). A carinated bowl from Phase 6 (Figure 8.84i) has a flaring rim and a body resembling chalices.

One red-slipped example (Figure 8.115 h , Phase 5) has a series of delicate grooves under the rim, possibly an imitation of an Assyrian-style bowl (see below and chapter 13; see also Ashkelon, Stager et al., 2011:76, fig. 5.14). An unslipped carinated bowl with a flaring rim (Phase 5, Figure 8.94f, possibly Figure 8.173o) resembles Assyrian-style carinated bowls (although not as thin and made of a different fabric; see chapter 13) and appears in Philistia during the Iron IIB-C (e.g., Ashdod, Strata IXVI [Dothan, 1971: figs. 39:2-9, 52:7,8; Dothan and Ben-Shlomo, 2005:202, figs. 3.88:2, 3.98:5,6, 3.105:5-10] and Batash, Strata III-II [Mazar and Panitz-Cohen, 2001:42-43, Type BL17, and references therein]). A carinated bowl from Phase 5 made of whitish clay and with white slip and brown horizontal bands on the outside (Figure 8.94i) is possibly similar to a bowl from Kadesh Barnea, Stratum 2, denoted as "Edomite" (Cohen and Bernick-Greenberg, 2007: fig. 11.125:22).

Unslipped carinated bowls or kraters with slanting, thickened rims from Phase 5 are also illustrated (Figures 8.104j,k, 8.128n).

## Folded/Hammerhead Rim Bowls (Type BL4)

These are relatively open bowls (or small kraters; Type BL4) with a rounded body and a folded or hammerhead rim (protruding outward) that appear in Phase 8 (Figure $8.41 \mathrm{~g}, \mathrm{~h}$ ) and continue in Phase 7 (Figure 8.62c), Phase 6 (Figures 8.84e, 8.85f, 8.89c), and Phase 5 (Figures $8.94 \mathrm{~h}, 8.96 \mathrm{f}, 8.104 \mathrm{i}, 8.115 \mathrm{~d}, \mathrm{f}, 8.128 \mathrm{~d}, \mathrm{i}, \mathrm{j}$, 8.1501, 8.173e); note, however, that the quantities of this type are not large (Table 8.3 , up to $2.7 \%$ ). More complete examples indicate that some of these bowls have two handles extending from the rim (see Phase 5, Figure 8.94h). Surface treatment usually includes inner or inner and outer red slip and burnish (hand and horizontal wheel burnish on the upper part); some examples from Phase 5 are unslipped (as Figures 8.94h, 8.104i).

This form begins to appear during the Iron IIA and becomes more popular, especially in Judah and the Shephelah, during the late Iron IIA and Iron IIB, i.e., the 8 th century BCE (but continuing probably into the 7 th century BCE ); it seems that the
earlier examples are more commonly red slipped and burnished, whereas the later ones are unslipped, although sometimes they are still burnished. At Tell Jemmeh this type appears only from Phase 8 onward. Parallels come, for example, from Lachish, Levels V-III (Zimhoni, 1997a:154, figs. 3.16:1, 3.66, 1997b: fig. 5.4:16-19), Batash, mostly Strata III-II (Mazar and PanitzCohen, 2001:39-40, Type BL13, and references therein), Arad, Strata X-VII (Singer-Avitz, 2002:132, Type B24), Ashkelon, 604 BCE destruction level (Stager et al., 2011:75-76, Bowl 3; for larger examples, see Stager et al., 2011:81, Bowl 8), and Tell esSafi, Phase A2 (Avissar and Maeir, 2012: pls. 15.1:3, 15.3:1,3,4, Type BL 501).

## Open Shallow Bowls (Types BL6 and BL7)

Several shallow to flat, open bowls appear in Phases 6-5. These include examples with simple and slightly thickened rims (Type BL6) from Phase 6 (Figures $8.85 \mathrm{n}, 8.89 \mathrm{c}, \mathrm{d}$ ) and Phase 5 (Figures $8.104 \mathrm{~h}, 8.150$ j, both with red slip; also, possibly a base, Figure 8.135 d ). Examples with incurving rims with red slip and burnish come from Phase $6 / 7$ (Figure $8.851, \mathrm{~m}$ ). One example is red slipped and burnished with a folded rim (Phase 5, Figure 8.104h), and another has a hammerhead rim (Phase 6, Figure 8.89e; see, e.g., Stager et al., 2011:74, Bowl 2). Figure 8.174g is a nearly complete profile of a shallow, open, red-slipped and burnished bowl with a wide, flat ledge rim (Figure 8.176, Type BL7), assigned to Phase 5 (Figure 8.85o from Phase 6 and Figure 8.174h from Phase 5 with brown slip on top are also of this type). Parallels come, for example, from Lachish, Levels IV-III (Zimhoni, 1997a: figs. 3.4, 3.56:1-7, 1997b: fig. 5.4:7,8), 'Eton, Stratum I (Zimhoni, 1997c: fig. 4.4:1,2,8,9), Batash, Strata III-II (Mazar and Panitz-Cohen, 2001:48-49, Types BL14, BL15, and references therein), Arad, Strata X-VIII (Singer-Avitz, 2002:128, Types B1-B4), and Ashkelon, 604 BCE destruction level (Stager et al., 2011:82, Bowl 11). These bowls are more common in the Iron IIB-C (Mazar and Panitz-Cohen, 2001:49).

A thick open bowl with a V-shaped profile from Phase 5 (Figure $8.174 \mathrm{f}, \mathrm{p}$ ) is also illustrated, possibly a mortarium-like bowl (see below).

## Other Bowl Types

Other bowl types include bowls with a short everted or flaring rim and globular body, somewhat similar to bell-shaped bowls (Figures 8.94d, 8.104e,f, 8.115e,g, 8.128f, 8.174b-d; all are from Phase 5). These bowls are rather variable in their profile and surface treatment (i.e., red slip and burnish on both sides or only on the interior or exterior). These may be residual from the Iron IIA (see Iron IIA parallels at Ashdod, Strata X-IX [Dothan and Ben-Shlomo, 2005: fig. 3.69:13], Lachish, Locus 4421 [Zimhoni, 1997a: fig. 3.59:1], Batash, Stratum III [Mazar and Panitz-Cohen, 2001: pl. 87:11], and Arad [Singer-Avitz, 2002: Type B28]). However, their relatively high quantity (see Table 8.3), especially in Phase 5, might indicate they are not residual; Iron IIB-C examples come from Ashdod, Strata IX-VIII
(Dothan and Ben-Shlomo, 2005: fig. 3.88:6) and Kadesh Barnea, Stratum 3 (Cohen and Bernick-Greenberg, 2007: pls. 11.40:11, 11.48:3).

Small bowls, probably carinated, with grooves on the upper part (Figure 8.94 j ) appear in Phase 5. Somewhat similar is a red-slipped and burnished example (Bag 3020/1, unillustrated). Another example of a small bowl with brown slip and burnish (Figure 8.173f) has a groove under the rim and a small knob attached. A sherd from Phase 5 (Figure 8.128c) is red slipped on the inside and on the outside, except for a "reserve" unslipped band; this is possibly a carinated bowl. A carinated red-slipped and burnished bowl with large elongated bar handles (Phase 5, Figure 8.115 i) that are attached vertically has a simple vertical rim and red slip and burnish on the upper part. Possible parallels come from 'Eton, Stratum I (Zimhoni, 1997c: fig. 4.8:7) and from Beit Mirsim, Tomb 5 (Ben-Arieh, 2004: fig. 2.80:5, dated to the Iron IIB). Figure 8.941 from Phase 5 seems to be a miniature bowl with an open shape. Figure 8.115 j from Phase 5 is a small concave base showing a spiral-shaped breakage mark from the bowl or small chalice it was connected to. A ring base with inner and outer red slip (Figure 8.128 k ) may belong to an open bowl.

## Mortaria Bowls

Several examples of mortaria bowls with flat bases come from Phase 5 (Figures 8.98b, 8.151k, 8.174j), including a complete example from Room F (Figure 8.151 k ). These are straightsided thick bowls ( $25-30 \mathrm{~cm}$ in diameter) or small basins with simple rims and flat or ring bases. This type is more common during the Persian period but begins to appear in the Iron IIB (for further discussion, see Zukerman and Ben-Shlomo, 2011). Iron Age mortaria bowls are found at various sites in southern Israel, for example, Batash, Stratum II (Mazar and Panitz-Cohen, 2001:51, Type BL20) and Ashkelon, 604 BCE destruction level (Stager et al., 2011:112-113). It seems that most examples of this type, which continue to appear commonly in the Persian, Hellenistic, and early Roman periods in the Levant, are imported. Although several Iron IIB examples appear (Zukerman and Ben-Shlomo, 2011: table 1), this type becomes more common during the Iron IIC and the Persian period (continuing also into the Hellenistic and early Roman periods). The bowl probably had a function of a grinding vessel, as its fabric is very gritty and well fired. Most of these vessels have very thick walls (1.52.5 cm ), but some examples have thinner walls. The versions with thicker walls were most likely used for grinding, whereas those with thinner walls were perhaps used for serving (Sapin, 1998). The majority of thick-walled mortaria have abraded interiors (see also Bennett and Blakely, 1989:196, 201; Sapin, 1998; Villing, 2006:34-37), supporting their use as grinding vessels. Most of the Greek mortaria had the same function (e.g., Weinberg, 1954:129-130); the coarse inclusions, unique to mortaria, created a rough surface that facilitated grinding. Late Iron Age examples (see Zukerman and Ben-Shlomo, 2011:91-97), as well as later examples (see, e.g., Gorzalczany, 1999, 2005), were most likely imported from Cyprus.

## Kraters

Only a few small- to medium-sized kraters were found in Phases 7-5. Two examples of small, red-slipped, and burnished kraters with thickened (hammerhead) slanting rims are illustrated (Figure 8.176, Type KR1; Figures 8.65c, 8.88f, 8.96f). This type appears mostly in the late Iron IIA and Iron IIB (e.g., Phase 9, Figure 8.27a-c; see, e.g., Lachish [Zimhoni, 1997a: fig. 3.30:7-14], Batash [Mazar and Panitz-Cohen, 2001:63, Type KR14], and Nagila, Stratum IV [Shai et al., 2011a: fig. 7:6-9]).

Another possible krater or large jar (Figure 8.86f) has a thickened rim and rather straight sides; it is unslipped. Figure 8.150o from Phase 5 is a thickened and ridged rim fragment of a krater with no slip (see, e.g., Lachish, Levels V-IV, Zimhoni, 1997a: fig. 3.31). A disk base and lower part of a vessel (Phase 5 , Figure 8.150 r) is red slipped on the outside and may belong to a krater as well. Figure 8.128 n from Phase 5 is an everted ledge rim with an unusual shape, possibly of a globular bowl or krater (see, possibly, Kadesh Barnea, Stratum 3, Cohen and BernickGreenberg, 2007: fig. 11.64:7).

Several large, deep vessels can also be defined as kraters (Figure 8.176, Type KR2), although they are sometimes published as jars. These are more common in the Iron IIB-C than Type KR1 but appear already in Phases 9-8. These vessels have a wide mouth, thick ledge rim (see, e.g., Figure 8.174 k ) that is either flat or slightly slanting, and several loop handles attached from the rim to the shoulder (Figure 8.143c). Examples come from Phase 9 (Figure 8.27e), Phase 8 (Figure 8.41o,p), Phase 7 (Figures $8.611,8.65 \mathrm{~d}, \mathrm{e}$ ), Phase 6 (Figures $8.85 \mathrm{q}, 8.88 \mathrm{i}$ ), and Phase 5 (including two complete examples, Figures $8.96 \mathrm{~h}, 8.143 \mathrm{~b}, \mathrm{c}$, $8.150 \mathrm{p}, \mathrm{q}, 8.173 \mathrm{~g}, 8.174 \mathrm{k}$ ). One example from Phase 8 has a ledge rim with two delicate grooves (Figure 8.41 p, possibly also Figure 8.150 q ; see, e.g., Kadesh Barnea, Stratum 2, Cohen and Bernick-Greenberg, 2007: pl. 11.118:3,4). Complete examples of this type have two to four handles and a ring or disk base (see Figure 8.174 k ) and are about $50-70$ high and $40-50 \mathrm{~cm}$ wide; Figure 8.143 c has a capacity of 22.25 L .

These deep hole-mouth-type containers start to appear during the Iron IIA and become more popular during the Iron IIB-C, especially in Judah (see discussion by Mazar and Panitz-Cohen, 2001:71). Iron IIB-C parallels for Type KR2 kraters come, for example, from Lachish, Level III (Zimhoni, 1997b:239-240, fig. 5.20, Group IIIF), Ashdod, Strata X-VIII (Dothan, 1971: fig. 47:1,2; Dothan and Ben-Shlomo, 2005: figs. 3.70:7, 3.83:11, 3.91:1-3; the latter is an example with six handles), Gezer, Stratum VIB (Gitin, 1990: pls. 11:7, 18:2), Batash, Strata III-II (Mazar and Panitz-Cohen, 2001:69-71, Type KR35c-d, and references therein), Ashkelon, 604 BCE destruction level (Stager et al., 2011:85, fig. 5.47), and Arad, Strata X-VIII (Singer-Avitz, 2002:145-146, Types SJ11, SJ12).

A rim sherd with carination and a loop handle attached to it (Phase 5, Fig. 8.96g) has an everted flat rim and is probably some sort of krater, with parallels possibly found at Ashdod, Stratum VI (Dothan and Ben-Shlomo, 2005:229, fig. 3.106:11).

A hole-mouth-type rim from Phase 6 (Figure 8.85 r) may belong to large krater or pithos(?).

Figure 8.135 g is possibly a large krater with a thickened/ folded rim, straight, long neck, and carinated body (see, possibly, Ashdod, Strata VIII-VI [Dothan and Ben-Shlomo, 2005: figs. 3.89:3, 3.107.3] and Batash, Strata III-II [Mazar and PanitzCohen, 2001:71, Type KR8]).

## Chalices

Chalices are often a chronologically nonindicative form and appear in most periods. A red-slipped and burnished chalice comes from Phase 7 (Figure 8.61h), with slip on the interior and exterior and external burnishing; the decoration also includes a white band on the outside. The bowl has a straight wide, open form with a flat ledge rim (for similar chalices, see Ashdod, Stratum VIIIb [Dothan, 1971: fig. 40:1] and Batash, Strata IV-II [Mazar and Panitz-Cohen, 2001:58, Type CH6]; see also similar bowls, e.g., Lachish, Level IV, Zimhoni, 1997a: fig. 3.65:8-15). A similar chalice without slip or burnish but with remains of red paint on the inside (Figure 8.94 m ) is illustrated from Phase 5. A large, thick chalice, possibly from Phase 5 or Phase 6 (Figure 8.174 p), has a perforated bowl base and may have been used as a funnel or stand for a cooking pot (see Sq. 2A, Feature 18). Another large example comes from Building I, Room C (Figure 8.135n); it has thick white slip, and the bowl is perforated. The perforation may represent secondary use for the vessel as a funnel. Two "stem" fragments of chalices (Figure $8.151 \mathrm{i}, \mathrm{j}$ one has white slip) were found in Building I, Room F. These chalices are of a type continuing from the Iron I to the Iron II (see, e.g., Batash, Mazar and Panitz-Cohen, 2001:55-56, usually with carinated bowls). Another example of a chalice from Phase 6 (Figure 8.85o) has a similar open shape, flat rim, and inner red slip and burnish.

## Cooking Pots

Of the several cooking pots illustrated from good contexts in Phases 7-5, three Phase 5 examples were complete or nearly complete (Figures 8.94o, 8.96i,j); two come from Building II, Room B. Iron IIA cooking pots, from Phases 11-9 (Type CP1, Figures $8.27 \mathrm{i}-\mathrm{k}, 8.176$ ), are also included in this typology for purposes of quantitative analysis.

The most common Iron IIB-C cooking pot by far is a cooking pot with a gutter/stepped rim or a groove on the outer part of the rim, globular body, and two handles (Figure 8.176, Type CP2; see Figures 8.96i, 8.1741). Examples come from Phase 7 (Figures 8.61d,j, 8.62p), Phase 6 (Figures 8.84k, 8.85s,t, 8.88j), and Phase 5 (Figures 8.94o, 8.96i, 8.104l, 8.143d, 8.150t,w,y, $8.1741-\mathrm{n})$. More complete examples show this type has two loop handles. Most examples are made of a gritty cooking ware fabric and carry soot marks (see, e.g., Figure 8.96i).

This type is typical of the Iron IIB, or 8th century BCE, in southern Israel, with examples from, for example, Lachish, Level III (Zimhoni, 1997b:221, fig. 5.6:1,2), Ashdod, Strata IX-VII
(Dothan and Porath, 1982: fig. 20:6; Dothan and Ben-Shlomo, 2005: fig. 3.90), Gezer, Stratum VIA (Gitin, 1990: pl. 22:2-5), Batash, Stratum III (Mazar and Panitz-Cohen, 2001:83-84, Type CP7, and references therein), Nagila, Stratum III (Shai et al., 2011a: fig. 9:9), and Arad, Strata X-VIII (Singer-Avitz, 2002:139, Types CP1-CP3).

Other cooking pot types include examples with more triangular everted rims (Figure 8.176, Type CP3), found in Phase 7 (Figure 8.61i, possibly Figure 8.62o) and Phase 5 (Figures $8.96 \mathrm{j}, 8.150 \mathrm{v}, \mathrm{x}$, possibly 8.94 p ). Other possible examples (Phase 7, Figure 8.61k) have simple rims. A few examples have a high neck with an inverted and thickened rim (Phase 5, Figure 8.150 z ). These fragments may belong to deep globular pots with ridged necks, typical of the Iron IIC (e.g., Batash, Stratum II, Mazar and Panitz-Cohen, 2001:85-86, Type CP9). Note that this indicative 7th century BCE form rarely appears in Jemmeh, possibly because of regionality (similarly, it is missing from Ashdod, Strata VII-VI), as it is possibly more related to Judah and the Shephelah. Two examples from Phase 5 (Figures 8.135f, 8.1740 ) represent a cooking pot with a pinched rim. This type is common in the Iron IIC at Batash, Stratum II (Mazar and Panitz-Cohen, 2001:86-87, Type CP10, and references therein; see the coastal type in Ashkelon, 604 BCE destruction level, Stager et al., 2011:86, Cooking Pot 1, figs. 5.48-5.49), indicating this type has a globular, swollen body and two loop handles. Another example has an everted rim (Phase 6, Figure 8.85u); for this type see, possibly, Batash, Stratum II (Mazar and PanitzCohen, 2001:87, Type CP11). Figure 8.115 t from Phase 5 is a bow neck, covered with soot, likely a cooking pot or cooking jug fragment.

## Jars

Many storage jars were found in Phases 7-5 in Field IV, including a large number of complete or nearly complete examples (especially from Phases 7 and 5, in the area near Building III, e.g., Figures $8.63 \mathrm{a}-\mathrm{d}, 8.98 \mathrm{c}, 8.105 \mathrm{a}-\mathrm{c}, 8.135 \mathrm{~h}, 8.152 \mathrm{a})$. A number of jars were also found in Building I (Figures 8.134, 8.135h, 8.152a). As will be seen, most of the jars are quite uniform in shape, although a certain variability is represented by rims and necks of jars. Type JR4, appearing in the Iron IIA, was added for counting purposes.

## Type JR1

A very common jar type in Phases $7-5$ is the bag-shaped coastal jar (Figure 8.177, Type JR1). Most of these jars have short, vertical necks attached to straight shoulders (neck usually not inserted, as opposed to Type JR2 below). This jar is bigger than the tapering-base jar (Type JR2 below), about $50-60 \mathrm{~cm}$ in height, and its base is less elongated and is rounded or slightly pointed, but generally, it has a similar shape to JR2 and can be used as a generic type for rim, neck, and shoulder fragments of similar shapes. Thus, most rim and neck fragments from Phases 7-5 are technically attributed to this type. Examples come from Phase 7 (Figures
8.61n, 8.63b,c, $8.65 \mathrm{f}-\mathrm{i}$ ), Phase 6 (Figure 8.86e), and Phase 5 (Figures $8.95 \mathrm{a}, 8.105 \mathrm{c}, 8.128 \mathrm{o}-\mathrm{q}, 8.143 \mathrm{e}-\mathrm{h}, 8.152 \mathrm{~b}, 8.175 \mathrm{a}$ ).

This jar form is common, especially in the southern coastal plains during the Iron IIB-C. Parallels come, for example, from Lachish, Levels III-II (Zimhoni, 1997b:244-245, fig. 5.26), Ashdod, Strata IX-VI (Dothan and Ben-Shlomo, 2005: figs. 3.92:1,2, 3.101:4, 3.108:1,2, with references to other such jars at the site therein), Miqne, Stratum IB (Gitin, 1998: fig. 5:4), Ashkelon, 604 BCE destruction level (Master, 2001: figs. 2.2:912, 2.3:1-3; Stager et al., 2011:88, figs. 5.55, 5.56, Storage Jar 1), Batash, Strata III-II (Mazar and Panitz-Cohen, 2001:97-98, Type SJ7, and references and discussion therein), Gezer, Stratum VIA (Gitin, 1990: pl. 17), and Kadesh Barnea, Stratum 2 (Cohen and Bernick-Greenberg, 2007:166, pls. 11.77:3-4, 11.88:1,2, 11.107, Type SJ8a).

## Type JR2

Possibly the most common jars appearing in complete examples, especially in Phase 5 in Field IV, are relatively small storage jars with a short neck and pointed, tapering base (Figure 8.177, Type JR2). This type is characterized by a sack-shaped to pyriform body (like Type JR1), with a lower part that is almost conical. These jars have a height of $45-55 \mathrm{~cm}$ and, in most cases, a width of $33-35 \mathrm{~cm}$. The neck is very short and has a varying shape but a rather regular opening that is $9.5-10 \mathrm{~cm}$ in diameter. The neck is vertical and often inserted into the jar body, thus protruding into the inner part of the jar. The base is pointed, elongated, and tapering and is usually hollow (the wheel-throwing marks are visible in its inner lower part). These jars have two short loop handles connecting the shoulder to the body; the handles are thick and usually have two coarse ridges along them (Figure 8.95 b). In some cases, there is a delicate vertical burnish on the surface of the body (e.g., Figure 8.97a). The capacity of these jars would usually have been 30-35 L. Figure 8.135 h , for example, has a capacity of 31.2 L ; however, Figure 8.152 a is larger at 40.6 L and is also 60 cm high and 39 cm wide. Apparently, the capacity was not completely uniform.

This type appears mostly in Phase 5 with many examples, several of which are complete or nearly complete (Figures 8.95b, 8.97a, 8.105a,b, 8.135h, 8.152a,g). Possible rims also come from Phase 7 (Figures $8.65 \mathrm{f}, \mathrm{g}$ ) and Phase 6 (Figure 8.841). Several very short neck fragments, protruding inside the body, may also be allocated to the type (e.g., Phase 5, Figures 8.116b, 8.143i). A complete example also comes from Field II, Phase 2 (Figure 4.40 k ) and is similarly dated.

This storage jar type is common in southern Israel during the end of the Iron Age, the late 8th and especially the 7th centuries BCE (also nicknamed the butterfly jar; Stager et al., 2011:90). Parallels come from Petrie's excavations (Petrie, 1928: pl. LVI:47h), Lachish, Level II (Zimhoni, 1997b:247-250, figs. 5.28, 5.29), Ashdod, Stratum VI (Dothan and Ben-Shlomo, 2005: fig. 3.108:3), Ashkelon, 604 BCE destruction level (Master, 2001: fig. 2.3:4; Stager et al., 2011:90, fig. 5.58, Storage Jar 3), Batash, Stratum II (Mazar and Panitz-Cohen, 2001:101-102,

Type SJ18, and references and discussion therein), Tel 'Ira, Strata VII-VI (Freud, 1999: figs. 6.62:18, 6.75:5), Arad, Stratum VII (Singer-Avitz, 2002:145, Type SJ9), and Kadesh Barnea, Stratum 2 (Cohen and Bernick-Greenberg, 2007:166, pls. 11.77:5,6, 11.88:3, 11.105:3-5, Type SJ8b). It seems that this jar type is more common in sites in southern Israel somewhat distant from the coast (such as Arad, Tel 'Ira, and Kadesh Barnea). The evidence from Lachish (Level II) and Batash (Stratum II) indicates that this jar is typical of the 7th century BCE. Zimhoni (1997b:247-250) suggested that during the 7th century BCE, these jars were produced in a common workshop in the southern coastal plain; in light of the evidence from Tell Jemmeh, it is possible that a production center was located in the vicinity of the site in the northern Negev. According to petrographic analysis at Ashkelon, this jar type was produced locally at Ashkelon or somewhat to the south in the Gaza region (Stager et al., 2011:90). This could fit the results from Jemmeh, as some of the jars that were analyzed belong to Petrographic Group 1b at Tell Jemmeh (see chapter 15), which is sourced to the southern coastal plain (possibly the Ashkelon region).

## Types JR3-JR5 and Other Jar Types

Another jar type common in the Iron II levels at Tell Jemmeh (Figure 8.177, Type JR3) is represented by one complete example from Phase 7 (Figure 8.63d) and many rim or neck sherds. According to the complete example, the neck is short and vertical, the body is ovoid with two loop handles, and the base is wide and rounded; it is a small jar, 45 cm high and 30 cm wide. According to several rim fragments, this type is characterized by a short, slightly incurving, thick neck, having a delicate ridge at its midpoint (possibly Figure 8.152 h). The rim is thickened, with a wide inner gutter going through the top of it (the inner part of the rim is also pulled inward); this guttered rim shape is very distinctive, and the type is easily identified (as in Figures 8.61o, 8.86h, 8.881). Examples come from Phase 8 (Figure 8.42f), Phase 7 (Figures 8.61o, 8.63d), Phase 6 (Figures $8.84 \mathrm{~m}, \mathrm{n}, 8.86 \mathrm{~g}, \mathrm{~h}, 8.881$ ), and Phase 5 (Figures $8.95 \mathrm{c}-\mathrm{e}, 8.116 \mathrm{c}$, 8.128 r, 8.152e). Parallels are not common and include Kadesh Barnea, Stratum 3, dated to the Iron IIB (Cohen and BernickGreenberg, 2007:146, pls. 11.29:12, 11.40:6, 11.41:23, Type SJ3.2), and possibly Batash, Stratum III (Mazar and PanitzCohen, 2001: pl. 22:16). It seems that this is an Iron IIB-C type found in southern Israel and not appearing earlier. Ridged jar necks (Figures 8.177, Type JR4, 8.135k, 8.152d [possibly Phase 6], 8.86 k ) are similar to a type described in Phases $10-8$ (see Figures $8.12 \mathrm{c}, 8.28 \mathrm{c}, \mathrm{e})$.

Two large jar fragments from Phase 7 (Figure 8.177, Type JR5, Figure 8.63 d ,e) have a different type of rim. The body is bag shaped with two small loop handles (like Type JR1), but the rim has a pulled-out wedge shape with a groove in the inner side and two grooves on the shoulder. Parallels may come from Ashdod, Stratum VI (Dothan and Ben-Shlomo, 2005:232, fig. 3.108:4) and Tell es-Safi, Stratum A2 (Avissar and Maeir, 2012: pl. 15.9:3).

An example of a fragmentary jar with no neck and a flat folded rim from Phase 5 (Figure 8.152j) is probably a fragment of a Phoenician transport jar with a torpedo-shaped body, with two small thick loop handles and a pointed base. These jars are dated to the Iron IIB-C with many parallels in southern Israel (e.g., Batash, Strata III-II [Mazar and Panitz-Cohen, 2001:103105, Type SJ15, and references and discussion therein] and Ashdod, Strata VIII-VII [Dothan, 1971: figs. 57:8,9, 60:10, Dothan and Porath, 1982: figs. 22:1, 27:1; Dothan and Ben-Shlomo, 2005:232, fig. 3.108:5]). Most of these jars were produced in Phoenicia or the northern Levantine coast (see petrographic analysis, e.g., Master, 2003; Aznar, 2005; Stager et al., 2011:58-59, 100). A carinated jar shoulder with a short neck (Figure 8.128o) may also be similar to this type (or Type JR1); it is made of a very reddish clay. A jar with no neck and simple rim (Figure 8.128q) comes from Phase 5, possibly a Phoenician-like type (see above).

Other jar rims from Phase 6 include a flaring rim (Figure 8.86 j) and the ridged rim of a jar or a jug (Figure 8.861). A thick folded rim and neck (Phase 6, Figure 8.86i) probably belong to a pithos.

Other types, found mostly in Phase 5, include a red-slipped, straight, thickened rim (Figure 8.105f) and a similar neck with red decoration (Figure 8.97c). Similar vessels were found at Ashdod, Stratum VIII (Dothan and Porath, 1982: fig. 14:8), and there are unslipped examples from Batash, Strata III-II (Mazar and Panitz-Cohen, 2001:93, Type SJ29). Also illustrated is a straight and vertical neck (Figure 8.105d) and the flat base of a jar from Phase 5 (Figure 8.175i). The rounded base of a closed vessel from Phase 7, possibly a jar-like vessel (Figure 8.661), was perforated before firing; this item may have been used as a funnel.

A deeply incised thick handle from Phase 7 (Figure 8.63g) belongs to a jug or basket-handled jar. The upper part of a jar, richly decorated in LPDW style on the body and handle (Figure 8.87a), was found in a Phase $6 / 7$ fill in Building II and will be discussed with the Philistine pottery in chapter 12.

## Hole-Mouth Jars

Cylindrical hole-mouth jars (Figure 8.177, Type HM) start to appear in Phase 9 (Figure $8.28 \mathrm{~g}, \mathrm{~h}$ ) and appear in a few examples in Phase 7 (Figure $8.651, \mathrm{~m}$ ). As noted, this very common Iron IIB form appears rarely at Tell Jemmeh Field IV (see also examples from Field III, Figure 3.172 g ; Field I, Sq. KB, Figure 7.72e; Field I, FUR 2 and FUR 3, Figure 7.84m) and hardly appears in Phases 6 and 5. The examples from Phase 7 all have ridged ledge rims. For a detailed discussion, see Mazar and Panitz-Cohen (2001:105-107, Type SJ10).

## Amphorae

Some fragments could belong to jugs or amphorae, as it is not clear whether the vessel had one or two handles. One example is a red-slipped and vertically burnished LPDW body fragment with a handle and two parallel grooves from Phase 7 (Figure 8.66b). A neck with a ridge and a thickened rim (Figure
8.116e, Phase 5) may also belong to a jug or amphora (see also Ashkelon, 604 BCE destruction level, Stager et al., 2011:91, Amphora 1).

## Jugs

## Globular Jugs (Type JG1)

Several examples of globular jugs (Figure 8.177, Type JG1) are usually red slipped and burnished. A complete jug found in Sq. 2B, Layer 41 (possibly Phase 7, Figure 8.66a) has a globular body, a long neck with a ridge midway, a simple everted rim, and a ring base; the handle is attached to the ridge. Surface treatment includes red slip and vertical burnish of the neck and upper body and possibly decoration on the body (black circles?). A lower body fragment and ring base from Phase 6 with red slip and vertical burnish (Figure 8.86n) probably belongs to this type as well. Another large body fragment with a handle from Phase 7 (Figure 8.66e) also has a thick red slip and vertical burnish (possibly a white horizontal band as well). The narrow neck of a red-slipped and burnished jug from Phase 7 (Figure 8.66j, possibly also Figure 8.61 p, which has red slip and vertical burnish) may also belong to this type. Iron IIA-B jugs with narrow necks are often decorated by red vertically burnished slip and black (and/or white) decoration and could be included in the LPDW group (see, e.g., Ben-Shlomo, 2006a:68, fig. 1.32:1-6, Type JG4; see also Mazar and Panitz-Cohen, 2001:115-116, Types JG26, JG30, which is a more apparent LPDW form, and further references therein). A narrow neck with a ridge and handle attached under it (Figure 8.128s) has red slip and no burnish, possibly also from a similar globular jug (perhaps like Type JG30 of Mazar and Panitz-Cohen, 2001). Another jug neck with vertical red burnish (Phase 5, Figure 8.135 m ) has a different flaring rim that is more similar to Phoenician Bichrome jugs (see, e.g., Ashdod, Strata IXVII, Dothan and Ben-Shlomo, 2005: figs. 3.94:8, 3.102:4).

Strainer-Spouted Jugs (SSJ)
Strainer-spouted jugs are a form appearing in Philistine Bichrome ware of the Iron IB and appear with red slip during the Iron IIA and possibly later. The large spout of a red-slipped strainer-spouted jug (Phase 7, Figure 8.66n) has meticulous vertical burnish; it is possibly residual from Iron IIA levels, but because of the size of the reconstructed fragment it is more likely to belong to Phase 7. The red-slipped rim and basket handle of a jug (Phase 5, Figure 8.152p) may also belong to a SSJ.

## Globular Jugs with Narrow, Ridged Necks (Type JG2)

A complete jug with a short, narrow neck and a large globular body was found in Phase 5 Building II, Room B (Figures 8.177, Type JG2, 8.97f). The jug has a simple rim with a handle attached to it and a narrow disk base; the globular body has soot marks. A similar nearly complete jug, albeit larger, was attributed to Phase 8 (Figure 8.43c). Parallels come from Batash, Stratum

II (Mazar and Panitz-Cohen, 2001:115, Type JG21, and references therein). Ridged rims of jugs (Type JG2, Phase 7, Figures 8.61e, 8.66d; Phase 5, Figure 8.97f) include at least one with a trefoil mouth (Figure 8.66d), probably from a large jug typical of the Iron IIB-C (see, e.g., Batash, Strata III-II, Mazar and PanitzCohen, 2001:116-117, Type JG13, and references therein). The other example (Figure 8.61e) may belong to a decanter-type jug. A decanter fragment comes from Phase 6 (Figure 8.84 q ), and a nearly complete example comes from Field II (Figure 4.33f). Decanter jugs are more common in Judah and are typical of the Iron IIB-C (for a discussion of this type, see, e.g., Batash, Stratum II, Mazar and Panitz-Cohen, 2001:118-119, Type JG14). A body sherd of a red-slipped and burnished closed vessel, probably a jug (Figure 8.860), has an application, maybe a knob, attached to it. Various red-slipped handles of jugs or juglets (Figures 8.84r, 8.86 p ) are also illustrated from Phase 6.

## Jugs with Wide Vertical Necks (JG3)

This jug form (Figure 8.177, Type JG3) has a long and wide vertical neck, sometimes slightly swollen (Figure 8.63 h ); the rim is simple or thickened, and the body is globular to pyriform, with a ring base (see almost complete example from Phase 5, Figure 8.105i). Some examples have soot on the body or rim, indicating a possible use as a cooking jug (see Ben-Shlomo et al., 2008:229230). This type appears in Phase 7 (Figures 8.63h, 8.66c), Phase 6 (Figures $8.86 \mathrm{~m}, 8.89 \mathrm{i}$ ), and Phase 5 (Figures 8.105i,j, 8.152k-m), including a nearly complete example (Figure 8.105i). Three similar jugs from Building I, Room F have soot marks (Figure 8.152k-m). Figure 8.152 m has a ring base and globular body; Figure 8.152 k is the lower part of a globular jug with a thick ring base made by "pinching" the clay and an upper part with an everted neck and handle attached to the rim; Figure 8.1521 is the lower part of a very small jug, covered by soot, with a wide disk base.

This is a well-known Iron II jug form appearing during the late Iron IIA and Iron IIB and continuing into the Iron IIC, and it is very common in the southern coastal plain. The capacity of these jugs ranges from 1.3 to 7.8 L , although most are $2-3 \mathrm{~L}$ in capacity. Parallels come, for example, from Lachish, Level IV (Zimhoni, 1997a: fig. 3.44:15-17), Ashdod, Strata X-VIII (e.g., Dothan and Porath, 1982: figs. 8:2, 15:1,2; Dothan and BenShlomo, 2005: figs. 3.74:1, 3.85:2,3, 3.93:5-8), Batash, Strata III-II (Mazar and Panitz-Cohen, 2001:11-2, Type JG11, and references therein), and Tell es-Safi/Gath, Stratum A3 (Ben-Shlomo et al., 2008:227, fig. 3h-k; Shai and Maeir, 2012:334, Type JG1, and references and discussion therein). Note that this type is not very common at Tell Jemmeh.

## Various Jugs

A white-slipped double-handle jug (Figure 8.175 k ; with possible parallels from Batash, Stratum IV, Mazar and PanitzCohen, 2001: pl. 79:10) was found. A jug fragment from Phase 5 (Figure 8.105k) has an everted short neck; a small red-slipped jug neck is illustrated from Phase 5 (Figure 8.1051) and is possibly of
a similar shape (both may belong to Type JG1). A white-slipped rim fragment from Phase 5 (Figure 8.150n) is either a small carinated bowl or the rim of a jug.

A nearly complete globular jug flask richly decorated in the LPDW style was found in a Phase 6-7 fill in Building II (Figure 8.87 b ). The shape resembles earlier (late Iron I-Iron IIA) Phoenician-type flasks or globular jug flasks, as seen in examples from Qasile, Stratum X (Mazar, 1985a:67-68, fig. 41:11,13; see also Batash, Stratum IV, Mazar and Panitz-Cohen, 2001: pl. 79:10, Type JG31), and will be discussed in chapter 12.

## Juglets

Common dipper juglets are cylindrical or pyriform juglets with simple rims and are often red slipped (Figure 8.177, JGT1; Phase 7, red slipped, Figures 8.63i, 8.66h,i; Phase 6, Figure 8.84 p,r; Phase 5, Figures $8.105 \mathrm{~m}, 8.116 \mathrm{f}, 8.128 \mathrm{t}, 8.152 \mathrm{n}, \mathrm{o}$ ); one complete example (unslipped) comes from Building I, Room F (Figure 8.152n). Parallels come, for example, from Ashdod, Strata IX-VIII (Dothan and Ben-Shlomo, 2005: fig. 3.94:2, and references therein). A juglet from Phase 7 (Figure 8.63k) and an example from Phase 5 or 8 (Figure 8.175 c) are short red-slipped juglets with a slightly pointed base; these have a more globular body than Type JGT1. Parallels originate from, e.g., Ashdod, Strata X-VIII (Dothan and Ben-Shlomo, 2005: figs. 3.85:14, 15, 3.94:3, 4). Several body fragments of juglets from Phase 5 (Figures $8.95 \mathrm{f}, 8.1431,8.175 \mathrm{~d}$ ) are unslipped with a rounded base; this is also a typical Iron II dipper juglet type (e.g., Mazar and Panitz-Cohen, 2001: Type JGT7; Ashkelon, 604 BCE destruction level, Stager et al., 2011:94, Juglet 2), similar to Type JGT1 (see Batash, Strata III-II, Mazar and Panitz-Cohen, 2001:126, Type 7 c , and references therein).

A nearly complete black juglet (with only the rim missing) is illustrated from Phase 7 (Figures 8.177, Type JGT2, Figure 8.63j; also SI Cat. No. 834, unillustrated). These juglets have a small swollen body, very narrow necks, and pointed bases and often have black surface. For a discussion of these juglets, appearing in the southern Levant during the Iron IIA-C (mostly in Judea and the Shephelah), see, e.g., Batash Strata III-II (Mazar and PanitzCohen, 2001:127, Type JGT9). Another juglet from Phase 5 or 8 (Figure 8.175b) has a similar shape, with a rounded base and a handle attached just below the rim.

A complete and intact juglet from Building II, Room B has a globular-pyriform body, ridged narrow neck, thin handle, and thin flaring rim (Figure 8.177, Type JGT3; Figure 8.97i; also, Figure 8.175 f is probably the same form). This is an uncommon juglet form. Its shape resembles amphoriskoi (e.g., Kadesh Barnea, Stratum 3, Cohen and Bernick-Greenberg, 2007: pl. 11.56:1; see also below, Phase 2, Figure 8.242 h); a possible parallel comes from Kadesh Barnea, Stratum 2 (Cohen and BernickGreenberg, 2007: pl. 11.87:11).

Neck and body fragments of small unslipped juglets or bottles also come from Phase 7 (Figure 8.66f,g) and Phase 5 (Figure 8.128t); the body fragment has a slight carination on the shoulder (see, e.g., Lachish, Level III [Zimhoni, 1997b: fig. 5.7:8]
and Ashdod Strata IX-VIII [Dothan and Ben-Shlomo, 2005: fig. 3.94:30, although red slipped]).

## Bottles

Few bottles were found in Phases 7-5, despite this often being considered an Assyrian type (e.g., Stern, In press). Figure 8.88 p from Phase 6 is a complete intact bottle, only 7.5 cm high (see also Figure 8.1351 ). It has a slightly swollen neck, simple everted rim, carinated body, and pointed base. Parallels are rare. This form is possibly related to the tapering-base bottle type (see Mazar and Panitz-Cohen, 2001:129, Type BT1; this is referred to there as an Assyrian type). A long narrow neck with no handles and simple rim (Phase 5, Figure 8.95 g ) may belong to a bottle as well. A short narrow neck from Phase 5 (Figure 8.175 g ) may belong to a different type of bottle with a globular body (see, e.g., Tel Miqne, Stratum I [Gitin, 1998: fig. 4:10] and Batash, Stratum II [Mazar and Panitz-Cohen, 2001:130, Type BT2, and references therein]). A thickened/flat, wide everted rim (Phase 5, Figure 8.175 j, whitish fabric), indicating a very short neck, probably belongs to a bottle as well (maybe a globular bottle, e.g., Kadesh Barnea, Stratum 2, Cohen and Bernick-Greenberg, 2007: fig. 11.91:10).

## FLASKS

A nearly complete large flask comes from Phase 6 (Figure 8.89 j ). It has a long neck, thick handles connected to a ridge, and a wide stepped rim; there is vertical burnish on the neck but no slip, and the body is lentoid, with concentric grooves. Another flask neck from Phase 5 (Figure 8.105 n ) may be of the same type. Good parallels come from Kadesh Barnea, Stratum 2 (Cohen and Bernick-Greenberg, 2007:165 figs. 11.76, 11.92:9, "grooved lentoid flasks") and Ashdod, Strata IX-VIII (Dothan and Ben-Shlomo, 2005: fig. 3.94:7); this type usually dates to the Iron IIB-C. Another flask neck comes from Phase 5 (Figure 8.105o).

A red-slipped fragment of a spoon flask was found in Building I, Room F (Figure 8.152 q ; see Varia section below). This is usually considered an Iron I form (see chapter 7, Figure 7.59i, with more references therein), although see a similar example from Iron IIB Ashdod, Strata IX-VIII (Dothan and BenShlomo, 2005:211, fig. 3.94:6). A peculiar fragment, possibly from a flask (or a spout) comes from the same context (Figure 8.153b).

## Other Closed Forms

A vessel with three handles attached to the base (probably a closed krater) is red slipped and vertically burnished on the outside (Figure 8.65n); one of the handles has soot remains. The surface treatment indicates an Iron IIA pottery tradition, possibly related to the LPDW (see chapter 12). Two red-slipped body sherds of closed vessels decorated with parallel grooves (Figure $8.64 a, b)$ come from Phase 7 . A ridged base from Phase 7 (Figure 8.66 k ) may belong to a jug or other closed vessel.

A bottle or date-shaped vessel (Phase 5, Figure 8.175e) may belong to the Assyrian-style pottery but has brown decoration (possibly similar in shape to a LPDW vessel from Strata X-IX at Ashdod, Dothan and Ben-Shlomo, 2005:176, fig. 3.73:1).

The decorated large neck of an amphora or jar (Figure 8.66 m ) comes from an unclear context in Phase $7 / 8$ (GM 2B (42) and (40) 4). It has red slip, with black and cream/white parallel horizontal bands. This style of decoration is similar to LPDW style (see chapter 12), yet the shape is unparalleled. It is possible that this vessel, which is unique to the site, was influenced by the Edomite or Midianite tradition of the late Iron II (see Kadesh Barnea, Stratum 2, Cohen and Bernick-Greenberg, 2007: pl. 11.80:5; possibly 'Aroer, Statum IIb, Thareani, 2011: pl. 134:20).

## LAMPS

A complete lamp from Phase 7 (Figure 8.64c) has a rounded base and a slightly everted rim, typical of the Iron II (see, e.g., Kadesh Barnea, Strata 4-2, Cohen and Bernick-Greenberg, 2007: figs. 11.24:12, 11.91:15); the spout has soot marks. Lamp fragments come from Phase 6 (Figures $8.84 \mathrm{~s}, \mathrm{t}, 8.87 \mathrm{e}, \mathrm{f}$ ) and Phase 5 (Figures 8.97j, 8.105p). A complete lamp was found in Building II, Room B, Phase 5 (Figure 8.97j); it has a pinched spout and everted rim, similar to the type described above (Figure 8.64c). Notably, lamps with thick bases, typical of the Iron IIC, or the 7th century BCE (see, e.g., Mazar and Panitz-Cohen, 2001:133, Type LP3), are absent from the Jemmeh assemblage. This could be of chronological significance but could reflect a regional variation, as these lamps are typical of Judah and are rare in Philistia (see also Ben-Shlomo, 2003, contra Finkelstein and Singer-Avitz, 2001, on the absence of this type from Ashdod, Strata VII-VI).

## Late Philistine Decorated Ware

In addition to several vessels noted above, body sherds of closed vessels decorated in the LPDW style were found in Phase 7 (Figure 8.64a,b), Phase 6 (Figure 8.87c,d), and possibly Phase 5 (Figure 8.98d). LPDW is discussed in detail in chapter 12.

## Assyrian-Style Pottery

Assyrian-style pottery (or Assyrian palace ware) appears only in Phase 5 (e.g., Figures $8.96 \mathrm{k}-\mathrm{q}, 8.117,8.118,8.151 \mathrm{a}-\mathrm{g}$ ) and is probably dated to the late Iron IIB or Iron IIC. This pottery, and its related aspects (typology, technology, distribution, chronology, provenance, and cultural and historical significance), will be discussed in detail in a chapter specifically dedicated to this ware (chapter 13). Assyrian-style pottery includes mainly thin bowls in various shapes, mostly with a sharp carination and ribbed shoulder. Also appearing are open bowls, bowls with thick stepped bases, and beakers, some with very thin walls and a dimpled body. This ware appears mostly in a special welllevigated fabric that is either whitish or pinkish in color. Tell Jemmeh is the southernmost Levantine site yielding by far more Assyrian-style pottery than other sites. This pottery is found in
relatively large quantities (several hundreds of sherds) in both Building I and Building II.

## VARIA

Figure 8.116 h is a handmade vessel with dented applied rope decoration. The leg and body fragment of a quadruped zoomorphic vessel from Phase 5 is also illustrated (Figure 8.1751). A small very flat spout or an opening of a vessel (zoomorphic?) from Phase 5 is illustrated (Figure 8.153a; see chapter 17 for further discussion on zoomorphic vessels).

## DISCUSSION AND SUMMARY OF THE IRON II POTTERY SEQUENCE (PHASES 11-5)

The Iron Age remains in Field IV were sequenced into seven stratigraphical phases (11-5); however, the lower two or three phases are very limited in their exposure, and thus, their pottery assemblage is small. Phases $9-8$ are somewhat larger in their representation, but only Phases 7-5 had significant architectural complexes that were excavated and yielded pottery from primary contexts. Particularly, Phase 5 yielded a significant assemblage of pottery from Buildings I-III, including many complete vessels. Therefore, the dating of all these phases according to the pottery found in good contexts is not easy in this case, especially for the earlier phases. Nevertheless, such a dating should be attempted, possibly using some more indicative pottery forms.

As described above, the Iron II pottery in Field IV seems to span 200-300 years (ca. 950/900 to ca. 700/650 BCE), although, as noted, not all periods are equally represented in this assemblage. This dating is suggested by typological parallels with regional sites, especially, in relation to certain types, forms or wares, which might be more indicative chronologically. A summary of the occurrence of these main forms in the different phases is presented in Tables 8.3 and 8.4. The complete pottery vessels and vessel rims from a group of well-defined contexts were counted according to several main types and wares (e.g., red slipped, Assyrian style); the results are presented in Tables 8.3 and 8.4. A total of 2,060 vessels and rims were counted according to phases and in Phases 6 and 5 also according to welldefined architectural units.

One of the developments that can be observed between the phases is the gradual decrease of red slip and burnish (both hand and wheel) during the later phases, especially in Phases 7,6 , and 5. This is especially apparent on bowls, where in Phase 5 several bowl types appear without red slip (such as the folded rim and open/ledge rim bowls) and only $18.5 \%$ of rims are red slipped. The peak of the red-slipped tradition is clearly in Phases 10-9 (reaching over 60\%).

The appearance of red slip itself in the Iron Age southern Levant can be interpreted in several ways. Its initial dominant appearance, used as a surface treatment for most forms, notably bowls, probably occurred in southern Israel, rather than in Phoenicia (Mazar, 1998:377). Generally, in the first stages, only
thinner red slip was applied, whereas later burnish was added, first by hand and later by wheel (Holladay, 1990:41-50; Zimhoni, 1997a:117-121; Mazar, 1998:374; Mazar and PanitzCohen, 2001:145-150). Red slip, appearing already in the Iron I (being up to $5 \%-10 \%$ of assemblages in southern Israel; see Mazar, 1998: table 3), becomes dominant, especially on open forms and with burnishing, in the Iron IIA.

During Phases 10-8 (Iron IIA-B) there is also an appearance of an interesting hybrid type, a ridged, carinated, red-slipped bowl with very degenerated horizontal handles (Figure 8.176, Type BL5), echoing degenerated bell-shaped bowls of the Iron I (and early Iron IIA) and possibly recalling Assyrian-style characteristics as well. Such possible early Iron II Assyrian influences on pottery forms may be also be manifested in the "Samaria bowls" pottery class (e.g., Amiran, 1969:212, 207-212, pl. 66). Kraters appear rarely in all assemblages, yet red-slipped hammerhead kraters are more common in the early phases (10-8). Multihandled, large hole-mouth kraters (Type KR2) start to appear in Phase 9 but become more common in Phases 8-5, with several complete examples from Phase 5. Cooking pots are somewhat more indicative, as ledge rim cooking pots appear only in Phases 10-8 and are replaced by gutter rim cooking pots (Type CP2 and some other types) in Phases $7-5$. Generally, various bowl types, kraters, and cooking pots appearing in Phases 11-9 indicate an Iron IIA date, possibly, in the later stage of this period. This ceramic horizon of Phases 11-9 can be paralleled roughly to regional layers, such as Lachish, Levels V-IV (more Level IV, Zimhoni, 1997a), Tell es-Safi/Gath, Stratum A3 (Shai and Maeir, 2012), Batash, Stratum IV (Mazar and Panitz-Cohen, 2001), Nagila, Stratum IV (Shai et al., 2011a), Arad, Strata XII-XI (e.g., Aharoni, 1981; Singer-Avitz, 2002), probably Ashdod, Strata XIX (Dothan and Ben-Shlomo, 2005:185), and Tel Miqne, Stratum III (Gitin, 1998).

Jars and some jug types may be more chronologically indicative for the later Phases $7-5$. The ubiquitous bag-shaped jars (Type JR1), common in the coastal plains during the Iron IIB-C, are well represented in Jemmeh Field IV, Phases 7-5; more specifically, the small tapering-base jars (Type JR2) are very common in Phase 5 and are paralleled with regional Iron IIC levels. Holemouth jars are rare at Jemmeh, appearing mostly in Phases 8-7. Globular jug types are more common in Phases 7-5, with more examples in Phase 5. The LPDW style, or Ashdod ware, appears in very small quantities already in Phase 10 but becomes slightly more common later, in Phases 8-6, possibly similar to Ashdod, Stratum VIIIb (see chapter 12). Assyrian-style ware abruptly appears in Phase 5 with no predecessors in earlier phases.

Therefore, although the pottery of Phases 7-5 is largely similar, this sequence can be tentatively subdivided into two units: Phases 7-6 and Phase 5. The ceramic horizon of Phases 7 and 6 can be compared to Lachish, Level III (Zimhoni, 1997b), 'Eton, Stratum II (Zimhoni, 1997c), Batash, Stratum III, Gezer, Stratum VI (e.g., Gitin, 1990), Nagila, Stratum III (Shai et al., 2011a), Arad, Strata IX-VIII (Singer-Avitz, 2002), 'Aroer, Stratum III (Thareani, 2011), and Ashdod, Stratum VIII. The ceramic horizon of Phase 5 can be compared (at least partly) to Lachish, Level II (Zimhoni, 1997b), 'Eton, Stratum I (Zimhoni, 1997c),

Batash, Stratum II (Mazar and Panitz-Cohen, 2001), Gezer, Stratum V (e.g., Gitin, 1990:119-228), Kadesh Barnea, Stratum 2 (Cohen and Bernick-Greenberg, 2007), Arad, Strata VII-VI, and possibly Ashdod, Strata VII-VI.

In absolute chronological terms (although there are no chronological anchors here to aid this dating), a very tentative sequence may be suggested: Phases 11-10, 950-900 BCE; Phase 10-9, 900-800 BCE; Phase 8, 800-750 BCE; Phases 7-6, 750700 BCE; Phase 5, 700-650 BCE.

This sequence does not reach the end of the Iron Age at ca. 600 BCE and leaves a gap at least during part of the 7th century BCE. It is possible that during this period, the area was sparsely settled, with no ceramic horizon defined because of a lack of any floor levels above the main Assyrian buildings of Phase 5. The imported pottery during the Iron Age is not very rich or indicative at Tell Jemmeh. It includes mainly Black-on-Red ware, mortaria bowls, a few "Wild Goat" vessels, Ionian cups, and East Greek examples (see chapter 14, Figure 14.1). Note that two or three imported items, such as the Ionian cups (chapter 14, Figure 14.1h), come from Phase 5 fills, but these are probably intrusive.

Regional perspectives during the Iron II are of equal if not greater importance compared to the chronological ones when considering the variability of ceramic assemblages. This is true not only on a wider geographical aspect, as seen in the differences between northern Israel, southern Israel, Judah, and Philistia, but also on a smaller scale, as seen in differences between coastal Philistia, the Shephelah, southern Philistia, and the northern Negev. This regionalism is reflected during the Iron IIA-B by the appearance of LPDW and several types, such as bag-shaped jars and globular jugs. This regionalism could also explain the absence or near absence of various forms, like decanter jugs, common in Iron IIB-C Judah; lmlk or lmlk-like jars of the Iron IIB, common in the Shephelah; or ridged-neck cooking pots and thick-based lamps, common in Iron IIC Judah and the Shephelah. Moreover, a more fine-tuned regionalism seems to occur as well, as seen through the comparison of the Jemmeh assemblages to assemblages at, for example, Ashdod and Tell Miqne in Philistia proper, with some types still missing or rare. These include the hole-mouth kraters (see Ashdod, Strata VIII-VII; Miqne, Strata III-IC; Batash, Strata III-II), globular jugs with vertical necks (see above, Type JG2), and small jugs with ridged rims (e.g., Batash, Stratum II; Tel Miqne, Stratum IB; Ashdod, Strata VII-VI; see, e.g., Mazar and Panitz-Cohen, 2001:113, Type JG16). On the other hand, several types are more common at Tell Jemmeh than at other sites, such as the jars with gutter rims (Type JR3), the abundance of tapering-base jars (Type JR2). and the high quantity of Assyrianstyle pottery. These differences may reflect a subregional distinction between coastal and northern Philistia and southern Philistia and the northern Negev to which Jemmeh is related. This may be supported by the many ceramic and other parallels between the material cultures of Kadesh Barnea (Cohen and BernickGreenberg, 2007), Tel 'Aroer, Stratum II (Thareani, 2011), Tel Malhata (L. Freud, Tel Aviv University, personal communication), Tell Jemmeh, and possibly Nagila (Shai et al., 2011a).

The Iron II assemblage of the nearby city of Ashkelon may have close parallels with Tell Jemmeh (Stager et al., 2011:72) and
is crucial for this issue. It would be expected that Tell Jemmeh would resemble Ashkelon more than the other Philistine cities because of their geographical proximity. From the material published so far (Master, 2001, 2003; Stager et al., 2008, 2011:71121) it seems that there are some resemblances, although maybe not more than to Ashdod. The assemblage from Iron IIC Ashkelon (the 604 BCE destruction level, Stager at al., 2011; Waldbaum, 2011) includes much more imported pottery from the Aegean region and Cyprus. Moreover, several late 7th century BCE forms found in the Ashkelon 7th century destruction level are missing from Tell Jemmeh, Phase 5, including mainly Cypriot Iron Age White Painted IV and Bichrome IV (Stager et al., 2011:103-109), the basket-handled jar (Stager et al., 2011:114115, fig. 5.57), and all the assemblages of Greek decorated pottery and wild goat style (Waldbaum, 2011). This pottery does appear, although in smaller quantities, in contexts of Phases 4, 3, and 2 and in unstratified contexts (Figures 8.187i-k, 8.257j; chapter 14, Figure 14.1a-c). On the other hand, Ashkelon 7th century BCE assemblages lack certain Iron IIB forms common in the Jemmeh Phase 5 assemblage, such as red-slipped and burnished carinated bowls (Types BL1-BL4). Therefore, Phase 5 of Tell Jemmeh probably ends before the end of the 7th century BCE, dating to the early to mid-7th century BCE, whereas the material of the later phases in Field IV, appearing in Phases 4-3 and unstratified contexts, partly reflects the final Iron IIC, the late 7th and 6th centuries BCE.

## THE GRANARY AND POST-IRON AGE REMAINS

The phases above Phase 5 were not well preserved in Field IV; these include the post-Iron Age building Phases 2-4 and the upper Phase 1, consisting of various pits scattered in the area. In many cases, only fragments of walls were unearthed in Phases $2-4$, very few floors were detected, and it was difficult to connect the phasing between the squares. In several locations there were apparently two or three construction phases postdating the Iron Age, yet in other squares there was only one. Therefore, it seems that to a large extent, Phases $2-4$ should be seen as local construction phases rather than general strata of archaeological horizons; although in some squares Phases 3 and 4 are separable, in others a "Phase 3-4" was defined. Consequently, a very large group of contexts in these layers is stratigraphically indecisive, being either between Phase 5 and 4 or Phases 2 through 4 or completely unclear (see Appendix 8.1). A single well-preserved component is the complete granary excavated in Sqs. 1C, 1D, 2 C , and 2D; the granary probably postdates the late Iron Age structures of Phase 5, yet its stratigraphic definition is still not completely certain and will be discussed separately below.

## Remains of Phase 4

Phase 4 (Figures 8.178-8.190) is defined as the lowermost late phase overlying the late Iron Age buildings; such a stratigraphical relationship was seen in only a few places in Field IV,


FIGURE 8.178. Plan of Phase 4.
such as in Sqs. 1A-2A. In Sqs. 1B-2B hardly any architectural elements of this phase were detected, whereas in Sqs. 1C, 1D, 2 C , and 2D some wall remains and possibly the lower stage of the granary belong to this phase (Figure 8.178). Most other elements that are not clearly overlying the Phase 5 remains were denoted either Phase 3 or Phase 3-4 (such as the group of higher walls in Sqs. 0A, 0B, 1B, 2B, and 1C; Figure 8.179) and will be discussed below.

This lower post-Iron Age phase may also be correlated to Petrie's XXVIth Dynasty city (Petrie, 1928:7-8, pls. XI, XII, bottom). Petrie's remains indicate a large public building or large "residency" (Building AF-AJ), showing an architectural plan typical of the Persian period in the southern Levant (see Stern, 1982:54-60; parallels come from a building from Tel Michal [e.g., Herzog et al., 1989:165, fig. 7.11, dated to the 5 th century

BCE], the Level I "residency" of Lachish [Tufnell, 1953:131135, pl. 119], and Ashdod, Stratum V [Dothan, 1971:171-178]; see also Fantalkin and Tal, 2006, on the Achmaenid administration in the southern coastal plains of Israel). It should be noted, however, that in Petrie's excavation, this architecture underlies the granary phase (see also Reich, 1996, who predates this phase to the Assyrian or Iron IIB-C period).

Nevertheless, in Sq. 0B, Wall 2 is possibly located under Wall 1 of Phase 3 (and the fills related to it, Locus 2, Layers $5-6)$; also Wall 4 is a row of bricks perpendicular to Wall 2 and is possibly related to it and may belong to Phase 4 (Figures 8.178, 8.179). Units 1 and 2 were defined in this area (see below). Pit 4 in Sq. 0B is an ashy pit cutting Wall 3 and may belong to Phase 4 as well. In Sq. 1A, fragmentary Walls 1A and 1B may belong to Phase 4; some are only single rows of bricks. These fragments


FIGURE 8.179. Square 0B: Walls 2, 3, and 4, Locus 2, looking northeast.


FIGURE 8.180. Silo Pit 5 from above Sq. 1A.


FIGURE 8.181. Square 1A: silo Wall 5P from the side.


FIGURE 8.182. The silo pit in Sq. 1A after excavation.


FIGURE 8.183. Square 2A: silo in section.
hardly create clear architecture; Walls 2 and 6 may continue as Wall A in Sq. 1B but seem to belong to a higher phase ( 2 or 3 ). Similarly, Wall 1A in Sq. 2A may have existed in Phase 4 as well, yet it is allocated primarily to the higher Phase 2.

The main feature of Phase 4 in this area is a well-preserved rounded brick silo (Figures 8.180-8.187, 8.207; denoted as Pit 5 in Sq. 1A and Pit 12 in west balk of Sq. 2A). The silo is 1.5 m in its outer diameter and is built of rectangular mud bricks (sized $35 \times 15 \times 15 \mathrm{~cm}$ ), laid at slight angles, thus creating a rounded 0.3 -m-thick wall (denoted as Wall 5P is the west balk of Sqs. 1A and 2A, preserved 11 courses high; Figures 8.181, 8.182). It is plastered by mud inside and out (Figure 8.181); Feature 13 in Sq. 2A may be the foundation trench of this wall (Figure 8.184). The silo was preserved up to a height of 1.6-1.8 m (levels 59.6161.36 m , Figure 8.207); this was probably near its full height as both the floor and part of the domed roof are preserved (Figures 8.183, 8.184). It mostly was filled with ashy sediment (Figure 8.180; the many charred seeds in Locus 8 , Layer 1 possibly belong to this silo [data available from the author on request]). The


FIGURE 8.184. Square 2A: Phase 4 silo standing to maximum height.
lower part of the dome roof of the silo was identified when the west balk of Sq. 2A was removed and was also built of similar mud-plastered bricks (Figure 8.181). The floor was built of one layer of square bricks (Figures 8.184-8.186, in section; Sq. 2A, WBR, Layer 11, floor). The stratigraphic designation of silo Pit 5 is rather clear as the silo's floor overlies Sq. 1A, Feature 4, which is the upper vaulting and brick floor of Room B of Building I of Phase 5 (Figure 8.187; see above). The floor does not cut into the Phase 5 bricks and is a separate entity because the edges of the outer bricks were intentionally rounded to fit the inner surface of the silo's outer wall (Figure 8.185). Fill and debris layers related to the silo and Phase 4 include Sq. 1A, Locus 7, Layers 4-11 and Loci 7A-7B, Layers 6-11 and Sq. 2A, WBR, Pit 12, Layers 1-11. Locus 7, Layers 8A-8C (and possibly Layers 6-12 of Locus 6) may be floor levels of this phase at 60.32 m . A relatively large number of charred seeds were found in this area (SCI Nos. 423, 596, 607, 1393-1400, 1475, 1476, Sq. 1A, Loci 7-7A, Layers 6-11). Some slag was found here, especially in the lower levels (e.g., SCI 808, SCI 819, possibly iron slag). It thus seems that the


FIGURE 8.185. Floor of silo (Sq. 1A, Pit 5).


FIGURE 8.186. Square 2A, west balk: brick floor of silo.


FIGURE 8.187. Square 2A: silo Pit 5 standing on top of Wall 4 with vaulting of Building I, looking NE.


FIGURE 8.188. Square 1D: Feature 7 with jar.
silo's floor was somewhat dug into the floor level of Phase 4 (possibly about 0.7 m according to floor levels around it). Pit 6, Layers 7A-9 may also belong to Phase 4 (lower levels of a later pit).

The structure of this silo conforms with universal silo building techniques, including the cylindrical shape, plastered wall, brick floor under the floor level, and domed roof (see below and, e.g., Garfinkel et al., 2009); these features are used to protect the crops in the silo from rodents and weather, as well as to stabilize its structure; the capacity of the silo can be estimated as 1.1-1.4 $\mathrm{m}^{3}$ according to the inner diameter of 0.9 m , height of $1.8-2 \mathrm{~m}$, and cylindrical shape.

In Sq. 2A, Feature 7 (Layers 1-4), an ashy pit cutting Phase 5 walls was discovered (Figure 8.21, upper east section, and Figure 8.212 ) and is possibly remains of an oven belonging to Phase 4. In Sq. 2B, Walls 4 and 7 and possibly Wall 2 (as well as wall fragments 7A and 8) may relate to Phase 4 . Wall 4 lies under Pit 2 and Wall 5 and is possibly related to Wall 7; a wall fragment under Wall 3, possibly with the same orientation, includes one course of bricks: it is composed of three layers of bricks (Figure 8.171). Feature 3 may be a brick floor at 60.17 m related to Wall 7. In Sq. 3B, Wall 1 is a northeast-southwest wall fragment on the north side of the square, above the late Iron Age wall (Figure 8.171 , levels of $60.82-60.95 \mathrm{~m}$ ), possibly belonging to Phase 4. In Sq. 1C, fill layers under Wall 4 of Phase 3 may belong to Phase 4 (Locus 4, Layers 9-12). In Sq. 1D, Wall 3A and Feature 3 adjacent to it are unclear elements just above the late Iron Age walls of Building V (Figure 8.90) and thus may belong to Phase 4. Wall 3A is a thick wall or installation of bricks, possibly at a right angle to Wall 1, made of long bricks laid as headers; Feature 7 (Figure 8.188) is a complete jar lying on its side, southeast of Wall 3A (maybe from a pit, Pit 2, or a separate installation). As will be noted, the lower stage of the large granary in Sqs. 1C, 1D, 2C, and 2D (Figure 8.201) may belong to Phase 4 as well.

## Pottery and Finds from Phase 4

Generally, only a limited pottery assemblage can be allocated to clear Phase 4 contexts (Figure 8.189). The pottery seems to be a mixture of terminal Iron II and early Persian period forms. Several sherds are illustrated from the well-preserved silo in Sq. 2A (Figure $8.189 \mathrm{c}, \mathrm{g}$ ). Material from the wall of the silo probably dates to before the construction, but the sediment from inside it represents the stage of the postusage filling of the silo rather than its usage.

The pottery includes open bowls with a simple (Figure 8.189a) or ledge rim (Figure 8.189 b, possibly a chalice); these types can be dated to the Iron IIC, or 7th-6th centuries BCE (see Type BL7). Similarly, several jar necks (e.g., Figure 8.189 d ) are similar to Iron IIC jars (bag shaped or tapering base; see Figure 8.177, Type JR1). On the other hand, several items can be dated later, to the early Persian period ( 6 th -5 th centuries BCE), such as a cooking pot with a ledge rim and straight neck (Figure 8.189c; see below and, e.g., Tel Michal, Stratum XI, Singer-Avitz, 1989a: fig. 9.1:4). Several fragments belong to Persian period amphorae (e.g., Figure $8.189 \mathrm{e}-\mathrm{g}$, possibly also the handle in Figure 8.189 h ); these include cylindrical button bases (Figure $8.189 \mathrm{f}, \mathrm{g}$ ), possibly of Samian amphorae (see Grace, 1971: fig. 3), originating from the wall of the silo itself, indicating a later date for the construction of the silo and the related Phase 4 . Two examples of thick basket handles of jars (Figure 8.189i,j) are also illustrated; basket-handle jars are usually dated to the 7th-5th centuries BCE (see below).

Several examples of jugs, bottles, and juglets come from Phase 4 (Figure 8.1891-q). Some are not indicative, yet a thickened rim neck (Figure 8.189 o) may belong to a Persian period type (see, e.g., Tel Mevorakh, Stern, 1978: fig. 9:8). These examples include two neck fragments (figure 8.1891, m) and two bases (Figure $8.189 \mathrm{p}, \mathrm{r}$ ). The complete lower part of a juglet or a bottle (Figure 8.189 q ) has an omphalos concave base and very thick body wall; it is covered by red slip. Possible parallels come from Tell el-Hesi, Stratum Va (Bennett and Blakely, 1989: fig. 162:28), Tell en-Nasbeh (Wampler, 1947: pl. 43:875), and City of David, Area E, Stratum 9 (Zuckerman, 2012:48, fig. 3.7:6). Figure 8.189n is probably the neck of a carrot-shaped bottle (see, e.g., Batash, Stratum II, Mazar and Panitz-Cohen, 2001:131, Type BT3, dated to the Iron IIC and Persian period; see Stern, 1973:130, bottle type D). A dipper juglet with a high loop handle (Figure 8.189s) can be dated to the Persian period as well (Stern, 1973:120, jug type J). Also illustrated from Phase 4 are a lamp fragment (Figure 8.189t) and a handmade ceramic object (Figure 8.189v). This ceramic object probably represents the rim of a shallow handmade basin or platter with a perforated (before firing) large knob. The tip of the knob is dented.

Small finds from Phase 4 include a worked sherd (Reg. No. 3139 ) and two bronze sheets (Figure $21.4 \mathrm{~m}, \mathrm{n}$ ), as well as a possible piece of iron slag/bloom (SCI 808).

Although the latest pottery from Phase 4 dates to the Persian period (5th century BCE), the earliest pottery found at the site postdating Phase 5, of which the indicative forms are mostly imported wares, such as basket-handle jars, Ionian cups,


FIGURE 8.189. Pottery and finds from Phase 4. rs = red slipped.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Bowl | 2637/1 | GM 2A F7 (4) | 4/5? |  |
| b | Bowl/chalice | 7253/1 | GM 2A WBR Pit 12 (3) | 4 | Silo |
| c | Cooking pot | 7231/1 | GM 2A W5P | 4 | Silo |
| d | Jar | 119/1 | GM 2C (11) | 4 | Granary |
| e | Amphora | 119/2 | GM 2C (11) | 4 | Granary |
| f | Amphora | 2637/3 | GM 2A F7 (4) | 4/5? |  |
| g | Amphora | 7231/2 | GM 2A WBR W5P | 4 | Silo |
| h | Jar | 7257/1 | GM 2A WBR Pit 12 (5) | 4 | Silo |
| i | Basket handle | 7257/2 | GM 2A WBR Pit 12 (5) | 4 | Silo |
| j | Basket handle | 119/3 | GM 2C (11) | 4 | Granary |
| k | Handle | 3072A/1 | GM 1A TT8 (1) | 4? |  |
| 1 | Jug; rs | 7245/1 | GM 2A WBR Pit 12 (6) | 4 | Silo |
| m | Jug; rs? | 7245/2 | GM 2A WBR Pit 12 (7) | 4 | Silo |
| n | Bottle | 4037A/1 | GM 2A NBR F7 | 4? |  |
| o | Jug | 6609/1 | GM 2B (21) | 4 |  |
| p | Juglet | 4534A/1 | GM 0B (7) 2 | 4 | Unit 2 |
| q | Juglet; rs | 5754/1 | GM 2A TT4 (5) 1 | 4/5? |  |
| r | Jug | 2637/2 | GM 2A F7 (4) | 4/5? |  |
| s | Handle | 4552/1 | GM 0B P4 (8) | 4 ? |  |
| t | Lamp | 7253/2 | GM 2A WBR Pit 12 (3) | 4 | Silo |
| u | Sherd | 4844/1 | GM 0A (7) | 4/5 |  |
| v | Leg/handle of basin (?); burnish inside | Box 134 | GM 2B SBR (27) | 4/5? |  |



FIGURE 8.190. Pottery from foundation trench of granary.

| Part | Description | Bag/RV No. |
| :--- | :--- | :--- |
| a | Jar | $4036 / 1$ |
| b | Jugg? | $4036 / 3$ |
| c | Jug; red slip | $4036 / 2$ |

and wild-goat-style pottery (see chapter 14), dates to the late 7th through the 6th and possibly the early 5th centuries BCE. Thus, the beginning of Phase 4 may be dated prior to the Persian period.

## The Granary (Phases 4 and 3)

Although the large rounded brick structure interpreted as a granary in Sqs. 1C-2D is the most prominent and well-preserved architectural feature in the upper phases of Field IV, its stratigraphic position within the Field IV sequence is not absolutely clear. The structure (Figures 8.191-8.206) probably postdates Phase 5; for example, Wall 9 of the granary in Sq. 2C cuts Wall 4, which seemingly belongs to a unit in Building II, Phase 5. The foundations of the granary cut deep into Iron Age levels. Thus, the granary structure probably postdates the late Iron Age but may have still been built in the final stages of the Iron Age (late 7 th-6th centuries BCE). This creates a situation in which the granary is virtually stratigraphically "floating" in the Field IV sequence; subsequently, this structure will be discussed mainly descriptively in a separate section. The analysis of the granary and finds related to it is thus limited for several reasons:

1. The granary was not dismantled, and thus, the architecture underlying it is unclear.
2. Hardly any walls or floors relate securely to the granary from the outside; it is largely an isolated feature according to the excavation notes.
3. The granary walls were identified close to the surface of the tell; its upper part was eroded, and very few architectural elements were identified overlying it.
4. Although a large quantity of restorable pottery and other finds were found inside the granary as well as on its floor (most of the pottery in Figures 8.252, 8.254-8.263), these finds probably cannot be used to date or to indicate the function of the granary at the time of its construction and main usage phase. As this structure was apparently a granary used for bulk storage of grain, it is not conceivable that any storage vessels or other vessels or artifacts found in it are in situ. Thus, these artifacts date at best to the final use of the granary structure or generally postdate the usage of the granary. A dating of postuse or back fill of the granary is also probable for these finds because the excavation did not go through layers of brick tumble from the upper wall and roof as would be expected if the structure collapsed over the vessels inside it.

A possible dating of the granary itself can only be achieved according to finds from its foundation trench (Sq. 1D, Feature 22, Figures $8.216,8.190 \mathrm{a}-\mathrm{c}$ ) or from the latest finds recovered from inside the bricks used for the structure (Figures 8.2078.217). Thus, a tentative allocation of the granary to Phase 3 (or Phase 3 and 4) was made. The pottery from the foundations of the granary includes only a few sherds (Figure 8.190) and is not indicative (a jar rim and a jug handle, Figure 8.190a,b, are illustrated), including various Iron II sherds (e.g., a shoulder or a red-slipped and burnished closed vessel, Figure 8.190c). As two floors were identified, the lower floor may be attributed to Phase 4 and the upper to Phase 3. As noted, the material from inside the granary technically postdates it and can be tentatively associated with Phase 2 or later.

The granary itself is a rounded brick structure with an outer diameter of about 7.7 m (inner diameter of 6 m ), covering most
of Sqs. 2C-2D and the eastern part of Sqs. 1C-1D (Figures $8.178,8.191,8.218)$. It is probably that during the construction of the granary a large pit was dug to accommodate the structure; this pit is at least 2.1 m below surface level and is 8.1 m in diameter in the upper part and about 6.8 m in the lower part (see Figure 8.201; this was denoted as Layer 1.O; however, its depth is below the floor it was dug from). The granary comprises a rounded wall (Figure 8.192; Sq. 2C, Walls 3, 9, Feature 1A; Sq. 1D, Walls 2, 4, 5, Figure 8.193; Sq. 2D, Wall 1) that was gradually built and back filled within the pit; it was preserved to a height of up to 23 courses of bricks, $2.10-2.35 \mathrm{~m}$ high, yet in certain places, only 14 courses survived or even only 1 course in the outer part of the wall (Figures 8.196, 8.199). The thickness of the wall is two square bricks laid horizontally and one rectangular brick or one upright standing brick, thus about $0.7-0.8$ m thick. The wall has a high degree of roundness, varying to a maximum of only $3 \%$ in its inner diameter; the upper courses are slightly tilted outward, about 0.18 m from the lower ones (Figures $8.196,8.201$ ). This offset possibly results from the outer wall being laid outside the foundation pit in the upper courses (above ground level); this could stabilize the outer face of the upper part of the wall and increase the capacity of the granary in its upper part. In their inner face, the square bricks were carefully laid, creating a smooth, rounded surface (Figure 8.196), whereas its outer face shows jagged, disordered edges of bricks (Figures 8.199, 8.202, 8.203).

The lower brick floor (Figure 8.178, Sq. 2C, denoted also Wall 10, $58.65-58.74 \mathrm{~m}$ ) adjoins the lower course, whereas the upper floor (Figure 8.218, Sq. 2C, Floor 1 or Locus 1, Layer 13; also Figures $8.197,8.198$ in Sq. 2D) is some $0.2-0.35 \mathrm{~m}$ higher $(58.80-59.15 \mathrm{~m})$, with a possible thin debris layer in between. These two floors are tentatively assigned to two construction phases (Phases 4 and 3); the upper floor was completely cleared in the excavations (Figures 8.197, 8.198), whereas the lower one was exposed to about $70 \%$ of its area. Two piers, wall fragments or supports of a middle partition wall, about 1.2 m each, lie in the Sq. 1D-2D balk in the south (Wall 8, Figures 8.200, 8.201 ) and in Sq. 2C in the north (Figure 8.200). These overlie the upper floor and rise $1.8 \mathrm{~m}, 15$ courses high. This wall was possibly used to support a flat roof of the granary (see Figure 8.204; however, Petrie reconstructed a domed roof for his similar granaries, Figure 8.206; Petrie, 1928:8-9, figs. XIII, XIV:2,3). These walls are also embedded in the circular granary wall (Figure 8.195 ), probably to increase their strength.

The walls of the granary as well as its floor were built mostly of square bricks (with a size, on average, of $30 \times 30 \times 12 \mathrm{~cm}$ ); note the bricks are relatively rich with finds and thus were made from debris and fill layers from within the tell. Mortar made of clay and straw was used to join and level the courses of bricks (see granary wall section, Figure 8.201). The floors are made of closely laid square bricks with the margin bricks cut or rounded; however, although in some areas they are organized in parallel rows, in others they are more randomly scattered (Figure 8.202). An attempt seems to have been made to lay the bricks in a circular pattern, and the gaps were filled with mud mortar. No lower entrance to the granary was detected; it was probably accessed
from above. The capacity of the granary is estimated to be $73 \mathrm{~m}^{3}$ if an average inner diameter of 6.1 m is assumed along with a height of 2.5 m with a cylindrical shape. A cylindrical shape with a flat roof made of long wooden beams and supported by arched piers is shown in the reconstruction in Figure 8.204.

The fill inside the granary was excavated in Sq. 2C as Locus 2 (Layers 2-9; Layer 10 lies on the floor; Pit 2 in GM 1C NBR P2 (7)) and contained several iron tools (including a sickle(?), Reg. Nos. 4061, 489, 493), and in Sq. 2D it was denoted as Locus 1 (Figure 8.201); the upper $1-1.5 \mathrm{~m}$ are strongly sloping down inward and are relatively ashy (Figure 8.201, center). This fill contained many restorable vessels, including mostly storage jars, amphorae, and cooking pots (see Figures 8.252, 8.254-8.263; Van Beek, 1989a), which are dated mostly to the Persian period, or 5th-4th centuries BCE (Figure 8.252; as noted this assemblage postdates the granary and is discussed below, Figures 8.254-8.263). As noted, hardly any walls, features, or floors outside the granary could be stratigraphically related to it; seemingly, Wall 4 in Sq. 2C (possibly of Phase 5) is cut by the granary wall (possibly seen in Figure 8.216).

In the southwest corner of Sq. 1D in the balks, a massive brick structure can be seen (Features 24, 25, Figure 8.202, 8.203): various levels of bricks stick out of the balk under Wall 1 (Figure 8.203). It is not clear whether these are lower levels of Wall 1 going down very deep (denoted Walls $1 \mathrm{~A}, 1 \mathrm{~B}, 1 \mathrm{C}, 1 \mathrm{D}$ ) or are related somehow to another feature, a structure that seems to be constructed of flat-lying square bricks like the granary. It is possible that this represents the edge of another granary; the outer face of bricks laid in the rounded wall would look similarly jagged in various directions (see Figure 8.199). If this assumption is true, we have two closely located large rounded granaries (just about 2 m apart) in Field IV.

Other similar large rounded brick granaries, postdating the Iron Age, include 1 found in Field III, Sq. A1 (Figures 3.1733.174; this granary is slightly smaller, only partly exposed, and the floor was not reached) and at least 10 from Petrie's excavations of his latest occupation level (Figure 8.205; Petrie, 1928: pls. XIII, XXV:2). Petrie's granaries north to south include BN, BFF, BCC, BHH, AA, AW, AZ, WB, WG, and WH (see Table 8.5 for details); their external diameter (eight have a complete rounded wall) ranges between 5.8 and 11.6 m , with a wall thickness of $0.8-1.2 \mathrm{~m}$, roughly rising according to the size of structure. These granaries are built of similar square-shaped bricks and similar techniques, yet floors were not recovered; one seems to have had a domed roof (BFF, Petrie, 1928: pl. XIVB:2; reconstruction by Petrie in Figure 8.206). Note, however, that the granaries from Petrie's excavations are only published in a plan and one photo from afar (Petrie, 1928: pl. XXV:2), and therefore, we do not have many details on their construction technique.

Of the total 12 granaries, 11 were located on the west side of the tell, extending almost from the northern edge to the southern slope, and one was situated on the east side. All of the granaries also either are isolated or cut earlier features; hardly any architectural features relate to them or overlie them. The granaries are dated by Petrie to the Persian period (Petrie, 1928:8-9).


FIGURE 8.191. The granary during excavations.


FIGURE 8.192. Rounded external wall of granary, Sq. 2C, Locus 1, Layer 13.


FIGURE 8.193. Square 1D: wall of granary during excavations.


FIGURE 8.194. The granary after excavations, looking northeast.


FIGURE 8.195. Inner (pier) wall in the granary during excavations.


FIGURE 8.196. Granary wall from inside.


FIGURE 8.197. Granary floor and inner pier wall in Sq. 2D.

The function of the rounded structures can be rather securely assumed to be storage of grain. This determination is due to both their building technique and shape, which conform to universal principles of silo and granary construction, and the occasional find of carburized grains inside (such as in one of Petrie's granaries; Petrie, 1928:9). In the past as well as today, several universal principles have guided the construction of silos worldwide (e.g., Currid, 1985:104-109; Beedle, 2001; Garfinkel et al., 2009):

1. A cylindrical shape better withstands the pressure of the grain, distributed evenly onto the sides of the silo, and does not create stress on the base or corners of a rectilinear shape. A rounded wall requires less building material than rectilinear walls confining an equal space.
2. A thickly built (brick) floor protects the grains from rodents and weather.
3. A number of silos are built in close proximity. It is easier to handle storage in a number of smaller silos than in one large installation, making it possible to store grain of different


FIGURE 8.198. Close-up of bricks in granary floor, looking east, in Sq. 2D.
years or different crops separately. In the case of spoilage by fire, humidity, rodents, or insects, not all the stored material will be affected.
4. Organization in rows, adjacent to each other, optimizes their arrangement within a confined space.

Of these characteristics, at least traits 1 and 2 clearly appear at Tell Jemmeh, although if one considers Petrie's results (Figure 8.205), traits 3 and 4 are present as well.

According to ethnographic parallels (e.g., Aurenche, 1981: fig. 207; Pfälzner, 2002), as well as depictions on somewhat later cylinder seals that show such structures accessed by ladders (Amiet, 1972:652, 658-663, pl. 16), a total height of around 2 m is estimated; at Tell Jemmeh, the granaries were probably higher (based on their large diameter), probably at least 2.5-3 m high but maybe up to 5-6 m high.

The scale of the grain storage at Jemmeh was thus very large, evidencing large-scale community- or state-level (Bourdier and Minh-Ha, 1985:64-67), or even imperial-level, storage. Persian


FIGURE 8.199. Square 2D: granary Wall 1 and Wall 2, looking west.
period parallels from the Levant for rounded granaries made of bricks come from Tel Sera' (Oren, 1993c:1333-1334), Ruqeish, and northern Sinai (Oren et al., 1986a; Oren, 1993a:1294, 1993b). Petrie suggested that the grain that could be accumulated in the large excavated and unexcavated granaries could feed around 70,000 for two months, thus linking this storage to a barracks of a Persian army intended to attack Egypt (Petrie, 1928:9). Although these numbers may be slightly fantastic, this function for the granaries cannot be ruled out in light of the geographical location of the site (and the parallels from other sites on the way to Egypt). Another option could relate the storage to commercial interests and relate it to the major port of Gaza (see also chapter 34 for discussion).

## Remains of Phase 3

## Architecture

This section will describe other remains of the building phase either stratigraphically above Phase 4 or in some squares combining Phases 3 and 4 (the lower post-Phase 5 remains) (Figures 8.218-8.231). These remains include a series of interconnecting walls and features mainly in Sqs. 0A, 00A, 0B, 1A, 1B, 1C, and 2B that may be part of one or two buildings, possibly existing in both Phases 3 and 4 (Figure 8.218). There is a possibility that
these walls or some of them are contemporary with the granary, but this cannot be proved. As noted, the granary was assigned to this phase as a default option. There are many contexts that are undecided between Phases 3 and 4 or between Phases 3 and 2 .

In Sq. 0A, Wall 1 is a southwest-northeast brick wall (60.97-61.22 m) made of three rows of bricks and continuing as upper Wall 5 in Sq. 0B (Figure 8.221). Altogether this wall is 7.5 m long and connects to Wall 1 in Sq. 0B (a thinner NW-SE wall) and to Wall A in Sq. 1B, creating a T form (Figure 8.211). This could be part of a building with at least three units. Square 0 A , Feature 3 (Figure 8.220 ) is a brick construction ( $0.7 \times 1 \mathrm{~m}$ ) attached to the southeast face of Wall 1 (Figure 8.219), possibly representing a bench or installation (or possibly this was an eroded wall fragment). Thus, to the west of Sq. 0A, Wall 1, Unit 1 (Sq. 0B, Locus 1) was defined; to the north is Unit 2 (Sq. 0B, Locus 2), and to the east is Unit 3 (Figure 8.218). In Unit 3, a small area paved with pebbles was excavated as Feature 4 and Sq. 1A, Test Trench 11, Feature 2. Units 1 and 3 may be rooms in a building, whereas Unit 2 could be part of the same structure as a passageway or open area between buildings. Wall 6 is the fragment of a wall in Sq. 1A that is possibly parallel to Wall 1 in Sq. 0A and may belong to the same structure, largely destroyed by Phase 1 pits. About 3 m to the NE, a series of wall fragments (Sq. 1C, Walls 1, 2; Sq. 1B, Wall B; and Sq. 2B, Walls 1 and 5; Figure 8.227) may create an at least $10-\mathrm{m}$-long wall parallel to


FIGURE 8.200. Square 2C: pier wall in granary, looking east.

Tell Jemmeh
Field IV Phase 4
Granary fill west balk


FIGURE 8.201. Section through granary fill: Sqs. 2C-2D, west balk.


FIGURE 8.202. Square 1D: granary wall in front, brick structure in balk (rear), looking west.


FIGURE 8.203. Jagged bricks in the southern balk of Sq. 1D, Walls 3 and 6 in front.


FIGURE 8.204. Reconstruction of granary with flat roof.

Wall 1 of Sq. 0B; this could be all part of one large structure (destroyed by erosion and late pits in the south and southeast, Sqs. $1 \mathrm{~A}-2 \mathrm{~A}$ ), or the eastern wall may be part of another building. In Sq. 2B, Wall 6 may be perpendicular to Wall 5 and thus to the long eastern wall; this area in highly disturbed by Phase 1 pits (see Figure 8.243, especially Pits 1 and 2); Floor 2 was defined here at 61.20-61.49 m. In Sq. 1C a single row of bricks (Wall 4, Figure 8.228 ) may connect to Wall 1 (or more clearly to Wall 2 below it), the outer wall of the granary; this area was defined as Unit 4.

In Sq. 2A, Feature 6 (Figures 8.223-8.225) is an area paved with flat pebbles $(1 \times 0.6 \mathrm{~m})$ in the southern part of the square that contains ash, and there is possibly an animal skeleton nearby (Figure 8.225 ) in levels $60.82-60.96 \mathrm{~m}$; it could relate to Phase 3. Feature 11 inside the north balk of Sq. 2A (Figure 8.226) is a concentration of bricks and stones, possibly a fire pit of Phase 3.

## Pottery and Finds from Phase 3

The pottery presented here in relation to Phase 3 (Figures 8.229-8.231) does not come from well-defined floor surfaces. Most of the pottery comes from fills of Phases 3 and 4 and unclear (possibly Phase 3) contexts. Moreover, many of the Phase 3 fills are from balk removals, and thus, their stratigraphy is not certain. This assemblage includes a few bowls, mortaria bowls, cooking pots, jars, amphorae, jugs, and juglets, including several nearly complete vessels, mostly jugs and juglets (Figure 8.230ae). The latest indicative forms seem to date to the early Persian period (although some forms can date also to the 7th-6th centuries BCE ).

Few bowls were found in Phase 3 contexts (several are probably residual Iron Age sherds, which are common). A complete miniature bowl was also found here (Figure 8.229a); it is just 9 cm in diameter and 2 cm in height, and the form is open and


FIGURE 8.205. Granaries from Petrie's excavations (Petrie, 1928: pl. XIII).


FIGURE 8.206. Reconstruction of granary with domed roof (after Petrie, 1928: pl. XIV:2,3).
shallow with a wide, flat base. This form is not chronologically indicative.

A relatively large group of mortaria bowls was found, including complete examples (Figure 8.229b) and rim fragments (Figure $8.229 \mathrm{c}-\mathrm{g}$ ). The mortaria bowls have a thickened, folded rim and somewhat ribbed upper body and are often made of light yellowish clay. Most of these are probably imports from Cyprus. Although most bases are flat (as Figure 8.229b), highringed bases also occur (Figure $8.229 \mathrm{f}, \mathrm{g}$; on this type, see Figure $8.151 \mathrm{k})$. One example of a thin cooking pot with a slightly thickened rim, everted neck, and flattened handle (Figure 8.229h) is a
globular cooking pot typical of the Persian form (see, e.g., Stern, 1973:103, cooking pot type B; Tel Michal, Stratum VIII, SingerAvitz, 1989a: fig. 9.7:3). Several rim fragments may belong to closed kraters or amphorae (Figure 8.229i,j). Of these, Figure 8.229i has a folded, ridged rim with a possible mark of a broken handle; its surface is whitish.

Several jar rims are illustrated, including an Iron IIC jar type (Figure $8.229 \mathrm{k}, 1$; see above, Phases 7-5, Types JR1, JR2) and a rim with no neck and flat shoulder (Figure 8.229 m ), possibly belonging to a Phoenician-type storage jar (see Figure 8.152k). A small jar rim (Figure 8.230o) has a short everted rim, no neck,

GMI 1A
east section


FIGURE 8.207. Square 1A, east section.
and a carinated shoulder, and the upper part is red slipped; Persian period parallels come, e.g., from Tel Michal, Stratum IX (Singer-Avitz, 1989a: fig. 9.3:7). Another rim of a small jar or jug (Figure 8.229 n ) is flaring and folded. A nearly complete jar with an ovoid body, vertical neck, and two shoulder handles (Figure 8.229 q) resembles Iron Age forms (see, e.g., Qasile, Strata XIX, Mazar, 1985a: figs. 48, 52:9), but this form appears later as well (e.g., Tell el-Hesi, Stratum Vd, Bennett and Blakely, 1989: fig. 146:5). Figure 8.229 r,s shows amphorae with two handles attached to the rim; for this form, see below (Figure 8.256a-d). A thick handle (Figure 8.229p) belongs to a basket-handle jar. A strap handle (Figure 8.229o), probably of a jug, is also illustrated.

Several complete jugs were assigned possibly to Phase 3 (Figures 8.230a-c, 8.231a-c). One form (Figure 8.230a) is
complete except for the base and has a short, vertical neck, slightly thickened rim, loop handle to the shoulder, and bagshaped body. This is a Persian period type, which is also discussed below (Figure 8.260 h ). Another similar complete example (Figure 8.230b) has a lower-positioned handle and a concave, flat base; in this example the vertical neck is slanting, probably because of vessel contact pressure inside the kiln (for this type, see, e.g., Stern, 1973:119, jug type F). Another small jug or juglet type with a complete example (Figures $8.230 \mathrm{c}, 8.231 \mathrm{a}-\mathrm{c})$ has a narrow neck with widening gutter rim, shoulder loop handle, globular body, and flat base. The juglet in Figure 8.230 d is probably a related form (see also Figure $8.231 \mathrm{f}, \mathrm{g})$. This is a Persian period type, discussed also below (Figure 8.262f-h; see, e.g., Stern, 1973:120,125,jug type I,


FIGURE 8.208. Square 1A, south section.
also juglet types 4, 5; see also Shiqmona [Elgavish, 1968: pl. XXXIII:15,16], Tel Michal [Singer-Avitz, 1989a: fig. 9.13:11], Tel Mevorakh [Stern, 1978: fig. 9:15], Ashdod, Stratum V [Dothan and Ben-Shlomo, 2005: fig. 3.111:10], and 'Ein Gedi [Stern, 2007:204, photo 5.2.11, jug type 3]). Another similar yet larger juglet (Figure 8.230e) is a dipper juglet with a pyriform shape and rounded base. This form continues Iron II types into the Persian period (e.g., Stern, 1973:121, juglet type 1; Berlin and Frankel, 2012:38-39, fig. 19:1-3, defined there as "Phoenician semi-fine ware").

A nipple base illustrated (Figure 8.230f) may belong to a juglet as well or to a small amphora (e.g., Shiqmona [Elgavish, 1968: pls. XXXV:30, LIX:141], Tel Michal [Singer-Avitz, 1989a: fig. 9.1:15], and Kadesh Barnea [Cohen and Bernick-Greenberg, 2007: fig. 11.134:12]). Two other jug or jarlet body fragments (Figure $8.231 \mathrm{~d}, \mathrm{e}$ ) are also illustrated, maybe from the type discussed in Figure 8.260h below.

A group of jars and transport amphorae also comes from Phase 3 (Figure 8.230h-o). These include several neck fragments with thickened or folded rims (Figure $8.230 \mathrm{~h}-\mathrm{j}$ ); some of these may be imported (for example, from the east Aegean region such as Samos or Miletus; see e.g., Grace, 1971; Whitbread, 1995). The upper part of an amphora (Figure 8.230 k ) has a swollen neck and two long, high, vertical handles. This shape is known to be of Chian origin (see, e.g., Whitbread, 1995:134-139; Cook and Dupont, 1998:146-151, fig. 23.2; see also chapter 14, Figure 14.4 g ). Another amphora neck with a similar shape is red slipped (Figure 8.2301); this is uncommon in Chian amphorae. Figure 8.230n has a larger everted rim, possibly on an imported amphora from Samos or Miletus (possibly as in Cook and Dupont, 1998: fig. 23.7e; for parallels, see Tel Michal, Stratum XI, Singer-Avitz, 1989a: fig. 9.1:13). A thickened base of an amphora is also illustrated (Figure 8.230 m ). All these examples are relatively well dated to the Persian period, or the 5 th -4 th


FIGURE 8.209. Square 1B, east section.
centuries BCE. A large flask (Figure 8.230 g ) with a rather wide neck and everted rim is somewhat similar to Iron IIC flasks (see Tel Michal, Singer-Avitz, 1989a: fig. 9.5:15).

Several body sherds from closed vessels are made of whitish clay with a metallic quality and are decorated with a dotted pattern of unclear nature (Figure 8.2311). This vessel is probably imported, maybe of earlier periods (LBII Mycenaean?). Also illustrated from Phase 3 is a lamp (Figure 8.231h) with a thin, flat base. A handmade coarse rim and base belongs to a large shallow basin (Figure 8.231k). Another handmade perforated small cup-shaped vessel (Figure 8.231i) was attached to some sort of vessel; possibly this is a kernos vessel.

The few metal finds from Phase 3 or within the granary include a complete small four-legged stand of bronze (Figure 21.7 d ), a complete three-bladed bronze arrowhead (Figure 8.231 m ), a complete bronze nail (Figure 21.4f), an iron chisel
(Figure 8.231n), and an iron tool (Figure 8.231o). A limestone inscribed pym scale weight (weight of 8 g ) was found in Sq. 2B, Layer 14 (Figure 8.231 p); this context is possibly dated to Phase 3 , yet the inscribed weight is possibly residual from the Iron IIC (see chapter 23). A scarab was also attributed to Phase 3 (Figure 8.231 q; see chapter 27, Figure 27.3a), and an ostracon was found on the granary floor (Reg. No. 1955, chapter 32, Figure 32.4b).

Remains of Phase 2

Architecture

Phase 2 remains (Figures 8.232-8.242) were very difficult to identify in Field IV. However, this phase is essential as it defines the postgranary fills that clearly postdate the granary, tentatively assigned to Phase 3, and predate the Middle Ages


FIGURE 8.210. Square 1B, north section.
(Crusader-Mamluk) pits defined as Phase 1. Otherwise, only a few very fragmentary walls, mainly in Sqs. 1A-2A, and possibly some fills and pits could be assigned to this phase (Figure 8.232).

In Sq. 1A, Wall 1 is several bricks above Wall 6 (five courses high in some places; Figure 8.233), possibly a wall fragment of Phase 2 (it is cut by Pit 5); two possible postholes and Locus 2, Layers 3-9 (Layer 5 is rich with pottery) may belong to Phase 2. In the southeast corner of Sq .1 A , Feature 1 is part of a rounded mud feature ( 1.2 m in diameter at 61.12 m ), a tabun or, more probably, a brick bin. In Sq. 2A, Wall 1 is an east-west eroded wall (Figures 8.234, 8.235); it has some stones inside and is 0.8 m thick and at least 3.5 m long and one course high; Wall 1A is possibly part of it. Fills to the south of Wall 1 include Pits/Layers 4-8 and Locus 3, Layers 4-9. Feature 2 is a lined depression filled with pebbles, cut by Pit 3, possibly a drain (Figure 8.238);
it seems to be connected to Feature 1 (Figure 8.237). To the north of Wall 1 in the east, Feature 3 is an area with pebbles attached to the wall (Figure 8.236), at 61.43 m , also possibly Feature 4 relates to Phase 2; Locus 2 was defined here with Layers 2-7, as well as Floor I (Figure 8.239). In Sq. 1C, the upper bricks of Wall 1 may belong to Phase 2; in Sq. 2C, Wall 1 and possibly Wall 2 are high wall fragments not connected to any other features, possibly assigned to Phase 2, as is possibly Wall 6 of Sqs. 2C-2B. In Sq. 3B, Pit 4 may be assigned to Phase 2.

As noted, most of the fills inside the granary (some are ashy and filled with pottery; see Figures $8.240,8.241$ ) in Sqs. 1C, 1D, and 2 C are postgranary and thus can be tentatively or technically assigned to Phase 2. The finds from this area include a large, rich, and diversified pottery assemblage including storage jars, amphorae, jugs, cooking pots, lamps, and other vessels, as well as


FIGURE 8.211. Square 1 B, south section.
imported decorated pottery from Greece (see chapter 14). However, as most of this pottery was mended from several squares, it should technically be considered as unstratified; thus, most of it will be discussed below with other unstratified finds in a typological manner and chronological sequence (Figures 8.252, 8.254-8.263). As will be seen, most pottery from here dates to the Persian period.

## Pottery from Phase 2

Only a limited amount of pottery can be attributed to Phase 2 contexts (Figures 8.242), and none is from floor levels. This pottery seems to reflect mostly Persian period forms, yet some forms can possibly be dated to the early Hellenistic period. Two open vessels with a thick ledge rim (Figure 8.242b,c) may be


FIGURE 8.212. Square 2A, north section.


FIGURE 8.213. Square 2A, north section, lower levels.

Jemmeh IV
Trench 2A
Test Trench 1 east section


FIGURE 8.214. Square 2A, TT1, east section.


FIGURE 8.215. Square 2A, west section.


FIGURE 8.216. Square 1D, east section.


FIGURE 8.217. Square 2C, east section.

TABLE 8.5. Measurements of granaries excavated at Tell Jemmeh (Petrie, 1928: pl. XIII, and Smithsonian Institution).

| Granary | Exterior diameter (m) | Wall thickness (m) | Estimated volume according <br> to $\mathbf{2 . 5} \mathbf{m}$ height $\left(\mathbf{m}^{3}\right)$ |
| :--- | :---: | :---: | :---: |
| Petrie |  |  |  |
| WG | 11.58 | 1.2 | 166 |
| WH | 10.36 | 1.2 | 126 |
| AZ | 7.6 | 0.6 | 80 |
| AW | 7.46 | 0.6 | 77 |
| BCC | 7.46 | 0.9 | 63 |
| BFF | 7.77 | 0.75 | 77 |
| BHH | 7.16 | 0.9 | 56 |
| WB | 6.63 | 0.9 | 46 |
| BN | 6.25 | 0.3 | 63 |
| AA | 5.79 | 0.24 | 55.5 |
| Smithsonian Institution |  | 0.6 | 73 |
| Field IV granary | 7.4 | 0.5 | 45 |
| Field III granary | 5.75 |  |  |

bowls or chalices, although the former has soot on the rim and was thus possibly a lamp. Two moratoria bowls are shown, one with a flat base (SI Cat. No. 289.15, unillustrated) and the other with a ring base and a hole in the center made after firing (Figure 8.242a), probably indicating a secondary use of the vessel. Another jar fragment (Figure 8.242d) has an everted rim and a ridge on the shoulder; this is a typical Persian period jar type (see below and, e.g., Tel Michal, Stratum IX, Singer-Avitz, 1989a: fig. 9.3:1-5). An amphora neck (Figure 8.242e) has a thick folded rim and is possibly a Samian (see Grace, 1971) or other East Greek amphora (possibly as in Whitbread, 1995:122). A nearly complete jug (Figure 8.242f) has a thickened rim and globular body; this shape is not indicative. The lower part of an oval body jug with a ring base (Figure 8.242 g ) has some slip and may be an Attic import. A juglet with a thick, flat base (Figure 8.242i) is of a Persian period type (see Mizpe Yammim, Berlin and Frankel, 2012: fig. 25:4,5; possibly Stern, 1973:126, juglet type 7). The neck of a flask or a miniature vessel (Figure 8.242h) has two short, thick handles attached to the neck that is decorated with a white band. Also illustrated is a ridged flat handle (Figure 8.242 j ), probably of a jug or juglet. A complete small closed lamp (Figure 8.242 k ) has a groove along the rim and is covered with dark red/black slip. This is a type appearing in the late Persian and early Hellenistic periods (see, e.g., Tel Michal, Strata VII-VI [Singer-Avitz, 1989a:130, figs. 9.9:6,7, 9.10:11,12, 9.11:3-8] and Gezer [Gitin, 1990: pl. 47A:14]). These lamps are imitations of glazed Attic lamps, which are dated in Greece to the 5th-3rd centuries BCE (see, e.g., Perlzweig, 1963: figs. 83-86). Similar unstratified lamps are illustrated below (Figure $8.263 \mathrm{e}-\mathrm{g}$ ). Two handmade vessels from Sq. 1A, Layer 9, Locus 2 (Figure $8.2421, \mathrm{~m}$ ) are decorated in brown and probably have a Crusader-Mamluk date (see Phase

1 regarding the ware, Figure 8.250); these seem to represent a stratigraphic intrusion.

## Remains of Phase 1

Phase 1 defines a series of pits, some of which are very large, scattered throughout Field IV (Figures 8.243-8.251). No floor levels relating to these pits or any other architectural feature were found in this phase. Although, in principal, these pits could date to several periods according to both their character and finds (dating often to the Middle Ages, possibly the 12th13th centuries CE), they are seen here as one assemblage. There over 30 relatively well defined pits of this sort (Figure 8.243), cutting all features below them, including most of the wellpreserved rooms of Building I of Phase 5 (Figures 8.108, 8.243). Some are rounded and up to $3-4 \mathrm{~m}$ in diameter, but many are irregular. Their function and purpose is unclear; possibly some of them were dug in order to quarry building material, such as large well-preserved mud bricks abundant in the late Iron Age buildings.

The concentration of these pits is dense, especially in Sqs. $00 \mathrm{~A}-0 \mathrm{~A}, 1 \mathrm{~A}, 1 \mathrm{~B}, 2 \mathrm{~B}, 2 \mathrm{C}$, and 3B. Some of the larger pits are 1.5 m deep or more and include Pits 2, 3, and 7-9 in Sq. 00A; Pit 2 in Sq. 0B; Pit 2 in Sqs. 0A-1A Test Trench 11; Pits 3, 4, and 6 in Sq. 1A; Pits 2 and 3 in Sq. 2A; Pits 1 and 2 (Figure 8.244) and Pit 3 (Figure 8.245) in Sq. 2B (at a certain stage most of Sq. 2B was occupied by these pits; Figure 8.244); Features 1 and 2 and Pits 1 A and 3 in Sq. 3B; Pit 1 in Sqs. 1C-1D; Pits 1 and 1A in Sq. 2C; and Pits 1-2 in Sq. 2D. All the defined pits allocated to Phase 1 are shown in Figure 8.243. There are also numerous pits and other features that may be modern or cannot be dated or defined; these have unclear stratigraphy and are not mentioned or shown


FIGURE 8.218. Plan of Phase 3.
on the plan (features or pits clearly modern according to finds or those related to Petrie's dump are denoted as "no phase").

The pottery from the Phase 1 pits includes, on top of Persian and Iron Age pottery, a rather well defined assemblage of Crusader and early Mamluk pottery (Figures 8.249-8.251). These include coarse handmade pottery such as bowls and jars (Figure 8.249), various cooking pots, and a few decorated jars, glazed bowls, and storage jars (Figure 8.251; see also Schaefer, 1989, on this period in Tell Jemmeh and its vicinity, and see the Crusader coin hoard discussed chapter 31).

In addition, up to three or four late burials may be associated with Phase 1 (they were found without finds and thus are difficult to date; they could be modern as well). In Sq. 1A, Locus 1, Layer 1 at 61.31 m (Figure 8.246 ) is an articulated
human burial with its head pointed to the south (possibly this is a female). In Sq. 2D, Pit 3 contains a partial articulated human burial (Figure 8.247) with its head to the north; the elongated pit starts in the south balk and is at least 1.5 m long. In the same square, Feature 3 is another human burial. In Sq. 2C, Pit 1, Layer 2 contained a skull (Figure 8.248).

## Pottery and Finds from Phase 1 and Other Crusader-Mamluk Pottery

The pottery discussed here either comes from Phase 1 pits in Field IV or is unstratified and typologically attributed to the Crusader-Mamluk period (Figure 8.249-8.251). At least three well-defined groups of pottery can be suggested: coarse handmade


FIGURE 8.219. Square 0A: Wall 1 and Feature 3, looking east.


FIGURE 8.220. Square 0A: Feature 3, looking north.


FIGURE 8.221. Square 0B: Walls 1 and 5, looking south.


FIGURE 8.222. Square 2B: Walls 4 and 5, looking east.


FIGURE 8.223. Square 2A: Feature 6 and ash layer (possibly Phase 3), looking SE.


FIGURE 8.224. Close-up of Feature 6 in Sq. 2A.


FIGURE 8.225. Animal skeleton near Feature 6
in Sq. 2A.


FIGURE 8.226. Square 2A, north balk, Feature 11.


FIGURE 8.227. Square 1C: Wall 2, looking NW.


FIGURE 8.228. Square 1C: Wall 4, looking NW.

pottery, including bowls kraters, jars, and cooking pots (Figures $8.249,8.250 \mathrm{~h}-\mathrm{l}$ ); decorated (also handmade), mostly closed vessels (Figure 8.250a-e,m,n); and glazed vessels (Figure 8.251a-f).

Several handmade rounded and shallow bowls (Figure 8.249 a-f) are made of coarse, brittle, and badly fired clay; one example (Figure 8.249f) has a high carination, possibly a cooking pot (see, Ḥorbat 'Uẓa, Stern and Tatcher, 2009: fig. 3.23:12,13). Parallels for the rounded bowls come, for example, from Horbat 'Uẓa (Stern and Tatcher, 2009:129, fig. 3.19:1). Several small shallow bowls (Figure $8.249 \mathrm{c}-\mathrm{e}$ ) are possibly related, and two bases of handmade bowls (Figure $8.249 \mathrm{c}, \mathrm{d}$ ) are similarly made
and have a cup-shaped application in the inside (an idea similar to LBII cups and saucers; see a Mamluk lid from Horbat 'Uza, Stern and Tatcher, 2009:130, fig. 3.19:4). A large bowl with lug handles and applied rope decoration (Figure 8.249q) may be similar to Mamluk basins from Horbat 'Uẓa (Stern and Tatcher, 2009:130, fig. 3.19:5,6).

Handmade jars or cooking pots usually have a globular body (Figure $8.249 \mathrm{~h}-\mathrm{n}$; Figure 8.249 m is made of very whitish clay). Cooking pots have an everted rim and often a shelf or elephant-ear handles on the body (Figure $8.250 \mathrm{~h}-1$ ): these are horseshoe-shaped handles applied on the body. This is a

FIGURE 8.229. Pottery from Phase 3 (3/4?). NA = not available; BR= balk removal. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Miniature bowl | RV 212 | GM 1B BR Wall B | 3 |  |
| b | Mortarium bowl | SI Cat. No. 287 | GM 2D TT3 (3) | 3 |  |
| c | Mortarium bowl | SI Cat. No. 287.5 | GM 2D (5) | 3 |  |
| d | Mortarium bowl | 7088/1 | GM 1B (4) 1 | 3? |  |
| e | Mortarium bowl | SI Cat. No. 482.13a | GM 1B (8) 1 | 3 ? |  |
| f | Mortarium bowl; red decoration? | RV 892 (SI Cat. No. 287.40) | GM 0A F4 | 3/4 | Unit 3 |
| g | Mortarium bowl | 7087/6 | GM 1B (8) 1 | 3 ? |  |
| h | Cooking pot; soot | 4650/1 | GM 0B (4) 1 | 3/4? | Unit 1 |
| i | Krater/amphora | 6336/1 | GM 1B (5) 1 | 3 ? |  |
| j | Krater? | 7087/1 | GM 1B (8) 1 | 3 ? |  |
| k | Jar | 6153/1 | GM 2D (10) | 3 | Granary |
| 1 | Jar | 7087/4 | GM 1B (8) 1 | 3 ? |  |
| m | Jar | 7087/3 | GM 1B (8) 1 | 3? |  |
| n | Jar/jug | 3849/1 | GM 2B WBR W2 | 3/4? |  |
| o | Jar | 4650/2 | GM 0B (4) 1 | 3/4? | Unit 1 |
| p | Basket handle | 4675/1 | GM 0B (1) 1 | 3 | Unit 1 |
| q | Jar | NA | GM 2D TT3 (2) | 3 ? |  |
| r | Amphora | RV 1026 | GM 0A F4 | 3/4 | Unit 3 |
| s | Jug/amphora; marked handle? | 4642/1 | GM 0B (2) 1 | 3/4? | Unit 1 |

well-known Mamluk type (see, e.g., Avissar and Stern, 2005:9495, fig. 40:5, Type II.2.2; Nahal Haggit, Stratum III, Seligman, 2010: fig. 3.15:17). Several thin hole-mouth or globular cooking pots with everted rims are illustrated (Figure $8.249 \mathrm{~h}-\mathrm{j}$ ). Mamluk parallels come, for example, from the 13th century CE monastery on Mount Carmel (Pringle, 1984: fig. 5:24), Yoqne'am (Avissar, 1996:132-133; Avissar and Stern, 2005:91, fig. 39:13), and Ḥorbat 'Uẓa (Stern and Tatcher, 2009:123, figs. 3.16:8,9, 23:2,3). Thin-walled hole-mouth shapes, possibly cooking pots (Figure $8.249 \mathrm{~h}-\mathrm{j}$ ), seem to be handmade, yet they are highly fired, often metallic, and usually carry brown-reddish glaze; see Avissar and Stern (2005:94, fig. 40:1-3) for the Crusader period. A body fragment with thumbed rope decoration (Figure 8.249 f ) is probably also of a cooking pot (see Yoqneam [Avissar, 1996:138-139, fig. XIII.98:1, and references therein] and Nahal Haggit, Stratum III [Seligman, 2010: fig. 3.15:8]). Small handmade jars or jugs with a globular body and perforated knob handles also appear (Figure 8.249o,p); this is an early Mamluk form (see, e.g., Avissar and Stern, 2005:102, fig. 42:5,6).

Decorated handmade pottery includes mostly jars and jugs (Figure 8.250a-e,m,n; from Phase 2, Figure 8.2421, m). The shapes are usually of a high vertical neck with a simple rim, globular body, and rounded base. The upper part of a jar (Figure 8.250a) is elaborately decorated in geometric designs. These include crisscross, zigzag, and spiral motifs on the neck and shoulder painted in red. Another complete, although smaller, jar (Figure 8.250b) is decorated on the neck and shoulder with a dense hatched lozenge and triangle design (see, e.g., Jerusalem, Tushingham, 1985: fig. 42:17). Another jar combining several nonjoining fragments (Figure 8.250c) is decorated with a similar red design delineated as chevrons and rows of squares (see, e.g.,

Jerusalem, Tushingham, 1985: fig. 38:21). Another jar handle with a square section (Figure 8.250e) is decorated with a winding line (for a similar handle, see, e.g., Nahal Haggit, Stratum III, Seligman, 2010: fig. 3.16:2). A body sherd of a closed vessel (Figure 8.250 m ) has a design of interchanging horizontal bands and triangles; a parallel may come from Horbat 'Uẓa (Stern and Tatcher, 2009: fig. 3.20:6). A body fragment with a fragmentary design (Figure 8.250d) is also illustrated. A nearly complete profile (Figure 8.250n) of a small vessel has a globular body and vertical neck. The decoration includes a plastic band, with vertical incisions all around, and a hatched pattern in red paint on the neck, under which is a wavy pattern; below the application a decorative pattern of "hooks" is painted. Note the intrusive sherds from Phase 2 (Figure 2.2421,m) have almost exactly the same patterns and may belong to the same vessel. A possible parallel comes from Horbat 'Uẓa (Stern and Tatcher, 2009: fig. 3.20:8). Generally, handmade decorated pottery is well known from the southern Levant and other areas in the Near East during the 12 th -15 th centuries CE (see, e.g., Johns, 1998; Van der Steen, 1998; Milwright, 2010).

Glazed pottery fragments include a sherd from a spouted vessel (Figure 8.251a) with patterns in green and red glaze and an open bowl with yellow glaze (Figure 8.251 c ; see a possible parallel from Beth Shean, Avissar and Stern, 2005:37, fig. 13:3, there denoted as an Egyptian import). A body fragment, probably a bowl (Figure 8.251b), has a floral design in red and yellow glaze (parallels possibly come from Horbat 'Uza, Stern and Tatcher, 2009: fig. 3.29:7,8); a very small spout (Figure 8.251e, intrusive in Phase 3?) has green glaze and a hatched lozenge in brown glaze, and a disk base (Figure 8.251d, possibly worked) has a metallic green glaze. For glazed Mamluk pottery, see also


FIGURE 8.230. Pottery from Phase 3 (3/4?). rs = red slipped.

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Jug | RV 479 (SI Cat. No. 197) | GM 2D TT2-TT3 (4) | 3? |  |
| b | Jug; soot | SI Cat. No. 261 | GM 2D TT2-TT3 (3-4) | 3? |  |
| c | Jug/juglet | SI Cat. No. 276 | GM 2D (3) | 3? |  |
| d | Juglet | SI Cat. No. 208 | GM 2D TT3 (4) | 3? |  |
| e | Juglet; greenish fabric | SI Cat. No. 264 | GM 2D (2) | 3?? |  |
| f | Base? | 3771/1 | GM 1B EBR (8B) | 3 |  |
| g | Flask | RV 471 (SI Cat. No. 290.1) | GM 2D TT3 (3) | 3 | Granary |
| h | Amphora | 7087/2 | GM 1B (8) 1 | 3? |  |
| i | Amphora | 3816/1 | GM 1B NBR (5) | 3? |  |
| j | Jar/jug; white clay | 4648/1 | GM 0B (1) 2 | 3 | Unit 2 |
| k | Amphora (Chios?) | RV 563 (SI Cat. No. 191.50) | GM 3B (2) | 3? |  |
| 1 | Amphora; rs (Chios?) | 4079/1 | GM 2B SBR W5 | 3 |  |
| m | Amphora | 3849/2 | GM 2B WBR W2 | 3/4? |  |
| n | Amphora | 3871/1 | GM 1B EBR (8) | 3 |  |
| o | Jar; rs, orange clay | 4642/2 | GM 0B (2) 1 | 3/4? | Unit 1 |



FIGURE 8.231. Pottery and other finds from Phase 3 (3/4?).

| Part | Description | Bag/RV No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Jug; pinkish clay | 7061/2 | GM 1B (5) 1 | 3? |  |
| b | Juglet | 6336/2 | GM 1B (5) 1 | 3? |  |
| c | Juglet | 7087/5 | GM 1B (8) 1 | 3? |  |
| d | Jarlet/jugs | 4793/1 | GM 1C (6) | 3? |  |
| e | Jug? | 7047/1 | GM 1B (9) 1 | 3? |  |
| f | Juglet | 7087/7 | GM 1B (8) 1 | 3? |  |
| g | Juglet | 7061/1 | GM 1B (5) 1 | 3 ? |  |
| h | Lamp; soot | 3871/2 | GM 1B EBR (8) | 3 |  |
| i | Kernos? | 6216/1 | GM 2D F1 (3) | 3 ? |  |
| j | Kernos(?) | 4335/2 | GM 2C (10) 1 | Post 3 |  |
| k | Basin; handmade | 5131/5 | GM 0A (6) | 3/4 | Unit 3 |
| 1 | Sherd | Box 410 | GM 2D (10) | 3 |  |
| m | Bronze arrowhead | Reg. No. 608 (SI Cat. No. 206.B) | GM 0B (1) 1 | 3 | Unit 1 |
| n | Iron chisel | Reg. No. 472 (SI Cat. No. 3015?) | GM 2D (9) | 3 | Granary |
| o | Iron tool/hoe | Reg. No. 469 (SI Cat. No. 3016?) | GM 2D (5) | 3 | Granary |
| p | Scale weight; pym (limestone) | Reg. No. 1305 (SI Cat. No. 117) | GM 2B (14) | 3 ? |  |
| q | Scarab | Reg. No. 1160 | GM 2A (13) | 3 |  |




FIGURE 8.233. Square 1A: Wall 1 over Wall 6, looking SE.


FIGURE 8.234. Square 2A: Wall 1/1A, looking south (front).


FIGURE 8.235. Square 2A: Wall 1, looking north.


FIGURE 8.236. Feature 3 near Wall 1 in Sq. 2A.


FIGURE 8.237. Square 2A: Feature 1, looking east (Feature 2 on left).


FIGURE 8.238. Square 2A: Feature 2 (drain?), looking SE.


FIGURE 8.239. Square 2A, Floor I.

Ḥorbat 'Uzạa (Stern and Tatcher, 2009:143-148, figs. 3.24-3.31). A large, thin, open bowl (Figure 8.251f) has a ledge handle and is glazed in red on the upper inside. This is probably a baking dish common in the 12th-14th centuries CE Mamluk period (see, e.g., Horbat 'Uza, Strata 5-4, Stern and Tatcher, 2009:124,142, figs. 3.16:12, 3.23:17).

Other forms from Phase 1 are a bowl or krater with perforations (Figure 8.251h), a jar rim made of whitish clay (Figure 8.251 g ; see Nahal Haggit, Stratum III, Seligman, 2010: fig. 3.17:1), and a cylindrical object, possibly part of a drainage pipe (Figure 8.251 h ). Small finds that may be dated to Phase 1 include a complete crooked bronze nail (Figure 21.4c), a complete iron nail (Figure 21.5k), and possibly several glass items (Figure 25.1n-q).


FIGURE 8.240. Accumulation of pottery inside granary in Sq. 2D.


FIGURE 8.241. Lamp in granary fill, Sq. 2D.

## POTTERY FROM UNSTRATIFIED CONTEXTS: A TYPOLOGICAL OVERVIEW

This section discusses pottery that was found in various unstratified or unclear contexts (Figure 8.252) and is presented here for several reasons. Some of the examples represent unique or special types or types or periods not represented in the stratified pottery discussed above. In addition, a large assemblage of complete vessels was reconstructed from the accumulations in the granary area, especially Sqs. 1C, 2C, 1D, and 2D. The extensive reconstruction work yielded scores of complete vessels, typologically dating mostly to the Persian period. This pottery will be discussed according to periods and types.


FIGURE 8.242. Pottery and finds from Phase 2. af $=$ after firing.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Mortarium, perforated af | $6809 / 5$ | GM 1A (3b) 2 | 2 |
| b | Bowl/lamp | $6809 / 1$ | GM 1A (3b) 2 | 2 |
| c | Bowl | $6809 / 2$ | GM 1A (3b) 2 | 2 |
| d | Jar | $6809 / 3$ | GM 1A (3b) 2 | 2 |
| e | Amphora | $6809 / 4$ | GM 1A (3b) 2 | 2 |
| f | Jug | RV 480 (SI Cat. No. 261.1) | GM 2C NBR (6) | 2 |
| g | Jug | na | GM 2C (7) 2 | 2 |
| h | Flask/miniature vessel | $3269 / 1$ | GM 1D TT2 (4A) | 2 ? |
| i | Juglet | SI Cat. No. 318 | GM 2C NBR (3) | 2 |
| j | Jug | $3277 / 1$ | GM 1D TT2 (5) | 2 ? |
| k | Lamp | RV 432 (SI Cat. No. 271) | GM 2C NBR (6) | 2 |
| l | Jug | $6781 / 1$ | GM 1A (9) 2 | 2 |
| m | Jug(?), brown decoration | $6781 / 2$ | GM 1A (9) 2 | 2 |

## Middle Bronze Age

A trefoil rim jug with bichrome decoration (Figure 8.253a) belongs to a White Painted V-VI ware vessel and is a Cypriot import from the MBIIB-C (see chapter 11).

## Late Bronze Age

Representation of the Late Bronze Age II includes a BRII ware jug fragment (Figure 8.253b) with dark slip. A fragment of a biconical krater (Figure 10.2c) shows a unique design of a row
of birds. Three other decorated fragments show an "axe" register motif, and another body fragment (Bag 4335, unillustrated) shows the leg of a quadruped, probably from a typical Canaanite scene (see chapter 10 for these).

## |RON $\mid$

The Iron Age I is represented by several Philistine Bichrome sherds found in Iron II contexts (as Figure 8.1431). A fragment of a hollow, possibly circular, tube (see Figure 8.231j) may belong to an Iron Age kernos.


FIGURE 8.243. Plan of Phase 1.

IRON IIA

Two Iron Age Cypriot imports are also illustrated: a complete Black-on-Red juglet (Figure 8.253d) and a jug fragment with black decoration probably of Bichrome or White Painted ware (Figure 8.253c; see chapter 11). The fragment of a degenerated, red-slipped, bell-shaped bowl (Bag 4383, unillustrated) dates to the late Iron I/Iron IIA (see Phase 11 above, Figure
$8.5 \mathrm{a}-\mathrm{g})$. A red-slipped and burnished sherd with black decoration (Figure 8.253 k ) may also date to this period.

## Iron IIB-C (Late 8th and 7th-6th Centuries BCE) and Persian Period

The upper part of a bottle (Figure 8.2531) has a thickened, ridged rim and wide, vertical, ridged neck; this type is probably


FIGURE 8.244. Square 2B: looking above Pit 2 (lower right).


FIGURE 8.245. East and south balks of Sq. 2B with Pit 3 visible in the corner.


FIGURE 8.246. Human burial in Sq. 1A, Locus 1, Layer 1, looking west.


FIGURE 8.247. Human burial in Sq. 2D, Pit 3, looking north.


FIGURE 8.248. Square 2C, skull in Pit 1, Layer 2.

related to the Assyrian- type bottles of the Iron IIC (see, e.g., Batash, Stratum II, Mazar and Panitz-Cohen 2001:129, Type BT1, and references therein). A large basket handle (Figure 8.253f) belongs to a basket-handle amphora dated to the Iron IIC or Persian period (see Figure 8.257 j ). The button base of an amphora (Figure 8.253 h ) probably dates to the Persian period (see below). A nearly complete globular juglet (Figure 8.253j) has a flat base and thick body wall and also may date to the Persian period (see, e.g., Stern, 2007: photo 5.2.12).

Other pottery that may be dated to the late Iron Age and is illustrated below (Figure 8.262) includes several closed vessels. A flat jar rim with no neck and flat shoulder (Figure 8.262a) is somewhat similar to Phoenician storage jars but is made of an unusual orange well-levigated clay. This vessel was probably imported. Another vertical jar neck is illustrated (Figure 8.262c). The hollow base of an Iron II pillar figurine was also found in the topsoil of Field IV (Figure 17.3f). An upper part of an amphora (Figure 8.262 d ) has a ridge in the upper neck, a globular body, and a band and tree design on the handle. For a similar shape in the Persian period see, e.g., Tell el-Hesi, Stratum Vd (Bennett and Blakely, 1989:143:4); this could be an imported East Greek decorated table amphora (e.g., Figure 8.262e), although the shape is also somewhat similar to spouted amphorae, a typical Iron IIB form (as Tell en-Nasbeh, Wampler, 1947: pl. 30).

Several items may not be chronologically indicative, such as a complete stand found in a possibly Phase 5 context (Figure 8.262 m ). This is a high stand with a simple rim and a triangular cut window at the base; it possibly dates to the Iron II (see, e.g., Ashdod, Stratum VII, Dothan and Porath, 1982: fig. 24:5). A complete stand (Figure 8.262 n ) is possibly attributed to Phase 2. It has a dented decoration on the rim on both ends. Parallels come from Hellenistic Maresha (Regev, 2003:183, form 97). A simple short stand (Figure 8.262o) is complete and has a biconical shape. A rim fragment of a bowl, chalice, or stand (Figure
8.253 e ) with plastic decoration may also date to the Iron Age. A button base of what seems to be a jug (Figure 8.253i) is of unclear date; it is perforated on its lower side. A handmade coarse base of whitish clay (Figure 8.253u) may belong to a votive or figurative vessel of unclear date.

## Persian Period Pottery from the Granary Area

Squares 1C, 1D, 2C, and 2D, within the round granary and around it, yielded, after careful and lengthy restoration, about 80 complete vessels (Figure 8.252). Most of the pottery is indicative of the Persian periods and is described below (Figures 8.254-8.263).

## Bowls

Much of the pottery found in the granary area is residual and can be dated to the late Iron Age. However, it should be noted that some pottery forms continue without much change from the Iron IIC to the 6th century BCE and the early Persian period; this is generally true for a series of 16 complete bowls mentioned below. Several plain rounded bowls with thickened, flat rims and disk bases are illustrated (Figure 8.254a-e) and may also be dated to the Iron IIB-C (Persian parallels come, e.g., from 'Ein Gedi, Stern, 2007: fig. 5.2.1:12,13). Bowls with an everted rim, globular body, and rounded base appear in various forms in the reconstructed assemblage (Figure $8.254 \mathrm{~g}-\mathrm{i}$ ). These somewhat resemble Assyrian-style imitation bowls of the Iron IIB-C (see above) yet continue into the Persian period as well (see, e.g., Stern, 1973:98, bowl A5; see also Tel Mevorakh, Strata IV-VI [Stern, 1978: fig. 5:1] and Tell el-Hesi, Stratum Vd [Bennett and Blakely, 1989: fig. 141:20]). Unslipped globular bowls with slightly everted simple rims and disk bases (Figure 8.254jp) may be dated to the late Iron Age (see Tel 'Ira, Stratum VI

FIGURE 8.249. Pottery from Phase 1. NA= not available; us = unstratified. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Bowl | $3308 / 1$ | GM 3B P2 | us/1 |
| b | Bowl | $3308 / 2$ | GM 3B P2 | us/1 |
| c | Bowl/lamp? | RV 306 | GM 1A (5) 4 | 1 |
| d | Bowl/lamp? | RV 302 | GM 3B F1 | 1 |
| e | Bowl | NA | GM 2B P8 | 1 |
| f | Bowl? | $5449 / 2$ | GM 1A NBR (5) 2 | $1 / 3$ ? |
| g | Sherd | $5449 / 4$ | GM 1A NBR (5) 2 | $1 / 3$ ? |
| h | Krater(?); red slip | $5449 / 1$ | GM 1A NBR (5) 2 | $1 / 3$ ? |
| i | Cooking pot; soot | $6564 / 1$ | GM 1A (5A) 2 | 1 |
| j | Glazed pot/jar | RV 360 | GM 2C WBR PA | 1 |
| k | Glazed pot/jar | NA | GM 2B TT1 (2) | 1 |
| l | Glazed pot/jar | NA | GM 2B (8) | us |
| m | Krater(?) | $3042 / 1$ | GM 1A (6) 2 | $1 ?$ |
| n | Jar? | $3308 / 5$ | GM 3B P2 | us/1 |
| o | Handmade jar? | $3308 / 3$ | GM 3B P2 | us/1 |
| p | Handmade jar? | $3308 / 4$ | GM 3B P2 | us/1 |
| q | Bowl | $6785 / 1$ | GM 1A (1) 2 | Us |



FIGURE 8.250. Pottery from Phase 1 and Crusader-Mamluk pottery. NA = not available; us = unstratified.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Decorated jar | RV 305 | GM 1A TT1 (1) 1 | 1 |
| b | Decorated jar | NA | GM 2A (0) | us |
| c | Jar; red decoration | Box 11 | GM 2B (0) | us |
| d | Decorated sherd | Box 19/1 | GM 3B P2B | Unknown |
| e | Decorated handle | Box 330 | GM 2D P2D? | 1 |
| f | Handmade vessel | RV 323 | GM 2B SBR (5) | 1 |
| g | Handmade vessel | NA | GM 0B (0) | us |
| h | Handmade vessel | NA | GM 1A NBR (4) 2 | Unknown |
| i | Handmade vessel | NA | GM 1A TT4 (4) | 1 |
| j | Jug; handmade | RV 308 | GM 2A P2 | 1 |
| k | Handmade vessel | NA | GM 2B P2 | 1 |
| l | Jug(?) | $3042 / 2$ | GM 1A (6) 2 | $1 ?$ |
| m | Sherd; decorated | $6564 / 3$ | GM 1A (5A) 2 | 1 |
| n | Jug; decorated | $6785 / 2$ | GM 1A (1) 2 | us |



FIGURE 8.251. Pottery from Phase 1. us $=$ unstratified.

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Sherd; brown, green glaze | $6902 / 1$ | GM 1A (0a) | Us |
| b | Bowl; glazed (in) | Box 5/1 | GM 2A (0) | Us |
| c | Bowl; brown, yellow glaze | Box 5/2 | GM 2A (0) | Us |
| d | Worked base; green glaze | Box 19/2 | GM 3B Pit 2B | Unknown |
| e | Glazed spout? | Box 10/1 | GM 2B (11) | $3 ?$ |
| f | Plate; glaze | $6795 / 1$ | GM 2B (5A) 2 | Unknown |
| g | Jar/jug; whitish light clay | $6190 / 1$ | GM 1D EBR (1) | 1 |
| h | Pipe? | SI Cat. No. 478 | GM 2C P1 (4) | 1 |
| i | Krater; perforated before firing | $7125 / 2$ | GM 2A pit 3 | 1 |



FIGURE 8.252. Reconstructed pottery vessels from the granary fills.
[Freud, 1999: figs. 6.91:2, 6.92:2-9], Batash, Stratum II [Mazar and Panitz-Cohen, 2001: Type BL12], and Ashdod, Stratum VI [Dothan and Ben-Shlomo, 2005: fig. 3.105:1-4]). A deep, plain bowl with grooves under the rim and a concave base (Figure 8.254f) may recall Iron II bowls (see, e.g., Mazar and PanitzCohen, 2001: Types BL26a, BL37) but has parallels in the Persian period as well (see, e.g., Stern, 1973:97, bowl type A4; Tel Mevorakh, Strata IV-VI, Stern, 1978: fig. 5:3).

## Cooking Pots

Five complete cooking pots, reconstructed from this area, are illustrated (Figure 8.255 a-e). Generally, these are thin walled and
have a globular to sack-shaped body, rounded base, short neck, simple rim, and two somewhat flattened handles. Several of the pots have clear soot marks on the body (e.g., Figure 8.255d). Parallels come, e.g., from Tel Michal, Stratum VIII (Singer-Avitz, 1989a: fig. 9.5:11) and 'Ein Gedi (Stern, 2007:202, photos 5.2.7, Type 1; see Stern, 1973:102, cooking pot type A). One example (Figure 8.255a) has a higher neck and a capacity of 12 L ; parallels come, e.g., from 'Ein Gedi (Stern, 2007:202, photo 5.2.8, Type 2).

## Table Amphorae

Five complete or nearly complete table amphorae were reconstructed (Figure 8.256a-e). Of these, three or four (Figure

8.256c-e, possibly Figure 8.256a) have a vertical neck, slightly thickened, everted rim, two handles connected mid neck, a slightly carinated body, and a high ring base; in some cases soot marks are seen (Figure 8.256d,e). The fifth amphora (Figure 8.256b) has higher handles, a globular body, and a delicate ring base. These amphorae are somewhat similar to Iron IIC ridgedneck amphorae (see, e.g., Batash, Stratum II, Mazar and PanitzCohen, 2001:79-80, Type AM5). Persian period parallels come from Kadesh Barnea, Stratum 1 (Cohen and Bernick-Greenberg, 2007: fig. 11.134:1-4).

A cylindrical-bodied vessel (amphora or krater?) with high vertical basket handles and a ring base (Figure 8.255f) is nearly complete, with only the rim missing. Although the general shape of the upper part and basket handles resemble basket-handle amphorae from the same period, this vessel is clearly different (as the body and handles are much thinner and the vessel has a wide ring base); no parallels were found.

## Jars

A large number of reconstructed complete storage jars of various types were found in the granary area (Figures $8.256 \mathrm{f}-\mathrm{k}$, 8.257a-h, 8.258, 8.259a-c). Sack-shaped jars (Figure 8.256fi) are relatively short ( $40-60 \mathrm{~cm}$ high) and wide, have a short everted neck, thick handles on the shoulder, and a wide, slightly rounded base. This type can be found in Persian period sites, e.g., at 'Ein Gedi (Stern, 1973:105, jar type A), Tel Michal (SingerAvitz, 1989a: figs. 9.12:9, 14:5), and Horvat Rogem in the Negev (Cohen and Cohen-Amin, 2004: fig. 102:1). A narrower jar type
(Figures $8.256 \mathrm{j}, \mathrm{k}, 8.257 \mathrm{a}-\mathrm{h}$ ) has many complete examples and is somewhat similar; it is taller ( $50-70 \mathrm{~cm}$ high in most cases) and has a rounded to slightly pointed base. This form may be seen as a continuation of the late Iron II bag-shaped jar (see Type JR1) and is a common jar type in the Persian period in the southern Levant (see, e.g., Stern, 1973:107, jar type F; see also Tel Michal, Strata IX-VIII [Singer-Avitz, 1989a: figs. 9.3:1,2, 9.4, 9.5:1-8] and Horvat Rogem [Cohen and Cohen-Amin, 2004: fig. 102:4,6]).

A few more complete examples show a thickened rim, short or no neck, carinated shoulder, and pointed lower part and base (Figure $8.257 \mathrm{~b}, \mathrm{c}$ ). This form resembles the late Iron Age and Persian period Phoenician transport amphora (see above and Stern, 1973:111-112, jar types H6, H9; see also Tel Michal, Stratum VI [Singer-Avitz, 1989a: fig. 9.10:5,6] and Tel Keisan, Level 4 [Salles, 1980:143, fig. 41]). However, its shoulder is not as carinated as the Phoenician jars, and the body widens in the middle of the body; parallels come, for example, from Shiqmona, Stratum B (Elgavish, 1968: pl. LI:51), Tel Mevorakh, Strata IV-VI (Stern, 1978: fig. 6:8), Tel Keisan, Level 3 (Briend and Humbert, 1980: pl. 18:11), and Tel Michal, Stratum VIII (Singer-Avitz, 1989a: figs. 9.5:9, 9.14:10).

Possibly, the most common jar type reconstructed from the granary area is the type with a vertical neck, folded rim, sausageshape body, vertical handles on the shoulder, and elongated, tapering, hollow base (with eight complete examples, Figures 8.258, 8.259). One of the complete examples has a script mark incised after firing (Figure 8.259a; see Van Beek, 1989a; here see Figure 32.4 f; also, Figure 8.259 b is recorded to have such a sign). The capacity of complete examples is 29-43 L. The hollow tapering base

FIGURE 8.253. Unstratified pottery and other finds from various periods. BOR = Black on Red ware; Cyp. WPVI = Cypriot White Painted VI ware; Cyp. BRII = Cypriot Base Ring II ware; us = unstratified. (opposite)

| Part | Description | Bag/RV No. | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Jug, bichrome decoration (Cyp. WPVI) | Box 867 | GM 1B EBR (8) | 3 |
| b | Jug, black decoration (Cyp. BRII) | RV 204 | GM 2C W2 | 2?/3? |
| c | Jug, black decoration (Iron Age Cyp. WP/Bichrome) | Box 240 | GM 2B TT3 (20) | 4? |
| d | Juglet (BOR) | Box 868 | GM 2B P17 | Unknown |
| e | Bowl/chalice/stand | RV 721 | GM 0B (1) 1 | 3 |
| f | Basket handle | $7053 / 1$ | GM 2B (9) 1 | Unknown |
| g | Jar; white clay | $6168 / 1$ | GM 1D EBR (3) | Post 3 |
| h | Amphora | $7053 / 1$ | GM 2B (9) 1 | Unknown |
| i | Base; perforated | $4889 / 1$ | GM 00A F3 | Unknown |
| j | Juglet; white slip | $4109 / 1$ | GM 1E (1) | us |
| k | Decorated sherd | $337 / 1$ | GM 2D (10) 1 | Unknown |
| l | Bottle | $4530 / 1$ | GM 0B P8 (1) | Unknown |
| m | Krater | $998 / 1$ | GM 2C NBR (4) | Post 3 |
| n | Sherd | $5449 / 3$ | GM 1A NBR (5) 2 | 1/3? |
| o | Jar | $6308 / 1$ | GM 1B F5 I | 3/1? |
| p | Sherd | $7317 / 1$ | GM 2A F1 | 2?/us |
| q | Jug | $7337 / 1$ | GM 3B (2) | 3?/us |
| r | Jug | $7106 / 1$ | GM 2A (0) | us |
| s | Flask? | $7131 / 1$ | GM 2A (0) | us |
| t | Handle | $7131 / 2$ | GM 2A (0) | us |
| u | Base; white clay | $4889 / 2$ | GM 00A F3 | Unknown |



FIGURE 8.254. Unstratified bowls from Field IV (Persian period). NA = not available.

| Part | Description | SI Cat. No./RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl | SI Cat. No. 255 | GM 2C (0) |
| b | Bowl | SI Cat. No. 265 | GM 2C TT1 (1) |
| c | Bowl | SI Cat. No. 250 | GM 1C-2C |
| d | Bowl | SI Cat. No. 250.2 | NA |
| e | Bowl | SI Cat. No. 250.1 | NA |
| f | Bowl | RV 482 | GM 2A NBR (3) |
| g | Bowl | SI Cat. No. 285 | GM 2D TT2 (1) |
| h | Bowl | SI Cat. No. 292.1 | NA |
| i | Bowl | RV 513 (SI Cat. No. 292.2) | GM 2C |
| j | Bowl | SI Cat. No. 254 | GM 2D (+) |
| k | Bowl | SI Cat. No. 253 | GM 2D TT2 (1) |
| l | Bowl | SI Cat. No. 286 | GM 2C TT1 |
| m | Bowl | RV 512 (SI Cat. No. 292.3) | GM 1C P2 (7) |
| n | Bowl | SI Cat. No. 292 | GM 2C (0) |
| o | Bowl | SI Cat. No. 248 | GM 2C (+) |
| p | Bowl | SI Cat. No. 289 | GM 2D |



FIGURE 8.255. Unstratified pottery from Field IV (Persian period).

| Part | Description | SI Cat. No./RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Cooking pot | 281 | GM 1-2-C-D |
| b | Cooking pot; soot | 279.2 | NA |
| c | Cooking pot; soot | 279.1 | NA |
| d | Cooking pot | 256 | GM 1C-2C |
| e | Cooking pot | 279 | GM 2C-2D |
| f | Amphora/krater | 195 | GM 2C |

is cup shaped and often has a ridge on its upper part (e.g., Figure 8.258 d ). This type is somewhat similar to Stern's jar type G (Stern, 1973:109, fig.146). Better parallels, although usually fragmentary, come from Petrie's excavations at Jemmeh (Petrie, 1928: pl. LVI:47K), Tel Mevorakh (Stern, 1978: fig. 7:5), Horvat Rogem, Stratum I, Horvat Haro'eh in the Negev (Cohen and Cohen-Amin, 2004: figs. 102:5, 112), and possibly 'Ein Gedi (Stern, 2007: fig. 5.2.5:8). As noted, a sherd from one of the jars of this type (Figure 8.259a) carried a monogram reading 'bm ('Abum in south Arabian languages), a name known in both Sabean and Minean inscriptions (Van Beek, 1993a:673; see Figure 32.4f).

## Transport Amphorae

Amphorae have two handles attached to the rim or neck (distinguishing them from jars with handles attached to the shoulder or body). A complete amphora (Figure 8.257i) has a slightly swollen neck, two handles attached to the neck, an ovoid/pyriform body, and a short tapering base (see, e.g., Stern, 1973:115). This type might be imported or an imitation of an East Greek transport amphora (somewhat similar to Samian or Milesian amphorae; see, e.g., Cook and Dupont, 1998:170-177; Whitbread, 1995:122). Another complete amphora (Figure 8.259 d ) has a similar shape but a regular neck and higher shoulder. Other larger transport amphorae illustrated include several examples with ovoid bodies and thickened, bulbous, tapering bases (Figure 8.260a-c; see Petrie, 1928: pls. LIV: C196,A196, LVI: BC200). These forms are related to East Greek amphorae or their imitations (see, e.g., Stern, 1973:114-115; Briend and Humbert, 1980: pl. 15:17,22) and continue to appear in the early Hellenistic period. Vessels with a similar base type may belong to various types of Greek amphorae, such as Corinthian, Knidian, Chian, or Rhodian (see, e.g., Cook and Dupont, 1998:142-190; Whitbread, 1995).

Imported amphorae include several examples of East Greek decorated table amphorae (Figures 14.3-14.4) and a long, large double handle of a transport amphora (Figure 8.260d), probably of a Koan amphora (see, e.g., Whitbread, 1995:81-83, and references therein). A large quantity of Attic ware was found in Field

IV and is discussed in chapter 14. Several examples are illustrated here as well, including a complete lekythos (Figure 8.2621); many other fragments are discussed in chapter 14 (Figures 14.5-14.7).

One nearly complete basket-handle jar/amphora is illustrated (Figure 8.257j). The jar has no neck, an ovoid body with a very thick pointed base (not preserved in this example), and two high, vertical basket handles. Many of these vessels appear already in the 7th century BCE (see above various handle fragments), are usually made of light-buff clay, and are probably imported from Phoenicia or Cyprus. They appear throughout the southern Levant as well as Cyprus, Egypt, and Syria (see, e.g., Elgavish, 1968: pl. LVIII, Stern, 1973:11-14, basket jar type I; Briend and Humbert, 1980: pls. 23,24; Salles, 1980:138-139, fig. 40b; Singer-Avitz, 1989a:122, figs. 9.3:9, 9.13:18,19).

## Jugs and Juglets

A number of jugs and juglets were reconstructed from the squares of the granary area (Figures $8.260 \mathrm{e}-\mathrm{h}, 8.261,8.262 \mathrm{f}-\mathrm{i}$ ). A large jug type (Figure $8.260 \mathrm{e}-\mathrm{g}$ ) has an ovoid body and a vertical neck (shorter in Figure 8.262f, with a more globular body and rounded base; for parallels, see, probably, Stern, 1973:119, fig. 171, jug type E). Figure 8.260 g has a more unusual concave base (see, possibly, Tel Keisan, Level 4, Briend and Humbert, 1980: pl. 28:8). Jugs in Figure 8.261a,c,e are probably of the same type (for this type, see, possibly, Tel Michal, Stratum VI, Singer-Avitz, 1989a: fig. 9.10:9). Figure 8.261b is somewhat similar but has a wider neck and thicker disk base. Smaller jugs have a sack-shaped body (Figure 8.260 h ) with an everted rim and rounded base, and the handle is attached to the middle of the body; see Stern's jug type F (Stern, 1973:119, fig. 172) and Tel Mevorakh, Strata IV-VI (Stern, 1978: fig. 9:1). A common jug type has a globular body, narrow neck, and flat base (Figure 8.261f-h). This type was discussed in Phase 3 above (Figures 8.230c, 8.231a-c; see recent parallels at the Mizpe Yammim sanctuary, Berlin and Frankel, 2012:38, fig. 19). Figure 8.261 k is similar but is narrower and has a thicker base (see, e.g., Shiqmona, Stratum B [Elgavish, 1968: pl. VII:134] and Mizpe Yammim [Berlin and Frankel, 2012: fig. 25:4]).

FIGURE 8.256. Unstratified pottery (jars and amphorae) from Field IV (Persian period). NA = not available. (opposite)

| Part | Description | SI Cat./RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Amphora | SI Cat. No. 296.2 | NA |
| b | Amphora | SI Cat. No. 296 | GM 2C-2D |
| c | Amphora | SI Cat. No. 296.1 | NA |
| d | Amphora | SI Cat. No. 278 | GM 1C-2C |
| e | Amphora | SI Cat. No. 278.1 | GM 1C-1D |
| f | Jar | RV 998 (SI Cat. No. 397) | GM 2D |
| g | Jar | RV 972 (SI Cat. No. 395) | GM 1-2-C-D |
| h | Jar | RV 967 (SI Cat. No. 395.1) |  |
| i | Jar | RV 990 (SI Cat. No. 395.2) |  |
| j | Jar | RV 368 (SI Cat. No. 291.2) | GM 1C P2 NBR (6-7) |
| k | Jar | SI Cat. No. 194.1 |  |




FIGURE 8.257. Unstratified pottery (jars and amphorae; Persian period).

| Part | Description | RV/Cat. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jar | RV 994 (SI Cat. No. 194) | GM 1C-1D |
| b | Jar | RV 987 (SI Cat. No. 298) |  |
| c | Jar | RV 568 (SI Cat. No. 298.1) | GM 2C |
| d | Jar | RV 969 (SI Cat. No. 291.1) |  |
| e | Jar | RV 369 (SI Cat. No. 291.3) | GM 2C-2D |
| f | Jar | SI Cat. No. 291 | GM 1-2-C-D |
| g | Jar | RV 672 (SI Cat. 194.2) | GM 1C-1D |
| h | Jar | RV 618 (SI Cat. 273.2) | GM 1C-1D |
| i | Amphora | RV 989 (SI Cat. No. 297) | GM 1-2-C-D |
| j | Amphora | SI Cat. No. 196 | GM 2D TT2 (1) |



FIGURE 8.258. Unstratified pottery (jars and amphorae; Persian period). NA= not available.

| Part | RV No. | Provenance |
| :--- | :--- | :--- |
| a | RV 966 (SI Cat. No. 299) | GM 1-2-C-D |
| b | RV 978 (SI Cat. No. 292.2) | NA |
| c | RV 672A (SI Cat. No. 273) | NA |
| d | RV 968 (SI Cat. No. 273.1) | NA |



FIGURE 8.259. Unstratified pottery (jars and amphorae; Persian period).

| Part | Description | SI Cat./RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Amphora; incised sign on body | RV 673 (SI Cat. No. 313.1) |  |
| b | Amphora; incised sign on body? | SI Cat. No. 394 | GM 1C-1D |
| c | Amphora | SI Cat. No. 274 |  |
| d | Amphora | RV 988 (SI Cat. No. 297.1) |  |
| e | Amphora | RV 637 (SI Cat. No. 299.1) | GM 2C-2D |



FIGURE 8.260. Unstratified pottery (jugs and juglets; Persian period). BR= balk removal.

| Part | Description | RV/Cat. No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Amphora | RV 574 (SI Cat. No. 398) | GM 1D-2D |
| b | Amphora | RV 595 (SI Cat. No. 193.9) | GM 2C |
| c | Amphora | RV 597 (SI Cat. No. 193) | GM 2C-2D |
| d | Amphora handle (Kos?) | RV 567 (SI Cat. No. 199) | GM 2D (1) |
| e | Jug; soot | SI Cat. No. 262 | GM 2C BR (1) |
| f | Jug | RV 971 (I Cat. No. 293) | GM 1D-2D |
| g | Jug | RV 985 (SI Cat. No. 259) | GM 2C-2D |
| h | Jug; soot | SI Cat. 263 | GM 2C TT1 (0) |



FIGURE 8.261. Unstratified pottery (jugs and juglets; Persian period). NA = not available.

| Part | Description | SI Cat./RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| A | Jug | SI Cat. No. 277 | GM 2C-2D |
| B | Jug | SI Cat. No. 393 | GM 2C |
| C | Jug; soot | SI Cat. No. 280 | GM 2C-2D |
| D | Jug/juglet | SI Cat. No. 391 | GM 2C |
| E | Jug | RV 490 (SI Cat. No. 393.1) | GM 2C NBR (1-3) |
| F | Jug/juglet | SI Cat. No. 258 | GM 1D-2D |
| G | Juglet | SI Cat. No.359.1 | NA |
| H | Jug/juglet | SI Cat. No. 359 | GM 2C (0) |
| I | Jug/juglet | SI Cat. No. 309 | GM 2C NBR (3) |
| J | Jugglet | SI Cat. No. 258.1 | NA |
| K | Juglet | SI Cat. No. 318.1 | NA |

A complete dipper juglet with a high handle is illustrated (Figure 8.261d); it has a wide vertical neck and globular body. Similar juglets with high handles but narrower necks are known from the Persian period (e.g., Stern, 1973:120, fig. 177, jug type J ), yet this form may be more related to the cup types (see, e.g., Shiqmona [Stern, 1973:127, fig, 193] and Tel Michal, Stratum XI [Singer-Avitz, 1989a: fig. 9.1:21]). Several complete or nearly complete dipper juglets (Figure $8.262 \mathrm{f}-\mathrm{i}$ ) have a pyriform body, everted neck, and flat base. As noted above, this could be either a late Iron II or a Persian period type (Stern, 1973:121-132,
dipper juglet type 2; Berlin and Frankel, 2012:41, fig. 22). Figure $8.262 \mathrm{j}, \mathrm{k}$ shows possibly necks or juglets with a thickened rim (see Berlin and Frankel, 2012: figs. 24, 25).

## Flasks

Several complete flasks reconstructed from the granary area include a large flask (Figure 8.263a) that has a lentoid shape and burnish on the body; the capacity is 5 L . Parallels can be found at, e.g., Tel Michal (Singer-Avitz, 1989a: fig. 9.13:16) and 'Ein


FIGURE 8.262. Unstratified pottery from Field IV (Persian period). NA = not available.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Jar; fine orange clay (imported?) | $6175 / 1$ | GM 2C (8) |
| b | Amphora | $6224 / 1$ | GM 2C (10) 2 |
| c | Jar/jug; whitish light clay | $6160 / 1$ | GM 2C BR (9) |
| d | Jug/flask; decorated | NA | GM 2D (2) |
| e | Decorated amphora; East Greek | NA | GM 2A (20) |
| f | Juglet | SI Cat. No. 257 | GM 2D (2) |
| g | Juglet | SI Cat. No. 260 | GM 2C (1) |
| h | Juglet | SI Cat. No. 257.1 |  |
| i | Juglet | RV 163 (SI Cat. No. 331) | GM 2A WBR (0) |
| j | Jug? | NA | GM 2C (10a) |
| k | Jug? | SI Cat. No. 318.4 | GM 2D SBR (+) |
| l | Jug/lekithos? | SI Cat. No. 198 | GM 1C-1D |
| m | Stand | RV 1008 | GM 1C (19) 4 |
| n | Stand | SI Cat. No. 283 | GM 2C (5) 2 |
| o | Stand | RV 991 (SI Cat. No. 249) | GM 1D EBR (2) |
| p | Lamp | SI Cat. No. 396 | GM 2C NBR (9) |



FIGURE 8.263. Unstratified flasks and lamps (Persian period). NA = not available.

| Part | Description | SI Cat./RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Flask; burnish | SI Cat. No. 290 | GM 2C-2D |
| b | Flask | SI Cat. No. 282 | GM 2C (2-3) |
| c | Flask | SI Cat. No. 269 | GM 1C P2 EBR (5) |
| d | Flask | SI Cat. No. 269.1 | NA |
| e | Lamp | RV 409 (SI Cat. No. 272) | GM 3B (1) |
| f | Lamp | SI Cat. No. 267 | GM 2C (0) |
| g | Lamp | SI Cat. No. 216 | GM 2D (2) 8 |

Gedi (Stern, 2007:207, photo 5.2.20, fig. 5.2.8). Smaller flasks have a similar shape (Figure $8.263 \mathrm{~b}-\mathrm{d}$ ), although they have a slightly flatter body.

## Lamps

A lamp with a thin, flat base (Figure 8.262 p) is also probably a local Persian type (see, e.g., Tel Michal, Stratum VIII, Singer-Avitz, 1989a: fig. 9.7:6,7). At least three complete closed lamps were also found in the granary area (Figure $8.263 \mathrm{e}-\mathrm{g}$ ). This type of lamp covered with red or dark slip is an imitation of an Attic type, appears during the Persian and early Hellenistic
periods, and was discussed above in Phase 3 (Figure 8.242 k ). A complete lamp with two spouts (Figure 14.10a) from Sq. 0B, Pit 4 is an unusual type; it is covered with glossy red slip and is dated to the early 5 th century BCE (see chapter 14, Cat. Nos. 383-391 and Figure 14.10b-e).

## Hellenistic Period Pottery

Several vessels typical of the Hellenistic period were found in unstratified contexts and in Phase 1 contexts (Figure 8.264). These attest to the existence of this period at the site, yet no architecture can be clearly associated with this period. These


FIGURE 8.264. Unstratified pottery from Field IV (Hellenistic period). EGR= East Greek; NA = not available.

| Part | Description | Bag/RV No. | Provenance |
| :--- | :--- | :--- | :--- |
| a | Bowl; black slip | SI Cat No.. 251 | GM 2C N2 |
| b | Bowl; black slip | SI Cat. No. 252 | GM 2D (+) |
| c | Bowl; black slip, molded decoration | NA | GM 2C (3) 2 |
| d | Amphora; Rhodian? | RV 562 (SI Cat. No. 191) | GM 2C (8) |
| e | Amphora; EGR? | RV 794 (SI Cat. No. 192.5) | GM 1C P2 EBR (5) |
| f | Amphora, Rhodian? | RV 771 (SI Cat. No. 191.1) | GM 2C TT1 (8) |
| g | Amphora, Rhodian? | RV 793 (SI Cat. No. 192.4) | GM 1D EBR (2) |
| h | Amphora, EGR? | Cat. 292 (SI Cat. No. 192) | GM 2C NBR (3) |
| i | Juglet/unguentarium? | $3213 / 2$ | GM 1D P1 (1) |
| j | Unguentarium | $3213 / 1$ | GM 1D P1 (1) |
| k | Unguentarium | RV 770 (SI Cat. No. 318.3) | GM 2C NBR (3) |
| l | Unguentarium; red decoration | RV 539 | GM 2C NBR (4) |
| m | Unguentarium | $7125 / 1$ | GM 2A P3 |

include small bowls with inverted rims, ring bases, and inner and outer glossy black slip (Figure 8.264a,b; see also chapter 14, Figure $14.9 \mathrm{~h}-\mathrm{k}$, Cat. Nos. 371-381). This is a form known from the Persian and mostly Hellenistic periods (e.g., Ashdod [Dothan, 1971: fig. 15:11,12], Apollonia-Arsuf [Tal, 1999: fig. 4.42], and Maresha [Levine, 2003: fig. 6.2:37]). A molded bowl (Figure 8.264c) can also be dated to the Hellenistic period. It has a vegetative motif on its inner part and is probably an Attic import (see chapter 14). Several amphorae fragments may be dated to the Hellenistic period as well (Figure 8.264d-h), especially those with a triangular, thick rim and long, vertical handles (Figure $8.264 \mathrm{~g}, \mathrm{~h}$ ), which are possibly Knidian or Rhodian amphorae (see, e.g., Grace, 1979; Finkielsztejn, 2001) dated to the 4th century BCE. A stamped amphora handle fragment found in the Sq. 2C west balk (Figure 20.7i) comes from Knidos on the east Aegean coast. The impression reads ПА $\Theta$ and is dated by Monakhov (1999) to the mid-4th century BCE. No Rhodian stamped handles were identified at Tell Jemmeh. Another hallmark of the Hellenistic periods is the fusiform unguentaria (Figure 8.264i-m;
for this type, see, e.g., Anderson-Stojanovic, 1987; Rotroff, 2006); examples come, e.g., from Ashdod (Dothan, 1971: figs. 18:4-10, 79:10-16, 99:19-26; Dothan and Ben-Shlomo, 2005: fig. 3.113:11), and Maresha (Regev, 2003:171-172, forms 4148), as well as practically every other Hellenistic site in the Levant. A coiled handle (Figure 8.253t) is possibly also Persian/ Hellenistic in date (see Gezer [Gitin, 1990: pl. 47:4] and Maresha [Levine, 2003: fig. 6.12:116, an imported lagynos]).

## Byzantine and Islamic Pottery

Notably, no late Hellenistic, Roman, or early Byzantine pottery was found at the site, leaving a gap of about 600-700 years. The Byzantine and early Islamic period is not well represented at the site, yet remains come from the southern trench (ST1; see chapter 5) and a nearby site published by Schaefer (1989). Late Byzantine or early Islamic sherds may include sherds with combing decoration (Figure 8.253m,n; see Magness, 1993:206-211; Avissar and Stern, 2005: fig. 36:1-3) and ribbed body fragments
of jars (Figure 8.253o,p). A jug/flask neck (Figure 8.253s), possibly a jug with swollen neck, has a Mamluk date (e.g., Avissar and Stern, 2005:108, fig. 45:4-6). Other pottery fragments of unclear dating are a jar handle made of whitish clay (Figure 8.253 g ), a jug with a handle with a grooved section (Figure 8.253r), and a jug with a thin, dented handle (Figure 8.253q).

## SUMMARY OF THE RESULTS FROM FIELD IV

Field IV represents the largest exposure at the Smithsonian excavation at Tell Jemmeh. Nevertheless, only two periods are represented by significant architectural remains: the Iron II (Phases 7-5) and post-Iron Age remains, probably dated mostly to the Persian period (Phases 4-3). The Iron IIA is represented in very limited exposures by Phases 11-9. This exposure indicates mud brick structures and installations. Most of the pottery from these phases indicates the later part of the Iron IIA (ca. 9th century BCE). The earlier Iron IIA (10th century BCE) and the Iron IB are represented only by some residual sherds. The large exposure of the Iron IIB-C, Phases 7-5, includes massive mud brick structures, probably at least three different buildings, although they are related to each other. These buildings attest to sophisticated masonry techniques, including vaulted arches. The pottery from Phases 7-6 indicates an Iron IIB date, with a mixture of coastal (late Philistine) and southern affinities.

In particular, large structures with two preserved stories were unearthed in the upper Iron Age Phase 5. Building I illustrates the brick and vaulting building techniques that have Assyrian affinities. In this phase, a large assemblage of Assyrian-style pottery was found as well. The pottery assemblage of Phase 5 is similar in many ways to that of Phases 6 and 7, but the appearance of a few new types and the decrease in typical Iron IIB types
and surface treatment indicate an Iron IIC date (possibly early 7th century BCE).

Above the Phase 5 remains, the rounded granary was found. It is difficult to date this structure, which is allocated to either Phase 4 and/or Phase 3. The structure seems to be after the vaulted buildings, but it could also date to the late 7th century BCE, the 6th century, or to the early Persian period (the 5th century BCE). Otherwise, only scanty remains from Phases 4-2 were unearthed. The pottery assemblage from these contexts, in addition to reconstructed vessels from unstratified contexts in the vicinity of, inside, or above the granary, indicates a Persian period date, mostly the 5th and 4th centuries BCE; a few late Persian-Hellenistic vessels (4th-3rd centuries BCE) were also found. Notably, all five coins identified at the site, which were found in unstratified contexts (see chapter 30), are dated to Alexander the Great's days or slightly later, i.e., the late 4th and possibly early 3 rd centuries BCE. Phase 1 includes several large pits, which contains Crusader-Mamluk-dated pottery and probably represent quarrying activities from this period.

## AUTHOR NOTE

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## NOTE

[^2]
## APPENDIX 8.1

TABLE 8.A1. List of contexts of Field IV. The notation $\{x x\}$ indicates the year of excavation when the layer number is repeated in various seasons. Recording of elevations was not systematic. In some cases only the upper or lower elevation was recorded, and in others it is questionable. Bld = building.

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 0A (0) | Topsoil |  |  | None |  |  |
| GM 0A (1) | Fill |  |  | None |  |  |
| GM 0A (2) | Fill |  |  | None |  |  |
| GM 0A (3) | Fill |  |  | 3-4 |  |  |
| GM 0A (4-4A) | Fill |  |  | 3-4 |  |  |
| GM 0A (5) | Fill | 60.68 |  | 3-4 | Unit 3 |  |
| GM 0A (6) | Fill |  | 60.68 | 3-4 | Unit 3 |  |
| GM 0A (6A) | Fill |  |  | 3-4 | Unit 3 |  |
| GM 0A (6C) | Fill |  |  | 3-4 | Unit 3 |  |
| GM 0A (7) | Wash |  |  | 4-5 |  |  |
| GM 0A (7A) | Fill |  |  | Unknown |  |  |
| GM 0A (8) | Fill | $\sim 59.40$ | $\sim 59.95$ | 5 | Bld I, Room E | Fallen vaults |
| GM 0A (9) | Fill |  | $\sim 59.40$ | 5 | Bld I, Room E |  |
| GM 0A F1 | Bricks |  |  | 3-4 | Unit 3 |  |
| GM 0A F2 | Vaulting |  | 60.50? | 5 | Bld I, Room F/E |  |
| GM 0A F3 | Wall? |  |  | 3-4 | Unit 3 |  |
| GM 0A F4 | Pebbles |  | 60.92? | 3-4 | Unit 3 |  |
| GM 0A W1 | Wall |  | 61.08 | 3-4 | Unit 3 | Brick wall |
| GM 0A W2 | Wall |  |  | Unknown | Bld I? | Brick wall |
| GM 0A P1 | Pit |  |  | Unknown |  |  |
| GM 00A (0) | Topsoil | 60.84 | 61.13 | None |  |  |
| GM 00A (1) | Fill |  |  | None |  |  |
| GM 00A (2) | Fill |  |  | None |  |  |
| GM 00A (3) | Fill |  |  | None |  |  |
| GM 00A (4) | Fill | 60.16 |  | None |  |  |
| GM 00A (4A) | Fill |  |  | None |  |  |
| GM 00A (5) | Fill |  | 61.04 | None |  |  |
| GM 00A (6) | Fill |  |  | 5 ? |  |  |
| GM 00A (7) | Fill |  | 60.13 | 5 | Outside Bld I |  |
| GM 00A (7A) | Fill |  |  | 5 | Outside Bld I |  |
| GM 00A (7B) | Fill |  |  | 5 | Outside Bld I |  |
| GM 00A (7C) | Fill |  |  | 5 | Outside Bld I |  |
| GM 00A (8) | Fill |  |  | 5 | Outside Bld I |  |
| GM 00A (5) 2 | Fill |  |  | $5 ?$ |  |  |
| GM 00A (6) 2 | Fill |  |  | 5 ? |  |  |
| GM 00A (1) 3 | Debris and fill | 58.11 | $\sim 60.30$ | 5 | Bld I, Room F |  |
| GM 00A F1 | Tin can |  |  | None |  | Tin can in Layer 4 |
| GM 00A F2 | Bricks |  |  | Unknown |  | In P1 |
| GM 00A F3 | Pit |  |  | Unknown |  |  |
| GM 00A F4 | Vaulting |  |  | 5 | Bld I, Room F |  |
| GM 00A F5 | Bricks |  | 60.26 | 5 | Bld I | Bricks capping FT F6 |
| GM 00A F6 | Foundation trench |  | 5 | Bld I | FT of W1 |  |
| GM 00A F7 | Unknown |  |  | Unknown |  |  |
| GM 00A W1 | Wall | $\sim 58.12$ | 60.28 | 5 | Bld I | Brick wall |
| GM 00A W2 | Wall | $\sim 58.12$ | 59.83 | 5 | Bld I Room F | Brick wall |
| GM 00A P1 | Pit |  | 60.32 | Unknown |  |  |

TABLE 8.A1 (continued)

| Context | Context type | Lower <br> level $(\mathrm{m})$ | Upper <br> level $(\mathrm{m})$ | Phase | Architecture | Notes |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| GM 00A P2 | Pit | 60.19 |  | Un |
| :--- | :--- | :--- | :--- | ---: |
| GM 00A P3 | Pit | 60.16 |  | Un |
| GM 00A P3A | Pit | 60.07 |  | Un |
| GM 00A P4 | Pit | 60.23 | 60.42 | P |
| GM 00A P5 | Pit | 60.02 |  | Un |
| GM 00A P6 | Pit | 60.16 |  |  |
| GM 00A P7 | Pit | 60.33 |  | 60.68 |
| GM 00A P8 | Pit | 60.13 |  |  |
| GM 00A P9 | Pit | 59.96 | 60.32 | Un |

Unit 1
Unit 1
Unit 2
Unit 2
Unit 2
Unit 1
Unit 1
Unit 1
Unit 1
Unit 2
Unit 1
Unit 2
Unit 2
Unit 2 (Locus 3)
Unit 1?
Unit 1?
Unit 1?

Locus 4
Locus 4
Locus 4
Bld I?
Bld I?

| GM 0B TT3 (12) 4 | Fill | 5 | Locus 4 |
| :--- | :--- | :--- | :--- |
| GM 0B TT3 (13) 4 | Fill | 5 | Locus 4 |
| GM 0B TT3 (14) 4 | Fill | 5 | Locus 4 |
| GM 0B TT3 (15) 4 | Fill | 5 | Locus 4 |
| GM 0B TT3 (16) 4 | Fill | 5 | Locus 4 |
| GM 0B TT3 (17) 4 | Fill | 5 | Locus 4 |
| GM 0B TT3 (18) 4 | Fill | 5 | Locus 4 |

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 0B TT3 (19) 4 | Fill |  |  | 5 | Locus 4 |  |
| GM 0B TT3 (20) 4 | Fill |  |  | 5 | Locus 4 |  |
| GM 0B TT3 (21) 4 | Fill |  |  | 5 | Locus 4 |  |
| GM 0B (13A) 4 | Fill |  |  | 5 | Bld I, Room F? |  |
| GM 0B (14A) 4 | Fill |  |  | 5 | Bld I, Room F |  |
| GM 0B (15A) 4 | Fill |  |  | 5 | Bld I, Room F? |  |
| GM 0B (16A) 4 | Fill |  |  | 5 | Bld I, Room F? |  |
| GM 0B (6) 2 \{73) | Fill |  |  | 5 | Under Unit 2 |  |
| GM 0B (7) 2 \{73) | Fill |  |  | 5 | Under Unit 2 |  |
| GM 0B F1 | Wall | 60.59 | 61.20 | 3-4 | Unit 1 | Wall 5? |
| GM 0B F2 | Wall | 60.58 | 60.62 | 5 ? | Locus 4? |  |
| GM 0B F3 | Bricks |  |  | 5 | Locus 4 |  |
| GM 0B F4 | Foundation trench |  |  | 5 | Locus 4 | FT of W3 |
| GM 0B F5 | Vaulting |  |  | 5 | Bld I, Room F |  |
| GM 0B P1 | Pit |  |  | ? |  |  |
| GM 0B P2 | Pit |  |  | 4 ? | Unit 2? |  |
| GM 0B P3 | Pit |  |  | 4 ? | Unit 2? |  |
| GM 0B P4 (1) | Pit |  | $\sim 60.50$ | 4/1? |  |  |
| GM 0B P4 (2) | Pit |  |  | 4 ? |  |  |
| GM 0B P4 (3) | Pit |  |  | 4 ? |  |  |
| GM 0B P4 (4) | Pit |  |  | 4 ? |  |  |
| GM 0B P4 (5) | Pit |  |  | 4 ? |  |  |
| GM 0B P4 (6) | Pit | 60.10 |  | 4 ? |  |  |
| GM 0B P4 (6A) | Pit |  |  | 4 ? |  |  |
| GM 0B P4 (6B) | Pit |  |  | 4 ? |  |  |
| GM 0B P4 (7) | Pit | 60.10 |  | 4 ? |  |  |
| GM 0B P4 (8) | Pit |  |  | 4 ? |  |  |
| GM 0B P5 | Pit |  |  | Post 5 |  |  |
| GM 0B P6 | Pit | 58.86 | 59.13 | 4 ? |  |  |
| GM 0B P7 (1) | Pit? |  |  | 5 ? |  |  |
| GM 0B P8 (1) | Pit |  |  | Unknown |  |  |
| GM 0B P8 (2) | Pit |  |  | Unknown |  |  |
| GM 0B P8 (3) | Pit |  |  | Unknown |  |  |
| GM 0B P8 (4) | Pit |  |  | 5 ? |  |  |
| GM 0B W1 | Wall | 60.78 | 61.16 | 3 |  | Brick wall |
| GM 0B W2 2 | Wall | 60.79 | 60.93 | 4/3 |  | Brick wall |
| GM 0B W3 2 | Wall | 59.14 | 60.87 | 5 | Bld I, Room F | Brick wall |
| GM 0B W4 | Wall |  | 60.93 | 4/3 | Unit 2 | Partition wall |
| GM 0B W5 | Wall | 60.59? | 60.88 | Unknown |  | Brick wall |
| GM 0B W5A | Wall |  |  | 5 | Bld I, Room F | Brick wall |
| GM 0B W6 | Wall | 58.06 | 58.81 | 5 | Bld I, Room F | Brick wall |
| GM 00B (0) | Topsoil | 61.23 |  | None |  |  |
| GM 00B TT1 (1) | Fill |  | 61.23 | None? |  |  |
| GM 00B TT1 (1A) | Fill |  |  | Unknown |  |  |
| GM 00B TT1 (2) | Fill |  |  | Unknown |  |  |
| GM 00B TT1 (3) | Wash | 60.92 |  | Unknown |  |  |
| GM 00B TT1 (4) | Fill |  | 60.92 | 2-3? |  |  |
| GM 00B (1) 1 | Fill | 60.97 |  | 3 | Unknown |  |
| GM 00B (2) 1 | Fill |  | 60.97 | 3 | Unknown |  |

TABLE 8.A1 (continued)
$\left.\begin{array}{lccccc}\hline & & \text { Lower } \\ \text { Context } & \text { Context type } & \begin{array}{c}\text { Upper } \\ \text { level (m) }\end{array} & & & \\ \text { level (m) }\end{array}\right)$

TABLE 8.A1 (continued)
$\left.\begin{array}{lcccc}\hline & & & & \\ \text { Context } & \text { Coner }\end{array} \begin{array}{c}\text { Upper } \\ \text { level (m) }\end{array}\right)$

TABLE 8.A1 (continued)
$\left.\begin{array}{lccccc}\hline & & \text { Lower }\end{array} \quad \begin{array}{c}\text { Upper } \\ \text { level (m) }\end{array}\right)$

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 1A (11) 6 | Fill |  |  | 4 ? |  |  |
| GM 1A (12) 6 | Fill |  |  | 4 ? |  |  |
| GM 1A (1,1A) 7 | Fill |  |  | 3 ? |  |  |
| GM 1A (1B) 7 | Fill |  |  | Unknown |  |  |
| GM 1A (2) 7 | Fill |  |  | 3?-4? |  |  |
| GM 1A (3) 7 | Fill |  |  | $3 ?-4$ ? |  |  |
| GM 1A (4,4A,4B) 7 | Fill |  |  | 4 |  |  |
| GM 1A $(5,5 \mathrm{~A}) 7$ | Fill |  |  | 4 |  |  |
| GM 1A (6) 7 | Fill |  |  | 4 |  |  |
| GM 1A (7) 7 | Fill |  |  | 4 |  |  |
| GM 1A (8,8A) 7 | Fill | 60.38 | 60.45 | 4 |  |  |
| GM 1A (8B) 7 | Fill/floor? | 60.32 | 60.40 | 4 |  |  |
| GM 1A (8C) 7 | Fill/floor? | 60.32 |  | 4 |  |  |
| GM 1A (9) 7 | Fill |  |  | 4 |  |  |
| GM 1A (10,10A) 7 | Fill |  |  | 4 |  |  |
| GM 1A (11) 7 | Fill |  |  | 4 |  | Equals (7B) 8 |
| GM 1A (12) 7 | Fill | 59.53 |  | 5 ? | Bld I, Room C? |  |
| GM 1A $(6,6 \mathrm{~A}) 7 \mathrm{~A}$ | Fill | 60.08 |  | 4 |  |  |
| GM 1A (7) 7A | Fill |  | 59.99 | 4 |  |  |
| GM 1A (8) 7A | Fill |  |  | 4 |  |  |
| GM 1A (9) 7A | Fill |  |  | 4 |  |  |
| GM 1A (10) 7A | Fill |  |  | 4 |  |  |
| GM 1A (10) 7A | Fill |  |  | 4 |  |  |
| GM 1A (7) 7B | Fill |  | 60.20 | 4 |  |  |
| GM 1A (8) 7B | Fill |  |  | 4 |  |  |
| GM 1A (9) 7B | Fill |  |  | 4 |  |  |
| GM 1A TT5 (1) | Fill | 59.94 | 60.24 | 4 |  |  |
| GM 1A TT5 (2) | Fill | 59.64 |  | 4 |  |  |
| GM 1A TT5 (2A) | Fill | 59.64 | 60.17 | 4 |  |  |
| GM 1A TT5 (3) | Fill |  |  | 4-5 |  |  |
| GM 1A F1/P9 7 | Pit | 59.89 | 60.83 | Unknown |  |  |
| GM 1A F2 7 | Ash pocket | 59.55 | 59.68 | Unknown |  |  |
| GM 1A TT6 (1) | Fill |  | 59.70 | 4 ? |  |  |
| GM 1A TT6 (2) | Fill | 59.05 | 59.63 | 4? |  |  |
| GM 1A TT7 (1) | Fill |  | 60.05 | 4 ? |  |  |
| GM 1A TT8 (1) | Fill |  | 60.09 | 4 ? |  |  |
| GM 1A (1,1A) 8 | Fill | 59.15 | 59.60 | 4-5 |  |  |
| GM 1A (2) 8 | Fill | 58.38 | 59.60 | 5 | Bld I, Room B |  |
| GM 1A (3) 8 | Debris | 59.22 | 59.50 | 5 | Bld I, Room B |  |
| GM 1A (4) 8 | Debris/floor | 59.15 | 59.32 | 5 | Bld I, Room B |  |
| GM 1A TT9 (1) | Fill |  |  | 5 |  | Fill under Silo 5 |
| GM 1A F1 (2) 8 | Bricks |  |  | 5 |  |  |
| GM 1A F2 (2) 8 | Ash pocket |  | 59.82 | 5 ? |  |  |
| GM 1A F3 (2) 8 | Bricks |  | 59.90 | 5 |  |  |
| GM 1A F4 (2) 8 | Pit/hole |  |  | None? |  | Disturbance |
| GM 1A TT10 (1) | Fill | 58.50 | 58.90 | 5 | Bld I, Room B |  |
| GM 1A TT10 (2) | Debris | 58.22 | 58.47 | 5 | Bld I, Room B |  |
| GM 1A (1) 9 | Doorway |  | 60.39 | 5 | Bld I, Room B |  |
| GM 1A (2) 9 | Doorway (debris) | 58.22 | 60.39 | 5 | Bld I, Room B | Debris in doorw |

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 1A (3) 9 | Doorway (debris) | 58.22 |  | 5 | Bld I, Room B | Debris in doorway Room B |
| GM 1A (4) 9 | Doorway (fill) |  |  | 5 | Bld I, Room B | Fill in doorway |
| GM 1A (5) 9 | Doorway (fill) |  |  | 5 | Bld I, Room B | Fill in doorway |
| GM 1A (6) 9 | Doorway (fill) |  |  | 5 | Bld I, Room B | Fill in doorway |
| GM 1A (7) 9 | Doorway (fill) |  |  | 5 | Bld I, Room B | Fill in doorway |
| GM 1A (1) 10 | Fill |  |  | 5 | Bld I, Room E | Fill under Room E vault? |
| GM 1A (1A) 10 | Fill |  |  | 5 | Bld I, Room E? |  |
| GM 1A (2) 10 | Fill |  |  | 5 | Bld I, Room E? |  |
| GM 1A (3) 10 | Fill |  |  | 5 | Bld I, Room E? |  |
| GM 1A (4) 10 | Fill |  |  | 5 | Bld I, Room E? |  |
| GM 1A F1 10 \{73\} | Tabun? |  |  | 5 | Bld I, Room E |  |
| GM 1A W1 | Wall | 61.74 | 61.82 | 2 |  | Brick wall |
| GM 1A W1A | Wall |  | 62.04 | 3 ? |  | Brick wall |
| GM 1A W1B | Wall |  | 61.49 | 3 |  | Brick wall |
| GM 1A W1C | Wall |  |  | 3 |  | Brick wall |
| GM 1A W2 | Wall | 60.70 | 61.50 | 2-3? |  | Brick wall |
| GM 1A W3 | Wall |  | 60.99 | 3 |  | Brick wall |
| GM 1A W4 | Wall | 59.00 | 60.90 | 5 | Bld I, Room B | Brick wall |
| GM 1A W5 | Wall | 58.20 | 60.46 | 5 | Bld I, Room B | Brick wall |
| GM 1A W6 | Wall | 60.91 | 61.28 | 3 |  | Brick wall |
| GM 1A W7 | Wall |  | 60.05 | 5 | Bld I, Room B | Brick wall |
| GM 1A W8 | Wall |  | 58.87 | 5 | Bld I, Room B/E ? | Brick wall |
| GM 1A W8A | Wall | 58.21 | 59.67 | 5 | Bld I, Room B/C | Brick wall |
| GM 1A W8B | Wall |  | 58.85 | 5 | Bld I, Room C | Brick wall |
| GM 1A-0A TT11 (0) | Topsoil |  |  | None |  |  |
| GM 1A-0A TT11 (1) | Fill |  |  | None? |  |  |
| GM 1A-0A TT11 F1 (1) | Pit |  |  | None? |  | Pit 1 |
| GM 1A-0A TT11 (2) | Pit |  |  | None? |  | Pit 2 |
| GM 1A-0A TT11 P2(1) | Pit |  |  | None? |  | Pit 3 |
| GM 1A-0A TT11 F2 (1) | Stones | 60.92 |  | 3 ? |  |  |
| GM 1A-0A TT11 F3 (1) | Bricks |  | 59.91 | 5 ? |  |  |
| GM 1A-0A TT11 F4 (1) | Bricks |  | 58.11? | 5? |  |  |
| GM 1A-0A TT11 (2) | Fill | 60.72 |  | Unknown |  |  |
| GM 1A-0A TT11 (3) | Fill | 60.62 | 60.72 | 3 ? |  |  |
| GM 1A-0A TT11 (4) | Fill |  | 60.90 ? | 3 ? |  |  |
| GM 1A-0A TT11 (5) | Fill |  |  | 3 ? |  |  |
| GM 1A-0A TT11 (6) | Fill | 60.78 | 61.09 | 3 ? |  |  |
| GM 1A-0A TT11 (6A) | Fill | 60.63 | 60.93 | 3-4? |  |  |
| GM 1A-0A TT11 (7) | Fill |  |  | 3-4? |  |  |
| GM 1A-0A TT11 (7A) | Wash |  |  | Unknown |  |  |
| GM 1A-0A TT11 (8) | Ash | 60.53 | 60.76 | 3-4? |  | Thick ash |
| GM 1A-0A TT11 (9) | Fill |  |  | 3-4? |  |  |
| GM 1A-0A TT11 (10) | Fill |  |  | 3-4? |  |  |
| GM 1A-0A TT11 (11) | Fill |  |  | 3-4? |  |  |
| GM 1A-0A TT11 (12) | Fill |  |  | 3-4? |  |  |
| GM 1A-0A TT11 (13) | Fill |  |  | $5 ?$ |  |  |
| GM 1A-0A TT11 (14) | Fill |  | 60.64 | 5 ? |  |  |
| GM 1A-0A TT11 (15) | Fill |  |  | $5 ?$ |  |  |
| GM 1A-0A TT11 (16) | Fill |  |  | $5 ?$ |  |  |

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 1A-0A TT11 (12) 7 | Fill |  |  | 4 ? |  |  |
| GM 1A-0A TT11 (13) 7 | Fill |  |  | 4 ? |  |  |
| GM 1A-0A TT11 P3 (1) | Pit | 58.91 | 60.85 | 1 |  |  |
| GM 1A-0A TT11 P3 (2) | Pit |  |  | 1 |  |  |
| GM 1A-0A TT11 P3 (3) | Pit |  |  | 1 |  |  |
| GM 1A-0A TT11 P3 (4) | Pit |  |  | 1 |  |  |
| GM 1A-0A TT11 P3 (5) | Pit |  |  | 1 |  |  |
| GM 1A-0A TT11 P3 (6) | Pit |  |  | $1 / 5$ ? |  |  |
| GM 1A-0A TT11 P3 (7) | Pit |  |  | 1/5? |  |  |
| GM 1A-0A TT11 P3 (8) | Pit |  |  | $1 / 5$ ? |  |  |
| GM 1A-0A TT11 W1 | Wall | 61.41 | 61.51 | 3/5? |  | Brick wall |
| GM 1A-0A TT11 W9 | Wall | 58.83 | 58.85 | 5 |  | Brick wall |
| GM 1A NBR (0) | Topsoil |  |  | None |  |  |
| GM 1A NBR (1) | Fill |  |  | Unknown |  |  |
| GM 1A NBR P2 (1) | Pit |  |  | 1 |  |  |
| GM 1A NBR (1A) | Fill |  |  | 3 |  |  |
| GM 1A NBR (2) | Fill |  |  | 3 |  |  |
| GM 1A NBR (3) | Fill |  |  | 3 |  |  |
| GM 1A NBR (2) 1 | Fill |  |  | 3 |  |  |
| GM 1A NBR (1) 2 | Fill |  |  | 3 |  |  |
| GM 1A NBR (1A, 1B) 2 | Fill |  |  | 3 |  |  |
| GM 1A NBR (2) 2 | Fill |  |  | 3 |  |  |
| GM 1A NBR (3) 1 | Fill |  |  | 3 |  |  |
| GM 1A NBR (4) 1 | Fill |  |  | 3 |  |  |
| GM 1A NBR (5) 1 | Fill |  |  | 3 ? |  |  |
| GM 1A NBR (6) 1 | Fill |  |  | 3? |  |  |
| GM 1A NBR (7) 1 | Fill |  |  | 3 ? |  |  |
| GM 1A NBR (7A) 1 | Fill |  |  | 3 ? |  |  |
| GM 1A NBR (2) 2 | Fill |  |  | 3 |  |  |
| GM 1A NBR (2A) 2 | Fill |  |  | Unknown |  |  |
| GM 1A NBR (2B) 2 | Wall |  |  | 2-3? |  |  |
| GM 1A NBR (2C) 2 | Fill |  |  | 3 |  |  |
| GM 1A NBR (2D) 2 | Fill |  |  | 1 |  |  |
| GM 1A NBR (E2) 2 | Fill |  |  | 1 |  |  |
| GM 1A NBR (2F) 2 | Fill |  |  | 1 |  |  |
| GM 1A NBR (2G) 2 | Fill |  |  | 1 |  |  |
| GM 1A NBR (3) 2 | Wash |  |  | 1 |  |  |
| GM 1A NBR (3A) 2 | Fill |  |  | 1 |  |  |
| GM 1A NBR (3B) 2 | Wash |  |  | 1 |  |  |
| GM 1A NBR (3C) 2 | Wash |  |  | 1 |  |  |
| GM 1A NBR (3D) 2 | Wash | 60.70 | 60.92 | 1 |  |  |
| GM 1A NBR (4) 2 | Fill |  |  | 1 |  |  |
| GM 1A NBR (5) 2 | Fill |  |  | $1 / 3$ ? |  |  |
| GM 1A NBR (6) 2 | Wash |  |  | $1 / 3$ ? |  |  |
| GM 1A NBR (7) 2 | Fill |  |  | 3? |  |  |
| GM 1A NBR (8) 2 | Fill |  |  | 3? |  |  |
| GM 1A NBR (9) 2 | Fill |  |  | 3? |  |  |
| GM 1A NBR (10) 2 | Fill |  |  | 3? |  |  |
| GM 1A NBR (11) 2 | Fill |  |  | 3 ? |  |  |

TABLE 8.A1 (continued)
$\left.\begin{array}{lccccc}\hline & & \text { Lower } \\ \text { Context } & \text { Context type } & \begin{array}{c}\text { Upper } \\ \text { level (m) }\end{array} & \text { level (m) }\end{array}\right)$

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 2A TT2 | Fill |  |  | 3 ? |  |  |
| GM 2A (9) | Fill | 60.88 | 61.30 | 3 ? |  |  |
| GM 2A (10) | Fill | 60.71 | 60.92 | 3 ? |  |  |
| GM 2A (10A) | Ash |  |  | 3 ? |  |  |
| GM 2A (11) | Ash | 60.67 | 60.73 | 3? |  |  |
| GM 2A (12) | Fill |  | 60.78 | 3 ? |  |  |
| GM 2A (12A) | Fill |  | 60.86 | 3 ? |  |  |
| GM 2A (12B) | Fill |  |  | 3 ? |  |  |
| GM 2A (13) | Fill | 60.40 | 60.65 | 3 ? |  |  |
| GM 2A (14) | Fill | 60.38 | 60.48 | 3-4? |  |  |
| GM 2A (15) | Fill | 60.33 | 60.41 | 4 ? |  | Equals TT4 (4) |
| GM 2A (15A) | Wash |  | 60.33 | 4 ? |  |  |
| GM 2A (16) | Fill | 60.15 | 60.21 | 4 (5??) |  | Equals F10 |
| GM 2A TT4 (1) | Fill |  | 60.89 | 3 ? |  | Equals (10) |
| GM 2A TT4 (2) | Fill |  | 60.89 | 3 ? |  | Equals (12) |
| GM 2A TT4 (3) | Fill | 60.53 | 60.63 | 3 ? |  | Equals (13) |
| GM 2A TT4 (4) | Fill | 60.22 | 60.53 | 4 (5??) |  | Equals (14-16) |
| GM 2A TT4 (5) | Fill | 59.87 |  | 4 (5??) |  |  |
| GM 2A TT4 (6) | Fill | 59.75 | 60.20 | 5? | Bld I, Room C? |  |
| GM 2A TT4 (7) | Fill | 59.75 | 60.20 | $5 ?$ | Bld I, Room C? |  |
| GM 2A (19) | Fill |  | 60.19 | 4? |  |  |
| GM 2A (20) | Fill | 59.49 | 59.81 | 4? |  |  |
| GM 2A (20A,20C) | Fill | 59.38 |  | 4-5? |  |  |
| GM 2A (20B) | Fill | 59.49 |  | 4-5? |  |  |
| GM 2A (21) | Fill | 59.48 |  | 4-5? |  |  |
| GM 2A (22) | Fill | 59.45 | 59.89 | 5? | Unit 1 |  |
| GM 2A (23) | Fill |  | 58.97 | 5? |  |  |
| GM 2A (23A) | Fill |  |  | 5? |  |  |
| GM 2A (23B) | Fill | 58.83 |  | 5? |  |  |
| GM 2A (24) | Fill | 58.56 | 58.82 | 5 ? |  |  |
| GM 2A (25) | Fill |  |  | 5 ? |  |  |
| GM 2A (26) | Fill | 58.47 | 58.56 | 5 ? |  |  |
| GM 2A (26A) | Fill |  |  | 5? |  |  |
| GM 2A (26B) | Fill |  |  | 5? |  |  |
| GM 2A TT5 | Fill |  |  | 4-5? |  |  |
| GM 2A TT6 | Fill |  |  | 4-5?? |  |  |
| GM 2A TT7 (1) | Fill |  | 59.99 | 5 ? |  |  |
| GM 2A TT7 F7 (1) | Stones |  | 59.36 | 4?-5?? |  |  |
| GM 2A TT7 F7 (1A,1B) | Fill |  |  | 4?-5?? |  |  |
| GM 2A TT7 F7 (2) | Fill |  | 58.74 | 4?-5?? |  |  |
| GM 2A TT7 (1') | Fill |  |  | 4?-5?? |  |  |
| GM 2A TT8 (1) | Fill |  |  | 5 | Bld I, Room C |  |
| GM 2A TT8 (2) | Fill |  |  | 5 | Bld I, Room C |  |
| GM 2A TT8 (3) | Fill | 58.28 |  | 5 | Bld I, Room C |  |
| GM 2A TT8 (4) | Fill | 58.28 |  | 5 | Bld I, Room C |  |
| GM 2A (28) | Fill |  |  | Unknown |  |  |
| GM 2A (28A) | Fill | 58.47 | 58.80 | 5?-6? |  |  |
| GM 2A (29) | Fill | 57.65 | 58.47 | 7(A?) | Outside Bld III |  |
| GM 2A (30) | Floor | 57.35 | 57.70 | 7(B?) | Outside Bld III |  |

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 2A (31) | Fill | 57.04 | 57.45 | 7 | Outside Bld III |  |
| GM 2A (31A) | Fill |  | 57.20 | 7B(C?) | Outside Bld III |  |
| GM 2A (32) | Fill | 56.86 | 57.05 | 7B(C?) |  |  |
| GM 2A (24) 1 | Fill | 58.54 | 58.66 | 6 | Locus 1 |  |
| GM 2A (25) 1 | Fill | 58.50 | 58.54 | 6 | Locus 1 |  |
| GM 2A (25A) 1 | Fill | 58.55 | 58.64 | 6 | Locus 1 |  |
| GM 2A (26) 1 | Fill | 58.37 | 58.50 | 6 | Locus 1 |  |
| GM 2A (26A) 1 | Fill |  | 58.45 | 6 | Locus 1 |  |
| GM 2A (27) 1 | Fill | 58.22 | 58.40 | 6 | Locus 1 |  |
| GM 2A (28) 1 | Fill |  | 58.22 | 6-7 | Locus 1 |  |
| GM 2A (1) 2 \{76\} | Fill |  | 57.39 | 7? | Locus 2 |  |
| GM 2A (29) 3 | Fill | 57.50 | 58.10 | 7 | Bld III |  |
| GM 2A (30) 3 | Fill |  | 57.50 | 7 | Bld III |  |
| GM 2A F1 3 | Bricks | 57.33 | 57.47 | 7 | Bld III |  |
| GM 2A (29) 4 | Fill |  | 58.29 | 6 ? | Locus 4 |  |
| GM 2A (29A) 4 | Fill | 57.54 | 57.65 | 7 | Locus 4 |  |
| GM 2A (30) 4 | Floor | 57.30 | 57.54 | 7 | Locus 4 |  |
| GM 2A F1 1 | Installation | 61.16 |  | $2 ?$ |  |  |
| GM 2A F1A | Bricks |  |  | $2 ?$ |  |  |
| GM 2A F2 | Drain? |  |  | $2 ?$ |  |  |
| GM 2A F3 2 | Pebbles | 61.43 |  | $2 ?$ |  |  |
| GM 2A F4 2 | Pebbles | 61.41 |  | $2 ?$ |  |  |
| GM 2A F5 | Bricks | 60.90 | 61.15 | $2 ?$ |  |  |
| GM 2A F6 | Stones | 60.82 | 60.96 | 3 ? |  |  |
| GM 2A F7 | Ash/pit | 60.67 | 60.90 | 4 ? |  |  |
| GM 2A F7 (1) | Ashy fill | 59.39 | 60.45 | 4 ? |  |  |
| GM 2A F7 (2) | Ashy fill | 58.82 | 59.39 | 4 ? |  |  |
| GM 2A F7 (3) | Ashy fill | 58.37 | 58.82 | 4?-5?? |  |  |
| GM 2A F7 (4) | Fill | 58.03 | 58.37 | 4-5?? |  |  |
| GM 2A F8 | Bricks | 59.49 | 59.86 | 4?-5? | Bld I, Room C |  |
| GM 2A F9 | Bricks | 60.17 | 60.29 | 4?-5? |  |  |
| GM 2A F9A | Fill | 60.17 | 60.29 | 4?-5? |  |  |
| GM 2A F10 | Bricks/mortar |  |  | 4?-5? |  |  |
| GM 2A F11 | Brick |  |  | 4?-5? |  |  |
| GM 2A F12 | Wall |  | 60.48 | 4 |  |  |
| GM 2A F13 | Foundation |  |  | 4 |  |  |
| GM 2A F14 (1) | Fill/vaults |  |  | 5 | Bld I, Room C |  |
| GM 2A F14 (2) | Fill |  |  | 5 | Bld I, Room C |  |
| GM 2A F14 (3) | Fill |  |  | 5 | Bld I, Room C |  |
| GM 2A F14 (4) | Fill | 58.21 |  | 5 | Bld I, Room C |  |
| GM 2A F14 (5) | Floor | 58.27 | 58.35 | 5 | Bld I, Room C | Floor under vaults |
| GM 2A F14 (4) 1 | Doorway fill |  | 58.64 | 5 | Bld I, Room C |  |
| GM 2A F15 (1A) | Ash |  | 58.55 | 4-5? |  |  |
| GM 2A F15 (1B) | Ash |  | 58.55 | 4-5? |  |  |
| GM 2A F16 (1B) | Wall? |  |  | 6 |  |  |
| GM 2A F17 | Installation |  | 58.47 | 6 ? | Unit 1 | Plastered bricks |
| GM 2A F18 | Hearth? | 58.72 | 58.94 | 5 ? | Unit 1 |  |
| GM 2A F18 (1) | Hearth? | 58.72 | 58.94 | $5 ?$ | Unit 1 |  |
| GM 2A F19 | Bricks | 58.80 | 59.00 | $7 ?$ |  |  |

TABLE 8.A1 (continued)
$\left.\begin{array}{lcccccl}\hline & & \text { Lower }\end{array} \quad \begin{array}{c}\text { Upper } \\ \text { level (m) }\end{array}\right)$

TABLE 8.A1 (continued)
$\left.\begin{array}{lccccc}\hline & & \text { Lower }\end{array} \quad \begin{array}{c}\text { Upper } \\ \text { level (m) }\end{array}\right)$

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 1B (4B) | Fill |  |  | 3 ? |  |  |
| GM 1B (5) | Fill |  |  | 3? |  |  |
| GM 1B (6) | Fill |  |  | 3 ? |  |  |
| GM 1B (0) 1 | Topsoil |  |  | None |  |  |
| GM 1B (1) 1 | Topsoil |  |  | None |  |  |
| GM 1B (1A) 1 | Fill |  |  | 3? |  |  |
| GM 1B (1B) 1 | Fill |  |  | 3? |  |  |
| GM 1B (1C) 1 | Fill |  |  | 3 ? |  |  |
| GM 1B (2) 1 | Fill |  |  | 3 ? |  |  |
| GM 1B (3) 1 | Fill |  |  | 3 ? |  |  |
| GM 1B (4) 1 | Fill |  |  | 3 ? |  |  |
| GM 1B (5) 1 | Fill |  |  | 3 ? |  |  |
| GM 1B (5A) 1 | Fill |  |  | 3? |  |  |
| GM 1B (7) 1 | Fill |  |  | 3 ? |  |  |
| GM 1B (8) 1 | Fill |  |  | 3? |  |  |
| GM 1B (8A) 1 | Fill |  |  | 3? |  |  |
| GM 1B (8B) 1 | Fill |  |  | 3? |  |  |
| GM 1B (9) 1 | Fill |  |  | 3 ? |  |  |
| GM 1B (9A) 1 | Fill |  |  | 3 ? |  |  |
| GM 1B (9B) 1 | Fill |  |  | 3 ? |  |  |
| GM 1B (9C) 1 | Fill |  |  | 3 ? |  |  |
| GM 1B (10) 1 | Fill |  |  | 5?-4? |  |  |
| GM 1B (10A) 1 | Fill |  |  | 5 |  |  |
| GM 1B (10B) 1 | Fill |  |  | 5 | Bld I, Room A |  |
| GM 1B (10C) 1 | Fill |  |  | 5 | Bld I, Room A |  |
| GM 1B (11) 1 | Fill |  |  | 5 | Bld I, Room A? |  |
| GM 1B TT2 (11) 2 | Fill |  |  | 5 | Bld I, Room A |  |
| GM 1B TT2 (12) 2 | Fill |  |  | 5 | Bld I, Room A |  |
| GM 1B TT2 (13) 2 | Fill |  |  | 5 | Bld I, Room A |  |
| GM 1B TT2 (14) 2 | Fill |  |  | 5 | Bld I, Room A |  |
| GM 1B (14) | Fill |  |  | 5 | Bld I, Room A |  |
| GM 1B TT2 (14A) 2 | Fill |  |  | 5 | Bld I, Room A |  |
| GM 1B TT2 (14B) 2 | Fill |  |  | 5 | Bld I, Room A |  |
| GM 1B (15) 1 | Fill |  |  | 5 | Bld I, Room A |  |
| GM 1B (15A) 1 | Fill |  |  | 5 | Bld I, Room A |  |
| GM 1B (16) 1 | Fill |  |  | 5 | Bld. II, Room A |  |
| GM 1B (17) 1 | Fill |  |  | 5 | Bld II, Room A |  |
| GM 1B (17) 3 | Fill |  |  | 5 |  |  |
| GM 1B (18) 1 | Fill |  |  | ? |  |  |
| GM 1B (19) 1 | Fill |  |  | ? |  |  |
| GM 1B TT3 (1) | Fill |  |  | 5 | Bld I, Room A? |  |
| GM 1B TT3 (2) | Fill |  |  | 5 | Bld I, Room A? |  |
| GM 1B TT3 (3) | Fill |  |  | 5 | Bld I, Room A? |  |
| GM 1B F1 (Wall A) | Wall |  |  | 3 |  |  |
| GM 1B F2 | Surface |  |  | 3 |  |  |
| GM 1B F3 | Pit |  |  | 1 |  |  |
| GM 1B F4 (Wall B) | Wall |  |  | 3 |  |  |
| GM 1B F5 (A) | Pit |  |  | ? |  |  |
| GM 1B F5 (B) | Pit |  | 61.37 | 3/1? |  |  |

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 1B F5 (C) | Pit |  |  | 3/1? |  |  |
| GM 1B F5 (D) | Pit | 60.55 |  | $3 / 1$ ? |  |  |
| GM 1B F5 (E) | Pit |  |  | $3 / 1$ ? |  |  |
| GM 1B F5 (E) | Pit |  |  | 3/1? |  |  |
| GM 1B F6 | Pit |  |  | Unknown |  |  |
| GM 1B F7 | Pit |  |  | Unknown |  |  |
| GM 1B F8 | Fill |  |  | 3 ? |  |  |
| GM 1B F9 | Pit? |  |  | 2-3? |  |  |
| GM 1B F10 (Wall C) | Wall |  | 60.85 | 5 | Bld I, Room A | Brick wall |
| GM 1B F11 | Wall? | 60.03 |  | 5 ? |  |  |
| GM 1B F12 | Ashy fill | 60.07 |  | 5 |  |  |
| GM 1B F13 (Wall D) | Wall | 58.28? | 60.50 | 5 | Bld I, Room A | Brick wall |
| GM 1B F14 (Wall E) | Wall |  | 60.07 | 5 | Bld I, Room A | Brick wall |
| GM 1B F15 (Wall F) | Wall |  | 60.09 | 5 | Bld I, Room A | Brick wall |
| GM 1B F16 P16 | Pit 16 | 59.63 |  | 3 ? |  |  |
| GM 1B F17 P17 | Pit 17 | 57.35 |  | 3? |  |  |
| GM 1B F18 | Pit |  |  | 3? |  |  |
| GM 1B F19 | Fill |  |  | 5? | Bld I, Room A? |  |
| GM 1B F20 | Fill | 58.42 | 58.51 | 5? | Bld I, Room A? |  |
| GM 1B F21 (Floor 1) | Floor |  |  | 5 | Bld I, Room A | Brick floor |
| GM 1B F22 | Vaulting |  |  | 5 | Bld I, Room A |  |
| GM 1B F23 | Doorway |  |  | 5 | Bld I, Room A -F |  |
| GM 1B F24 | Fill |  |  | 5 | Bld I, Room A |  |
| GM 1B F25 | Cobbles | 58.05 | 58.66 | 6A | Bld II, Room A |  |
| GM 1B WG | Wall | 58.08 |  | 5 | Bld I, Room A |  |
| GM 1B Floor 2 | Floor |  |  | 5 | Bld I, Room A -F | Brick floor in doorway F23 |
| GM 1B EBR (0) | Topsoil |  |  | None |  |  |
| GM 1B EBR (0/1) | Fill |  |  | Unknown |  | Unknown |
| GM 1B EBR (1) 1 | Fill |  |  | 3 ? |  |  |
| GM 1B EBR (1A) 1 | Fill |  |  | 3? |  |  |
| GM 1B EBR (4A) 1 | Fill |  |  | 3? |  |  |
| GM 1B EBR (5) | Fill |  |  | 3 ? |  |  |
| GM 1B EBR (6) | Fill | 61.54 |  | 3 |  |  |
| GM 1B EBR (7) | Fill |  |  | 3 |  |  |
| GM 1B EBR (8) | Fill |  |  | 3 |  |  |
| GM 1B EBR FT1 | Foundation trench |  | 3 |  | FT Wall B |  |
| GM 1B EBR Floor_A | Stones | 61.54 | 61.72 | 3 ? |  |  |
| GM 1B EBR Floor_B | Pit |  |  | Unknown |  |  |
| GM 1B EBR F1/W7 | Wall 7 | 60.83 | 60.92 | Unknown |  |  |
| GM 2B TT1 (0) | Topsoil |  |  | None |  |  |
| GM 2B TT1 (1) | Topsoil |  |  | None |  |  |
| GM 2B TT1 (2) | Pit |  |  | 1 |  |  |
| GM 2B TT1 (3) | Fill | 61.75 |  | Unknown |  |  |
| GM 2B TT1 (4) | Fill |  |  | Unknown |  |  |
| GM 2B TT1 (5) 1 | Fill |  |  | 1 |  |  |
| GM 2B TT1 (6) | Fill | 61.48 | 61.55 | $2 ?$ |  |  |
| GM 2B TT1 (7) 1 | Fill |  |  | 1 |  |  |
| GM 2B (8) | Fill |  |  | 3/none? |  |  |
| GM 2B (9) | Fill |  |  | 3 ? |  |  |

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 2B (10) | Fill |  |  | 3 ? |  |  |
| GM 2B Tabun 1 (4) | Tabun | 61.78 | 61.89 | 3 ? |  |  |
| GM 2B Tabun 2 (5) | Tabun |  |  | Unknown |  |  |
| GM 2B (11) | Fill | 61.83 | 61.95 | 3 ? |  |  |
| GM 2B (12) | Fill/floor | 61.78 |  | 3 ? |  |  |
| GM 2B (13) | Fill |  | 61.50 | 3 ? |  |  |
| GM 2B (14) | Fill |  | 61.40 | 3 ? |  |  |
| GM 2B (15) | Fill |  |  | Unknown |  |  |
| GM 2B (16) | Fill |  | 61.20? | Unknown |  |  |
| GM 2B TT2 (17) | Fill | 60.61 | 60.84 | 3 ? |  |  |
| GM 2B TT3 (17A) | Fill |  | 60.75 | 4? |  |  |
| GM 2B TT3 (18) | Fill |  | 60.41 | 4 ? |  |  |
| GM 2B TT3 (19) | Fill |  |  | Unknown |  |  |
| GM 2B TT3 (20) | Fill | 60.02 | 60.76 | 4 ? |  |  |
| GM 2B (21) | Fill |  | 61.08 | 4 |  |  |
| GM 2B (22) | Fill |  |  | 4? |  |  |
| GM 2B (23) | Fill | 60.35 | 60.67 | 4 ? |  |  |
| GM 2B (24) | Fill |  |  | 4 ? |  |  |
| GM 2B (25) | Fill |  | 60.36 | 4 B ? |  |  |
| GM 2B (26) | Fill | 60.19 | 60.35 | 4-5? |  |  |
| GM 2B (26A) | Fill | 60.19 |  | 4-5? |  |  |
| GM 2B (26B) | Fill | 60.19 |  | 4-5? |  |  |
| GM 2B (27) | Fill | 60.08 | 60.19 | 4-5? |  |  |
| GM 2B (28) | Fill |  |  | 5 ? |  |  |
| GM 2B (29) | Fill |  | 60.62 | 4 ? |  |  |
| GM 2B (30) 2 | Fill | 60.10 | 60.15 | 4-5? | Outside room |  |
| GM 2B (30) 1A | Fill |  |  | 5 | Bld II, Room A? |  |
| GM 2B (30) 1B | Fill |  |  | 5 | Bld II, Room A |  |
| GM 2B (30) 2A | Fill |  |  | 5 | Bld I, Room A?/B? |  |
| GM 2B (31) 1A | Fill |  | 59.64 | 5 | Bld II, Room A |  |
| GM 2B (31) 1B | Fill |  | 59.86 | 5 | Bld II, Room A |  |
| GM 2B (31) 2A | Fill |  |  | 5 | Bld II, Room B |  |
| GM 2B (31) 2B | Fill |  | 59.73 | 5 |  |  |
| GM 2B (32) 1A | Fill |  | 59.66 | 5 | Bld II, Room A |  |
| GM 2B (32) 1B | Fill |  |  | 5 | Bld II, Room A |  |
| GM 2B (32) 2A | Fill |  |  | 5 | Bld II, Room B |  |
| GM 2B (33) 1A | Fill |  |  | 5 | Bld II, Room A |  |
| GM 2B (33) 1B | Fill |  |  | 5 | Bld II, Room A |  |
| GM 2B (33) 2A | Fill |  |  | 5 ? |  |  |
| GM 2B (33) 2B | Fill | 59.19 | 59.36 | 5 |  |  |
| GM 2B (34) 1A | Fill | 59.08 | 59.17 | 5 | Bld II, Room A |  |
| GM 2B (34) 1B | Fill |  |  | 5 | Bld II, Room A |  |
| GM 2B (34) 2 A | Fill | 58.95 | 59.01 | 5 | Bld II, Room B |  |
| GM 2B (34) 2B | Fill | 58.73 | 59.19 | 5 |  |  |
| GM 2B (35) 1A | Fill | 59.03 | 59.05 | 5 | Bld II, Room A | White organic material |
| GM 2B (35) 1B | Fill |  |  | 5 | Bld II, Room A | White organic material |
| GM 2B (35) 2A | Fill |  |  | 5 | Bld II, Room B |  |
| GM 2B (35) 2B | Fill |  | 58.73 | 5 (6?) | Bld II, Room B |  |
| GM 2B (35) 3 | Fill |  |  | 6 ? | Bld II, Room A |  |

TABLE 8.A1 (continued)
$\left.\begin{array}{lcccccl}\hline & & \text { Lower }\end{array} \quad \begin{array}{c}\text { Upper } \\ \text { level (m) }\end{array}\right)$

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 2B (41) $3\{78,84\}$ | Fill | 56.83 | 57.42 | 7-8? | Outside Rooms |  |
|  |  |  |  |  | A*-B* |  |
| GM 2B (41) $\{78\}$ | Fill |  |  | 7? | East of Room $\mathrm{A}^{*}$ ? |  |
| GM 2B (42) $\{78\}$ | Fill |  |  | 8 ? | Lower vaulted |  |
|  |  |  |  |  | room A*? |  |
| GM 2B (42) 4 \{84\} | Fill | 56.58 | 56.70 | 8 | Room B* |  |
| GM 2B (42) 3 \{78\} | Fill | 56.55 | 56.70 | 8 | Room B* |  |
| GM 2B (42) 5 \{84\} | Fill | 56.68 | 56.80 | 8 |  |  |
| GM 2B (42) $6\{84\}$ | Fill | 56.59 | 56.62 | 8 |  |  |
| GM 2B (43) $6\{84\}$ | Fill/floor | 55.05 |  | 8-9 |  |  |
| GM 2B (44) 6 \{84\} | Fill |  |  | 8-9 |  |  |
| GM 2B TT3 (42) 2 \{78\} | Fill |  | ~56.50 | 8 | Room A* |  |
| GM 2B TT3 (43) 2 \{78\} | Fill |  | 56.25 | 9 | Room C*? |  |
| GM 2B TT3 (44) 2 \{78\} | Fill | $\sim 55.50$ | $\sim 56.00$ | 9-10? | Room C*? |  |
| GM 2B TT3 (45) 2 \{78\} | Fill | $\sim 55.00$ | $\sim 55.50$ | 10 |  |  |
| GM 2B TT3 (45) 6 \{84\} | Fill | 55.05 |  | 9 |  |  |
| GM 2B TT3 (46) 2 \{78\} | Fill | 54.75? | $\sim 55.00$ | 10 |  |  |
| GM 2B TT3 (47) 2 \{78\} | Fill |  | $\sim 54.30$ | 10 |  |  |
| GM 2B TT3 (48) 2 \{78\} | Fill | ~53.75 | $\sim 54.20$ | 10-11? |  |  |
| GM 2B (55) | Fill | 56.34 | 56.51 | 8-9 | Room C* |  |
| GM 2B (56) | Fill | 56.18 | 56.33 | 8-9 | Room $\mathrm{D}^{*}$ ? |  |
| GM 2B (57) | Fill | 56.21 | 56.33 | 9 | Room $\mathrm{D}^{*}$ ? |  |
| GM 2B (58) | Fill | 55.75 | 56.25 | 9 | Room D* |  |
| GM 2B (58A) | Fill | 55.87 | 56.25 | 9 | Room ${ }^{*}$ |  |
| GM 2B (59) | Fill | 55.82 | 55.90 | 9 | Room D* |  |
| GM 2B (60) | Fill | 55.52 | 55.82 | 10 |  |  |
| GM 2B (61) 1 | Ash | 55.41 | 55.61 | 10 | Firebox room |  |
| GM 2B (61) 2 | Ash | 55.56 | 55.70 | 10 | Firebox room |  |
| GM 2B (61) 3 | Ash | 55.5 |  | 10 | Firebox room |  |
| GM 2B (61) 4 | Ash | 55.39 |  | 10 | Firebox room |  |
| GM 2B (61) 5 | Fill | 55.65 |  | 10 | Firebox room |  |
| GM 2B (61) 6 | Fill | 55.46 |  | 10 | Firebox room |  |
| GM 2B (61) 7 | Fill |  | 55.60 | 10 | Firebox room |  |
| GM 2B (62) 2 | Fill | 55.19 |  | 10 | Firebox room |  |
| GM 2B (62) 3 | Fill | 55.26 |  | 10 | Firebox room |  |
| GM 2B (62) 4 | Fill | 55.20 |  | 10 | Firebox room |  |
| GM 2B (63) | Fill | 55.20 |  | 10 | Firebox room |  |
| GM 2B (64) | Fill | 54.90 |  | 11 |  |  |
| GM 2B (65) | Fill | 54.88 |  | 11 |  |  |
| GM 2B (66) | Fill | 54.82 |  | 11 |  |  |
| GM 2B TT10 (1) | Fill | 54.69 | 54.82 | 11 |  |  |
| GM 2B TT10 (2) | Fill | 54.49 | 54.69 | 11 |  |  |
| GM 2B TT10 (3) | Fill | 54.43 | 54.49 | 11 |  |  |
| GM 2B TT10 (4) | Fill | 54.30 | 54.39 | 11 |  |  |
| GM 2B TT10 (5) | Fill | 54.10 | 54.30 | 11 |  |  |
| GM 2B Floor 1 | Floor | 61.47 | 61.52 | 2-3? |  |  |
| GM 2B Floor 2 | Floor | 61.20 | 61.49 | 3 |  |  |
| GM 2B F1 | Bricks |  | 60.65 | 4 ? |  |  |
| GM 2B F2 | Stones | 60.46 | 60.50 | 4 ? |  |  |

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 2B F3 | Bricks | 60.17 | 60.19 | 4(B?)? |  |  |
| GM 2B F4 | Tabun? |  |  | 5? |  |  |
| GM 2B F5 | Vaulting? | 59.86 | 59.90 | 5 | Bld II, Room B? |  |
| GM 2B TT4 F6 | Bricks | 58.92 | 58.99 | 5? |  |  |
| GM 2B F7 | Wall | 59.55 | 59.97 | 5 | Bld II, Room A | Brick wall |
| GM 2B F8 1 | Wall? | 58.97 | 59.57 | 5 | Bld II, Room A |  |
| GM 2B F9 | Oven? | 58.96 | 59.28 | 5? |  |  |
| GM 2B F10 1A | Bricks | 59.68 |  | 5 | Bld II, Room A |  |
| GM 2B F11 1B | Installation (bin?) | 58.60 | 60.05 | 5 | Bld II, Room A |  |
| GM 2B F12 1 | Cobbles | 58.71 | 58.87 | 5 | Bld II, Room A |  |
| GM 2B TT5 F13 | Pit 8 |  |  | 6 ? |  |  |
| GM 2B F14 | Tabun |  | 58.82 | 5? | Bld II, Room B? |  |
| GM 2B F15 | Bricks | 58.16 | 58.27 | $6 ?$ |  |  |
| GM 2B F16 | Bin? | 58.60 | 58.98 | 5 | Bld II, Room A |  |
| GM 2B F17 | Wall/floor? | 58.47 | 58.56 | 6B | Bld II, Room A |  |
| GM 2B F18 | Wall |  | 58.63 | 6 (7A?) | Bld II, Room A | Brick wall |
| GM 2B F19 | Bricks |  | 58.78 | 6 | Bld II, Room A |  |
| GM 2B F20 | Bricks |  | 58.15 | 7 (7A?) | Bld III |  |
| GM 2B F21 | Bricks |  |  | 6 | Bld II, Room A |  |
| GM 2B F22 | Wall |  | 58.93 | 6 | Bld II, Room B | Brick wall |
| GM 2B F23 | Bricks |  |  | 6 | Bld II, Room B |  |
| GM 2B F24 | Bricks |  |  | 6 |  | Equals W17A |
| GM 2B F25 | Wall |  | 58.82 | 6 | Bld II, Room A |  |
| GM 2B F26 | Bricks |  |  | 6 | Bld II, Room A |  |
| GM 2B F27 | Cobbles |  |  | 6 | Bld II, Room B |  |
| GM 2B F27A | Door? |  |  | 6-7 | Bld II, Room A |  |
| GM 2B F28 | Cobbles |  |  | 6 | Bld II, Room B |  |
| GM 2B F29 | Bin? |  |  | 6 | Bld II, Room B |  |
| GM 2B F30 | Pit |  |  | Unknown |  |  |
| GM 2B F31 | Pit |  |  | 6 | Bld II, Room C? |  |
| GM 2B F32 | Unknown |  |  | Unknown |  |  |
| GM 2B F33 | Unknown |  |  | Unknown |  |  |
| GM 2B F34 | Unknown |  |  | Unknown |  |  |
| GM 2B F35 | Brick |  |  | 8 ? |  |  |
| GM 2B F36 | Vaults |  |  | 7?-8? |  |  |
| GM 2B F37 | Tabun | 57.87 | 58.13 | 7 | Locus 4 | In 1C |
| GM 2B F38 | Stones |  | 57.99 | 7 | Locus 4 | In 1B |
| GM 2B F39 | Fill |  |  | Unknown |  |  |
| GM 2B F40 | Fill |  |  | Unknown |  |  |
| GM 2B F41 | Bricks |  |  | 7-8? |  |  |
| GM 2B F42 | Bricks |  |  | Unknown |  |  |
| GM 2B F43 | Bricks |  |  | Unknown |  |  |
| GM 2B TT2 F44 | Fill |  |  | 8 | Room A*? |  |
| GM 2B F45 | Vaulting? |  |  | 8 ? |  |  |
| GM 2B F46 | Pebbles |  | $\sim 56.50$ | 8 (9?) | Room A* |  |
| GM 2B F47 | Trench | 55.94 | 56.52 | 9 |  | FT W29 |
| GM 2B F48 | Trench | 55.78 | 56.35 | 9 |  | FT W28 |
| GM 2B F49 | Installation? | 56.46 | 56.58 | 8 ? | Room A* |  |
| GM 2B F50 | Stones | 56.69 | 56.89 | 8 | Room A* |  |

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 2B F51 | Pebbles |  |  | 8 | Room B* |  |
| GM 2B F55 | Drain |  | 56.59? | 8-9? | Room B*? |  |
| GM 2B F56 | Trench |  | 56.09 | 9 | Room D* | FT W35 |
| GM 2B F57 | Installation | 55.26 | 55.61 | 10 | Firebox room |  |
| GM 2B W1 | Wall | 61.2 | 61.71 | 3 |  | Brick wall |
| GM 2B W2 | Wall | 61.27 | 61.90 | 3-4 |  | Brick wall |
| GM 2B W3 | Wall |  | 61.49 | 3 |  | Brick wall |
| GM 2B W4 | Wall | 60.51 | 61.08 | 4 |  | Brick wall |
| GM 2B W5 | Wall | 61.08? | 61.66? | 3 |  | Brick wall |
| GM 2B W6 | Wall | 60.9 | 61.96 | 2-3? |  | Brick wall |
| GM 2B W7 | Wall |  | 60.63 | 4 ? |  | Brick wall |
| GM 2B W7A | Wall |  | 60.63 | 4 ? |  | Brick wall |
| GM 2B W8 | Wall? | 60.67 | 60.77 | 4 ? |  | Brick wall |
| GM 2B W9 | Wall | 58.73 | 60.03 | 5 | Bld II, Room A | Brick wall |
| GM 2B W9A | Wall | 58.84 | 59.28 | 5 | Bld II, Room A | Brick wall |
| GM 2B W10 | Wall | 57.65 | 58.78 | 7 | Bld III/II | Brick wall |
| GM 2B W11 | Wall |  | 58.84 | 6 | Bld II, Room A | Brick wall |
| GM 2B W12 | Wall |  | 58.58 | 6-7 |  | Brick wall |
| GM 2B W13 | Wall |  |  | 8 ? |  | Brick wall |
| GM 2B W14 | Wall |  |  | 7 |  | Brick wall |
| GM 2B W15 | Wall |  | 58.63 | 7-8? |  | Equals F18 |
| GM 2B W16 | Wall |  |  | Unknown |  |  |
| GM 2B W17 | Wall? |  |  | Unknown |  |  |
| GM 2B W17A | Wall |  |  | 6 |  | Brick wall |
| GM 2B W18 | Wall |  | 57.86 | $7 ?$ | Under Bld II | Brick wall |
| GM 2B W19 | Wall | 57.76 | 57.80 | 7 | Under Bld II | Brick wall |
| GM 2B W20 | Wall | 57.80 | 57.99 | 7 | Under Bld II | Brick wall |
| GM 2B W21 | Wall | 56.03 | 57.62 | 8 | Room A* | Brick wall |
| GM 2B W21A | Wall |  |  | Unknown | Room A*? | Brick wall |
| GM 2B W22 | Wall | 56.56 | 57.52 | 8 | Room A* | Brick wall |
| GM 2B W23 | Wall | 56.68 | 56.83 | 8 | Room B* | Brick wall |
| GM 2B W24 | Wall | 56.49 | 57.17 | 8 | Room B* | Brick wall |
| GM 2B W25 | Wall | 56.50 | 56.82 | 8 | Rooms A and B* | Brick wall |
| GM 2B W26 | Wall | 55.86 | 56.37 | 9 | Room C* | Brick wall |
| GM 2B W27 | Wall |  | 57.04 | 8 | Room A* | Brick wall |
| GM 2B W28 | Wall | 55.78 | 56.28 | 9 | Room C* | Brick wall |
| GM 2B W29 | Wall | 55.94 | 56.52 | 9 | Room C*-D* | Brick wall |
| GM 2B W30 | Wall | 54.75\# | 55.55 | 10 | Unknown | Brick wall |
| GM 2B W35 | Wall | 55.63 | 56.08 | 9 | Room D* | Brick wall |
| GM 2B W36 | Wall |  | 55.65 | 10 | Firebox room | Brick wall |
| GM 2B W37 | Wall | 55.40 | 55.64 | 10 | Firebox room | Brick wall |
| GM 2B W38 | Wall | 55.14 | 55.46 | 10 | Firebox room | Brick wall |
| GM 2B FT1 | Foundation trench |  |  | 6 ? | Bld II | FT 2C Wall 8? |
| GM 2B FT2 | Foundation trench |  |  | 6 ? | Bld II | FT 2C Wall 11? |
| GM 2B FT3 | Foundation trench |  |  | 5 | Bld I? | FT 2A Wall 5 |
| GM 2B P1 (1) | Pit | 61.08 | 61.66 | 1 |  |  |
| GM 2B P2 (2) | Pit | 60.10 | 61.80 | 1 |  |  |
| GM 2B P3 (3) | Pit | 60.59 | 61.86 | 1 |  |  |
| GM 2B TT3 P4 | Pit | 59.51 | 60.32 | Unknown |  |  |

TABLE 8.A1 (continued)
$\left.\begin{array}{lcccclll}\hline & & \text { Lower }\end{array} \quad \begin{array}{c}\text { Upper } \\ \text { level (m) }\end{array}\right)$

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 3B (10) 3 | Fill |  |  | 5 ? |  |  |
| GM 3B (11) | Fill | 58.19 | 58.62 | 6 | Unit 2, Bld III? |  |
| GM 3B (11) 1 | Fill | 58.45 | 58.62 | 6 | Unit 2, Bld III |  |
| GM 3B (11) 2 | Fill | 58.41 | 58.62 | 6 | Unit 2, Bld III |  |
| GM 3B (12) | Fill | 57.86 | 58.15 | 7 |  |  |
| GM 3B (12) 1 | Fill |  |  | $7 ?$ |  |  |
| GM 3B (13) | Fill | 58.46 | 58.48 | 6 ? |  |  |
| GM 3B (12) 2 | Fill |  |  | $7 ?$ |  |  |
| GM 3B (13) 2 | Fill |  |  | $7 ?$ |  |  |
| GM 3B F1 | Pit | 60.62 | 61.22 | 1 |  |  |
| GM 3B F2 | Pit | 60.09 | 60.46 | 1 |  |  |
| GM 3B F3 | Debris/pit | 59.97 | 60.10 | Unknown |  |  |
| GM 3B W1 | Wall | 60.82 | 60.95 | 4 ? |  | Brick wall |
| GM 3B W2 | Wall | 60.42 | 60.81 | 3 ? |  | Brick wall |
| GM 3B W3 | Wall | 59.35 | 60.10 | 3?-4? |  | Brick wall |
| GM 3B W4 | Wall | 59.55 | 59.81 | 5 | Bld II | Brick wall |
| GM 3B W5 | Wall | 58.88 | $\sim 59.05$ | 6 ? | Bld II-IV | Brick wall |
| GM 3B W6 | Wall |  | 58.68 | 6 | Unit 2, Bld III |  |
| GM 3B W7 | Wall |  |  | 6 | Unit 2, Bld III |  |
| GM 3B W88 | Wall |  | 58.95 | 5-6 | Unit 2, Bld III | Brick wall |
| GM 3B W9 | Wall |  | 59.37 | 5 | Unit 2, Bld III | Brick wall |
| GM 3B W10 | Wall |  | 58.35 | 7 | Bld III? | Brick wall |
| GM 3B W11 | Wall |  |  | 5 ? |  | Brick wall |
| GM 3B W12 | Wall |  | 59.05 | 6 | Unit 2, Bld III | Brick wall |
| GM 3B W13 | Wall |  | 59.07 | 6 | Unit 1, Bld III | Brick wall |
| GM 3B P1 | Pit | 60.64 | 61.14 | 1 |  | Pit in W part of sq. |
| GM 3B P2 | Pit | 59.74 | 60.14 | None |  | Petrie dump? |
| GM 3B P2A | Pit |  |  | None |  | Petrie dump? |
| GM 3B P2B | Pit | 59.45 | 59.79 | Unknown |  |  |
| GM 3B P2C | Pit | 59.99 | 60.27 | 1 |  |  |
| GM 3B P3 | Pit |  |  | Unknown |  |  |
| GM 3B P4 | Pit | 58.88 | 59.78 | 2? |  |  |
| GM 3B P5 | Pit | 59.59 | 59.89 | 1 ? |  |  |
| GM 3B P6 | Pit | 55.00 | 59.55 | Unknown |  |  |
| GM 3B P7 | Pit | 59.80 | 60.02 | Unknown |  |  |
| GM 3B P8 | Pit | 58.60 | 59.75 | 5 ? |  |  |
| GM 1C (0) | Topsoil |  |  | None |  |  |
| GM 1C (1) | Fill |  |  | 2? |  |  |
| GM 1C (1) 2 | Fill |  |  | $2 ?$ |  |  |
| GM 1C (2) 1 | Fill |  |  | 2? |  |  |
| GM 1C (2A) | Fill |  |  | 2 ? |  |  |
| GM 1C (3) | Fill |  |  | 2 ? |  |  |
| GM 1C (4) | Fill |  |  | 3 |  |  |
| GM 1C (5) | Fill |  |  | 3 |  |  |
| GM 1C (5A) | Fill |  |  | 3 |  |  |
| GM 1C (3) 4 | Fill |  |  | 3 ? |  |  |
| GM 1C (6) 4 | Fill |  |  | 3 |  |  |
| GM 1C (7) 4 | Fill |  |  | 3 |  |  |
| GM 1C (8) 4 | Fill |  |  | 3 |  |  |

TABLE 8.A1 (continued)

|  | Context type | Lower <br> level $(\mathrm{m})$ | Upper <br> level $(\mathrm{m})$ | Phase | Architecture | Notes |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| GM 1C (6) 3 | Fill |  |  | 3 |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| GM 1C TT5 4 | Fill |  |  | Unknown |  |
| GM 1C TT2 P2 (1) | Pit? |  |  | 1? |  |
| GM 1C TT2 P2 (2) | Pit? |  |  | $1 ?$ |  |
| GM 1C TT2 P2 (3) | Pit? |  |  | 1 ? |  |
| GM 1C TT2 P2 (4) | Pit? |  |  | 1 ? |  |
| GM 1C TT2 P2 (5) | Pit? |  |  | 1 ? |  |
| GM 1C TT2 P2 (6) | Pit? |  |  | $1 ?$ |  |
| GM 1C TT2 P2 (7) | Pit? |  |  | 1 ? |  |
| GM 1C TT2 P2 (8) | Pit? |  |  | Post 3 (= 2?) |  |
| GM 1C TT2 P2 (9) | Pit? | 59.95 |  | Post 3 ( $=2$ ?) |  |
| GM 1C P2 (10) | Fill |  |  | Post 3 ( $=2$ ?) |  |
| GM 1C P2 (11) | Fill |  |  | Post 3 ( $=2$ ?) |  |
| GM 1C P2 (12) | Fill |  |  | Post 3 ( $=2$ ?) |  |
| GM 1C P2 (13) | Fill |  |  | Post 3 ( $=2$ ?) | Granary |
| GM 1C P2 (14) | Fill |  |  | 3 ? | Granary |
| GM 1C (9) 4 | Fill |  |  | 4 | Unit 4 |
| GM 1C TT6 (10) 4 | Fill |  |  | 4-5 | Unit 4 |
| GM 1C TT6 (11) 4 | Fill |  |  | 4-5 | Unit 4? |
| GM 1C TT6 (12) 4 | Fill |  |  | 4-5 |  |
| GM 1C TT6 (13) 4 | Fill |  |  | 4-5 | Unit 4 |
| GM 1C (13A) 4 | Fill |  |  | 4-5 | Unit 4 |
| GM 1C (10) 5 | Fill |  |  | 3-4? | Unit 4? |
| GM 1C (14) 4 | Fill |  |  | 5? | Unknown |
| GM 1C (15) 4 | Fill |  |  | 5? | Unknown |
| GM 1C (16) 4 | Fill |  |  | 5 ? | Unknown |
| GM 1C (74) 4 | Fill |  |  | 5? | Unknown |
| GM 1C (18) 4 | Fill |  |  | 5 ? | Unknown |
| GM 1C (18A) 4 | Fill | 60.00 |  | 5? |  |
| GM 1C ( $19,19 \mathrm{~A}) 4$ | Fill |  |  | 5 ? |  |
| GM 1C ( $20,20 \mathrm{~A}$ ) 4 | Fill | 60.40 |  | 5? |  |
| GM 1C (21) 4 | Fill |  |  | $5 ?$ |  |
| GM 1C (21A) 4 | Fill |  |  | 5 ? |  |
| GM 1C (22) 4 | Fill |  |  | $5 ?$ |  |
| GM 1C (23) 4 | Fill |  |  | 5? |  |
| GM 1C TT7 (1) 3 | Fill |  |  | Unknown |  |
| GM 1C TT7 (2) 3 | Fill |  |  | Unknown |  |
| GM 1C TT7 (14) 3 | Fill |  |  | 4-5? | Unit 4? |
| GM 1C TT7 (14A) 3 | Fill |  |  | 4-5? |  |
| GM 1C TT7 (13) 3 | Fill |  |  | 4-5? |  |
| GM 1C (9A) 3 | Fill |  |  | 4-5? |  |
| GM 1C (12A) 3 | Fill |  |  | 4-5? |  |
| GM 1C TT7 (13A) 3 | Fill |  | 60.32 | 4-5? |  |
| GM 1C (15) 3 | Fill |  |  | 4-5? |  |
| GM 1C (16) 3 | Fill |  |  | 5? |  |
| GM 1C (17) 3 | Fill |  |  | 5 ? |  |
| GM 1C (18) 3 | Fill |  |  | 5 ? |  |
| GM 1C (14) 6 | Fill |  |  | 5 |  |
| GM 1C (15) 6 | Fill |  |  | 5 |  |

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 1C TT8 (1) | Fill |  |  |  |  |  |
| GM 1C (1) 7 \{76\} | Fill | 59.08 |  | 5 |  |  |
| GM 1C (2) 7 \{76\} | Fill |  |  | 6 | Bld II, Room A |  |
| GM 1C (24) 4 | Fill |  |  | 5 |  |  |
| GM 1C (24A) 4 | Fill |  |  | 6 | Bld II, Room A |  |
| GM 1C (1) 8 | Fill |  |  | 6B-7 | Bld II, Room A |  |
| GM 1C (25) 4 | Fill |  |  | 6 ? | Bld II, Room A? |  |
| GM 1C (26) 4 | Fill |  |  | 6 ? | Bld II, Room A? |  |
| GM 1C (27) 4 | Fill |  |  | 6 ? | Bld II, Room A? |  |
| GM 1C (28) 4 | Fill |  |  | 6 ? | Bld II, Room A? |  |
| GM 1C (29) 4 | Fill |  |  | 6 ? | Bld II, Room A? |  |
| GM 1C F1 \{70\} | Stones |  |  | $2 ?-3$ ? |  |  |
| GM 1C F1 (1) \{72\} | Ashy layer |  |  | Unknown | Granary? |  |
| GM 1C F1 (2) \{72\} | Ashy |  |  | Unknown | Granary? |  |
| GM 1C F2 | Wall? |  |  | Unknown |  |  |
| GM 1C F3 (1) \{72\} | Ashy layer |  | 60.97 | Unknown |  |  |
| GM 1C F3 (2) \{72\} | Ashy layer | 60.61 |  | Unknown |  |  |
| GM 1C F3 (3) \{72\} | Ashy layer |  |  | Unknown |  |  |
| GM 1C F3 | Pit |  |  | Unknown |  |  |
| GM 1C W1 | Wall | 61.26 | 61.34 | 2-3? |  | Brick wall |
| GM 1C W2 | Wall | 60.78 | 61.29 | 3 |  | Brick wall |
| GM 1C W3 | Wall |  |  | 3 |  | Equals 4 |
| GM 1C W4 | Wall |  | 60.86 | 3 | Unit 4 | Brick wall |
| GM 1C W5 | Wall |  | 60.50 | 5 | Bld II, Room A | Brick wall |
| GM 1C W6 | Wall | 59.87 | 60.28 | 5 ? | Bld IV? | Brick wall |
| GM 1C W7 | Wall |  | 59.07 | 6 | Bld II, Room A | Brick wall |
| GM 1C W8 | Wall |  |  | 6B-7 | Bld II, Room A | Brick wall |
| GM 1C FT3 | Foundation trench |  |  | 6 | Bld II, Room A | FT of Wall 7 |
| GM 1C P1 | Pit |  |  | Unknown |  |  |
| GM 1C P2 | Fill |  |  | 2 ? | Granary? |  |
| GM 1C P3 | Pit |  |  | 1 ? |  |  |
| GM 1C P4 | Pit | 59.52 | 60.34 | Unknown |  |  |
| GM 1C P5 | Pit |  |  | Unknown |  |  |
| GM 1C P6 | Pit |  |  | Unknown |  |  |
| GM 1C-1D NBR (2) | Fill |  |  | Unknown |  |  |
| GM 1C-1D NBR (3) | Fill |  |  | Unknown |  |  |
| GM 1C-1D NBR (4) | Fill |  |  | Unknown |  |  |
| GM 1C-1D NBR (4A) | Fill |  |  | Unknown |  |  |
| GM 1C-1D NBR (6B) | Fill |  |  | Unknown |  |  |
| GM 2C (0) | Topsoil |  |  | None |  |  |
| GM 2C (1) | Fill |  |  | None |  |  |
| GM 2C (2) | Fill |  |  | None |  |  |
| GM 2C (3) | Fill |  |  | None/1 |  |  |
| GM 2C (1) 2 | Granary fill |  |  | Post 3 ( $=2$ ?) |  |  |
| GM 2C (2) 2 | Granary fill |  |  | Post 3 ( $=2$ ?) |  |  |
| GM 2C (2A) 2 | Granary fill |  |  | Post 3 ( $=2$ ?) |  |  |
| GM 2C (3) 2 | Granary fill |  |  | Post 3 ( $=2$ ?) |  |  |
| GM 2C (4) 2 | Granary fill |  |  | Post 3 ( $=2$ ?) |  |  |
| GM 2C (5) 2 | Granary fill |  |  | Post 3 (= 2?) |  |  |

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 2C (6) 2 | Granary fill |  |  | Post 3 (= 2?) |  |  |
| GM 2C (7) 2 | Granary fill |  |  | Post 3 (= 2?) |  |  |
| GM 2C (7A) 2 | Granary fill |  |  | Post 3 (=2?) |  |  |
| GM 2C (8) 2 | Granary fill |  |  | Post 3 (=2?) |  |  |
| GM 2C (7) $2\{72\}$ | Granary fill |  |  | Post 3 (=2?) |  |  |
| GM 2C (8) 2 \{72\} | Granary fill |  |  | Post 3 (= 2?) |  |  |
| GM 2C (0) 1 | Fill |  |  | None |  |  |
| GM 2C (1) 1 | Fill |  |  | Unknown |  |  |
| GM 2C (2) 1 | Fill |  |  | Unknown |  |  |
| GM 2C TT7 (1) | Fill |  |  | Unknown |  |  |
| GM 2C (9) 2 | Granary fill |  |  | Post 3 (= 2?) | Granary |  |
| GM 2C (10) 2 | Granary fill and floor | 58.92 |  | Post 3 (= 2?) | Granary |  |
| GM 2C (11) 2 | Granary fill |  |  | 2-3? | Granary |  |
| GM 2C (10) | Fill and floor |  |  | 3 | Granary |  |
| GM 2C (11) | Fill |  |  | 4 | Granary |  |
| GM 2C TT9 (1) | Fill |  |  | Unknown |  |  |
| GM 2C TT9 (2) | Fill |  |  | Unknown |  |  |
| GM 2C TT9 (3) | Fill |  |  | Unknown |  |  |
| GM 2C TT10 (12) | Fill | $\sim 58.60$ |  | Unknown | Unknown |  |
| GM 2C TT10 (13) | Fill |  | 58.67 | Unknown | Unknown |  |
| GM 2C TT10 (14) | Fill | 58.44 |  | Unknown | Unknown |  |
| GM 2C F1 | Unknown |  |  | Unknown |  |  |
| GM 2C F1A (3) | Bricks |  |  | 3? | Granary |  |
| GM 2C F1A (4) | Bricks |  |  | 3 ? | Granary |  |
| GM 2C F2 | Unknown |  |  |  |  |  |
| GM 2C F3 | Unknown |  |  |  |  |  |
| GM 2C F4 | Bricks |  |  | 3 | Granary |  |
| GM 2C F5 | Fill |  |  | Unknown |  |  |
| GM 2C F6 | Bones |  |  | Unknown |  |  |
| GM 2C F7 | Mortar |  |  | 3-4 | Granary | Mortar around outer granary wall |
| GM 2C Floor 1 (2) | Floor |  |  | 3 | Granary | Brick floor of granary |
| GM 2C Floor 1 locus 1 | Floor |  |  | 3 | Granary | Upper floor of granary |
| GM 2C W1 | Wall |  |  | $2 ?$ |  | Brick wall |
| GM 2C W2 | Wall |  |  | $2 ?-3$ ? |  | Brick wall |
| GM 2C W3 | Wall |  |  | 3/4 | Granary | Granary rounded inner wall |
| GM 2C W3 (1) | Fill |  |  | 3 | Granary | Outer granary bricks |
| GM 2C W4 | Wall |  |  | 5? |  | Brick wall |
| GM 2C W5 | Wall |  |  | Unknown |  | Brick wall |
| GM 2C W6 | Wall |  |  | 3 ? |  | Brick wall |
| GM 2C W7 | Vaulting? | 59.86 | 60.00 | 5 | Bld II, Room B(?) | Equals 2B F5 |
| GM 2C W8 | Wall |  | 59.64 | 5 | Bld II, (Room C?) | Brick wall |
| GM 2C W9 | Wall |  |  | 3-4 | Granary | Granary wall |
| GM 2C W10 | Brick floor | 58.65 | 58.68 | 4 | Granary |  |
| GM 2C W11 | Wall |  | 59.66 | 5 | Bld II (Room C?) |  |
| GM 2C SBR W6 | Wall |  |  | $2 ?$ |  | Brick wall, equals 2B W6 |
| GM 2C SBR W4 | Wall |  |  | Unknown |  | Brick wall |
| GM 2C SBR Pit A | Pit |  |  | 1 ? |  |  |
| GM 2C SBR Pit B | Pit |  |  | Unknown |  |  |

TABLE 8.A1 (continued)

|  |  |  |  |
| :--- | :---: | :---: | :---: |
|  |  |  |  |
| Context | Lower | Upper |  |
|  | Context type | level (m) | level (m) |

TABLE 8.A1 (continued)
$\left.\begin{array}{llcccc}\hline & & \text { Lower } \\ \text { Context } & \text { Context type } & \begin{array}{c}\text { Upper } \\ \text { level (m) }\end{array} & \text { level (m) }\end{array}\right)$

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 1D (31B) 2 | Fill |  | 59.45 | 5 |  |  |
| GM 1D (31C) 2 | Fill | 59.18 |  | 5 |  |  |
| GM 1D (31D) 2 | Fill |  | 59.35 | 5 |  |  |
| GM 1D (31E) 2 | Fill | 59.26 |  | 5 |  |  |
| GM 1D (31F) 2 | Fill |  |  | 5 |  |  |
| GM 1D (32) 2 | Fill |  | 59.18? | $5 ?$ |  |  |
| GM 1D F1 | Bricks |  |  | Unknown |  |  |
| GM 1D F2 | Bricks |  |  | Unknown |  |  |
| GM 1D F3 | Tabun |  |  | Unknown |  |  |
| GM 1D F4 | Fill |  |  | Unknown |  |  |
| GM 1D F5 | Bricks |  |  | Unknown |  |  |
| GM 1D F6 | Jar |  | 60.73? | 2?-3 |  |  |
| GM 1D F7 | Jar | 60.05 | 60.70 | 4 ? |  |  |
| GM 1D F8 | Fill |  |  | Unknown |  |  |
| GM 1D F9 | Basin |  |  | Unknown |  |  |
| GM 1D F10 | Tabun frag |  | 60.48 | Unknown |  |  |
| GM 1D F11 | Jar |  |  | Unknown |  |  |
| GM 1D F12 | Tabun? |  | 59.56 | Unknown |  |  |
| GM 1D F13 | Bricks/tabun? | 59.45? |  | 5 ? |  |  |
| GM 1D F14 | Stones | 59.57 |  | 5 ? |  |  |
| GM 1D F15 | Pebbles? |  |  | 5? |  |  |
| GM 1D F16 4 | Bricky |  |  | 5? |  |  |
| GM 1D F17 2 | Vessel | 59.30 |  | Unknown |  |  |
| GM 1D F18 | Pit? |  |  | Unknown |  |  |
| GM 1D F19 P19 | Pit |  | $\sim 59.10$ ? | Unknown |  |  |
| GM 1D F19A | Unknown |  |  | Unknown |  |  |
| GM 1D F20 4 | Unknown |  |  | Unknown |  |  |
| GM 1D F21 2 | Bricks/fill |  | 59.28 | Unknown |  |  |
| GM 1D F22 | Foundation trench |  |  | 3-4 | Granary | FT of granary wall |
| GM 1D F23 | Foundation trench |  |  | 5 |  | FT of Wall 6 |
| GM 1D F24 | Foundation trench |  |  | Unknown | Unknown | FT Wall 1?/granary wall? |
| GM 1D F25 | Bricks in balk |  |  | Unknown |  |  |
| GM 1D F26 | Charcoal |  |  | Unknown |  |  |
| GM 1D F28 | Pit |  |  | Unknown |  |  |
| GM 1D W1 | Wall | 60.55 | $\sim 61.15$ | 2-3? |  |  |
| GM 1D W1B | Wall |  |  | 3 ? |  |  |
| GM 1D W1C | Wall |  |  | ? |  |  |
| GM 1D W1D | Wall |  |  | ? |  |  |
| GM 1D W2 | Wall |  | 60.75 | 3 | Granary | Brick wall |
| GM 1D W3 | Wall | 58.57 | 59.64 | 5 | Bld V? | Brick wall |
| GM 1D W3A | Wall? | 60.14 | 60.54 | 4 ? |  | Brick wall |
| GM 1D W4 | Wall |  |  | 3 | Granary | Granary wall |
| GM 1D W5 | Wall |  | 60.48 | 3 | Granary | Granary wall |
| GM 1D W6 | Wall | 58.96 | 59.92 | 5 | Bld IV? | Brick wall |
| GM 1D W7 | Wall |  |  | 5 ? |  | Brick wall |
| GM 1D W8 | Wall |  |  | 3 | Granary | Wall inside granary |
| GM 1D P1 | Pit | 60.73? | 61.61 | 1 |  |  |
| GM 1D P2 | Pit | 60.05 | 60.65 | Unknown |  |  |
| GM 1D-2D EBR (0) | Topsoil |  |  | None |  |  |

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 1D-2D EBR (1) | Fill |  |  | None |  |  |
| GM 1D-2D EBR P1 (1) | Pit |  |  | 1 |  |  |
| GM 1D-2D EbR (2) | Fill |  |  | 3 ? |  |  |
| GM 1D-2D EBR (3) | Fill |  |  | Post 3 ( $=2$ ?) | Granary |  |
| GM 1D-2D EBR (5) | Fill |  |  | Post 3 (=2?) | Granary |  |
| GM 1D-2D EBR | Fill |  |  | 3 | Granary |  |
| (6,6A) |  |  |  |  |  |  |
| GM 1D-2D EBR (8) | Fill |  |  | Post 3( $=2$ ? ) | Granary |  |
| GM 1D-2D EBR | Fill |  |  | Post 3 (= 2?) | Granary |  |
| (9,9A, 9B) |  |  |  |  |  |  |
| GM 1D-2D EBR | Fill |  |  | Post 3 (= 2?) | Granary |  |
| (9C,9D) |  |  |  |  |  |  |
| GM 1D-2D EBR (10) | Floor |  |  | 3 | Granary | Upper floor of granary |
| GM 1D-2D EBR (11) | Floor |  |  | 3 | Granary | Upper floor of granary |
| GM 1D-2D EBR (12) | Fill |  |  | 3 | Granary | Upper floor of granary? |
| GM 1D-2D EBR (13) | Fill |  |  | 4 ? | Granary | Fill between granary floors |
| GM 1D-2D EBR (14) | Floor |  |  | 4 ? | Granary | Lower floor of granary? |
| GM 2D (0) | Topsoil | 61.48 |  | None |  |  |
| GM 2D TT2 (1) | Fill |  |  | None |  |  |
| GM 2D TT2 (2) | Fill | 61.23 |  | 3 ? |  |  |
| GM 2D TT2 (3) | Fill |  |  | 3 ? | Granary? |  |
| GM 2D TT2 (4) | Fill |  |  | 3 ? | Granary? |  |
| GM 2D TT3 (1) | Fill |  |  | 3 ? | Granary? |  |
| GM 2D TT3 (2) | Fill |  |  | 3 ? | Granary? |  |
| GM 2D TT3 (3) | Fill |  |  | 3 | Granary |  |
| GM 2D TT3 (4) | Fill |  |  | 3 | Granary |  |
| GM 2D (5) | Fill |  |  | 3 | Granary |  |
| GM 2D (6) | Fill |  |  | 3 | Granary |  |
| GM 2D (6A) | Fill |  |  | 3 | Granary |  |
| GM 2D (6B) | Fill |  |  | 3 | Granary |  |
| GM 2D (7) | Fill |  |  | 3 | Granary |  |
| GM 2D (8) | Fill |  |  | 3 | Granary |  |
| GM 2D (9) | Fill |  |  | 3 | Granary |  |
| GM 2D (10) | Fill |  |  | 3 | Granary |  |
| GM 2D (11) | Fill/floor |  |  | 3 | Granary |  |
| GM 2D F1 (1) | Fill |  |  | 3 ? | Outside granary |  |
| GM 2D F1 (2) | Fill |  |  | 3 ? | Outside granary |  |
| GM 2D F1 (3) | Fill |  |  | 3 ? | Outside granary |  |
| GM 2D F2 | Unknown |  |  | Unknown |  |  |
| GM 2D F3 | Burial |  |  | Unknown |  | Pit 3 burial |
| GM 2D F4 | Fill |  |  | Unknown |  |  |
| GM 2D F5 | Bricks |  |  | 3 | Granary |  |
| GM 2D F6 | Unknown |  |  | Unknown |  |  |
| GM 2D W1 | Wall |  | 60.84 | 3-4 | Granary | Granary wall |
| GM 2D W2 | Wall |  | 60.59 | 3 ? |  | Brick wall |
| GM 2D P1 (1) | Pit | 60.79 | 61.35 | 1 |  |  |
| GM 2D P1 (2) | Pit |  |  | 1 |  |  |
| GM 2D P1 (3) | Pit | 60.79 |  | 1 |  |  |
| GM 2D P2 | Pit |  |  | 1 |  |  |

TABLE 8.A1 (continued)

| Context | Context type | Lower level (m) | Upper level (m) | Phase | Architecture | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GM 2D P3 | Burial |  | 61.00? | 1 ? |  |  |
| GM 1E (0) | Topsoil |  |  | None |  |  |
| GM 1E (0A) | Topsoil |  |  | None |  |  |
| GM 1E (0B) | Topsoil |  |  | None |  |  |
| GM 1E (0C) | Topsoil |  |  | None |  |  |
| GM 1E (1) | Fill | 59.80 |  | None |  |  |
| GM 1E (2) | Fill | 59.64 |  | None |  |  |
| GM 1E (2A) | Fill |  |  | 5 |  |  |
| GM 1E (3) | Fill | 59.49 |  | 5 |  |  |
| GM 1E (4,4A) | Fill |  |  | 5 |  |  |
| GM 1E (5) | Fill | 59.03 | 59.40 | 5 |  |  |
| GM 1E (5A) | Fill |  |  | 5 |  |  |
| GM 1E TT1 (6) | Fill |  |  | 5 |  |  |
| GM 1E TT1 (7) | Fill | 59.23? |  | 5 |  |  |
| GM 1E TT1 F1 | Fill |  |  | 5 |  |  |
| GM 1E F1 | Bricks |  | 58.74 | 6 ? |  |  |
| GM 1E F2 | Vessel |  |  | 5 |  |  |
| GM 1E F3 | Stones |  |  | 5 |  |  |
| GM 1E W1/W1A | Wall | 58.76 | 60.00 | 5 |  |  |
| GM 1E W1B | Wall |  | 58.74 | 6 ? |  |  |
| GM 1E W2 | Wall |  | 59.89 | 5 |  |  |
| GM 1E P1 | Pit | 59.35 | 59.85 | Unknown |  |  |

[^3]
# Bread Ovens and Related Installations Alexander Zukerman 

## INTRODUCTION

The Smithsonian Institution excavations at Tell Jemmeh yielded a large number of food preparation installations, usually denoted as tabuns or ovens, as well as other types of heating/cooking installations (see Ben-Shlomo, 2011a:274, for a preliminary summary). Thirty-nine of these installations are cataloged below, and their functional, chronological, and other aspects are discussed. All these installations are denoted in the field description chapters $3-8$ as tabuns as a general term, yet in this discussion the term bread ovens is more commonly used. Five installations (catalog numbers [Cat. Nos.] 28, 36-39) are represented only by fragments, which, in fact, might belong to clay basins rather than to ovens. Because of the incomplete excavation documentation, the data available on ovens are uneven: slightly less than a half (19 installations, mainly from the Middle and Late Bronze Age) have detailed descriptions, whereas less information is available on others ( 20 installations, mainly from the Iron Age and later periods), particularly on those that are poorly preserved. Some of the latter could, in fact, be installations of other types. No data are available on five installations (Cat. Nos. 21, 31-33, 35). Catalog number 1 may be either an oven or a smelting furnace, although no clear evidence for the latter function is available; Cat. No. 3 is either an oven or a storage bin, and Cat. Nos. 4 and 29 are probably simple fire pits. The function of Cat. Nos. 10, 11, and 26 is unclear as well (apparently, they are not typical ovens). Among the better-documented ovens, of particular importance are six installations (Cat. Nos. 19-24) found in well-preserved LBII structures discovered in Field I (Phase 3). As will be shown below, the ovens from Tell Jemmeh represent an important addition to our knowledge of food preparation technologies in the second millennium BCE.

Oven is defined here as a circular or oval stationary fire installation with clay sidewalls, designed primarily (but not exclusively) for bread baking. The problem of identifying various types of ovens (tannurs and tabuns), as well as cooking hearths (fire installations designed to accommodate a cooking pot), which are sometimes indistinguishable from ovens in the archaeological record, is treated in the Discussion section.

## CATALOG

1. GMIII C2 Feature 21; context: Field III, Phase 18; date: MBIIB-C. This installation is approximately rounded and completely exposed, with sidewalls reinforced from the outside by earth and possibly by some potsherds and small stones. It was possibly constructed on a foundation of small stones. The maximum external diameter is $\sim 60 \mathrm{~cm}$, with a maximum wall thickness of $\sim 15 \mathrm{~cm}$ and maximum vertical preservation of 36 cm . According to the architectural plan, the northeastern portion of the circumference is missing, but on the photo the wall seems to be complete, albeit less well preserved in that spot. A possible collapse was identified immediately to the south, as can be seen on the photo. On the drawing of the western section of Square C2 it can be seen that a massive brick wall (82) was constructed directly on top of Feature 21. It is thus probable that most of the superstructure of the installation was removed by this later construction.

Two parallel brick/pisé de terre walls (Feature 22) approach the installation from the south/southeast. Both walls are $\sim 25 \mathrm{~cm}$ thick, and the channel-like space between them is $20-30 \mathrm{~cm}$ wide. On the drawing of the southern and western sections of Square C2 (Figure 3.40) these walls (drawn as one thick wall) are described as being earlier than Feature 21, but on the architectural plan of Phase 18 (Figure 3.16) these features appear as contemporaneous, and the eastern wall is drawn as abutting Feature 21 from the southeast. Ash Layer 87 extends to the east and south of the installation and includes an $\sim 50 \mathrm{~cm}$ deep pit (seen in the southern section of the square). This pit was apparently used for dumping the ashes from the installation. On the photo (Figure 3.17), similar gray ash is seen in the space
between the two walls of Feature 22, reinforcing the impression that Features 22 and 21 were use related. These features stood in the open space, as far as can be learned from the limited area exposed. An industrial function (a smelting furnace?) is possible but is far from definite. Because of the many common features between this installation and regular bread ovens, it is discussed in this chapter.
2. GMIII F2 Feature 15; context: Field III, Phase 17; date: MBIIB-C. This installation, documented only in the architectural plan of Phase 17 (Figure 3.29) and on the section drawing (Figure 3.22), was only very partially exposed (most of it is in the northwestern balk of Square F2). It is apparently circular or oval, with a diameter of at least 40 cm . According to the section drawing (Figure 3.22), it is extremely poorly preserved.
3. GMIII F1 Feature 5; context: Field III, Phase 16; date: MBIIB-C. This installation was partially exposed underneath Wall 6 of Phase 15. It is circular, about 60 cm in diameter, and delimited by an $\sim 5 \mathrm{~cm}$ thick wall (note that on the architectural plan (Figure 3.52) this wall is drawn both incompletely and with a different shape from how it appears on a photo (Figure 3.53). Inside the installation a complete loaf-shaped upper grinding stone was found, lying on what seems to be a layer of gray ash. This layer seems to represent the bottom of the installation since as can be seen in the section below it, it overlies a thick homogeneous layer of brown sediment that apparently belongs to a previous layer. This installation could be an oven or a storage bin (perhaps for grain or flour if a grinding stone is any indication).
4. GMIII F1 Feature 7; context: Field III, Phase 16; date: MBIIB-C. On the photo (Figure 3.66) this installation appears to be an oval pit-like feature, $\sim 50 \mathrm{~cm}$ in maximum diameter and $\sim 10 \mathrm{~cm}$ deep, without a clear lining. In the section several layers of whitish, yellowish, and gray sediments can be seen, which perhaps sealed this pit. If these sediments are ash, then this might have been a hearth. The exact location of this installation is unclear; it is cut by Wall 6, which is located east of Wall 7. It is possible that this is, in fact, the same as Feature 5, although on photographs (Figure 3.65) they look very different from one another.
5. GMIII C2 Feature 17; context: Field III, Phase 16; date: MBIIB-C. This installation is located in the northern corner of Square C2. It is roughly circular, $\sim 80 \mathrm{~cm}$ in diameter; about onethird of its circumference is exposed. It is well preserved (max. height of preservation is $\sim 40 \mathrm{~cm}$ ), but the upper part is missing. Its sidewall is made of two to three layers of low-fired clay, evidently rebuilt or repaired several times. The walls are slightly incurving, so the top of the installation was somewhat narrower than the bottom. A narrow ( $\sim 10 \mathrm{~cm}$ wide) opening through the entire exposed height of the southern wall of the installation apparently served as a ventilation hole.

Thick (30-40 cm in thickness) laminated layers of gray, whitish, and yellowish ash reached the exterior of the installation from east and south, up to the top level of the installation's preservation. These ash accumulations are certainly related to the use of the installation and indicate that at least during the initial phase of its use the installation was freestanding, and subsequently, it was buried in the pile of refuse ash. The interior of the
installation is also filled with ash, but the top level of these ashes is lower than that of the ash outside the installation. This clearly indicates that the installation was periodically cleaned, and the ash was dumped outside. It is possible that Pit 1 , located $\sim 50 \mathrm{~cm}$ to the east of the installation, contained this refuse ash. The location of this installation in relation to buildings is unclear.
6. GMIII J1-J2 Feature 9; context: Field III, Phase 15; date: MBIIB-C. This installation is documented only on the architectural plan of Phase 15 (Figure 3.73). It seems to be roughly oval in shape, $\sim 50 \mathrm{~cm}$ in maximal diameter, and delimited by a $\sim 10-\mathrm{cm}$-thick wall. It is located outside the building exposed to its west, in what appears to be an open space (unless Wall 10 is an outer wall of another building).
7. GMIII F1 Feature 1, Locus 1; context: Field III, Phase 14A, Room F; date: MBIIC-LB. This is a circular installation, $\sim 80 \mathrm{~cm}$ in diameter, delimited by a $5-10 \mathrm{~cm}$ thick wall. The upper part of the installation is apparently missing; numerous collapsed fragments of its walls were found inside and outside the installation. The bottom of the installation was covered with dark-gray ash. A rounded ( $\sim 20 \mathrm{~cm}$ in diameter) stocking/ventilation hole was found near the bottom of the installation, possibly indicating that the installation was fully freestanding. This installation is located in the upper phase of Room F (Phase 14A), occupying half of the room. Thus, it seems that this oven was located in a closed roofed space, standing next to a mud brick wall.
8. GMIII B Feature 8; context: Field III, Phase 13, Unit 10; date: LBII. This is a roughly circular installation, $\sim 80 \mathrm{~cm}$ in maximal diameter, preserved to a height of at least 45 cm . It is located in what appears to be a roofed space.
9. GMIII B Feature 10; context: Field III, Phase 13, Unit 11; date: LBII. This installation is located near the southern balk of the square and was only partially exposed. It is circular, its diameter is probably $\sim 80 \mathrm{~cm}$, and it is surrounded by what can be assumed to be a clay sidewall. On the basis of the elevations that appear on the plan of Phase 13 (Figure 3.94), this wall was preserved to a maximum height of 47 cm . The installation is located in the corner between Walls 73 and 76, in what appears to be a room. A stone pavement is situated next to it.

10-11. GMIII B Features 11 and 11A; context: Field III, Phase 13, Unit 11; date: LBII. This is a poorly preserved installation, a circular area, $\sim 60 \mathrm{~cm}$ in diameter, covered with low-fired clay, apparently the bottom of a fire installation. No sidewalls were preserved. The difference between Features 11 and 11 A is unclear. The installation is surrounded by a well-preserved rectangular stone pavement (Feature 9) that reached Walls 74 and 76.
12. GMIII B Feature 5, Locus 8; context: Field III, Phase 12 A, Unit 8; date: LBII. This is a circular installation, $\sim 1 \mathrm{~m}$ in diameter. It was delimited by a wall that in several places was repaired and reinforced by additional flat segments of low-fired clay. The diameter becomes narrower toward the top; the approximate maximum height of preservation is 50 cm . The wall was built on a foundation of small stones. The interior was filled with gray and black ash. The remains of thin and curving brick walls found around the installation, interpreted as a possible bin (Feature 7, attributed to Phase 12B, supposedly predating the installation), might have been the remains of inner partition wall
that created an enclosure around the oven. The installation is located in what appears to be an opening (between Walls 62 and 69), near a small niche-like space (between Walls 69 and 70).
13. GMIII B Feature 1, Locus 6; context: Field III, Phase 11, Unit 7; date: LBII. This is an oval installation, $100 \times 80 \mathrm{~cm}$ in diameter. Its sidewall is built on a foundation of small stones and is preserved to a maximum height of 28 cm . The installation is partially destroyed by slope erosion and is located in the open space.
14. GMIII A3 Feature 5; context: Field III, Phase 9, Unit 2; date: LBII. This installation is rounded, $\sim 110 \mathrm{~cm}$ in diameter, with sidewalls built on a foundation of small stones. The maximum preservation of the sidewalls is $\sim 50 \mathrm{~cm}$; the upper edge of the walls is straight and apparently is the original top of the installation. There is an $\sim 20 \mathrm{~cm}$ wide opening in the northern wall, facing the partially excavated stone pavement (Feature 7) and what seems to be another oven (Feature 6, Cat. No. 15). The installation is situated in the corner between Walls 6 and 7, probably in the open space.
15. GMIII A3 Feature 6; context: Field III, Phase 9, Unit 2; date: LBII. This installation is recorded only on the section drawing (Figure 3.152) of the northern balk of Square A3. This is a circular or oval installation, $\sim 60 \mathrm{~cm}$ in diameter; sidewalls are preserved to a height of $\sim 50 \mathrm{~cm}$ and are slightly tilted to the east. The installation has a floor of small stones. It is located near Wall 4.
16. GMIII A3 Feature 4; context: Field III, Phase 7B; date: Iron IA. This poorly preserved installation is recorded only on the section drawing (Figure 3.152) of the northern balk of Square A3. It appears to be located near Wall 3.
17. GMI 3G Feature 9; context: Field I, Phase 9 (probe); date: MBIIB-C. This installation is recorded only on the architectural plan of Phase 9 (Figure 3.134). It is rounded, $\sim 50 \mathrm{~cm}$ in diameter. It is situated on top of brick paving, Feature 10.
18. GMI 3G Feature 7; context: Field I, Phase 7 (probe); date: MBIIC-LB. This is a rounded installation, $\sim 80 \mathrm{~cm}$ in diameter. No other information is available.
19. GMI 3G Feature 2; context: Field I, Phase 3(A?), Building I, Unit L; date: LBII. This is a well-preserved circular installation, $\sim 100 \mathrm{~cm}$ in diameter. Its sidewalls, built on a foundation of small stones, are constructed of at least two layers of fired clay and are preserved to a height of 36 cm . The oven is located next to Wall 1, in the western part of Unit L of Building I. Near the oven, to its east, a rounded bin with brick walls was found (Feature 1). This bin can be functionally related to the oven; it might have been used for storage of grain or as a container for refuse ash from the oven.
20. GMI 4G Feature 2; context: Field I, Phase 3(B?), Building I, Unit L; date: LBII.

This is a circular installation, $\sim 90 \mathrm{~cm}$ in diameter. Its sidewalls, reinforced with large potsherds, were apparently repaired three to four times, creating a corresponding number of concentric circumferences. In its final state, the total thickness of the wall was $\sim 20 \mathrm{~cm}$. Since a space was left between the walls, the interior of the installation in its final state was well insulated. The inner (perhaps the earliest) wall was constructed on
the foundation of small stones. At least three superimposed oven floors, made of fired clay, can be seen, indicating that during the rebuildings the oven floor was reconstructed on a higher level.

This oven is situated near the opening of Unit L in Building I, in the corner between Walls 2 and 12, the northeastern corner of the room. Near the oven, to its west, another (possibly contemporary) oven (Feature 11, Cat. No. 22) was found.
21. GMI 4G Feature 4; context: Field I, Phase 3(A?), Building I, Unit L; date: LBII. This installation has no graphic documentation. It is situated in the southeastern corner of Unit L in Building I, to the south of the entrance.
22. GMI 4G-4H Feature 11; context: Field I, Phase 3(A?), Building I, Unit L; date: LBII. This is a poorly preserved circular installation, $\sim 80 \mathrm{~cm}$ in diameter. The southern part of its sidewall is missing; either it was not preserved, or the gap is, in fact, an opening. The installation is situated near Wall 12 , to the west of another oven (Cat. No. 20).
23. GMI 2F Feature 5 (and Feature 3); context: Field I, Phase 3(A), Building I, Unit B; date: LBII. This is a circular installation, $\sim 70 \mathrm{~cm}$ in diameter. The small circular hole in the bottom of the southeastern wall of the oven is most likely a ventilation hole. The interior of the oven was filled with numerous thin layers of yellowish and gray ash, representing episodes of the installation's use. The installation was built on the cobble pavement that extended over most of Room A of Building I. This oven is situated in the northwestern corner of that room, in a small enclosure (Unit B) created by a curved brick wall. This wall, built on the above-mentioned cobble pavement, was perhaps constructed to keep the ash from the oven from spreading all over Room A. Layers of use-related ash from the oven were found in the enclosure.
24. GMI 5D Feature 3; context: Field I, Phase 3, Building II, Room G; date: LBII.

This installation is an exceptionally well preserved circular oven, $\sim 80 \mathrm{~cm}$ in diameter at the base and $\sim 40 \mathrm{~cm}$ in diameter at the preserved top (which is probably the original rim of the installation with a dome-shaped upper part). It is preserved to a height of 60 cm . Its sidewalls are built on a foundation of small stones and are reinforced from the outside with large jar fragments. The lower part of its interior was filled with brownishyellow ash; thick deposits of ash surrounded this installation, from its top to bottom, so the installation was at least partially buried in this ash. The floor of the oven was made of fired clay. Part of the southwestern sidewall of the oven was missing, and it is possible that a stocking hole was situated in this area. This oven is situated in the northwestern corner of a small room (Room G) in the partially excavated Building II.
25. GMI KB Feature 2, Locus 2; context: Field I KB, Phase KB1; date: Iron IIB-C.

This is a circular installation, $\sim 80 \mathrm{~cm}$ in diameter. Its walls are preserved to a height of $\sim 20 \mathrm{~cm}$. A complete jar was found nearby. No other information is available.
26. GMII A3 Feature 3; context: Field II, Phase 5; date: Iron I? This feature is documented only on the architectural plan (Figure 4.24), where a half circle of stones(?), $\sim 100 \mathrm{~cm}$ in diameter, can be seen. No other data on this installation are available.
27. GMII C1 Feature 4; context: Field II, Phase 2, Unit 2; date: unknown. This installation is documented only on the photograph (Figure 4.37), and it is not on the architectural plan of Phase 2 (Figure 4.35). This is a circular installation, $\sim 60 \mathrm{~cm}$ in diameter, with walls preserved to a height of $\sim 40 \mathrm{~cm}$. It is situated near a brick wall, and a basalt grinding stone was found nearby.
28. GM 00B Feature 2; context: Field IV, Phase 4?; date: Persian period? Fragments of low-fired clay. No other data are available.
29. GM 1B Feature 1, Locus 10; context: Field IV, Phase 5, Building I, Room E; date: Iron IIC. This is an ashy circle; no data are available.
30. GM 2B Oven 1, Locus 4; context: Field IV, Phase 3?; date: Persian period? This circular ( $\sim 100 \mathrm{~cm}$ in diameter) installation was only half excavated. It is preserved to a height of $\sim 40$ cm . Layers of white and black ash abut its exterior from the west. A thin stone wall to its south could be a windbreak. It does not appear on architectural plans.
31. GM 2B Oven 2, Locus 5; context: Field IV, unknown phase; date: unknown. No data are available; this feature is known only from notes.
32. GM 2B Feature 4; context: Field IV, Phase 5?; date: Iron IIC? No data are available; this feature is known only from notes.
33. GM 2B Feature 9; context: Field IV, Phase 5?; date: Iron IIC? No data are available; this feature is known only from notes.
34. GM 2B Feature 14; context: Field IV, Phase 5?, Building II, Room B?; date: Iron IIC? This is a circular oven, $\sim 80 \mathrm{~cm}$ in diameter at the base, with a dome-shaped upper part, with $\sim 10 \mathrm{~cm}$ thick sidewalls reinforced with large fragments of storage jars. Its interior is filled with blackish and gray ash. It does not appear on architectural plans.
35. GM 2B Feature 37; context: Field IV, Phase 7, Locus 4; date: Iron IIB. No data are available.
36. GM 1D Feature 3; context: Field IV, unknown phase; date: unknown. This feature is fragments of low-fired clay. No other data are available.
37. GM 1D Feature 10; context: Field IV, unknown phase; date: unknown. This feature is fragments of low-fired clay. No other data are available.
38. GM 1D Feature 12; context: Field IV, unknown phase; date: unknown. This feature is fragments of low-fired clay. No other data are available.
39. GM 1D Feature 13; context: Field IV, Phase 5?; date: unknown. This feature is fragments of low-fired clay. No other data are available.

## DISCUSSION

## Construction Technique and Shape

In terms of their construction, the ovens from Tell Jemmeh do not seem to differ from contemporary installations of this type known from other sites (for assemblages of ovens from
the southern Levant, see, for example, Gunneweg, 1983; McQuitty, 1984, 1993-1994; Van der Steen, 1991; Mazar, 1997; Campbell, 2002; Mazar and Ben-Shlomo, 2005; Frankel, 2011; Mazar, 2011). Their sidewalls, constructed of low-fired coarse clay mixed with straw and other organic materials, frequently have a stone foundation and are reinforced with large potsherds (see, for example, Dever et al., 1970:50, pl. 22B, from Gezer; Campbell, 2002:40, fig. 31, from Shechem/Tel Balatah; Leibowitz, 2003:65, 71, photo 3:12, from Tel Yin'am). The examination of walls of many bread ovens reveals that they have horizontal ridges and break into horizontal segments, indicating that they were built of coils (e.g., Gunneweg, 1983:106; Van der Steen, 1991:138-139; Folk and Leibowitz, 2003:238). The diameter of ovens from Tell Jemmeh is usually $60-80 \mathrm{~cm}$ (at the base), which is the average size of contemporaneous ovens from other Levantine sites. Some examples are slightly larger, up to 110 cm in base diameter (Cat. Nos. 12, 14, 19-20, 30), whereas one example (Cat. No. 17) is only 50 cm wide. Oval ovens (Cat. Nos. 6 and 13) are rare both at Tell Jemmeh and elsewhere; the functional significance of this shape is unclear (for examples of oval ovens, see Campbell, 2002:40, 58, 117, figs. 30, 50, 103, from Shechem/ Tel Balatah, and Mazar and Ben-Shlomo, 2005:13-14, plan 2.2, from Ashdod). Most ovens have a simple earthen floor; floors of two installations (Cat. Nos. 20 and 24) are made of fired clay, and another example (Cat. No. 15) has a floor made of small stones. Only four ovens (Cat. Nos. 5, 12, 24, and 34) are sufficiently well preserved to enable the examination of their upper part, which is dome shaped. Catalog number 24 has the original rim still preserved; the diameter of its upper opening is 40 cm , and the height of this oven is 60 cm . Such a shape, cylindrical lower part and dome-shaped upper part with the centrally placed upper opening, is predominant among sufficiently preserved Bronze and Iron Age ovens from the Levant (see references above). The rim of Cat No. 14 is preserved as well, but as argued below, this is probably not an oven but, rather, a cooking hearth.

## Function

One of the crucial elements that help to elucidate the function of fire installations is the existence of small ( $10-20$ wide) holes at their base, just above the level of the floor. Several ovens with such holes are known at Tell Jemmeh (Cat. Nos. 5, 7, and possibly also 22-24). Because of their small size and location, it can be assumed that these holes were designed to allow the intake of air to maintain the fire inside the installation, as well as, in some cases, perhaps to allow for stocking the oven with fuel (wood, coals, or dry animal dung mixed with straw) and for removal of ashes. Ethnographic data indicate that these holes faced the work area, and thus, their location indicates where the front of the installation was (Parker, 2011:619). Because of extremely poor documentation of ovens in most excavation reports, the phenomenon of ventilation/stocking holes is insufficiently known. It is quite possible that such holes at the base of ovens were much more frequent than what is indicated by the available data from other sites (for examples of such holes, see Smith et al., 1983: fig. 19, left, from Pella; Fischer, 2006:99, figs.

108, 109, from Tell Abu al-Kharaz; Panitz-Cohen and Mazar, 2009:144, photo 4.64; Mazar, 2011, from Tel Rehov).

Whatever the exact function of these holes (ventilation, stocking, or both) was, they clearly indicate that the installations with such ovens were heated from the interior. The way an oven was heated determines its definition as either a tannur or a tabun (Avitsur, 1976:109-113; Gunneweg, 1983:110-111; Van der Steen, 1991:135; King and Stager, 2001:67, 138, n. 75). Tannurs were heated by coals burning on the floor, and flat bread was then baked on the concave interior surface of their sidewalls (Figures 9.2, 9.3), which is typically very smooth. In modern Anatolia, central Asia, and some other regions the term used for this type of installation is tandir or tandur (e.g., Parker, 2011), and in India it is tandoori (Figure 9.2). Bread ovens of this type are characteristic of numerous sites, such as the Iron I Tell Deir 'Alla (Franken and Kalsbeek, 1969:29-30). It can be suggested that most ovens with an earthen floor at Tell Jemmeh and elsewhere, as well as all ovens with ventilation/stocking holes in their sidewalls, are tannurs. Starch granules, discovered on the interior of a tannur-type oven from the Amarna workmen's village (mid-14th century BCE), confirm its use as a bread-baking facility (Samuel, 1999:131). A famous Cypriot terra-cotta from the Metropolitan Museum of Art in New York depicts an oven of the tannur type (Figure 9.1). It shows a tall circular installation with a slightly inverted upper wall and wide opening. A woman is attaching a piece of dough to the upper interior of the installation, and another four flat pitas are shown as already baking inside. A circular stoking hole is depicted at the base of the oven. Other, more schematic representations of bread ovens in terra-cotta come from Cyprus (Gjerstad et al., 1937:315, pl. 55:1; Vandenabeele, 1986; Karageorghis, 2006:124, cat no. 95; see also Frankel, 2011) and


FIGURE 9.1. Terra-cotta figurine showing a woman baking bread, from Cyprus, Cypro-Archaic II period, ca. 600-480 BCE (Karageorghis, 2000:160-161, cat. no. 260).

Carthage (Hoyos, 2010:110, ill. 15). Bread ovens of the tannur type are also depicted in Egyptian tomb paintings (Curtis, 2001:127; Frankel, 2011, and references therein).

In contrast to tannurs, tabuns were heated by burning fuel (usually dung) against the exterior walls of the installation, and the bread was baked on the stone, pebble, or ceramic floor inside it. Some modern tannurs have a special internal fire chamber (sanur), and after use, the burning dung is piled against its exterior to preserve the heat (McQuitty, 1984:261). This technique admittedly blurs the archaeological distinctiveness of the two types of bread ovens as outlined here. Clear examples of tannurs were found in Tel Masos (Gunneweg, 1983:110, Oven 1, with a pile of charcoal still remaining outside it), in Tell Balatah/ Shechem (Campbell, 2002:241, Oven 1175, with traces of fire on its outer face), and in Gezer (Gitin, 1990:305, Locus 14010). In Tell Jemmeh, it can be tentatively suggested that ovens with ceramic or stone floors (Cat. Nos. 15, 20, 24) can be defined as tabuns, although it is possible that some tannurs had such floors as well. For example, as discussed below, there are some indications that oven 24 was in fact of the tannur type (because it was buried in ash that was apparently scooped out of it). Tannur structures were much lower than tabuns (e.g., McQuitty, 1984:261), but this criterion is usually useless for the identification of archaeological examples of bread ovens, which are normally found with their upper part missing.

Both tabuns and tannurs are still in use in the Near East and neighboring regions (Figures 9.2-9.4; see, e.g., Avitsur, 1976:109-113; McQuitty 1984, 1993-1994; Amiry and Tamari, 1989:20-25; Frankel, 2011; Parker, 2011). Over the course of time, some elaborations, such as a grill-like separation between the bread and the embers inside the tannur, were introduced. However, apart from these and other elaborations, the basic form of bread ovens did not change until present time. Most bread ovens found in archaeological excavations cannot easily be


FIGURE 9.2. A traditional Pakistani tandur (tannur).


FIGURE 9.3. A traditional Palestinian tabun. Note the ashes covering the installation.
attributed to one of these types, either because of their poor preservation or because of their insufficiently detailed publication.

The main function of ovens, both tabuns and tannurs, was bread baking. However, additional functions of ovens in households should not be overlooked. In general, most installations
in ancient cultures (as well as in traditional contemporary ones) tended to be multifunctional (for example, crushing basins of Iron II olive oil presses were perhaps also used for soaking linen and wool in textile production; see Eitam, 1996:174-175). Tabuns and tannurs could have been used for roasting meat (Gunneweg, 1983:111, n. 3), a method that is also attested in Ur III texts (Ellison, 1984:93, n. 29). When located indoors, tannur-type ovens could have been used for heating as well. In Jewish communities ovens were even used to preserve the heat of cooked food during the Sabbath when no work was allowed (Avitsur, 1976:113), and in many traditional societies bread ovens are covered by lids or other devices in order to prevent the quick loss of heat (Lyons and D'Andrea, 2003:517, and references therein). Clearly, such well-insulated ovens were not intended to heat the surrounding space, but this very quality allowed for other important uses. It should additionally be mentioned that, in some cases, it is difficult to distinguish between archaeological examples of bread ovens and metal-smelting kilns. Such oven-like kilns are attested, for example, in Tel Dan (Biran, 1989:120-125, fig. 7) and Tell es-Sa’idiyeh (Pritchard, 1985:23).

In spite of ovens' versatility, it is important to stress that the size and building technique of these installations did not allow for carrying a full cooking pot on their top, and they could not be used for cooking in this fashion (see also Ben-Shlomo et al., 2008:235, n. 60). An alternative view suggests that ovens with a dome-shaped upper part were used for cooking in a pot placed on top of them (see Vilders, 1993:153; Edelstein et al., 1998:35, plan 3.8; Killebrew, 1999:106-108). In my view, since ovens were


FIGURE 9.4. A cooking hearth from Tell Deir 'Alla. Image by Van der Steen (1991: fig. 1a), used with permission.
constructed from relatively fragile low-fired crude clay, their inverted dome-shaped walls were clearly unsuitable for withstanding the weight of a full average-size cooking pot with a wide opening, which can be estimated to weigh between 6 and 9 kg (this estimate is based on the volumes of the Late Bronze Age cooking pots from Tel Batash [Panitz-Cohen, 2006b:69, table 24] and of the Iron IIB cooking pots from Tel Beth Shean [Mazar, 2006:344]). Even for the cooking pots of the Iron IIB-C (8thearly 6 th centuries BCE), which are usually quite small, such a function is untenable. This is because ovens of this period had to have a sharply incurving (and therefore very unstable) upper wall in order to create an upper opening small enough to accommodate such a pot. This conclusion is supported by the ethnographic study of contemporary ovens in the Upper Tigris region (Parker, 2011:620-621), according to which tandir-type (tannur-type) ovens are used almost exclusively for baking unleavened bread, whereas other installations are used for cooking, roasting, etc.

Oven-like installations with a dome-shaped top, reinforced by hard kiln-fired bricks, are attested in the fifth-third millennia BCE (and perhaps also later) northern Mesopotamia (Curtis, 2001:207). Such installations allowed for placing a cooking pot on their open top, but to the best of my knowledge, they are unknown in the Levant. North Mesopotamian installations with a reinforced top should probably be identified with tinûru, on top of which cooking pots were placed according to Akkadian culinary documents (e.g., Bottéro, 1987:14, 17). However, in spite of linguistic connection between the two terms, the functional relationship between tinûru and Levantine tannur is problematic and requires much further study. At most, Levantine ovens (tannurs and tabuns) could have been used for cooking in round-based cooking pots only after the upper part of their superstructure had collapsed or was intentionally removed (see also Badre, 2011:150). In this case, cooking pots could have been placed either inside them, directly on hot ash or coals, or on the vertical stubs of oven's sidewalls. This "secondary" use of bread ovens can account for a number of cases when apparently in situ cooking pots were found inside what seems to be the lower part of ovens (e.g., Yadin et al., 1958: pl. 6:3, from Hazor; BeitArieh, 1973:33, from Beer-Sheba; Van der Steen, 1991:149, pl. 1:2, from Tell Deir 'Alla; Steiner, 2001:60, from Jerusalem). In Tell Jemmeh, no complete cooking pots were recorded in proximity to ovens, although large fragments of cooking vessels come from Field I, Building I, Unit L.

At this point, it is necessary to briefly consider another problem related to archaeological identification of ancient cooking and baking facilities and their function: the recognition of cooking hearths as a distinct type of installation. Some circular installations with clay sidewalls, identified in excavation reports as ovens or tabuns, are clearly too small (less than 50 cm in diameter and some as small as $30-35 \mathrm{~cm}$ ) to be suitable for such use (e.g., Aharoni, 1973: pl. 94, in Locus 94; Herzog, 1984: fig. 10, in Locus 2086, from Tel Beersheba; Van der Steen, 1991: table 1, from Tell Deir 'Alla; Alexandre, 2007:24, plan 1, from Sulam, with a cooking pot found inside). It can be suggested that many of these small "ovens," as well as some of the larger ones, are, in fact, cooking hearths. These are low, stationary installations, with
a large opening in their front (giving them a horseshoe-shaped ground plan) with internal space used as a combustion chamber. Cooking pots, frying pans, or baking trays were placed on their open top and heated either on open fire or on hot coals. Complete examples of these installations had a level and horizontal rim, suitable to support these vessels. The documented examples of this type of installation from the southern Levant are dated from the Middle Bronze Age through the Iron II and later. See Figure 9.4 from Tell Deir 'Alla as well as examples in Barkay and Ussishkin (2004: fig. 8.44, from Lachish), Herzog (1984:33, pl. 11:2, Locus 2101, from Tel Beersheba), Gal and Alexandre (2000:10, fig. II.1, plan 2, from Horbat Rosh Zayit, with an in situ globular cooking pot discovered in it), Ayalon (1999:43, fig. 3.27, from Tel 'Ira, made of stone and plaster), and Yadin (2009:11, 14, figs. 2.5, 2.7, 2.9, from Aphek, built of mud brick on stone base).

Badre (2011:150) is one of the very few scholars who recognized cooking hearths as a distinct type of installation that is different from bread ovens (see also Frankel, 2011:81-84). The same problem apparently exists in the archaeology of first millennium BCE Greece (see Sparkes, 1981, with the telling title "Not Cooking, but Baking"). Because of their resemblance to bread ovens, these installations are frequently misinterpreted and have certainly received insufficient scholarly attention.

The excavations of Tell Jemmeh revealed what seems to be an example of such a cooking hearth: Cat. No. 14, dated to the Late Bronze Age II. This identification is based on assumptions that its level at the upper edge is the original top of the installation and that the missing section of its front wall is a hearth's side opening. A possible bread oven (Cat. No. 15) was found next to this installation. In quite a few Bronze and Iron Age southern Levantine sites, cooking hearths and bread ovens were found in close proximity, as cooking and baking were apparently carried out in the same space, using two different types of installations. See, for example, Herzog (1984:33, fig. 15, Loci 2301 and 2609, from Tell Beersheba, found in a small room apparently used as a kitchen), Leibowitz (2003:66, 89, plan 3.3, photos 3:14, 3:29, two stone cooking hearths from Tel Yin'am, found in courtyards in proximity to bread ovens and grain-grinding installations), and the above-mentioned cooking hearth from Tel 'Ira (Ayalon, 1999:43, fig. 3.27) that was found near two ovens in what appears to be a kitchen (for examples from later periods, see Frankel, 2011:85). Two circular installations from the Late Bronze Age Building I at Tell Jemmeh (Cat. Nos. 20 and 22) might possibly represent another such pair of installations. However, although the identification of Cat. No. 20 as a bread oven is quite clear, the functional interpretation of Cat. No. 22 is problematic because of its poor preservation. Although Cat. No. 22 has an open front, which is a feature of cooking hearths, this opening could also be the result of later damage to installation's wall. In any case, the existence of pairs of "ovens" in close proximity to each other may suggest that one of them is, in fact, a cooking hearth rather than a bread oven. This is particularly true of the cases when one of the installations is significantly smaller than the other (e.g., Pritchard, 1985:10, 28, figs. 94, 179, three such "pairs" of installations from Tell es-Sa'idiyeh). Spatial association between bread ovens and cooking hearths is known
in contemporary traditional Near Eastern societies as well (e.g., Parker, 2011:620-621). Frequent finds of simple hearths (apparently used for cooking) near ovens (e.g., Gadot and YasurLandau, 2006:587) point in the same direction.

## Location

Bread ovens are frequently associated with brick- or stonelined bins used to contain grain (e.g., Campbell, 2002:58; Leibowitz, 2003:65). In Tell Jemmeh, Cat. No. 19, found in the Late Bronze Age Building I, was located near a rounded bin with brick walls (Feature 1) that, as mentioned above, might have been used for storage of grain. Another installation (Cat. No. 3 ), although listed in the catalog of ovens, might possibly be another such grain bin if the basalt grinding stone found inside it is an indication of its function. A grinding stone was also found near a possible oven of unknown date (Cat. No. 27). Grinding stones, as well as basins and flat stone tables, are frequently associated with cooking installations in general and with bread ovens in particular, as production of flour, preparation of dough, and baking of bread were usually carried out in the same space (Daviau, 1993:451; for selected archaeological examples of this association, see Yadin et al., 1961: pl. 61:1; Stern, 1984:4849; Pritchard, 1985:12, fig. 48; Mazar, 1997:241; Campbell, 2002:58, figs. 52, 53; Leibowitz, 2003:66, 89).

Since the cooking area near ovens was an important working space where people (primarily women) were almost constantly present, it was frequently paved. At Tell Jemmeh, examples of the association between ovens and pavements are Cat. Nos. 9-11 (if Cat. Nos. 10-11 are indeed related to food preparation), 14, and 23. Some ovens were separated from the surrounding space by thin walls that created a kind of small enclosure around it (Cat. Nos. 12, 23, and possibly also 30). These enclosure walls possibly served several purposes: to keep the ash from spreading all over the adjacent area and to isolate the area where women were predominantly active (for the role of women in ancient bread baking, see Nelson, 1997:104-106; Meyers, 2007). Such oven shelters are extremely common in modern-day traditional communities in Turkey, the Near East, and elsewhere (Parker, 2011:619).

Another important aspect of ovens' use is their location vis-à-vis roofed spaces. In general, bread ovens located outside buildings (that is, outside roofed structures and associated courtyards) can be considered as installations for communal use, whereas the access to ovens located indoors was limited to members of the household.

In general, the evidence for communal bread baking in the Middle and Late Bronze Age southern Levant is meager. This is in contrast to the data from the following period (that is, the Iron Age) and to the profusion of ethnographic examples of such communal installations from various traditional Near Eastern communities (e.g., Avitsur, 1976:113; Amiry and Tamari, 1989:20, 25). In Turkish and Near Eastern villages, the domed structures that housed communal tabuns also serve as meeting places, primarily for women.

In Tell Jemmeh, several ovens were clearly located inside buildings, either in roofed spaces or in enclosed courtyards (Cat.

Nos. 7-9, 12, 19-24, all dated to the Middle-Late Bronze Age). Some ovens from Tell Jemmeh were, with varying degrees of probability, located in open spaces (Cat. Nos. 1, 6, 13-15), but the nature of these spaces (street? internal courtyard?) is unclear. Although, as explained above, the excavation data from Tell Jemmeh are sometimes incomplete, it seems that most ovens from Middle-Late Bronze Age levels at the site were located indoors. This (admittedly tentative) conclusion conforms to the picture obtained from other sites from these periods (Daviau, 1993:451). It should be noted that although Daviau's general conclusion concerning the predominance of outdoor locations for Middle and Late Bronze Age ovens is correct, the percentage of all those located outside the house given by her $(3.2 \%)$ seems to be too low. A number of recent publications on Middle and Late Bronze Age sites feature ovens that were found in courtyards (e.g., Mazar, 1997:67-69; Ben-Tor and Bonfil, 2003:257, plan 36; Leibowitz, 2003: plans 3.3, 3.7; Mullins and Mazar, 2007:78-79; PanitzCohen and Mazar, 2009:111-112, photo 4.22; Mazar, 2011).

The location of cooking hearths and bread ovens was also dictated by seasonal changes of weather, as indicated by ethnographic studies conducted in the Near and Middle East: food was prepared indoors during colder and rainy winter months and outdoors during hotter summer months (Kramer, 1979:156; Watson, 1979:159; Delaney, 1991:240-243). During these seasonal shifts of food preparation activity, areas with old bread ovens were frequently dismantled (or left to decay), and new ones were built or reconstructed in a new place. However, such seasonal shifts of kitchen location fail to account for the predominantly indoor location of these installations during the Middle and Late Bronze Age (unless some such ovens were located in inner courtyards that are erroneously reconstructed as roofed spaces). The only possible evidence for such seasonal shifts at Tell Jemmeh comes from the Late Bronze Age Building I, where ovens were found both in the courtyard (Rooms A and B) and in one of the inner rooms (Unit L).

The additional factor that determined the location of ovens inside or outside the building was the availability of open space between houses. For example, ovens in the relatively sparsely built-up Iron Age I village of Tell Deir 'Alla were located in open courtyards (Franken and Kalsbeek, 1969:29). In contrast, no courtyards were found adjacent to the residential buildings discovered in the Iron Age I town of Tell Qasile (Mazar, 2009a: fig. 3). Mazar (2009a:332) described these structures as "built in dense blocks, with common walls and no place for courtyard in front of the houses or between them." Streets that separated the blocks were apparently considered public space and had no ovens. Although it is hard to establish how densely built the settlement at Tell Jemmeh was during the Middle and Late Bronze Ages, this factor might have had a decisive influence on the location of ovens at the site.

## Maintenance and Repair

According to archaeological and ethnographical data, the interior of tabuns and tannurs was periodically cleaned, and the ashes were scooped out and dumped elsewhere. Cleaning
the accumulated ash from the tabun floor was necessary for the normal functioning of this installation because even a thin layer of ash on heated stones would insulate them from the interior space (Lyons and D'Andrea, 2003:520). Ash dumps near bread ovens were discovered, for example, in the Middle Bronze Age Gezer (Dever et al., 1970:59) and Tell Abu al-Kharaz (Fischer, 2006:47-48), in the Iron I Tell Deir 'Alla (Franken and Kalsbeek, 1969:30), and in the Iron II Tell es-Sa'idiyeh (Pritchard, 1985:8) and Tel Rehov (Mazar, 2011:112). In Tell Jemmeh, large deposits of ash were discovered around Cat. Nos. 1, 5, 23-24, and 30. In the first two cases, pits filled with ash were found in proximity to ovens. These pits were probably intentionally excavated to serve as ash bins (for possible ash bins near bread ovens from third millennium BCE Mesopotamia, see Delougaz et al., 1967:154). The only possible (but by no means certain) evidence for a similar installation at Tell Jemmeh is a circular brick bin (Feature 1) found near a Late Bronze Age oven (Cat. No. 19). Ovens 5 and 24 were at least partially buried in layers of ash that accumulated against their exterior. If these ash layers indeed represent refuse scooped out from the inside of these ovens (and not the in situ remains of burned fuel), these installations were of the tannur type (as mentioned above, in the case of Cat. No. 5 this definition is supported by the existence of a ventilation hole). Such piles of refuse ash contributed to the insulation of tannurs, which was particularly important during winter months.

In some cases, archaeological examples of tannurs were apparently allowed to accumulate layers of ash, gradually reducing the inner space of the installation. Probably as a result of this, the upper part of the tannurs was frequently rebuilt, and when excavated, they sometimes have the appearance of wide clay cylinders filled with numerous layers of soft ash in different colors, without any clear bottom surface. In Tell Jemmeh, several ovens had such deposits of ash inside them (Cat. Nos. 5, 12, 23, 34); as expected, none of them had solid (stone or clay) floors.

Judging from traditional Near Eastern examples, the life span of clay bread ovens was relatively short, about 3-4 years (Daviau, 2003:172, n. 57; see McQuitty, 1984:265 for a somewhat longer estimate). This would explain the fact that walls and floors of many Bronze and Iron Age Levantine ovens show signs of repair, and in numerous other cases new ovens were built inside or on the spot of old ones, creating a typical
configuration of concentric or overlapping circles of oven walls or of several superimposed ovens (e.g., Maisler, 1950-1951:12; Pritchard, 1985: fig. 152; Dever, 1986: pl. 72B; Mazar, 1999: fig. 12, as well as examples cited by Van der Steen, 1991:139, some of which might have had intentionally constructed "sandwich wall"). However, the number of repairs evident in archaeological sites would still attest to a longer than 3- to 4 -year life span for the ovens. In some cases, however, an oven was rebuilt on a spot just next to an old obsolete one. Three ovens that were apparently used consecutively were found at the Late Bronze Age Beth Shean (Panitz-Cohen and Mazar, 2009:111-112, photo 4.22, fig. 4.17). Each of these ovens was related to one of the superimposed layers of striated debris that gradually accumulated in a courtyard. At Tell Jemmeh, an oven (Cat. No. 20) found in Unit L of Building I was tentatively attributed to Phase 3B, whereas another oven in the same room (Cat. No. 19) was (also tentatively) attributed to Phase 3A. If these stratigraphic attributions are correct, then these two installations represent an example of an oven that went out of use and was rebuilt on another spot in the same room.

Several ovens from Tell Jemmeh (Cat. Nos. 5, 12, 19, and 20) exhibit signs of repair: some were reinforced from the outside with curving segments of fired clay, whereas in other cases complete rings of fired clay were added. The latter type of repair created series of concentric clay walls with empty space in between that also improved the insulation of the ovens' internal space (for example, Cat. No. 20, where the clay floors were rebuilt as well). It seems not to be an accident that two ovens from Tell Jemmeh with deposits of ash inside (Cat. Nos. 5 and 12, both probably of the tannur type) were also repaired or rebuilt several times. These two cases suggest that such rebuildings were apparently a quite simple undertaking that could be quickly accomplished by unskilled persons and were sometimes preferred over thorough cleaning of existing installations.

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# Decorated Canaanite Pottery Gwanghyun Choi 

## INTRODUCTION

W. F. Albright (1932:46) stated some 80 years ago that the Late Bronze Age in Palestine was "the most flourishing age of painted pottery in the entire pre-Islamic history of Palestine," a period when the tradition of Canaanite painted pottery fully developed. This chapter will discuss a selection of Canaanite painted pottery from the Smithsonian Institution excavations at Tell Jemmeh. The painted Canaanite pottery assemblage of Van Beek's excavations at Tell Jemmeh includes two complete vessels and a number of sherds that date to the LBII or Iron I. This assemblage shows that the local Canaanite pottery painters who produced these followed the Canaanite pottery painting tradition of the Late Bronze Age. The pottery painters decorated the vessels with natural motifs such as trees, quadrupeds, and birds and with various geometric motifs, which were popular in Canaanite pottery paintings during the LBII and Iron I. Like most of other decorated Canaanite pottery in the Levant, these vessels were painted mostly in red, yet black (or a dark color) was also used. They are often covered by white slip as well. The decorated vessels and sherds can be divided into the following five groups according to the decorative designs painted on them (Figures 10.1 and 10.2).

## TREE OF LIFE SCENES

It is not by accident that both complete vessels are decorated with depictions of what is known as the "tree of life," a motif representing a tree flanked by attribute animals (May, 1935:36) since it is the most popular motif in Canaanite pottery paintings during the LB and Iron I ages.

## A Decorated Biconical Jug

In the repertoire of Canaanite pottery, the biconical jug is one of the most beautifully decorated vessel types. This type of pottery is characterized by the marked carination on which the maximum diameter is found. The carination divides the biconical body into two parts, each of which tapers toward its end. The main decoration is always seen on the upper body, and the same applies to this Tell Jemmeh jug. Biconical jugs decorated with natural motifs commonly occur in the north and south of Israel during the Late Bronze Age and Iron Age I. Parallels are found at sites such as Tel Qashish (Ben-Tor et al., 2003: fig. 100:13), the village of Zawata (Eisenstadt et al., 2004: pl. 5:2), Megiddo (Guy and Engberg, 1938: pl. 134; Loud, 1948: pls. 49:18, 58:1-3, 63:3), Batash (Panitz-Cohen and Mazar, 2006: pls. 37:12, 54:1), Hazor (Yadin et al., 1960: pl. 152:5; Ben-Tor, 1997: fig. III.17:10), Tel Sera’ (Oren, 1985: fig. 6:1), Lachish (Tufnell et al., 1940: pl. 49:260; Tufnell, 1958: pl. 84:963), Tell el-Far'ah (S) (Starkey and Harding, 1932: pls. 58:920,972,978, 84:37J,37J3,372J2), Tel Yin'am (Leibowitz, 2003: fig. 34:1,3), Tell Rumeideh, Hebron (Peleg and Eisenstadt, 2004: pl. 3:11), Tell Deir 'Alla (Franken,1992: figs. 4:11; 5.14:19), and Tell es-Sa’idiyeh (Pritchard, 1980: fig. 11:2).

The painted decoration on this biconical jug shows a variation of the well-known Canaanite tree of life motif, a typical example that consists of a tree (mostly a date palm) accompanied by two attribute animals on either side or one side only. The attribute animals are usually quadrupeds or birds.

The tree depicted in the lower frieze of the decorative design on the Tell Jemmeh biconical jug is unmistakably identified as a date palm on the basis of the drooping-downward lower branches, separated from the upper branches stretching upward. The separation

of the upper and lower branches of a date palm is commonly observed on living date palms. The dark dots painted along the branches represent the palm fronds. Such a representation of a date palm is most popular during the LBII and Iron I period. An example almost identical to this date palm is also found on a sherd from Petrie's excavations (Petrie, 1928: pl. LXIII:33).

The fully developed style of such a date palm representation is particularly observed on many painted vessels from Lachish, which date to the 13th-12th centuries BCE (Tufnell et al., 1940: pls. 41B:117,125, 60:1,2, 61:7, 64:7,8, 65:6, 1958: fig. 2:2,17, pls. 72:630, 86:999; Aharoni, 1975: pls. 39:11, 40:1,3; Clamer, 2004: figs. 19.30:10, 19.31:9, 19.34:4, 19.40:1, 19.48:4, 20.31:1,8, 20.33:14, 20.43:17, left, 21.4:10, 21.12:18). Parallels can also be found at many other sites.

Several birds are also depicted in the lower frieze. Apparently, these birds are not ostriches since they have a long, $S$-shaped neck, rather than an upright one. These birds probably represent cranes. Almost identical birds are also depicted on some painted vessels from Lachish and Tel Mor, dating to the 13th-12th centuries BCE (Tufnell et al., 1940: pl. 60:1,2; Aharoni, 1975: pl. 40:1; Barako, 2007: fig. 3.16:7).

A series of tree of life scenes are shown in the upper frieze of the vessel (Figure 10.1a). Each of these scenes consists of a tree and three birds. In each scene, two birds are flanking the tree on either side, and the third bird is sitting on top of the tree. The trees painted in the upper frieze of the design lack the lower branches. Nevertheless, there is no doubt that they also represent the same date palm species as the one shown in the lower frieze, given the facts that both of them have identical upper branches and fronds and that they are painted in the same style. The lower branches of these trees seem to have been omitted on purpose because of the birds' heads, which are located exactly where the lower branches are supposed to be. In the upper frieze, the tree of life scene is placed in a metope made by the pattern of running X shapes between two parallel lines. In the lower frieze, a zigzag band consisting of the zigzag running stroke between two parallel lines separates the trees from the birds. Both of these metope and zigzag designs including natural motifs are common in $\mathrm{Ca}-$ naanite pottery paintings during the LBII and Iron I.

## a Decorated Krater

Another tree of life scene is found on a partly broken krater found on the site's surface. The shape of the krater is somewhat biconic, or deep; notably this krater has a wide, coarsely made base with two "knob handles" attached to it. Possibly, this unusual forming of the base was intended to give the vessel higher stability. The upper area of this vessel's outer wall shows a tree of life scene consisting of a tree flanked by a quadruped, which can be identified as an ibex on the basis of its long horns curving backward. It is impossible to reconstruct precisely the whole design painted on this vessel since a large part of its upper area is missing. Nevertheless, the depiction of another ibex indicates that a series of identical tree of life scenes were originally painted on the upper frieze.

The lower frieze shows a geometric metope design consisting of the net pattern and the double-triangle motif, which occur alternatively. In this design, the net pattern as a frame motif creates the metopes, in which the double triangles are placed. The double-triangle motif occurs in two variations, the vertical double triangle ("hourglass") and the horizontal double triangle ("butterfly").

## Trees, Quadrupeds, and Birds

The painted Canaanite pottery assemblage from Tell Jemmeh also includes many sherds from pottery vessels that were originally decorated with natural motifs such as trees, quadrupeds, and birds. These motifs survived only fragmentarily on the sherds, and the main parts of the original decorative designs that might have been included are entirely missing.

A date palm tree that is almost identical to those found in the tree of life scene painted on the biconical jug (Figure 10.1a) is depicted on a sherd (Figure 10.2g). A broken handle (Figure 10.1 f ) apparently bears a schematized depiction of a date palm; this motif is like what Petrie coined "Union Jack" (Petrie, 1928:22) and occurs very commonly on handles of Canaanite pottery vessels.

A quadruped, whose body is in the form of a horizontal double triangle, is shown on a sherd in Figure 10.1g. At least

FIGURE 10.1. Canaanite decorated pottery. (opposite)

| Part | Description | Box/Bag/RV | Provenance | Phase |
| :--- | :--- | :--- | :--- | :--- |
| a | Complete jug | RV 1018 | GM (+) | Architecture |
| b | Complete krater | RV 1015 | GMstratified |  |
| c | Biconical krater | Box 99 (SI Cat. No. 934) | GM 0A (+) | Unstratified |
| d | Biconical krater | Box 188 | Unstratified |  |
| e | Biconical krater, two fragments | Bag 6813/1-2 | GMII B3 (19) | Unstratified |
| f | Biconical krater, three fragments | Box 192/1-3 | 6 |  |
| g | Biconical krater | Box 185 | GMIII B (55) | 10 |
| h | Decorated sherd | Bag 7030/1 | GMII A3 F1 | Unstratified |
| i | Biconical krater | Box 191 | GMII B3 (19) | 6 |


three sherds, two from the Van Beek's excavations (Figures 10.1f, 10.2a) and one from Petrie's excavations (Petrie, 1928: pl. LXIII:36), bear the depictions of a horned animal with such a body in the form of a horizontal double triangle. The horned animal from Figure 10.1f seems to represent an ibex. However, it is hardly possible to identify safely the animals shown on the other two sherds (Figures 10.1g, 10.2a) as any species since their heads are missing in the present state.

The style in which a quadruped is drawn by adding a horned head, four legs, and a tail to a horizontal double triangle is commonly observed in Canaanite pottery paintings from the LBII and Iron I contexts at many sites, such as Tell el-Far'ah (S) (Starkey and Harding, 1932: pl. 58:972), Beth Shean (Yadin and Geva, 1986: figs. 24, 26:4), Megiddo (Loud, 1948: pls. 58:1,2, 64:4, 72:3), Gezer (Macalister, 1912: pl. 173:13; Seger and Lance, 1988: pl. 10:7), Tell el-Harbaj (Garstang, 1922: pl. 4:1), Tell Deir 'Alla (Franken, 1992: fig. 7-2:17a), Tel Sera' (Oren, 1985: fig. 6:1,4), Lachish (Tufnell et al., 1940: pls. 46:216, 59:3, 60:3, 61:10, 65:1,3,4), Hazor (Yadin et al., 1958: pls. 99:13, 108:1, 1960: pl. 121:9-11), Beth Shemesh (Grant, 1932: pls. 19, top, 46:12; Grant and Wright, 1938: pl. 34:2, 34, top), Ta'anach (Sellin, 1905: fig. 23, top left), Tel Miqne-Ekron (Killebrew, 1996b: pl. 7:1), and Batash (Panitz-Cohen and Mazar, 2006: pls. 25:4, 39:10). This style seems to find its origin in Near Eastern pottery painting traditions (see Thompson and Hamilton, 1932: pl. 59:25; Woolley, 1955: pl. 93:a; Mattews, 2003: fig. 7.30:2a). In these parallels, the species represented by the quadrupeds are predominantly an ibex, which is characterized by a pair of long horns curving backward, an antelope, which has a pair of long and upright horns, and a gazelle, which has a pair of S-shaped horns.

The sherd in Figure 10.1d bears the depiction of an antelope approaching what looks like the branch of a tree, probably a date palm branch with palm fronds (cf. May, 1935: pl. 41:L; Loud, 1948: pl. 72:3; Dothan, 1955: fig. 20:14; James, 1966: fig. 22:26; Dothan and Porath, 1993: fig. 23:8; Ben-Tor et al., 2005: fig. I.22:17). A tree with a very similar branch is also found on a sherd that was retrieved during Petrie's excavations (Petrie,

1928: pl. LXIII:28; see also his pl. LXIII:33). The two legs shown above the animal on Figure 10.1d indicate the presence of another antelope. Thus, these decorative elements seem to be part of a tree of life scene. Another sherd shows the partly preserved depiction of a quadruped that seems to be an herbivore (Figure 10.2b). Only the rear body and very blurred head of this animal are discernible.

Similarly, the rear body of another quadruped is shown on a sherd (Figure 10.1h). This animal seems to be surrounded by a series of dots, which are difficult to clarify. Such an enigmatic group of dots appearing around an animal are also found in some Canaanite pottery paintings (Starkey and Harding, 1932: pl. 58:978; James and McGovern, 1993: fig. 17:14; PanitzCohen and Mazar, 2006: pl. 31:1). Dots often occur with trees (Macalister, 1912: pls. 159:13, 168:7; Grant, 1929:193, no. 415, drawing 1; FitzGerald, 1930: pl. 49:27; Ziffer, 1990:11 [in English text]; James and McGovern, 1993: fig. 21:4; Ben-Tor et al., 2003: fig. 125). When dots appear around a tree, they might represent seeds or fruits. The quadruped and dots depicted on the sherd in Figure 10.1 h might have originally been part of a tree of life scene. In addition, the presence of a quadruped is indicated by the two legs painted on the sherd in Figure 10.1i; the sherd in Figure 10.2c seems to show the tail of a quadruped. The smaller sherd in Figure 10.1e apparently bears the depiction of a bird, the head of which is missing in the present state. A group of birds lining up in profile is rendered on a sherd found on the surface (Figure 10.1c). In shape and depicting style, these birds are almost identical to those rendered on the biconical jug (Figure 10.1a), although their arrangements in the designs are very different from each other: the birds lining up in profile are arranged within a narrow frieze in the sherd in Figure 10.1c, giving the feeling of a pattern, whereas the birds in Figure 10.1a are part of the tree of life scenes. A group of animals lining up in profile is not a commonly occurring motif in the Canaanite pottery painting tradition. Perhaps the groups of quadrupeds painted on a sherd from Beth Shean (Rowe, 1940: pl. 71A:2) and on a biconical vessel from a burial cave at Tell Rumeideh

FIGURE 10.2. Canaanite decorated pottery. (opposite)

| Part | Description | Box/Bag No. | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | Decorated krater, three fragments | Box 266A/1-3 | GMI 4D (1) | 1 |  |
| b | Biconical krater | Box 72 | GMII C1 (+) | Unstratified |  |
| c | Decorated closed vessel; white, red decoration | Box 190 | GMIII B (51A) | 9 | Room A |
| d | Decorated krater | Box 353 | GMI 4F (5) | 1 ? |  |
| e | Decorated sherd | Box 279 | GMI 5D (3) | 3 |  |
| f | Decorated sherd | Box 173 | GMI 2E (4) | $1 / 3$ ? |  |
| g | Biconic krater | Box 259 | GMI 3D (0) | Unstratified |  |
| h | Biconical krater, two fragments | Box 193/1-2 | GMIII B (56) | 10 |  |
| i | Biconical krater | Box 193/3 | GMIII B (56) | 10 |  |
| J | Decorated sherd | Box 339 | GMI 3F (1) | 2 ? |  |
| k | Decorated biconic krater | Box 275 | GMI 5D (0) | Unstratified |  |
| 1 | Decorated sherd; white slip | Box 309 | GMI 5E TT3 | Unknown |  |

(Peleg and Eisenstadt, 2004: pl. 3:11) would be good examples for comparison.

## SUCKLING SCENE

One of the painted sherds from Tell Jemmeh seems to bear a scene depicting a quadruped suckling its kid, which is rendered standing just below the mother's belly, between her legs (Figure $10.2 \mathrm{~d})$. This motif is also found on some Canaanite vessels from Gezer and Beth-Shemesh (Bliss and Macalister, 1902: frontispiece: 132, pl. 41:132; Macalister, 1912: pl. 167:1; Grant and Wright, 1938: pl. 34:2). The suckling animal is an age-old motif in the ancient Near East that has been known from the end of the fourth millennium BCE onward (Ornan, 2005:160).

## HUNTING SCENE

The scene found on another sherd (Figure 10.2f) seems to depict a predator pursuing a quadruped, probably an ibex. The predator is smaller than the ibex in size. The torso of the quadruped followed by the predator is missing. Nevertheless, this quadruped's identification as an ibex may be inferred from the pair of long horns curving backward, which are shown just below the animals. The depiction of an herbivore pursued by a predator is also found in the interior of a handled chalice from a burial cave at Tel Gedor. The scene painted on that vessel shows a predator, probably a lioness, attacking an herbivore approaching a tree (Ben-Arieh, 1981: fig. 2:4).

## A HUMAN FIGURE (WARRIOR?)

A broken vessel with two handles bears the depiction of a figure that is unmistakably identified as a human (Figure 10.1e). This human figure with a globular head is characterized by an upper body in the shape of a reverse triangle.

A very similar human figure is depicted on a goblet from Structure III of the Fosse Temple at Lachish (Tufnell et al., 1940: pl. 61:10). An unidentified object is hanging on this human figure's waist or right leg. Likewise, the Tell Jemmeh figure also seems to have a similar object hanging on his waist or right leg. Both of these objects look like some sort of weapon. Moreover, it seems that the Tell Jemmeh figure is holding an oval object with his right hand, which looks like a shield. If this interpretation is correct, both the Tell Jemmeh and Lachish figures can be identified as warriors.

## GEOMETRIC MOTIFS

The geometric motifs observed on the vessels and sherds include simple straight lines and bands, a net pattern, a wavy line between two parallel lines, a ladder shape running in zigzag, and a double triangle consisting of two triangles, which are
connected to each other at one vertex. A wavy line between two parallel lines is one of the most commonly occurring motifs in Canaanite pottery paintings.

Double triangles occur in two forms: vertical and horizontal. The former is often called hourglass (Figure 10.2e,h,i,k,l), and the latter is usually called butterfly (Figure 10.1c). Sometimes they appear together in the same design (Figures 10.1b, 10.2j). In the case of the double triangle found on the sherd in Figure 10.21, the lower half is painted in red, whereas the upper half is filled with white. It seems that the sherd in Figure 10.2e also bears such a double triangle. A very similar example occurs on a decorated vessel found at Lachish (Tufnell et al., 1940: pl. 84:963; see also Herzog et al., 1989: fig. 5.9:5). Half-colored double triangles occur on some vessels found at other sites (Garstang, 1934: pl. 34:1; Panitz-Cohen and Mazar, 2006: pl. 54:1).

Both the vertical and the horizontal double triangles are very common not only on Canaanite pottery but also on pottery from Syria, Mesopotamia, and Iran. They have a long history in these regions. For example, the earliest appearance of the double-triangle motif painted on pottery in Iran goes back to the Neolithic period (Bernbeck, 1989: figs. 22: pattern C1-c, 23: pattern E2, 24: motif F3-c, 56c).

It is not possible to discuss here the types of design structures observed on the decorated Canaanite pottery from Tell Jemmeh in detail since most of the existing examples are sherds. Nevertheless, there is no doubt that the general tendency of the design structures is well in agreement with the Canaanite pottery painting tradition during the LBII and Iron I, as attested by the common use of various metopic structures (Figures 10.1a,b,i, $10.2 \mathrm{c}, \mathrm{e}, \mathrm{g}, \mathrm{j}, \mathrm{k})$.

## CONCLUSION

The painted decoration on the Canaanite pottery from Tell Jemmeh shows a typical example of the Canaanite pottery painting tradition not only in its repertoire of decorative elements but also in style of representations. Particularly, some of the decorative motifs and styles of depiction indicate its close connection with those from Lachish. Although the LBII and Iron I in Canaan were a period of certain Egyptian domination over the region, Egyptian influence or elements on the painted Canaanite pottery is meager. As far as the Tell Jemmeh assemblage is concerned, Egyptian elements are nearly nonexistent. Rather, many features of the iconography observed on the painted Canaanite pottery, such as the popularity of the tree of life theme, the common use of metope design, the animals depicted in the form of a horizontal double triangle, etc., indicate its Near Eastern origin.

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# Imported Cypriot and Mycenaean Wares and Derivative Wares Celia J. Bergoffen 

## INTRODUCTION

This chapter deals with the imported Cypriot and Mycenaean wares and some derivative wares based on White Slip II from the Bronze and Iron Ages found at the Smithsonian Institution excavations at Tell Jemmeh (Tables 11.1-11.4). The main concentration of Cypriot and Mycenaean imports, approximately 340 vessels, was in Field I, where they were primarily associated with the cobbled building's main phase, Phase 3, dated to LBII.

The 130 catalog entries for Field III include up to 84 White Painted vessels (WP; $65 \%$ ), the majority ascribed to Phases 14 through 18 and dated to MBIIB-C. A few WP sherds in the LBII and Iron I phases are no doubt residual, or the records were corrupted. The LBII Phases 8 through 13 yielded small amounts of Base Ring II (BRII), White Slip II (WSII), White Shaved, and Mycenaean sherds. A further 6 WP sherds were recovered from the unstratified trench SS1, and 14 WP sherds came either from the MBIIB-C layer in ST1 or the topsoil above it.

The Iron Age and later phases in Field IV included 21 Iron Age Cypriot sherds, but the remaining 24 Cypriot and Mycenaean sherds from Field IV were no doubt all residual. Similarly, more than half of the 21 Cypriot and Mycenaean sherds from Field II were also either residual or unstratified, whereas a handful of BRII, WSII, and Mycenaean sherds came from LBII contexts.

## WHITE PAINTED WARES

The earliest Cypriot imports to Canaan, consisting exclusively of WP wares, are found in small numbers in later MBIIA contexts, largely at coastal sites (Wolff and Bergoffen, 2012). Imports to Canaan were mostly closed forms, jugs and juglets, made of light pinkish clay with a light brown slip and dark brown or red decoration. White Painted ware may be classified by the style of decoration as WP Pendent Line Style (PLS; Figs. 11.2d, f, g), WP Cross Line Style (CLS), WP Tangent Line Style (TLS; Figures 11.1a, d, 11.2i), WPV (Figure 11.3a-d), and Composite style (this last not found at Tell Jemmeh). All these styles appear simultaneously, although in very small quantities, in this earliest import horizon in Canaan (Artzy and Marcus, 1992; Gershuny, 2002:187, fig. 3; Wolff and Bergoffen, 2012). White Painted V and VI, the most common WP styles in Canaan, supersede WP CLS and WP PLS in MC IIC (Johnson, 1982:84; Maguire, 2009:26, 30, fig. 9, table 2, 40). The WPVI juglets are diagnostic for LBIA (Oren, 1969) but are primarily found in funerary contexts. Following Merrillees (1978:20-21) and Maguire (2009:70-73), the numerical portion of the classifications WP PLS III-IV and WP CLS IV-VI are not used here since they do not correspond to these styles' chronological position or take into account differences in regional distribution. There is a great variety in fabrics. Generally, the PLS and CLS juglets are fine grained, with few or no grits, and medium to hard fired. The paint is usually lustrous.

The main concentration of WP wares at Tell Jemmeh, 84 entries, was in Field III, where most of the MBII/MBII-LB levels were excavated. Field I yielded over 30 WP sherds (27 entries). Three WPV, one WPV-VI, one WPVI trefoil-mouthed juglet (Figure 11.3g), and one WP sherd of indeterminate style were found in Field IV, all residual or unstratified material. Field II yielded an unstratified WPVI sherd and a WP sherd of indeterminate style. The total from all areas, including unstratified material, is 138 entries, representing perhaps approximately 100 vessels, all closed forms, either jugs or juglets.

TABLE 11.1. Field I: Distribution of stratified Cypriot and Mycenaean pottery by phase.

| Type | Petrie trench, Phase 0 | LBII Phases |  |  |  |  |  |  |  |  |  |  |  |  |  | LB/MBIIC, <br> Phase 8 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1 | 2 | 2/3 | 3 | 3? | $\begin{gathered} \text { 3(B), 3(B?), } \\ 3 / 3 \mathrm{~A} ? \end{gathered}$ | 3/4? | 4 | $4 ?$ | 5 | 6 | 6/7? | 7 | 7/8? |  |
| White Painted | 0-1 | 1 |  |  | 3 | 1 |  |  |  |  |  |  | 1 | 9 | 1 | 9 |
| Base Ring | 1 | 4 |  |  | 24 | 15 | 2 | 5 | 6 | 10 | 4 | 4 |  |  |  |  |
| White Slip II |  | 7 | 1 | 1 | 23 | 15 | 5 | 1 | 4 | 1 | 2 | 2 |  |  |  |  |
| White Slip IIA |  |  |  |  | 2 |  |  |  |  |  |  |  |  |  |  |  |
| White Slip III |  | 2 | 2 |  | 1 | 1 |  | 1 |  |  |  |  |  |  |  |  |
| White Shaved |  |  |  |  |  |  |  | 2 |  |  |  |  |  |  |  |  |
| Bucchero |  |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |
| Mycenaean |  | 3 |  | 1 | 7 | 4 | 2 | 6 |  |  |  |  |  |  |  |  |
| Iron Age |  | 1 |  |  | 1 |  | 1 |  |  |  |  |  |  |  |  | 1 |

TABLE 11.2. Field I: Distribution of Base Ring II forms by phase.

| Type | Phase |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0 | 1 | 3 | 3 ? | 4 | 4 ? | 5 | 6 | Topsoil/unstratified | Indeterminate |
| Bowls/open | 1 |  | 7 | 6 | 1 | 1 | 2 |  | 5 | 5 |
| Jugs | 2 | 1 | 13 | 5 | 2-3 |  | 2 | 3 | 5 | 11 |
| Juglets |  |  | 2 | 2 |  | 2 |  | 1 | 3 | 3 |
| Jug/juglet |  | 1 |  |  |  | 2 |  |  | 1 |  |
| Closed | 2 | 2 | 1 | 2 | 1 | 3 |  |  | 1 | 5 |
| Other |  |  |  |  |  | 1 |  |  |  | 1 |

TABLE 11.3. Fields I-IV: Distribution of Base Ring II forms.

| Field | Bowls/ <br> open | Jugs | Juglets | Jug/ <br> juglet | Closed | Other |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Field I | 28 | $44-45$ | 13 | 4 | 17 | 2 |
|  | $(26 \%)$ | $(43 \%)$ | $(10 \%)$ | $(3 \%)$ | $(17 \%)$ | $(2 \%)$ |
| Field III | 4 | 8 |  |  | 8 |  |
| Field IV |  | 2 | 1 |  | 2 |  |
| Field II | 1 |  | 14 | 4 | 29 | 2 |
| Totals | 33 | 55 |  |  |  | 29 |

TABLE 11.4. Field I: Distribution of White Slip (WS) wares by level.

|  | Phase |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Type | 1/1? | 2 | 2/3 | 3 | 3 ? | $\begin{aligned} & 3(\mathrm{~B} ?), \\ & 3 / 3 \mathrm{~A} ? \end{aligned}$ | 3/4? | 4 | 4? | 5 | 6 | Unknown |
| WSII | 7 |  | 1 | 23 | 16 | 5 | 1 | 4 | 1 | 2 | 2 | 37 |
| WSIIA |  |  |  | 2 |  |  |  |  |  |  |  | 7 |
| WSIII | 2 | 2 |  | 1 | 1 |  | 1 |  |  |  |  | 5 |
| WSII derivative |  |  |  | 4 | 2 | 1 |  |  |  |  |  | 4 |



FIGURE 11.1. White Painted wares.

All the identifiable WPIII-IV and WPV styles were represented in the earliest of Field III's MBIIB-C phases, Phases 17 and 18. This includes six WP PLS sherds, one WP CLS sherd, three of the five WP TLS sherds, and three of the eight WPV Alternating Broad Band and Pendent Line Style sherds (ABBWL; Figures $11.1 \mathrm{c}, 11.2 \mathrm{p}$ ). Whited Painted V was the most common ware, with 50 sherds in the MBIIB-C Phases 18 through 14. The one sherd identified as WPVI was ascribed to the MBIIC-LB Phase 13/14. Six WPV-VI sherds came from Field I in MBIIB-C to LBI Phases17 and 16/17, and one was in a LBII context, probably residual, as were the WP sherds from Field IV. The remaining WP sherds from Field I are mostly residual. They include three WP PLS sherds, three WP ABBWL, 17 WPV sherds, two WPV-VI sherds, and four WPVI.

## BLACK SLIP II, RED-ON-BLACK/RED-ON-RED, MONOCHROME, AND WHITE PAINTED WHEEL-MADE WARES

In Cyprus, Black Slip (BS) II is characteristic of LCIA (ca. 1650-1500 BCE; Åström, 1972c:700). In the Levant, it has been
found in both LBI and LBII contexts. The ware is usually very pale yellow or gray, slightly sandy in texture, and of medium hardness, with a matte black slip liable to cracking and flaking. A handle from a BSII jug and two small BS body sherds, one possibly from an open vessel, were identified from Field I (Figures $11.4 \mathrm{~h}, \mathrm{i}, 11.5 \mathrm{~b})$. The last came from Phase 3; the others were from indeterminate or unstratified contexts. Black Slip is not a commonly imported Cypriot ware.

Monochrome bowls are characteristic of MBIIC-LBI contexts in the Levant (Oren, 1969) but continue into LBII. The fabric found in Canaan is usually red and of metallic hardness or, infrequently, very dark gray, like Base Ring ware, in either case with a matte, smeary red slip. One Monochrome sherd was found in Field I in each of Phases 3 and 4 (Figure 11.4a,b). This material is probably residual.

One Red-on-Black/Red-on-Red (ROB/ROR) sherd was identified from Field II, in topsoil, and one was identified from Field I, Phases 1-2 (Figure 11.4g). This ware, represented largely by bowls in settlement contexts, ranges in the Levant from MBIIB through LBI. It was very well represented in the western Negev at Tell el-‘Ajjul and Tell el-Farah (S), and its virtual absence from the MBIIB-C levels at Tell Jemmeh is somewhat surprising (Bergoffen,


FIGURE 11.2. White Painted wares.

1989:106-109). Although several different fabrics exist in Cyprus, in Canaan, the medium hard, usually very pale yellow, very fine grained type is virtually the only one found. The surface is slipped and highly burnished red or black or both, depending on oxidation in the kiln with matte red-painted linear decoration. Because both slip colors may be present on the same vessel, these wares are grouped together as ROB/ROR rather than as two distinct classifications (Åström, 1972a:108, 118).

White Shaved ware is represented by two sherds from Field I, from Phase 3 or 4 (Figure 11.4j), and one sherd is from Field III, Phase 13. This ware was commonly imported in LBII Canaan. In sherd form it may be difficult to distinguish from Canaanite juglets. For instance, Goren (1992:24*, 175) has shown that even the characteristic Cypriot pierced handles may not always be present on the imported vessels. The Cypriot fabric,
however, is generally whiter and finer grained than the Canaanite dipper juglets, with pinprick-sized black grits.

There are two White Painted Wheel-made ware I rim sherds from Field III, one possibly from a krater, the other from a closed vessel (Figure 11.2 m ). This fabric is contemporary with Bichrome ware both in Cyprus and abroad (Åström, 1972c:748). The few sherds known from Canaan are hard, very light gray or white in color, sometimes with a greenish cast but also sometimes pale pink. The fabric is speckled with minute grits and has a slightly sandy texture. Surfaces may be slipped or unslipped. The paint is matte dark brown. The krater sherd from Field III was ascribed to Phase 16, dated MBIIB-C, making it one of the earliest occurrences of this ware outside of Cyprus. One plain white pithos sherd was identified from an indeterminate context in Field I (Figure 11.4k).


FIGURE 11.3. White Painted wares.


FIGURE 11.4. Red-on-Black/Red-on-Red, Black Slip, Monochrome, Base Ring I, Bucchero, White Shaved, and Plain White wares.

## BASE RING WARES

The bulk of the material comes from Field I. One poorly preserved BRI bottle neck was identified (Figure 11.4d), and one jug handle was classified as BRI-II (Figure 11.4e). The remaining 112 entries in the Field I catalog are BRII (Figures 11.5, 11.6). The majority of the 69 stratified vessels, 23 , came from the main phase of the courtyard building, with another 15 possibly also
belonging here. There were 40 BRII sherds from Field I whose provenance was indeterminate or that were unstratified.

The BRII assemblage from Field I comprises approximately $25 \%$ open and $75 \%$ closed forms. There was one leg fragment of a zoomorphic vessel, probably a bull, as well as two horns (including one example from Field III, Phase 12, Figure 17.9j,k). Of the 61 closed vessels of identifiable form, 44 , or $72 \%$, are jugs. In the Levant, BR and WS bowls normally predominate in

b (158)

c (191)


e (215)

FIGURE 11.5. Black Slip and Base Ring II.


FIGURE 11.6. Base Ring II and derivative forms.
settlement contexts over Cypriot closed vessels, whereas the latter, especially BR juglets, greatly outnumber Cypriot open forms in graves (Gittlen, 1977:89, 91). It should, however, be noted that Base Ring jugs are better represented in settlement contexts than earlier quantitative studies indicated (Bergoffen, 1991:65, 2005:26). This suggests that the jugs were not merely transport containers but were also used as serving vessels, particularly the more elaborately decorated BRI varieties.

The BRII bowl/sherds from Fields I, III, and II (Figures $11.5 \mathrm{a}, 11.6 \mathrm{a}-\mathrm{d}, \mathrm{f})$ are probably all from the widely distributed Y-shaped form. One sherd from an unidentified open vessel is probably also a bowl. Seven of the 18 stratified bowls from Field I could be assigned to Phase 3.

More than half of the 45 jugs ( $56 \%$ ) from Field I preserve some painted decoration, as do 4 of the 8 jugs from Field III. Matte slips, uneven surfaces, and spalling indicate that most of the vessels belong to Vaughn's "mat slip ware," having a rougher, less fine-grained surface than her "metallic slip" wares, which may be highly burnished (Vaughan, 1987:54-55, 94, 1991a:124, 1991b:349, 363). The chronological range of these wares in Cyprus is very broad: the metallic slip wares continue until the end of the 13th century BCE, and matte slip continues into the late 12th century BCE (Vaughan, 1991a: fig. 12.2). In Canaan, the coarser variety of BRII is characteristic of LBII, although the first occurrence of this ware is in LBIA (Bergoffen, 2001:35-38, fig. 1B).

The jugs are largely represented by body and rim sherds (Figure 11.7); one rim fragment and two bases measuring 10 cm in diameter came from the tall form, Åström's types IXB1c and IXB1d, whereas from 9 to 11 jugs from Field I and 1 from Field III belong to Åström's smaller variety, type IXB1e (Figures 11.6e, 11.7a,b,d,f; Åström, 1972b:184-186). These vessels have a shorter neck in proportion to the vessel height and are dark gray slipped and painted. The latest of the small BRII jugs have a slightly bulbous neck, range from 16.5 to 20.6 cm in height, and have base diameters of $\sim 6.5$ to 7 cm and rims of $\sim 5$ to 7 cm , both smaller than the usual rim and base diameter of 9 cm . This form is assimilated into the Canaanite ceramic repertoire, continuing into the early Iron Age.

The small jug with a handle from the rim to the shoulder, Åström's type XIA1, is uncommon in Canaan. It is attested in this assemblage by two rim fragments from Field I (Figure 11.7c,e), one 5.0 cm in diameter, the other from a juglet-sized vessel with a rim diameter of 3.7 cm . The classification as a jug is based on the width of the neck and the form of the rim. Jugs most often have cylindrical necks close in diameter to their everted rims, whereas juglets have funnel-shaped mouths and narrow necks.

Juglets are represented by 13 fragments from Field I and possibly 1 from Field IV, 6 of which preserve some painted decoration.

## BUCCHERO

This ware first appears in Canaan in LBIB but is most often found in LBIIA-B contexts. The fabric is identical to Base Ring,
and the dark brown or dark gray slip is highly burnished. The ribs or ridges on the earlier, less commonly found style, are applied, whereas on the later style, like the two fragments from Field I, the ridges are pinched. One of the two Bucchero jug sherds was unstratified, and the other was ascribed to Phase 4 (Figure 11.4c,f)

## WHITE SLIP (WS) AND DERIVATIVE STYLES

Field I yielded a minimum of 109 WSII, 9 WSIIA, 12 WSIII, and 11 derivative style bowl fragments. Forty-one of the WSII sherds consisted of surface finds or sherds whose provenance was indeterminate or unknown. At least four were decorated in Ladder Lattice Pattern Style (Figure 11.9f), one in Dotted Row Style (Figure 11.9 m ), and two in Parallel Line Style (Figure 11.8j,n). The rest are too small to permit classification by style. Almost two-thirds of the stratified vessels probably came from Phase 3, which yielded a minimum of 23 vessels, with a further 16 also tentatively ascribed to this phase.

Field III yielded 12 WSII sherds, 6 of which were either residual material or unstratified. A further 6 WSII sherds, all residual, came from Field IV, and 4 from Field II, bringing the total number to 159 WSII sherds. One WSIII and one WSII derivative sherd, neither stratified, also came from Field II.

There are nine WSIIA sherds from Field I, two of which could be ascribed to Phase 3. Three are decorated in Framed Lozenge Style (Figures $11.8 \mathrm{~m}, 11.9 \mathrm{a}, \mathrm{c}$ ). Petrie published two WSIIA bowls from Tell Jemmeh (Petrie, 1928: pl. LXIII:9,28); WSIIA is considered a later, regional WSII style made in southwestern Cyprus (Popham, 1972:446; Todd and Pilides, 2001:40).

White Slip II late or WSIII (the terms are interchangeable) is represented by 12 sherds (Figure $11.8 \mathrm{c}, \mathrm{d}, \mathrm{j}, \mathrm{k}, \mathrm{n}$ ). At least one vessel from Field I was associated with the main phase of Building I. The term WSIII is used here because this degenerate style appears later in the WSII sequence than WSII normal style both in Cyprus and in the Levant. Often lopsided or poorly formed, these less elaborately decorated bowls are painted in Ladder Lattice or Parallel Line Style over brown, micaceous slips that are thinly and unevenly applied (Popham, 1972:456, fig. 57). These may be "subject to flaking" (Todd and Pilides, 2001:38). At Kalavasos-Ayios Dhimitrios, WSIII was characteristic of the latter half of LCIIC (South and Steel, 2001:68). It appears to have been more common in eastern than in western Cyprus and is not represented in southwest or northwest Cyprus, where WSIIA continued to be popular until the end of the Late Bronze Age (Todd and Pilides, 2001:40). White Slip III is still found in Canaan in contexts datable to the late 13th century BCE (Beck and Kochavi, 1985:36, figs. 2, 6 [from the Aphek Residency, Stratum X12]; Bergoffen, 1989:216-218 [no. 1664, from Tomb 3 , and nos. 1667 and 1668 from tomb 6, erroneously recorded as from Tomb 2, from Tell er-Ridan, and no. 1333, from Tell Farah (S), Tomb 949, University College, Institute of Archaeology, London, EVI 23/3]; Petrie, 1930: pl. XII:152 [from Tell Farah (S), Tomb 902]).

0.2 cm

FIGURE 11.7. Base Ring II.


FIGURE 11.8. White Slip II, White Slip IIA, White Slip III, and derivative White Slip styles.

Although they would normally be classified as local imitations, the WSII derivative bowl sherds have been included here because the type is rare and is close to the imported bowls in size, shape, wall thickness, and slip application (Figures $11.8 \mathrm{e}, \mathrm{f}-\mathrm{h}$, $11.9 \mathrm{~b}, \mathrm{~d}, \mathrm{~g})$. They are distinguished from WSII by their coarser fabric and decoration, the latter consisting of loosely constructed ladder lattices with three instead of four bands painted in a purplish-red matte paint over a very pale brown slip, similar to WSIII. As in WSII Ladder Lattice Pattern Style, a ladder lattice runs around the top of the vessel below an undotted rim with other ladder lattices pendent from it. Like the WSII from Field I, the derivative bowls were also concentrated in Phase 3, demonstrating once again the direct relationship between the frequencies of the standard, well-integrated product and the derivative one, which is created to be similar enough to the "original" for users to associate the two and accept them as equivalent (Bergoffen, 2006). The introduction of stylistic variations is a response to users' familiarity with the product due to increased consumption, not as substitutes to compensate for scarcity.

## MYCENAEAN POTTERY

The secondary source of imported pottery during the Bronze Age after Cyprus is the Argolid in Greece from which a variety of Mycenaean wares were imported to Canaan. There are 34 entries for Mycenaean pottery from an indeterminate number of LHIIIA/LHIIIB vessels. The main concentration was in Phase 3 and possibly Phase 4, with three sherds from the latest LB phase, Phase 1. Four sherds were found in Field II, all residual or unstratified. All but one of the seven Mycenaean sherds from Field IV were residual, coming from Iron IIA and later contexts. Three sherds from Field III were ascribed to LBII phases, and another three or four were not stratified.

Four sherds from Field I preserve parts of cuttlefish, a motif very rarely found on imported Mycenaean vessels in the Levant (Figure $11.11 \mathrm{~d}, \mathrm{e}, \mathrm{i}, \mathrm{j})$. Leonard (1994) cites instances of this motif on vessels from Minet el Beida, Tell Atchana, Tell Abu Hawam, Ashdod, Gezer, and possibly Megiddo. On the Tell Jemmeh sherds, where preserved, the tentacles are of varying width,


FIGURE 11.9. White Slip II, White Slip IIA, White Slip III, and derivative White Slip styles.


FIGURE 11.10. Mycenaean wares.
which introduces movement and creates a more naturalistic effect, but the treatment of suckers is stylized, consisting of neatly painted rows of pale brown dots. The style suggests a date in LHIIIA: 2 early for all four sherds. According to Robert Koehl, the unstratified sherd (Figure 11.11j), possibly from a krater, belongs to the beginning of the LHIIIA:2 pictorial style of the later 15th century BCE/time of Amenophis II, and its "black crackled paint is typically Argolid ... of this fairly early stage. ${ }^{1}$ Figure 11.11i, ascribed to Phase 3A, also with crackled paint, preserves parts of the creature's head and two tentacles. A rim sherd from an amphoroid krater was found in the same locus in Phase 1 with another LHIIIA: 2 early body sherd decorated with a cuttlefish, possibly from the same vessel (Figure 11.11d); it is clearly older than its context.

Three stirrup jar fragments were identified from Field I, including a complete false spout (Figure 11.10a), a handle (Figure 11.10b), and a sherd with a hole for a false spout, which is hollow (Figure 11.11 g ). The stirrup jar was by far the most commonly exported shape (Leonard, 1994:45-79), and it is likely that many of the sherds from closed vessels of indeterminate form were of this type.

The rim and shoulder sherds of a LHIIIA:2 small alabastron from Field I include the base of an arm of one of its horizontal handles. The vessel was decorated with a foliate band on the shoulder (Figure 11.10g). A rim sherd from Field I (Figure 11.11c) is from a piriform jar, which may also be the case for the other two rim sherds in Figure 11.11a, b. But these could also have belonged to straight-sided alabastra, which have the


FIGURE 11.11. Mycenaean wares.
same profile and diameter. The LHIIIA:2-III:B1 piriform jars and alabastra are the second and third most commonly found Mycenaean imports in the Levant (Leonard, 1982:12-22, 36-39).

There was one leg of a zoomorphic vessel, probably a bull (Figure 11.11h).

## IRON AGE: BLACK-ON-RED

Two fragments of Black-on-Red (BOR) were identified from Field I. One was found in an Iron II/Iron IIB context in Field I, Square KB. The other, from an LBII context, must be intrusive or reflect an error in recording, as is also the case for a bowl sherd from Field III, recorded from an MBII context (Figure 11.12f). A second BOR vessel from Field III was a surface find. Three vessels from Field II were either surface finds or residual. Field IV yielded nine sherds, including one largely preserved juglet. Four came from Iron IIB contexts, three were unstratified, and two were residual. All except one bowl sherd (Figure 11.12f) were from small closed vessels, probably either juglets or flasks. This collection of 16 vessels, mostly unstratified, is comparable
to other assemblages in Canaan, except for those from sites on the northern coast and others around the Akko plain, where BOR was concentrated (Schreiber, 2003:315-325). Normally, these small containers are found in burials, but the sherds and vessels from Tell Jemmeh were all from settlement contexts (Petrie, 1928: pls. LX:82g,82e,82k,82F, LXII: WE 184; Schreiber, 2003:54).

The juglet is the most common and widely distributed BOR form in Canaan (Schreiber, 2003:29, Map 5, 326). In Iron IIB, the assemblage is largely restricted to small containers. The vessels are wheel made, thin walled, and of metallic hardness, with highly lustrous red slips and black paint. On the juglets, the designs typically consist of a broad band and multiple narrow bands encircling the center of the body, with concentric circles on the shoulder (Figure 11.12a-c). Both juglets and flasks have funnel mouths (Figure 11.11a).

Bowls, which appear predominantly in Iron IIA, are the second most frequently imported BOR form, found predominantly in the north, with concentrations at Megiddo, Tell Dor, Kabri, Tell Abu Hawam, Tel Mevorakh, Tell Kazel, and Tell Keisan. They are rare in the south, the single bowl sherd from Tell

Jemmeh being the southernmost recorded occurrence of a BOR bowl (Schreiber, 2003:33, Map 7, 34).

## IRON AGE WHITE PAINTED OR BICHROME WARE

The fabric of these wheel-made vessels is off-white shading to pink, gray, or yellow, often with a slightly sandy texture, fine to medium grained, and very hard. Only portions of horizontal bands in matte brown paint are preserved.

One ledge rim and neck sherd from Field IV is probably from an amphora (Figure 11.12g). This, together with four nondescript body sherds, comes from Iron Age IIB contexts. An everted rim sherd ascribed to the Persian period may also be from an amphora but has a smaller mouth.

All but one of the stratified WP or Bichrome sherds from Field IV may be ascribed to the Persian or Persian/Hellenistic periods. Only matte brown paint is preserved on nine closed vessel body sherds from Field IV, but these could have been originally bichrome painted. The collection includes two neck and rim fragments, probably either from lenticular or barrel-shaped jugs
(Figure 11.12h,l; Gjerstad, 1948: fig. III:11-17). White Painted and Bichrome barrel-shaped jugs had already been found at Tell Jemmeh by Petrie, who recovered several complete or largely preserved vessels (Petrie, 1928: pl. LX:85d, 85q, 86,87d). Figure 11.121 is decorated in matte brown paint with narrow, concentric bands possibly around a solid painted circle in the center. Two other jug sherds from Field IV were bichrome painted in matte red and matte dark brown (Figure 11.12h).

Field III yielded one unstratified jug neck fragment and a bowl base ascribed to Phase 9, which is no doubt either intrusive or a mistaken record, as is the out-of-context rim sherd from Field I, possibly from an amphora, ascribed to Phase 8. A handle fragment from Field I and a body sherd probably both came from Phase 1. One WP sherd from Field II ascribed to Phase 6 or 7 was probably out of context, whereas a second WP or Bichrome sherd was unstratified.

## CONCLUSIONS

The Cypriot import assemblage from Field III is typical of MBIIB and especially MBIIB-C contexts in Canaan, by which


FIGURE 11.12. Iron Age Black-on-Red and White Painted wares.
time WPV was overtaking WP PLS and WP CLS. The assemblage of 85 WP sherds adds significantly to a growing corpus that includes assemblages of comparable size from Tell el-‘Ajjul, Ashkelon, and Tell Megadim, each numbering between 50 and 100 sherds (Bergoffen, In press; Wolff and Bergoffen, 2012). Unlike these sites, however, Tell Jemmeh was not on the coast, and its Middle Bronze Age Cypriot corpus must be interpreted in the context of a redistributive system with Tell el-‘Ajjul, the principal port of entry for imports to the western Negev, as its central site.

Absent or underrepresented from Tell Jemmeh's Cypriot assemblages is the import horizon of MBIIC-LBI (roughly the second half of the 16 th to early 15 th centuries BCE), represented by WPVI, Red-on-Black/Red-on-Red, Monochrome, Black Lustrous Wheel-made ware, Bichrome ware, Proto White Slip, and White Slip I. Similarly, the typical later LBI import repertoire, which is dominated by BRI, along with Monochrome and some WSII, is also not represented. This absence may reflect an occupational gap, at least in the areas excavated at the site.

The typological distribution of the wares and forms from Field I are consistent with import assemblages in Canaan dating to the middle to late 14th through 13th centuries BCE. This comprises predominantly BRII jugs, bowls, and juglets; WSII and WSIII bowls; and Mycenaean IIIA and IIIB transport vessels, predominantly stirrup jars.

The most interesting features of the assemblage are the Mycenaean sherds decorated with cuttlefish, a motif rarely attested abroad, and the WSII corpus, including a small number of WSIII sherds, and derivative WSII styles, possibly local, although their origin remains to be verified. Although most of the WSIII and derivative WSII style bowl sherds were not stratified, the degenerate style of the latter, comparable to WSIII, and the chronological range of the other wares and forms in the Field I Cypriot assemblage suggest that the two were roughly contemporary, probably belonging in the 13th century BCE.

## CATALOG

Note: Numbers preceded by a ' $\#$ ' sign refer to photo numbers in Appendix 11.1; the description following indicates the location of the sherd within the photo if more than one sherd is displayed.

## FieLd III

## WP PLS

1. Box 821R (Figure 11.2g, \#6972), GMIII J2 (14), Phase 16; Pendent Line Style, body sherd, juglet?; light brown fabric, fine grained, few small pieces of calcite, 0.3 cm thick; very hard lustrous red slip; dark red paint, burnishing lines.
2. Box 824R/2 (Figure 11.2f, \#6998, middle row, fourth from left), GMIII J2 (17) 1, Phase 17; body sherd, closed vessel; pink fabric, many minute white and black grits, medium to fine
grain, hard, 0.7 cm thick; pale brown slip; red to dark red paint, burnished over both slip and paint.
3. Box 800R (\#6952, left), GMIII F, topsoil; body sherd, closed vessel; brownish-gray fabric, very hard, compact, no visible grits, medium to fine fabric, $0.4-0.5 \mathrm{~cm}$ thick; dark red paint, highly burnished over both surface and paint.
4. Box 796 (Figure 11.2d, \#6946), GMIII C2 F22, Phase 18; globular juglet, five body sherds; white to very pale brown or pink fabric, few visible grits, hard, very fine, $0.3-0.4 \mathrm{~cm}$ thick; surface as fabric but very worn; flaking black paint.

5-6. Box 795R (\#6914, bottom left and center), GMIII C2 (87), Phase 17/18; body sherds, closed vessel; pink fabric, very fine, few minute white but one 0.2 cm piece of calcite, traces of mica, $0.4-0.5 \mathrm{~cm}$ thick; pale brown slip; brown and red paint, burnished over both.
7. Box 795R (\#6914, bottom right), GMIII C2 (87), Phase 17/18; body sherd, closed vessel; pink, medium to hard, few minute black grits, fine, slightly porous fabric, 0.6 cm thick; very pale brown burnished slip; lustrous black paint, mostly flaked off.
8. Box 795R (\#6914, top right), GMIII C2 (87), Phase 17/18; body sherd, closed vessel; white, slightly greenish, powdery fine fabric, soft to medium hardness, 0.5 cm thick; slip as fabric, burnished; negative of dark brown painted bands, flaked off, not burnished over the paint.

## WP CLS

9. Bag 5285 (Figure 11.3b, \#2422), GMIII J2 (16) 2, Phase 17; body sherd, probably a juglet; pink fabric, few minute white grits, fine grained, compact, hard, $0.5-0.7 \mathrm{~cm}$ thick; surface is worn, very dark reddish-brown crisscrossing bands, mostly worn off.

## WPIII-IV Indeterminate

10. Bag 2058 (Figure 11.2a, \#2421), GMIII F2 (11), Phase 16?; two body sherds, same vessel(?) juglet; yellowish red to reddish yellow fabric, many minute black and white grits, fine to medium grained, very hard, $0.5-0.7 \mathrm{~cm}$ thick; pink lightly burnished slip; dark red to reddish-brown burnished paint.
11. Bag 2281 (\#2407), GMIII F2 (12), Phase 16?; two jug rim sherds; pink fabric, few minute black grits, traces of mica, fine grain, hard, $0.5-0.6 \mathrm{~cm}$ thick; reddish-yellow lightly burnished surface; lustrous red painted band along the top and inside of the rim, two horizontal bands on the neck.
12. Box 817R, GMIII J1 (11) 2, Phase 15?; body sherd, closed vessel; red fabric, many minute white grits, micaceous, fine grained, 0.3 cm thick; light red burnished slip; red paint, burnished over both slip and paint.
13. Box 795/3 (Figure 11.2k, \#6916), GMIII C2 (82), Phase 16; jug, rim sherd; diameter (diam.) 6.0 cm , pink to light brown fabric, minute and small white grits including calcite and possibly mica, very hard, compact; light brown slip, traces of burnishing lines interior and exterior; dark brown paint inside the rim, reddish-brown paint on the exterior.

## WPV TLS

14. Box 824R/4 (Figure 11.1g, \#6998, bottom left), GMIII J2 (17) 1, Phase 17; body sherd, closed vessel; pink, medium to fine fabric, 6.0 cm thick, minute black and white grits, few small calcite, traces of mica, very hard; pale brown burnished slip, very dark brown paint, burnished over both, lines faint, paint cracked.
15. Box 801R (\#6953, top left), GMIII F1 (5), Phase 15?; body sherd, closed vessel; pinkish-brown, light gray core, very hard, compact, medium coarse fabric, minute black and white grits; surface as fabric, smoothed, possibly self-slipped; reddishbrown lustrous paint.
16. Box 824R (\#6998, bottom row, third from left), GMIII J2 (17) 1, Phase 17; body sherd, closed vessel; red fabric, many minute black and white grits, sandy, micaceous, medium grain, 0.6 cm thick; pink burnished slip; very dark red lustrous paint, slightly cracked.
17. Box 824R (Figure 11.2i, \#6998, middle row, third from left), GMIII J2 (17) 1, Phase 17; body sherd, closed vessel; yellowish-red fabric, many minute black grits, medium to fine, 0.7 cm thick; very light red slip; dark red to dark reddish-brown paint, burnished over slip and paint.
18. Box 789R (\#6936), GMIII A3 (1), Phase 5; body sherd, closed vessel; pink, very hard, compact fabric, minute black and white grits, $0.4-0.5 \mathrm{~cm}$ thick; white to very pale brown matte slip; very dark brown matte, cracked paint.

## WPV ABBWL

19. Box 796 (Figure 11.1a, \#6942, \#6944), GMIII C2 F22, Phase 18; body sherds, closed vessel; one or two vessels; pink fabric, few minute and small calcite grits, hard, compact, 0.3-0.4 cm thick; surface as fabric, smoothed; deep red paint shading to dark brown, burnished lightly all over, including the slightly cracked paint.
20. Box 801R (Figure 11.3i, \#6953, bottom left and right), GMIII F1 (5), Phase 15?; body sherds, closed vessel; pink fabric, many minute black and white grits, medium to fine grain, compact, hard, 0.6 cm thick; surface smoothed; very dark brown, cracked paint, burnished over slip and paint, worn.
21. Box 790R (Figure 11.2p, \#6935), GMIII A3 W3, Phase 7A; body sherd, closed vessel; pink fabric, slightly porous, minute black grits, traces of mica, 0.6 cm thick; slip as fabric, burnished; matte dark brown paint.
22. Box 805R/1 (Figure 11.2n, \#6974), GMIII F1 W5, Phase 15; body sherd, closed vessel, shaped into rectangular gaming piece?; pink fabric, minute black, white and a few small calcite grits, fine grain, dense and hard, $0.5-0.6 \mathrm{~cm}$ thick; very pale brown slip; dark brown paint, burnished over slip and paint, burnishing lines visible.
23. Box 801R (\#6953, top middle), GMIII F1 (5), Phase 15?; body sherd, closed vessel; pinkish-brown fabric with gray core, 0.7 cm thick; highly burnished surface; very dark brown paint.
24. Box 795R, GMIII C2 (87), Phase 17/18; body sherd, closed vessel; pink fabric, very fine and compact, very few minute
white grits; smoothed surface; red shading to dark brown paint, some burnishing lines visible over the surface and paint.
25. Box 795R (Figure 11.1c, \#6913), GMIII C2 (87), Phase 17/18; closed vessel(s), five body sherds; pink to greenish-white fabric, signs of burning on one sherd, few minute black grits, very hard, compact, 0.5 cm thick; smoothed surfaces; dark brown to black paint, flaked.
26. Box 810R (\#6986, top center), GMIII F2 P2, Phase 16/17; body sherd, closed vessel; very pale pink fabric, minute black and white grits, fine, compact, very hard, $0.2-0.5 \mathrm{~cm}$ thick; pale brown slip; cracked black paint, was burnished over slip and paint.

## WPV Indeterminate

27. Box 796, GMIII C2 F22, Phase 18; body sherd, closed vessel; very pale white to very pale brown fabric, 0.4 cm thick; lightly burnished surface; dark brown lustrous paint.
28. Box 792R (\#6931), GMIII B (+), topsoil; jug handle sherd; light pink, sandy fabric, many minute black grits; matte slip as fabric; matte dark brown paint, slightly cracked.
29. Box 793R (\#6933), GMIII B (4) 6, Phase 12; body sherd, closed vessel; pink, hard fabric, many minute black grits, 0.4 cm thick; surface as paste; dark red paint, highly burnished over slip and paint.
30. Box 799R, GMIII F (+), topsoil; body sherd, closed vessel.
31. Box 801R (\#6953, bottom center), GMIII F1 (5), Phase 15 ?; body sherd, closed vessel; light red fabric, minute black and white grits, slightly micaceous, hard, medium to fine grain, 0.3 cm thick; smoothed surface; dark red lustrous paint.
32. Box 810R (\#6986, bottom right), GMIII F2 P2, Phase 16/17; body sherd, closed vessel; pink fabric, many minute black and white grits, sandy, small voids and cracks in fabric, medium to fine grain, compact, very hard, $0.6-1.0 \mathrm{~cm}$ thick; pale brown burnished slip, very dark reddish-brown paint, burnished over both slip and paint.
33. Box 801R (\#6953, top right), GMIII F1 (5), Phase 15?; body sherd, closed vessel; pinkish-brown fabric with gray core, 0.6 cm thick; highly burnished; dark brown paint.
34. Box 810R (\#6986, top row, third from left), GMIII F2 P2, Phase 16/17; body sherd, closed vessel; red fabric, few minute white grits, fine, compact, very hard, 0.5 cm thick; very pale brown slip, burnishing not preserved; dark red to very dark brown lustrous paint.
35. Box 820R (\#6970), GMIII J1 W4, Phase 15; body sherd, closed vessel; very light red to pink fabric, many minute white grits, medium to fine grain, hard, 0.4 cm thick; very pale brown slip, burnished; dark red lustrous paint.
36. Box 826R (\#0231), GMIII J2 P2, Phase 18; body sherd, closed vessel; gray fabric, minute black and white grits, medium hard, fine to medium grain, compact, 0.5 cm thick; lustrous very dark brown paint.
37. Box 834R (\#7233), GMIII B (65) 9, Phase 12/13; body sherd, closed vessel.
38. Box 835R (\#7234), GMIII B (67), Phase 13; body sherd, closed vessel; dark gray fabric, 0.3 cm thick; gray matte slip; dark brown matte paint.
39. Bag 2217 (\#2406), GMIII F1 (6) 5, Phase 16; body sherd, jug?; pink fabric, minute black and white grits, medium grained, very hard, 0.6 cm thick; lightly burnished very pale brown slip; lustrous dark reddish-brown paint.
40. Bag 1141 (\#2414), GMIII C2 (2), Phase 18; juglet, shoulder sherd with hole for handle insertion; pink fabric, minute white grits, fine grained, metallic, 0.4 cm thick; lightly burnished surface; lustrous dark brown paint, mostly worn and flaked off.
41. Box 804 (\#6984), GMIII F1 (7) 5, Phase 15; body sherd, closed vessel; pink fabric, many minute black and white grits, sandy, medium to fine grain, hard; very pale brown slip; dark red paint shading to very dark reddish-brown, burnished over both slip and paint.
42. Bag 2236 (\#2420), GMIII F2 (9), Phase 16?; body sherd, closed vessel; very pale yellow to light gray fabric, few minute gray grits, fine grained, $0.4-0.7 \mathrm{~cm}$ thick; gray burnished surface; very dark reddish-brown lustrous paint, three bands.
43. Box 795R (\#6914, top center), GMIII C2 (87), Phase 17/18; neck sherd, closed vessel; light red fabric, fine and compact, very hard, few minute white grits, traces of mica on the surface, $0.3-0.4 \mathrm{~cm}$ thick; slip as fabric, vertically burnished; brownish-red paint, not burnished over the paint.
44. Box 795R (\#6914, top left), GMIII C2 (87), Phase 17/18; body sherd, closed vessel; pink fabric, very hard, compact, one small calcite grit only, 0.4 cm thick; smoothed surface with traces of burnishing lines; dark red matte paint, cracked.
45. Box 798R (\#6932), GMIII C3 (+), topsoil; body sherd, closed vessel; pink, hard fabric, many minute black grits, 0.4 cm thick; surface as paste; dark red paint, highly burnished over slip and paint.
46. Box 800R (\#6952, right), GMIII F, topsoil; body sherd, closed vessel; pink to very pale brown fabric, many minute and small white calcite grits, minute black grits, porous, medium hardness, 0.5 cm thick; was slipped or smoothed inside, now worn off, exterior is wet smoothed, traces of burnish, worn; dark brown, cracked matte paint.
47. Box 807R (Figure 11.1f, \#6994, bottom left), GMIII F2 (13), Phase 17?; body sherd, jug?; very pale pink, few minute white grits, sandy, medium to fine grain, 0.4 cm thick; very worn surface, possibly slipped very light gray and burnished; very dark brown paint.
48. Box 802R (Figure 11.1h, \#6956), GMIII F1 (2) 2, Phase 14; 2 painted and 11 unpainted sherds, probably from the same closed vessel; pink fabric, many minute black and white grits, slightly micaceous; light slip, as fabric; dark reddish-brown to dark brown paint; matte surface but traces of burnishing marks.
49. Box 803R (\#6960, bottom right), GMIII F1 (6) 5, Phase 16; body sherd, closed vessel; very light pink fabric, fine grained, no visible grits, hard, 0.4 cm thick; self-slipped and burnished; very dark brown slightly lustrous, cracked paint, not burnished over the paint.
50. Box 806R (Figure 11.3d, \#6976, right), GMIII F2 (12), Phase 16?; body sherd, closed vessel; pale pink fabric, many minute white grits, medium to fine grain, hard, 0.5 cm thick; very pale brown slip; very dark brown paint, burnished over slip and paint.
51. Box 806R (Figure 11.3a, \#6976, left), GMIII F2 (12), Phase 16?; body sherd, closed vessel; pink fabric, medium to fine grain, hard, 0.5 cm thick; pale brown slip; dark red paint, burnished over slip and paint.
52. Box 808R (\#6990), GMIII F2 (14), Phase 17; body sherd, closed vessel; very pale pink, minute white grits, traces of mica, fine grain, 0.5 cm thick; very light gray burnished slip, worn and cracked; very dark brown paint.
53. Box 809R (\#6992), GMIII F2 (16) 1, Phase 17; body sherd, closed vessel; pink fabric, many minute black and white grits, fine grain, hard, $0.4-0.8 \mathrm{~cm}$ thick; worn, very pale brown slip, traces of mica; worn, dark reddish-brown, faintly lustrous paint.
54. Box 810R (\#6986, bottom left), GMIII F2 P2, Phase 16/17; body sherd, closed vessel; pink, minute black and white grits, traces of mica, fine grain, 0.5 cm thick; very light gray slip; very dark brown paint, burnished over slip and paint.
55. Box 529 (\#0297), GMIII A3 (12), Phase 8; body sherd, closed vessel; dark gray fabric, dark brown to the surface, 0.3 cm thick, medium coarse; highly burnished very pale brown slip; very dark brown paint.
56. Box 812R (\#6968, bottom left), GMIII J1 (13), Phase 16; body sherd, closed vessel; pink fabric, minute black, white and a few small $(0.01 \mathrm{~cm})$ black grits, traces of mica, medium to fine grain, hard, compact, 0.6 cm thick; very pale brown slip, lightly burnished; worn and cracked dark brown paint, was lustrous.
57. Box 812R (\#6968, bottom right), GMIII J1 (13), Phase 16; body sherd, closed vessel; pink fabric, many minute black and white grits, sandy, very hard, compact, medium to fine grain, 0.6 cm thick; very pale brown lightly burnished slip; dark red to reddish-brown lustrous paint.
58. Box 813R (\#6964), GMIII J1 (14), Phase 16; two body sherds, closed vessel; light pink fabric, minute black and white grits, slightly micaceous, medium to fine grain, very hard, compact, $0.5-0.6 \mathrm{~cm}$ thick; pink slip, lightly burnished; dark red to very dark reddish-brown lustrous paint, cracked.
59. Box 814R (Figure 11.1b, \#6978), GMIII J1 (5) 1, Phase 14?; pierced jug handle; pink fabric, many minute black and white grits, sandy, medium to fine grain, 0.6 cm thick; surface as fabric, worn; traces of very dark brown paint.
60. Box 815R (\#6982), GMIII J1 (16) 1, Phase 17; body sherd, closed vessel; very light pink fabric, many minute black and white grits, medium to fine fabric; very light gray lightly burnished slip; very dark brown matte paint.
61. Box 816R (\#6962), GMIII J1 (9) 2, Phase 15?; body sherd, closed vessel; pink fabric, minute black and white grits, sandy, compact, medium to fine grained, hard, 0.7 cm thick; selfslipped, smoothed and burnished; dark brown lustrous paint.
62. Box 818R (Figure 11.3f, \#6980, right), GMIII J2 (1617) 1, Phase 15 ?; body sherd, closed vessel; red fabric, many minute black and white grits, medium to fine grain, sandy, very hard, 0.7 cm thick; light reddish-yellow to red micaceous slip; dark red cracked paint, burnished over slip and paint.
63. Box 819R (\#6996, top left), GMIII J1 (17) 1, Phase 15?; everted rim sherd, jug; diam. 6.0 cm ; very pale yellow to very
light gray fabric, many minute black and white grits, sandy, medium grain; very light gray slip, mostly worn off; dark brown cracked paint, band along the inside of the rim.
64. Box 823R (\#6966, top left), GMIII J2 (16) 1, Phase 17; body sherd, closed vessel; light red fabric, minute black and white grits, medium to fine fabric, compact, hard, 0.5 cm thick; slip as fabric, burnished; red lustrous paint.
65. Box 823R (\#6966, right), GMIII J2 (16) 1, Phase 17; body sherd, closed vessel; pink, minute black and white grits, one small calcite grit, medium to fine grain, slightly sandy, 0.5 cm thick; thin, light red slip; dark red paint, faint burnishing marks over slip and paint.
66. Box 824R/1 (Figure 11.1e, \#6998, top left), GMIII J2 (17) 1, Phase 17; rim sherd, jug; diam. 10.5 cm ; pink fabric, many minute black, white, and brown grits, $0.7-0.9 \mathrm{~cm}$ thick; very pale brown lightly burnished slip; very dark brown paint, was lustrous.
67. Box 824R (\#6998, top row, third from left), GMIII J2 (17) 1, Phase 17; rim sherd, jug; diam. $\sim 10.0 \mathrm{~cm}$; very pale brown to white fabric, many minute black and white grits, sandy, medium to fine grain, very hard, $0.6-0.7 \mathrm{~cm}$ thick; cracked greenishwhite slip and flaked dark brown paint.
68. Box 824R (\#6998, top row, fourth from left), GMIII J2 (17) 1, Phase 17; rim sherd, jug; pink fabric, many minute white and black grits, medium to fine grain, sandy, cracks in wall, 0.5 cm thick; light gray and dark brown cracked and worn paint, burnished over slip and paint.
69. Box 824R/3 (Figure 11.2b, \#6998, top row, second from left), GMIII J2 (17) 1, Phase 17; rim sherd, jug; diam. 11.0 cm ; light red fabric, many minute black and white grits, medium to fine grain, very hard, $0.7-0.8 \mathrm{~cm}$ thick; light red slip; red paint, burnished over slip and paint.
70. Bag 1308 (Figure 11.2o, \#2408, right), GMIII C2 (82), Phase 16; body sherd, closed vessel; 0.5 cm thick, medium grained to sandy white to light pink fabric, minute white grits, worn very pale gray, smooth slip, possibly once burnished; worn, partly flaked black paint.
71. Bag 2265 (\#2410, right), GMIII F2 (10), Phase 16?; body sherd, closed vessel; gray fabric, many minute black and white grits, medium grained, very hard, 0.8 cm thick; lightly burnished over the gray surface and dark reddish-brown paint.
72. Box 824R (\#6998, bottom row, fourth from left), GMIII J2 (17) 1, Phase 17; body sherd, closed vessel; light pink fabric, many minute black and white grits, medium to fine grain, 0.6 cm thick; lustrous pale brown slip; lustrous dark brown paint, partly cracked and flaked.
73. Box 824R (Figure 11.2h, \#6998, bottom row, second from left), GMIII J2 (17), Phase 17; body sherd, closed vessel, probably goes with Cat. No. 17 above; pink fabric, many minute black and white grits, few small black grits, mica, medium to fine grain, $0.7-0.8 \mathrm{~cm}$ thick; very pale brown, slightly lustrous slip; very dark brown paint, now matte, but burnishing lines visible.

## WPV-VI

74. Box 791R (Figure 11.3c, \#6927), GMIII A3 W4, Phase 8; body sherd, closed vessel; light pink to very pale brown, sandy
fabric, many minute black grits, 1.5 cm thick; white to very pale brown matte slip; dark brown cracked paint.
75. Box 807R (\#6994, three in middle and one on lower right), GMIII F2 (13), Phase 17; four body sherds, probably from the same closed vessel; very light gray fabric, greenish cast, black and white grits, medium to fine sandy fabric, $0.4-0.5 \mathrm{~cm}$ thick; slip as fabric and black cracked paint, both burnished.
76. Box 807R (\#6994, top right), GMIII F2 (13), Phase 17; body sherd, closed vessel; pink, many minute white grits, sandy, medium to fine grain, 0.6 cm thick; pale brown slip; black cracked paint, was lustrous.
77. Box 810R (\#6986, top left), GMIII F2 P2, Phase 16/17; body sherd, closed vessel; very light pink fabric, many minute black and white grits, very fine grain, hard, $0.3-0.4 \mathrm{~cm}$ thick; very light gray slip; negative of paint only, traces of very dark brown paint.
78. Box 818R (Figure 11.3e, \#6980, left), GMIII J2 (16-17) 1, Phase 16/17; body sherd, closed vessel near the handle; red fabric, many minute black and white grits, slightly micaceous, hard, 0.6 cm thick; light brown slip; dark brown cracked paint, was lustrous.
79. Box 819R (\#6996, right), GMIII J1 (17) 1, Phase 16/17; two body sherds, closed vessel; very light gray on the interior, shading to very pale yellow with a greenish cast, many minute black and white grits, medium to fine grain fabric; greenishwhite burnished slip; dark brown faded and cracked matte paint.
80. Box 823R (\#6966, bottom left), GMIII J2 (16), Phase 17; body sherd, closed vessel; pink fabric, minute grits, sandy, medium to fine grain, 0.6 cm thick; desurfaced, traces of very dark brown slightly lustrous surface and paint.

## WPVI

81. Bag 4417 (Figure 11.2c, \#2418), GMIII B F9, Phase 13-14; juglet handle and part of shoulder; very pale gray, minute black and white grits, medium-grained fabric, $0.4-0.6 \mathrm{~cm}$ thick; surface is very worn, traces of discolored and flaked paint.

## WP Indeterminate

82. Box 786R, GMIII A2 (19), Phase 6; body sherd, bowl; white to very pale pink fabric, $0.4-0.5 \mathrm{~cm}$ thick, very fine and compact, no visible grits; silky smooth slip on the exterior, selfslipped on the interior; very dark brown paint.
83. Box 807R (\#6994, top left), GMIII F2 (13), Phase 17?; body sherd, closed vessel; brown fabric, many minute black and white grits, medium grain, very hard and compact, $0.6-0.7 \mathrm{~cm}$ thick; white smeary slip; dark reddish-brown paint, burnished over both slip and paint.
84. Bag 2209 (\#2423), GMIII F1 (2), Phase 14; body sherd, closed vessel; medium grained to sandy pink fabric, many minute white grits, light and porous, very hard, 0.5 cm thick; matte or lightly burnished very pale brown slip, two matte dark reddishbrown unevenly painted bands.
85. Box 534 (\#0309), GMIII B (54) 1, Phase 9; body sherd, closed vessel; very dark gray fabric, minute white grits, 0.2 cm thick; very dark gray matte slip; matte white paint.
86. Box 538 (\#0312), GMIII B (61A), Phase 11; body sherds, closed vessel; three sherds; very dark gray fabric, minute white grits, $0.2-0.3 \mathrm{~cm}$ thick; very dark gray matte slip; matte white paint.
87. Box 540 (\#0227, bottom right), GMIII B (64) 5, Phase 12; body sherd, closed vessel; dark gray fabric, dark red to surfaces, minute white grits, $0.2-0.3 \mathrm{~cm}$ thick; dark gray matte slip; traces of pale brown paint.
88. Box 540 (\#0226, left), GMIII B (64) 5, Phase 12; jug base; diam. $\sim 10.2 \mathrm{~cm}$; gray fabric, red to the surfaces, few minute white grits, 0.6 cm thick; dark gray burnished slip on the exterior, interior burnish worn.
89. Box 542 (\#0313, right), GMIII B (65) 9, Phase 12/13; body sherd, closed vessel; dark gray fabric, red to the surface, 0.2 cm thick; burnished red surface; matte white paint.
90. Box 544 (Figure 11.6c, \#0227, top right), GMIII B (66) 14 , Phase 13 ; bowl handle tip; very dark gray fabric, many minute white grits, 0.6 cm thick; matte very dark gray slip.
91. Box 544 (\#0227, top left), GMIII B (66) 14, Phase 13; jug rim sherd with handle base; very dark gray fabric, many minute white grits; matte very dark gray slip; matte very pale brown paint, bands at the base of handle.
92. Box 545 (\#7214), GMIII B (67), Phase 13; body sherd, closed vessel; dark gray fabric; dark gray faintly burnished slip; matte white paint.
93. Box 545 (\#7106), GMIII B (67), Phase 13; body sherd, closed vessel; gray fabric; lightly burnished dark gray slip; matte white paint.
94. Bag 4452 (\#2424), GMIII B (63) 2, Phase 17; bowl body sherd; very dark gray fabric, minute white grits, metallic, 0.3 cm thick; very dark gray, lightly burnished slip.
95. Bag 4474 (\#2416), GMIII B (63A) 5, Phase 12; body sherd, closed vessel; dark gray fabric, reddish brown to the surface, metallic, 0.5 cm thick; dark grayish-brown lightly burnished slip; matte white painted band.
96. Box 24R (\#7090), GMIII B (66) 13, Phase 12/13; small jug rim, neck, and shoulder sherds; rim diam. 9 cm ; dark gray fabric, red to the surfaces, dark gray matte slip; matte white paint.
97. Box 794R (\#6934), GMIII B (5) 6, Phase 12; bowl handle; dark gray fabric; dark gray, slightly lustrous slip, cracked.
98. Box 799R (\#6951, right), GMIII F (+) topsoil; body sherd, closed vessel; very dark gray fabric, few small white grits, some spalling, 0.3 cm thick; lightly burnished dark gray slip.
99. Box 799R, GMIII F (+) topsoil; body sherd, closed vessel.
100. Bag 1012/2 (\#2413), GMIII B (59) 3, Phase 11; jug rim sherd; $0.5-0.6 \mathrm{~cm}$ thick, medium-grained red fabric, many minute black and white grits, very hard; matte, smeary dark gray slip; matte white paint, horizontal bands below the rim and on the outside of the neck.
101. Bag 4418 (\#2419, left), GMIII B(1) 11, Phase 12; bowl rim sherd; $0.1-0.3 \mathrm{~cm}$ thick, very fine, metallic dark gray fabric,
light red to the surfaces, few minute white grits; dark gray burnished slip.
102. Bag 4418 (\#2419, right), GMIII B(1) 11, Phase 12; jug base sherd; $0.3-0.5 \mathrm{~cm}$ thick, metallic dark gray fabric, very compact, few minute white grits; dark gray burnished slip; matte white painted bands.
103. Bag 4452/5 (\#2404), GMIII B(67), Phase 13; jug, base of neck sherd with a ridge; $0.3-0.5 \mathrm{~cm}$ thick; dark gray fabric, few minute white grits; traces of dark gray burnished slip.
104. Bags 4482/7 and 8 (\#2409), GMIII B(62) 5, Phase 11; jug rim sherd; dark gray core, reddish brown to the surfaces, minute white grits, fine grain, metallic, 0.3 cm thick; dark gray slip; faintly burnished on the interior.
105. Box 540 (\#0227, bottom left), GMIII B(64) 5, Phase 12; jug base sherd; diam. 8.0 cm ; very dark gray fabric, many minute white grits, 3.0 cm thick; slightly lustrous very dark gray slip interior and exterior.

## White Shaved

106. Bag 4680 (\#2403) GMIII B(2) 15, Phase 13; juglet, base of handle; diam. $\sim 22.0 \mathrm{~cm}$; gray fabric, minute black grits, very hard, medium grain, compact, 0.5 cm thick; knife-shaved surface.

## White Painted Wheel Made

107. Box 854/3 (Figure 11.2m, \#2415, top left), GMIII J2 (17) 1, Phase 17 ?; rim sherd with slight gutter, closed vessel; very light gray fabric, minute black grits, $0.5-0.6 \mathrm{~cm}$ thick; surface was smoothed and faintly burnished; cracked and flaked off black paint, band on the exterior below the rim and on top of and along the inside of the rim.
108. Bag 1308 (Figure 11.2j, \#2408, left), GMIII C2 (82), Phase 16; krater? rim sherd with triangular profile, goes with Cat. No. 66 above; 0.6 cm thick, very pale gray medium-grain fabric, very hard, minute black grits, compact; faintly lustrous, dark grayish-brown painted band along the top and sides of the rim.

## Mycenaean

109. Box 528 (\#0311), GMIII A3(11) 15, Phase 8; closed vessel, body sherd; light red, very hard, compact fabric, no visible grits, 0.5 cm thick; pale yellow lightly burnished slip; lustrous red to dark red paint.
110. Box 537 (\#0308, right), GMIII B (+), topsoil; closed vessel, two body sherds, one or two vessels; very light red, very fine fabric, 0.2 cm thick; very light yellow, lightly burnished slip; lustrous dark red paint.
111. Box 541 (\#0307), GMIII B(59) TT1 3, Phase 11; closed vessel, body sherd; pink, hard, dense fabric, no visible grits, 0.3 cm thick; smoothed and burnished surface; lustrous red paint.
112. Box 542 (\#0313, left), GMIII B(65) 9, Phase 12/13; base, closed vessel; pink, very fine, very hard, compact fabric, no visible grits, 0.7 cm ; lustrous dark red paint.
113. Box 788R (\#6928), GMIII A3(4) 3, Phase 9; closed vessel body sherd; brownish-gray, very hard compact fabric, 0.3 cm thick; dark brown highly lustrous paint.
114. Box 799R (\#6951, left), GMIII F (+), topsoil; closed vessel, body sherd; pink, compact fabric, no visible grits, 0.7 cm thick; light red lustrous surface and paint.

## WSII

115. Box 525 (\#0222), GMIII A2(13), Phase 5; bowl, body sherd; dark gray fabric, minute white grits, $0.3-0.4 \mathrm{~cm}$ thick; white slip on the interior, white to very pale brown slip exterior, burnished; very dark brown matte paint.
116. Box 526 (Figure 11.9i, \#0218, left), GMIII A2 (19), Phase 6; bowl rim sherd; Parallel Line Style; diam. $\sim 16.0 \mathrm{~cm}$; brownish-red fabric, many minute white grits, 0.3 cm thick; pink micaceous slip interior and exterior; faded brown paint.
117. Box 527 (\#0306), GMIII A3 (2), Phase 6; bowl rim sherd; Parallel Line Style; diam. 18.0 cm ; gray fabric, red to the surface, medium to coarse, sandy fabric, many minute black and white grits, $0.4-0.6 \mathrm{~cm}$ thick; chalky white slip; matte dark brown paint.
118. Box 530 (Figure 11.8i, \#0223), GMIII A3 (1A) 1, phase unknown; bowl body sherd; brown fabric interior, reddishbrown exterior, minute black and white grits, 0.4 cm thick; micaceous pink slip, lightly burnished; very dark brown paint.
119. Box 532 (\#0219), GMIII B (50), Phase 9; bowl body sherd; Parallel Line Style; dark gray fabric, 0.4 cm thick; dark reddish brown to the surfaces; light brown burnished slip; dark brown paint.
120. Box 535 (Figure 11.9q, \#0220), GMIII B TT2 (60) 3, Phase 11; bowl rim sherd; diam. 20.0 cm ; gray fabric, red to the surfaces, many minute and small black and white grits, 0.6-0.7 cm thick; chalky white slip, burnished; dark brown paint, rim not dotted.
121. Box 536 (\#0221), GMIII B TT3 (61) 3, Phase 11?; bowl body sherd; dark gray fabric; reddish brown to the surfaces, minute black and white grits, 0.4 cm thick; light brown, lightly burnished slip; dark brown paint.
122. Box 537 (\#0308, left), GMIII B (+), topsoil; bowl body sherd; dark gray fabric, minute black and white grits, 0.5 cm thick; gray lightly burnished slip; dark brown paint.
123. Box 539 (\#0315), GMIII B (62) 5, Phase 12; bowl rim sherd; Parallel Line Style; gray fabric, reddish brown to the surfaces, medium coarse, sandy, many minute and small black and white grits, 0.5 cm thick; very pale brown, lightly burnished slip; very dark brown paint.
124. Box 540 (\#0226, right), GMIII B (64) 5, Phase 12; bowl rim sherd; gray fabric, red to the surfaces, few minute white grits, very pale gray slip on the exterior; lightly burnished, very pale pink slip on the interior; lightly burnished, dark brown paint, rim not dotted.
125. Box 831R (\#7231), GMIII B (11), Phase 12; bowl rim sherd.
126. Bag 5331 (\#0310), GMIII B (+), topsoil; bowl rim sherd; diam. $\sim 22.0 \mathrm{~cm}$; gray fabric, light reddish brown to the
surface, 0.4 cm thick; very lightly burnished, very pale brown micaceous slip, very dark brown paint, rim not dotted

Iron Age Imports (Residual or Intrusive)
BOR
127. Box 822R (Figure 11.12f, \#6958, 6959), GMIII J2 (16), Phase 17; bowl body sherd; red fabric, fine, compact, no visible grits, metallic, 0.5 cm thick; highly burnished brownishred slipped interior, light red slip exterior; lustrous very dark red paint.
128. Box 785R (Figure 11.12g, \#6950), GMIII A2 (+), topsoil; jug rim and part of neck; diam. $\sim 9.0 \mathrm{~cm}$; light red fabric, many minute black and white grits, traces of mica, medium to hard; matte dark red and very dark brown worn paint.

## Iron Age WP

129. Box 533 (\#0224, \#0225), GMIII B (52), Phase 9; bowl disk base with a thickened edge for a ring; diam. 0.6 cm ; very pale brown to white fabric, very fine grained and compact, no visible grits, $0.2-0.5 \mathrm{~cm}$ thick; very smooth, fine surface, same color as fabric; very dark brown matte paint.

## Iron Age WP or Bichrome

130. Box 787R (\#6937), GMIII A3 (2), topsoil; jug neck sherd with ridge; pink, very hard, compact fabric, minute black and white grits, traces of mica, medium to hard, 0.3 cm thick; matte dark red and very dark brown paint, both worn.

FieLd I
WP PLS
131. Box 771R (Figure 11.3h, \#7080, bottom left), GMI 3G (19), Phase 7; closed vessel, body sherd; pink fabric, fine to medium grain, many minute black and white grits, $0.4-0.5 \mathrm{~cm}$; pale pink micaceous slip; burnished, lustrous brown to very dark brown paint.
132. Box 773R (Figure 11.2e, \#7082), GMI 3G P6, Phase 6/7?; three body sherds, closed vessels; center sherd: gray core, red to the surfaces, medium fine, many minute black and white grits, $0.4-0.5 \mathrm{~cm}$ thick, very pale brown to white burnished slip and dark brown lustrous paint; other two sherds: pink, medium to fine fabric, many minute black and white grits, pink micaceous burnished slip, dark brown lustrous paint.
133. Box 777R (\#6890, center), GMI 3G (21), Phase 8; closed vessel body sherd; pink, medium hard fabric, very fine, few minute white grits, traces of mica, 0.5 cm thick; lightly burnished over the smoothed surface and red paint.

## WPIII-IV Indeterminate

134. Box 776R (\#6885, top row, right), GMI 3G (20), Phase 8 ; closed vessel, body sherd; light red fabric, many minute black
and white grits, compact, very hard, 0.5 cm thick; smoothed and burnished surface, traces of mica; lustrous red paint.

## WPV ABBWLS

135. Box 776R (\#6885, top row, left), GMI 3G (20), Phase 8; closed vessel, body sherd; light pink fabric, minute black and white grits, compact, hard, 0.4 cm thick; smoothed matte surface; matte red to very dark brown paint.
136. Box 776R (Figure 11.1d, \#6885, far left), GMI 3G (20), Phase 8; closed vessel, body sherd; light red fabric, many minute black and white grits, compact, very hard, 0.5 cm thick; smoothed and burnished surface, traces of mica; lustrous red paint.
137. Box 771R (Figure 11.21, \#7080, bottom right), GMI 3G (19), Phase 7; closed vessel, body sherd; pink fabric; light red burnished slip and dark red paint.

## WPV

138. Box 774R (\#7083), GMI 3G P7, Phase 7/8?; closed vessel, body sherd; medium to fine pale brown fabric, minute white grits, very hard, very compact, burnt?, 0.5 cm thick; pale brown slip, discolored; very dark brown cracked paint, burnished over both.
139. Box 771R (\#7080, top left), GMI 3G (19), Phase 7; closed vessel, body sherd; dark gray, medium fabric, many minute black and white grits, very hard, 0.5 cm thick, possibly burnt; light gray burnished surface; very dark brown paint, traces of burnishing.
140. Box 771R (\#7080, top, second from left), GMI 3G (19), Phase 7; closed vessel, body sherd; light red interior, gray exterior, medium to coarse fabric, many minute black and white grits, very hard, 0.7 cm ; light brown slip, traces of mica; very dark brown slightly cracked paint, both faintly burnished.
141. Box 771R (\#7080, top, third from left), GMI 3G (19), Phase 7; closed vessel, body sherd; very pale pink, medium fabric, many minute black and white grits, very hard, 0.5 cm ; light brown surface; dark brown cracked paint, burnishing traces on both.
142. Box 771R (\#7080, top right), GMI 3G (19), Phase 7; closed vessel, body sherd; medium to fine, very pale brown fabric, minute black grits, very hard, 0.5 cm thick; very pale brown silky slip; faded and worn dark brown paint.
143. Box 776R (\#6885, bottom row, left), GMI 3G (20), Phase 8 ; closed vessel, body sherd; white to very pale pink fabric, many minute black and white grits, 0.5 cm thick; smoothed, lightly burnished surface; very dark brown cracked paint.
144. Box 777R (\#6890, left), GMI 3G (21), Phase 8; closed vessel, body sherd; very light red fabric, many minute red, black, and white grits, 0.5 cm thick; burnishing lines over the smoothed surface and slightly cracked dark red paint.
145. Box 777R (\#6890, right), GMI 3G (21), Phase 8; closed vessel, body sherd; very hard, compact, light red fabric, many minute white grits, 0.5 cm thick; lightly burnished over the smoothed surface and red paint_
146. Box 747R (\#7053), GMI 4D (3) 4, Phase 3?; closed vessel, body sherd; light gray fabric, many minute and small
black and white grits, very hard and compact, some spalling; dark red lustrous paint; slightly lighter red slip.
147. Box 753/5R (\#7063, right), GMI 6E (+), topsoil; handle sherd, closed vessel; fine, compact, light gray fabric, few small grits, traces of mica, hard; surface as fabric.
148. Box 771R (\#7078), GMI 3G (19), Phase 7; jug base sherd, slightly convex; $\sim 12.0 \mathrm{~cm}$ diam.; pink fabric, very hard and compact, many minute white and black grits; brown to dark brown matte paint, some on the base.
149. Box 771R (\#7080, bottom center), GMI 3G (19), Phase 7; closed vessel body sherd; light red fabric, medium fine, many minute black and white grits, very hard, compact, 0.4 cm thick; burnished pink slip and dark red paint.
150. Box 775R (\#7085), GMI 3G (17), Phase 7; closed vessel, body sherd.
151. Box 853R (\#7253), GMI 1F (11) 1, Phase 3; closed vessel body sherd.
152. Box 856R (\#7255), GMI 4F (+), topsoil; closed vessel, body sherd.
153. Box 862R (\#7264, right), GMI 3G (20), Phase 8; closed vessel, body sherd.
154. Box 862R (\#7264, center), GMI 3G (20), Phase 8; closed vessel body sherd.

## WPV-VI

155. Box 772R (\#7081), GMI 5D W1, Phase 1; closed vessel, body sherd; very light gray, medium to fine fabric, many minute black and white grits; burnished surface; very dark brown lustrous paint, very worn.
156. Bag 2617, GMI 1F (1), Phase 1?; juglet, pierced handle; pink fabric, minute black, white, and brown grits; shaving marks, desurfaced.

## WPVI

157. Box 865R (\#7266), GMI 5H (1) 6, Phase 3; juglet neck.

## BS

158. Box 715R(?) (Figure 11.5b, \#4515, top right), GMI 3G (0), topsoil; jug, handle from the rim, two ridges on back; sandy texture, light brown-buff fabric; matte black slip with some red mottling, rough surface.
159. Box 864R (Figure 11.4h, \#7259), GMI 4G (3) 1, Phase 3 ; open vessel?, body sherd; pink, very hard and compact, few minute white grits, 0.5 cm thick; matte, flaking black paint, shading to very dark brown; interior smoothed, surface as paste.
160. Box 848R (Figure 11.4i, \#7247), GMI 2E (2) 1, phase unknown; body sherd, closed vessel.

## Monochrome

161. Box 724/725R (Figure 11.4b, \#7214, top right), GMI 3G P4, Phase 4; open body sherd; red fabric; matte, smeary red slip interior and exterior.
162. Box 847R (Figure 11.4a, \#7246, top right), GMI 5D (3), Phase 3; bowl body sherd.

## Derivative/Imitation Monochrome/BR Bowl

163. Box 391 (Figure 11.6h, \#0216), GMI 5G (3) 2, Phase 3; bowl, everted rim and complete wishbone handle; very dark gray core, red brown to the surfaces, many calcite lumps, small black grits, possibly chaff temper; very pale pink matte, smeary slip, thinly applied exterior, smoothed interior; faded matte dark red painted band along the interior edge of the rim.

## BRI

164. Box 861R (\#7263) GMI 3G (1), Phase 4; juglet body sherd; light gray fabric, metallic, 0.2 cm thick; light brown highly burnished slip, very worn.

## BRI-II and Monochrome

165. Box 661 (Figure 11.4d, \#7175), GMI (+), topsoil; six small Monochrome bowl fragments; four closed BRII vessel fragments, two painted; one BRI bottle(?) neck and rim with top of handle; one Monochrome bowl rim sherd; probably all residual.
166. Box 860R (Figure 11.4e, \#7261), GMI 3G (1), Phase 4?; BRI-II jug handle; dark gray core, red to the surfaces; red and dark gray slip exterior, dark gray interior; traces of matte white paint(?).

## BRII

167. Box 483 (\#0287, left), GMI 5D (7) 2, Phase 3; jug base sherd, dark gray, red to the surfaces; matte dark gray mottled slip, pitted.
168. Box 485 (\#0289), GMI 2E (4), Phase $1 / 3$ ?; closed vessel, body sherd; very dark gray fabric, 0.3 cm thick; very dark gray matte surface.
169. Box 589 (\#7042, right), GMI 4H (1) 7, Phase 3; jug handle fragment, oval section; gray fabric, red to the surfaces; lightly burnished dark gray slip.
170. Box 668 (\#7177), GMI 3D (4), Phase 3?; closed vessel, jug(?) body sherd; gray fabric, dark gray slip; painted line groups.
171. Box 669 (Figure 11.6d, \#7178), GMI 3D (7B), Phase 3; bowl rim; diam. $\sim 14.0 \mathrm{~cm}$; very dark gray, medium burnished slip.
172. Box 674 (\#7184), GMI 5D (+), topsoil; bowl, three body sherds.
173. Box 684 (\#7189), GMI 6E (1), Phase 3; juglet?, body sherd; dark gray, fine fabric; dark gray matte slip.
174. Bag 3615, GMI 6E (2), Phase 3/4?; body sherd, closed vessel; gray fabric; dark gray matte slip; matte white paint.
175. Box 723 (\#7213, top center and sherd below), GMI 3G (8) 2 , Phase 5 ; bowl, two body sherds; fine dark gray fabric; dark gray highly burnished slip exterior; red or gray interiors.
176. Box 731 (Figure 11.7d, \#4531), GMI 4G (3) 1, Phase 3; small jug, rim with neck and five body sherds; rim diam. 8.0 cm ; gray fabric, reddish brown to the surfaces; dark gray medium burnished slip; matte white paint.

177-178. Box 656R (Figure 11.7a, \#7089, 7090), GMI 3-4G (3), Phase 3/4?; small jug, shoulder and base of neck; max. diam. $\sim 13.0 \mathrm{~cm}$; very fine walled, 0.3 cm thick; Box 581 R , GMI $5 \mathrm{~F}(3)$, no phase; small jug, shoulder sherd; Box 658R (Figure 11.7a bottom, \#7093), GMI 5-6F(3), Phase 3/4?; small jug, shoulder sherd, squashed body; dark gray fabric, few minute white grits; dark gray matte slip; matte white paint.
179. Box 696-697 (\#7196, top left), GMI 2F (4), Phase $1 B / 3$ ?; juglet neck, upward tapering, with the top of the handle attachment; dark gray fabric, red brown to the surface; very dark gray slightly burnished slip; matte white painted bands.
180. Box 657R (Figure 11.7b, \#4506), GMI 4H (1), Phase 3/3A?; small jug, bulbous neck rim; diam. $\sim 7.0 \mathrm{~cm}$; dark gray core, dark red to the surfaces, few minute white grits, some spalling; dark gray matte slip; matte white faded paint; may go with BRII 581R, 656R, and 658R.
181. Box 659R (\#7091), GMI 3G (2) 1, Phase 3B?; bowl rim sherd; diam. $\sim 16 \mathrm{~cm}$; dark gray fabric; dark gray, faintly burnished slip.
182. Box 660R (\#7092), GMI 3G (1) 2, Phase 3; jug neck base with ridge; dark gray core, red to the surfaces; dark gray matte slip; matte white paint.
183. Box 662-665 (\#7176, bottom left), GMI TTC/TTD, topsoil; juglet base; diam. 5.0 cm ; gray fabric, red to the surfaces; black-slipped base, very worn.
184. Box 662-665 (\#7176, top left and bottom right), GMI TTC/TTD, unstratified; jug body sherd and shoulder with base of pierced handle, back incised with two incised lines continuing on shoulder; gray fabric, red to the surfaces; dark gray matte slip; matte white painted band.
185. Box 662-665 (\#7176, top center), GMI TTB (+), topsoil; juglet neck; gray fabric; dark gray matte slip; matte white painted bands, neck and body.
186. Box 662-665 (\#7176, top right), GMI TTA, topsoil; juglet handle fragment; oval profile; gray fabric, red to the surfaces; very dark gray medium burnished slip.
187. Box 666R (Figure 11.7f, \#4502), GMI 3D (1), unknown; small jug, everted rim sherd; diam. 6.0 cm ; dark gray fabric, brown to the surface, many minute white grits; matte dark gray slip outside and inside; matte white paint, horizontal bands on the neck.
188. Box 667R (\#7181), GMI 3D, phase unknown; bowl base sherd; diam. 6 cm ; dark gray fabric, brown to the surfaces; dark gray lightly burnished slip.
189. Box 671R (Figure 11.6f, \#7180), GMI 4D (3), Phase 3?; bowl body, rim, and base sherds; rim diam. 16.0 cm , base diam. 6.0 cm ; very dark gray and light red mottled surfaces; light to medium burnish.
190. Box 671R (\#7180, middle far right), GMI 4D (3), Phase 3?; closed vessel, two body sherds, one painted.
191. Box 671R (Figure 11.5c, \#7180, top row, third sherd; second row, third sherd), GMI 4D (3), Phase 3?; jug base and rim
sherds from one or two vessels; base edge has a trough; diam. 9.0 cm ; delicate finish, dark gray lightly burnished slip.
192. Box 672R (Figure 11.6a, \#7182), GMI 4D (3) 4, Phase 3; bowl rim and body sherd; dark gray slip.
193. Box 673R (\#7183, bottom left and center), GMI 4D (4), Phase 3?; two body sherds, closed vessel; white paint.
194. Box 673R (\#7183, bottom right), GMI 4D (4), Phase 3?; small jug, rim with handle from rim; gray slip.
195. Box 673R (\#7183, top), GMI 4D (4), Phase 3?; body sherds from one to four bowls.
196. Box 675/676 (\#7186, top), GMI 5D (4), Phase 3?; bowl body and rim sherds (four).
197. Box 677R, GMI 5D (6), Phase 3; bowl body and rim sherds (three).
198. Box 678-680, GMI 5D $(3,7) 3$, Phase 3; bowl body and rim sherd; gray fabric, mottled gray and red surfaces.
199. Box 678-680, GMI 5D (7B) 3, Phase 3; jug base and body sherd; dark gray slip, matte white paint.
200. Box 681/692R (\#7194, bottom right), GMI 1F (11), Phase 3; bowl base, beveled edge; diam. 6.0 cm ; gray fabric, few minute grits; gray and red exterior, red interior, medium burnish.
201. Box 681/692R (\#7194, top right), GMI 1F (11), Phase 3 ; body sherd, closed vessel; red friable fabric, thin walled; worn gray matte slip; white matte paint, crisscross bands.
202. Box 681R (\#7188, bottom), GMI 5E (2), phase unknown; jug, two base sherds, edge of foot almost rounded; diam. $\sim 8.0 \mathrm{~cm}$; dark gray fabric; dark matte slip.
203. Box 681R (\#7188, top right), GMI 5E (3), phase unknown; body sherd, open vessel; dark gray fabric, red brown to the surfaces, few small calcite grits; exterior not slipped, traces of brown burnished slip interior.
204. Box 681R (\#7188, top left and center), GMI 5E (4,2), phase unknown; jug, two body sherds; very light red/pink fabric, thin walled; uneven, gray matte slip; white matte painted bands.
205. Box 685R (\#7190, bottom), GMI 1F (1) 1, phase unstratified; jug base with beveled edge and neck sherd near rim; base diam. $\sim 6.3-6.5 \mathrm{~cm}$; dark gray fabric, red to the surfaces; dark gray matte slip also on underside of base.
206. Box 685R (\#7190, top left), GMI 1F (1) 1, phase unstratified; jug sherd near rim; dark gray fabric, red to the surface; dark gray smeary slip interior and exterior.
207. Box 685R (\#7190, top right), GMI 1F (1) 1, phase unstratified; bowl body sherd; dark gray fabric, red to the surface, fine and metallic; dark gray smeary slip interior and exterior.
208. Box 686R (Figure 11.7e, \#4516), GMI 1F (2) 1, Phase 1 ; jug, everted and beveled rim and neck sherd with handle from rim to pierced shoulder; rim diam. $\sim 6.0 \mathrm{~cm}$; dark gray fabric, medium amount of minute white grits; dark gray, lightly burnished slip also on the inside of the rim; matte white painted vertical band on the neck.
209. Box 687R, GMI 1F (5) 1, Phase 5; bowl rim sherd; dark gray fabric, light red to the surfaces; smeary gray slip.
210. Box 688/9 (\#7192, left), GMI 1F (8), Phase 1B?/3; bowl body sherd; dark gray fabric, red brown to the surfaces, few minute white grits; medium burnished gray slip interior and exterior, red shows through.
211. Box 688/9 (\#7192, right), GMI 1F (9), Phase unstratified $/ 1$; body sherd, closed vessel; reddish-brown fabric, friable; weak red to light gray smeary slip; matte white paint.
212. Box 690R (\#7193, bottom), GMI 1F (9), Phase 3?; jug?, two body sherds; gray fabric; dark gray, lightly burnished slip; white painted bands.
213. Box 690R (\#7193, top left), GMI 1F (9), Phase 3?; bowl body sherd; dark gray fabric, red to the surfaces, few minute white grits; medium burnished gray slip interior and exterior, red shows through.
214. Box 690R (\#7193, top right), GMI 1F W2, Phase 3?; small jug(?) handle; dark gray fabric; medium burnished brown slip.
215. Box 691/692R (Figure 11.5e, \#7194, left), GMI 1F (11), Phase 3; pierced jug handle, sharp edges, two incised lines on back; gray fabric, red brown to the inside; traces of medium to highly burnished dark gray slip.
216. Box $693 / 5$ (\#7195, bottom right), GMI 1F W2, Phase 1 ; jug/juglet body sherd; gray fabric, red to inner surface, 0.3 cm thick; gray matte slip; white painted bands.
217. Box 693/5 (\#7195, left), GMI 1F (5) 2, phase unknown; bowl rim; diam. $\sim 18.0 \mathrm{~cm}$; dark gray fabric, brown to the surfaces, many minute black and white grits; thin gray slip, lightly burnished.
218. Box 693/5 (\#7195, top right), GMI 1F (10), Phase 3?; juglet(?) body sherd; gray fabric, red to the surfaces, thin walls; medium burnished gray slip.
219. Box 696-697 (\#7196, bottom), GMI 2F (3), Phase $1 B / 3$ ?; jug, three body sherds; red or gray fabric, very thin walled; dark gray matte slip, very worn; matte white painted bands.
220. Box 696-697 (\#7196, top right), GMI 2F (3), Phase $1 B / 3$ ?; bowl rim sherd; dark gray fabric, light red to the surfaces; smeary gray slip.
221. Box 700/701/702 (\#7197, bottom left), GMI 3F (2), phase unstratified; jug, rounded base sherd with slight trough; diam. $\sim 9 \mathrm{~cm}$; gray fabric, red to the surfaces; thin gray slip, lightly burnished.
222. Box 700/701/702 (\#7197, bottom right), GMI 3F (2), phase unstratified; bowl body sherd; gray fabric; dark gray slip, lightly burnished.
223. Box 700/701/702 (\#7197, top left), GMI 3F (0), phase unstratified; bowl rim sherd; diam. $\sim 18.0 \mathrm{~cm}$; gray fabric; thin dark gray matte slip.
224. Box 700/701/702 (\#7197, top right), GMI 3F (1), phase unstratified; jug/juglet handle; gray fabric, light red to the surfaces; thin gray matte slip.
225. Box 703/705 (\#7198, top center), GMI 4F TT5 (1), Phase 4?; bowl rim sherd; diam. $\sim 16.0-18.0 \mathrm{~cm}$; dark gray very fine fabric; dark gray highly burnished slip.
226. Box 703/705 (\#7198, top left), GMI 4F TT5 (2), Phase 4?; body sherd, closed vessel; gray fabric, red to the surface; dark gray lightly burnished slip.
227. Box 703/705 (\#7198, top right), GMI 4F TT5 (8), Phase 3?; bowl body sherd; gray fabric, brown to the surfaces; dark gray thinly applied matte slip; white paint exterior?
228. Box 703/705 (\#7198, second row, third sherd; bottom row, third sherd), GMI 4F TT5 (1), Phase 4?; two body sherds,
closed vessel; dark gray fabric; one worn, the other with dark gray lightly burnished slip and matte white painted bands.
229. Box 703/705 (\#7198, second row, first and second sherds; bottom row, first and second sherds), GMI 4F TT5 (1), Phase 4?; four body sherds, closed vessel; gray fabric, red or brown to the inner surface; dark gray slip, one mottled with brown; matte white painted bands on two.
230. Box 706/707 (\#7199, bottom right), GMI 4F (3) 3, Phase 3; jug(?) body sherd; fine light brown fabric; dark gray lightly burnished slip; matte white paint.
231. Box 706/707 (\#7199, left), GMI 4F (3), Phase 3; bowl rim sherd with handle base; gray fabric, brown to the surface; worn dark gray slip, traces of high burnish.
232. Box 706/707 (\#7199, top right), GMI 4F (3), phase unstratified; jug(?) body sherd; dark gray fabric; lightly burnished dark gray slip; white matte bands.
233. Box 708/710 (\#7200), GMI 5F (2) 2, phase unknown; jug, three body sherds; gray fabric; dark gray matte or lightly burnished slip; matte white paint.
234. Box 711R (Figure 11.5a, \#7203), GMI 6F (1), Phase 3?; bowl rim and body sherds from two bowls; rim diams. 16.0 and 17.0 cm ; very fine walled, dark gray fabric, reddish brown or red to the surfaces; mottled matte dark gray and red surface; the other with a dark gray matte, smeary slip.
235. Box 712/3R (\#7201, bottom right), GMI 6F (6), phase unknown; small jug(?) body sherd; red fabric; dark gray lightly burnished slip.
236. Box 712/3R (\#7201, top, bottom left), GMI 6F (3) 2, Phase 3; small jug(?), three body sherds; gray fabric; dark gray matte or lightly burnished slip; matte white paint.
237. Box 714R (\#7202), GMI 2G (1), phase unknown; body sherd, closed vessel; dark gray fabric, red brown to the surface; dark gray lightly burnished slip; matte white paint, thin bands.
238. Box 716R (\#7205, right), GMI 3G (9), Phase 6; juglet handle fragment; dark gray fabric, red to the surfaces; dark gray lightly burnished slip.
239. Box 715R, GMI 3G (0); body sherd, closed vessel; dark gray fabric, red to the surface; lightly burnished dark gray slip; transparent painted white matte bands.
240. Box 716R (\#7205, left and center), GMI 3G (9), Phase 6; jug base and rim fragments, both with beveled edges and troughs; diams. 10.0 cm ; dark gray fabric, red to the surfaces; lightly burnished gray to brown slip, thinly applied inside the neck.
241. Box 717/718R (\#7206 left), GMI 3G (10), Phase 6; jug base; diam. 10.0 cm ; gray fabric, brown to the surfaces; dark gray lightly burnished slip.
242. Box 717/718R (\#7206, right), GMI 3G (13), Phase 6; jug(?) body sherd; dark gray fabric, light red to the surface; dark gray medium burnished slip.
243. Box 719R (Figure 11.5d), GMI 3G (3) 1, Phase 3/4?; juglet neck and body; gray fabric, light red to the surface; dark gray lightly burnished slip; matte white paint; handle has highly burnished light red and dark gray mottled surface.
244. Box 719R (\#7207), GMI 3G (3) 1, Phase 3/4?; jug, three thin-walled body sherds; red fabric; dark gray lightly burnished slip; matte white paint.
245. Box 720R (\#7209, bottom), GMI 3G (4) 1, Phase 4?; juglet shoulder sherd; gray fabric, light red to the surfaces, fine walls; dark gray lightly burnished slip.
246. Box 720R (\#7209, center), GMI 3G (4) 1, Phase 4?; juglet(?) body sherd; gray fabric, light red/brown to the surface; lightly burnished gray slip.
247. Box 720R (\#7209, left), GMI 3G (4) 1, Phase 4?; jug or juglet handle fragment, square section; gray fabric, light red to the surfaces; dark gray slip mottled with red brown, medium burnished.
248. Box 720R (\#7209, right), GMI 3G (4) 1, Phase 4?; bull leg with foot; gray fabric, light red to the surfaces; thin gray slightly burnished slip; matte white paint.
249. Box 720R (\#7209, top right), GMI 3G (4) 1, Phase 4?; jug or juglet neck sherd; gray fabric; dark gray matte slip; matte white painted bands.
250. Box 721R (\#7210, left), GMI 3G (5) 1, Phase 4; small jug neck sherd; diam. $\sim 6.0 \mathrm{~cm}$; dark gray fabric; worn surface; minute white grits.
251. Box 722-723 (\#7213, top left and bottom right), GMI $3 G(7) 2$, Phase 5; jug, two body sherds; fine fabric, gray interior, red to the surface; gray matte slip mottled with red; matte white painted bands.
252. Box 722-723 (Figure 11.7a top, \#7213, top right, bottom left and center, center), GMI 3G (8), Phase 5; jug, base of neck with sharp ridge and four body sherds; gray fabric, light red/pinkish to the interior; dark gray lightly burnished slip; matte white paint, horizontal band on the neck, bands on the body.
253. Box 724-725 (\#7214, bottom center), GMI 3G P4, Phase 4; closed vessel (lid?); fine dark gray fabric, light red to the surface; dark gray medium burnished slip; matte white paint.
254. Box 724-725 (\#7214, bottom left), GMI 3G P4, Phase 4; jug, base fragment, rounded edge with slight trough; diam. 10 cm ; gray fabric, red to the surfaces; dark gray lightly burnished slip.
255. Box 724-725 (\#7214, bottom right), GMI 3G P4, Phase 4; jug(?) body sherd; dark gray fabric, brown to the interior, very fine walled; dark gray slightly burnished slip.
256. Box 724-725 (\#7214, top center), GMI 3G P3, Phase 4; bowl body sherd; very fine gray fabric, brown to light red to the surfaces; thin gray slip traces on the interior, lightly burnished.
257. Box 726/728R (\#7211, bottom), GMI 4G (+), topsoil; closed vessel body sherds; thin-walled red fabric; dark gray matte slip; white matte painted bands.
258. Box 726/728R (\#7211, top left), GMI 4G (0), topsoil; closed body sherd; gray core, red to the surfaces, friable fabric, thin walled; worn gray matte slip; white matte painted bands.
259. Box 726/728R (\#7211, top right), GMI 4G (0), topsoil; jug neck?; gray fabric; gray matte slip; traces of matte white paint.
260. Box 729-730 (\#7212, right), GMI 4G (1) 1, Phase 3; jug body sherd; dark gray fabric, red to the surface, bubbles in the wall; matte, dark gray, smeary slip; finely painted matte white bands, thinly applied paint.
261. Box 729R-730 (\#7212, left), GMI 4G (2) 1, Phase 3; jug(?) body sherd; dark gray fabric, light red to the surface; dark gray lightly burnished, smeary slip.
262. Box 731R, GMI 4G (3) 1, Phase 3; small jug, rim and body sherd; diam. 8.0 cm ; very fine walled, gray fabric, red brown to the surfaces; spalling, dark gray slip, was burnished, very uneven surface; white matte paint.
263. Box 732R (Figure 11.6g), GMI 4G (1) 4, Phase 3/4?; jug, base and handle sherds; diam. 9.0 cm ; dark gray fabric, red to the surfaces; dark gray matte slip.
264. Box 733R (\#7039), GMI 4G W4, Phase 3; juglet body sherd; dark gray fabric, red to surface; dark gray matte slip; white paint.
265. Box 734R + 735R (\#7040; right), GMI 5G (0), topsoil; bowl, rim, handle, base, and body sherds (four); dark gray fabric; dark gray matte slip.
266. Box 734R + 735R (\#7040; left), GMI 5G (0), topsoil; squat jug?, base of neck, shoulder, and handle; dark gray fabric, handle is red to the surface, neck fragment has a dark gray matte surface and white paint.
267. Box 736R (Figure 11.6e, \#7041), GMI 5G (3) 1, Phase 3; small jug base sherd; diam. 7.0 cm ; dark gray fabric, red on the interior; dark gray matte slip exterior and underneath.
268. Box 737R (\#7042, left), GMI 4H (1) 7, Phase 3; bowl base sherd; gray fabric; brown to gray matte slip exterior, dark red burnished slip.
269. Box 840R (\#7241), GMI TTB (+), topsoil; bowl base sherd; gray fabric, reddish-brown slip; matte white paint.
270. Box 841R (\#7237, right), GMI 4D (1) 1, Phase 1; body sherd, closed vessel.
271. Box 845R (\#7244, left and center), GMI 4D (4) 4, Phase 3; two jug base sherds.
272. Box 850R (Figure 11.7c, \#7249), GMI 4E/4F (1) 4, phase unknown; small jug rim and neck sherd with a handle from the rim; diam. 3.7 cm ; dark gray fabric, red to the surfaces; dark gray matte slip, also inside the rim, surface is very worn; possibly paint.
273. Box 852R (\#7252), GMI 1F (5) 1, Phase 1; body sherd, closed vessel; gray fabric; dark gray, smeary gray slip; white paint.
274. Box 863R (\#7265), GMI 4H (2) 7, Phase 3; juglet neck sherd; traces of matte white paint.
275. Bag 2396, GMI 5D (1A), Phase 3; base of a jug neck with ridge; gray fabric, brown to the interior; dark gray matte slip; matte white paint.
276. Bag 3427, GMI 2E (4), Phase $1 / 3$ ?; small jug(?) handle sherd; dark gray fabric; dark gray matte slip; matte white paint, worn surface.
277. Bag 3431, GMI 2E (4), Phase $1 / 3$ ?; body sherd, closed vessel; gray fabric; dark gray matte slip; matte white paint.
278. No bag number (\#7088), GMI 5F (2), phase unknown; jug handle, two grooves on the back; gray fabric, red to the surfaces; matte dark gray slip; matte white paint.

## White Shaved

279. Box 829R (Figure 11.4j, \#7230), GMI 6E (3), Phase 3/4?; juglet body sherd.
280. Box 706R, GMI 6F (2-3), Phase 3/4?; body sherd, closed vessel; very pale brown to very pale pink fabric; white surface, very worn.

## Plain White, Pithos

281. Box 859R (Figure 11.4k, \#7258), GMI 5E W3, phase unknown; body sherd, relief band with incised chevrons.

## Mycenaean

282. Box 483 (\#0287, right), GMI 5D (7) 2, Phase 3; body sherd, closed vessel; pink, very fine fabric, very hard, no grits, 0.4 cm thick; very pale brown slip; dark brown to very dark brown lustrous paint.
283. Box 751/2R (Figure 11.11c, \#7060, right), GMI 5E (1-2), phase unknown; LHIIIA-IIIB1 rim sherd, probably from a piriform or straight-sided jar; diam. $\sim 8.5 \mathrm{~cm}$; white and very light pink fabric; highly burnished exterior; brown to dark brown paint.

284-285. Box 748 (\#7055), GMI 4D (4) 4, Phase 3; two body sherds, closed vessels, one possibly a flask; one with dark red paint, rough interior; other sherd with smooth, unfinished interior, red painted band exterior; both with highly burnished exteriors.
286. Box 740R (Figure 11.11i, \#4505, right), GMI 2F (3), Phase 3A; body sherd, closed vessel; very pale yellow fabric, no grits, $0.6-\mathrm{cm}$-thick walls; dark brown painted cuttlefish, white painted suckers on parts of two tentacles and the base of the head.
287. Box 743R (\#7047), GMI 4D (+), unstratified/topsoil; body sherd, closed vessel; light red fabric; red paint, burnished.
288. Box 744R (Figure 11.10f, \#7048), GMI 4D (1), Phase 1; three body sherds, closed vessel; red or dark brown paint, exteriors highly burnished.
289. Box 746R (Figure 11.10e, \#7052, bottom left), GMI 4D (3), Phase 3?; body sherd, closed vessel; globular shape; very light pink fabric; red lustrous paint.
290. Box 746R (Figure 11.10c, \#7052, bottom right), GMI 4D (3), Phase 3?; body sherd, closed vessel; strongly depressed shape; light red fabric; red lustrous paint, very worn.
291. Box 746R (\#7052, top), GMI 4D (3), Phase 3?; body sherd, closed vessel; very light gray fabric; dark brown paint.
292. Box 749R (\#7056), GMI 5D (3B) 2, Phase 3; two body sherds, closed vessel; pink fabric; highly burnished exterior, smoothed interior; brown to reddish-brown paint.
293. Box 751R (\#7062), GMI 3E-F (2), phase unknown; body sherd, closed vessel, globular shape; pink to very light red fabric; pink slip; red lustrous paint.
294. Box 753/5R (\#7063, center), GMI 6E (1), Phase 3; body sherd, closed vessel; light red fabric; very pale brown slip; reddish-brown lustrous paint.
295. Box 753/5R (\#7063, left), GMI 6E (2), Phase 3/4?; body sherd, closed vessel; light red fabric; light red to dark brownish-red lustrous paint.
296. Box 758R (Figure 11.10a, \#7065), GMI 2F (2), Phase $1 B / 3$ ?; stirrup jar, false spout; light red fabric; very pale brown slip; reddish-brown lustrous paint.
297. Box 759R (\#7067), GMI 6F (1), Phase 3?; seven body sherds, closed vessel.
298. Box 760R (Figure 11.11h, \#7068, bottom left), GMI 6F (2), Phase 3/4?; zoomorphic vessel, leg; light red fabric; light red slip; red lustrous paint.
299. Box 760R (\#7068, bottom right), GMI 6F (2-3), Phase 3/4?; body sherd, closed vessel; light pink fabric; very pale brown slip; dark reddish-brown paint.
300. Box 760R (\#7068, top center), GMI 6F (2-3), Phase 3/4?; body sherd, closed vessel; pink fabric; very pale brownishyellow slip; brown to very dark brown lustrous paint.
301. Box 760R (\#7068, top left), GMI 6F (2-3), Phase 3/4?; shoulder sherd, closed vessel; light red fabric, pink to interior; very pale brown slip; light to dark red paint, lustrous.
302. Box 760R (\#7068, top right), GMI 6F (2-3), Phase $3 / 4$ ?; body sherd, closed vessel; pink fabric; very pale brown lustrous slip; very light reddish-brown to dark brown paint.
303. Box 762/3R (Figure 11.10b, \#7070), GMI 3G (2), Phase 3(B?); pyriform(?) stirrup jar, body and handle sherds; light red fabric, pale brown slip; red lustrous paint; handle has pink core, gray to the surfaces; gray surface; reddish-brown lustrous paint.
304. Box 764R (\#7071), GMI 4G (0), unstratified/topsoil; body sherd, closed vessel; pink fabric; very pale brown slip; red to dark red lustrous paint.
305. Box 765/6L (Figure 11.11g, \#7072 right), GMI 5G (0), topsoil; stirrup jar?, body sherd with opening for false spout attachment; very pale pink fabric; very pale brown slip; very dark brown lustrous paint.
306. Box 767R (\#7075), GMI 5H (0), topsoil; body sherd, closed vessel; brown, slightly micaceous, sandy fabric, very dense, medium fine, very hard, 0.4 cm thick; light brown surface, dark grayish-brown paint, both lustrous.
307. Box 842R (\#7242), GMI 4D (2) 2, Phase 1; body sherd, probably from a stirrup jar; 0.4 cm thick; very pale pink or reddish-yellow fabric, no inclusions; lustrous surface; red to dark red lustrous paint.
308. Box 858R (\#7257), GMI 4F (6), Phase 2/3?; body sherd, closed vessel.
309. Box 750R (Figure 11.11e, \#7058), GMI 2E (4), Phase 1/3?; LHIIIA: 2 body sherd, closed vessel; pinkish-brown fabric; very pale brown surface; very dark brown paint, cuttlefish, very pale brown suckers on parts of two tentacles.
310. Box 628 (Figure 11.11j, \#7105), GMI 3F (2), unstratified; LHIIIA: 2 early body sherd, closed vessel; very pale yellow fabric, 0.6 cm thick; dark brown paint, cuttlefish, white painted suckers on the end of a tentacle and part of a second tentacle.
311. Box 745 (Figure 11.11d, \#7050), GMI 4D (2), Phase 1; LHIII:2 body and rim sherd, closed vessel; very pale brown highly burnished surface; end of a cuttlefish tentacle in red and
very dark brown with applied white dots, second fragment with gray fabric; dark brown paint, mostly worn.
312. Box 770 (Figure 11.10g, \#4508), GMI 6E (1), Phase 3; LHIIIA: 2 early alabastron, shoulder and body sherds; diam. $\sim 12.0 \mathrm{~cm}$; very light gray fine fabric; slipped and painted inside the neck and on the exterior; brown and very dark brown paint, very worn, foliate band on the shoulder.
313. Box 751/2R (Figure 11.11b, \#7060, left), GMI 5E (1-2), phase unknown; LHIIIA-IIIB1 rim sherd, probably from a pyriform or straight-sided jar; diam. $\sim 7.5 \mathrm{~cm}$; white and very light pink fabrics; highly burnished exterior; brown to dark brown paint.
314. Box 765/6L (Figure 11.11f, \#7072, center), GMI 5G (1) 4, Phase 3, Unit M2; LHIIIB rim sherd; diam. 8 cm ; very pale gray core, very light brown to the surfaces; very pale brown slip; brown lustrous paint.
315. Box 760R (Figure 11.11a, \#7072, left), GMI 5G (0) topsoil, rim sherd; diam. 12.0 cm ; very pale brown to very pale pink fabric; worn, very dark brown lustrous paint, possibly with oval profile handle; gray fabric, light red to the surface; dark gray lightly burnished slip; matte white paint; handle has highly burnished light red and dark gray mottled surface.

## Bucchero

316. Box 670R (Figure 11.4f, \#7179), GMI 4D (0), topsoil; jug?, four ridges on shoulder, hole for handle; gray fabric, light red to the surfaces, minute white grits, fine walled; originally burnished.
317. Box 724/725R (Figure 11.4c, \#7214, top left), GMI 3G P3, Phase 4; body sherd, closed vessel, three rounded, parallel ridges; gray fabric, fine walled, light red to the surface; gray medium burnished slip.

## WSII

318. Box 563 (\#7103), GMI 3G P3, Phase 4; bowl rim sherd; diam. 18.0 cm ; dark gray fabric; light gray lightly burnished or matte slip; dark brown paint, ladder lattice at rim, dotted rim, pendent ladder.
319. Box 590 (\#7133), GMI 6E (+), topsoil; bowl rim and body sherds; gray fabric, reddish brown to the surface; very pale brown lightly burnished slip; very dark brown paint, rim with ladder lattice, rim not dotted.
320. Box 592 (\#7134), GMI 1F (0), topsoil; bowl body sherd; dark brown fabric, dark reddish brown to the surfaces; pale brown slip, slightly burnished; dark brown paint, ladder lattice.
321. Box 596 (\#7137), GMI 1F (9), Phase 3?; bowl body sherd; very pale brown lightly burnished micaceous slip; brown matte paint, ladder lattice.
322. Box 615 (\#7145), GMI 4F TT5 (1), Phase 4?; bowl, seven body sherds; Normal style; micaceous matte to lightly burnished surfaces; light brown and very dark brown paint, ladder lattices.
323. Box 627 (Figure 11.9k, \#7155), GMI 3G (2) 1, Phase $3(\mathrm{~B})$ ?; bowl handle and body sherds; gray burnished slip; very
dark brown paint, line groups on top of the handle, very pale brown slip on body sherd.
324. Box 628 (Figure 11.9h, \#7156, right), GMI 3G (2) 1, Phase 3(B)?; bowl rim sherd; diam. 18.0 cm ; gray fabric, reddish brown to the surface; very pale brown, lightly burnished sip; dark brown paint, ladder lattice at the rim, pendent ladder, rim not dotted.
325. Box 639 (\#7163), GMI 4G (7), phase unknown; bowl body sherd; light brown micaceous slip, brown paint, pendent ladder lattice.
326. Box 639 (\#7164), GMI 4G (3), Phase 3; bowl body and base sherds; gray fabric, reddish brown to the interior; lightly burnished gray slip; very dark brown matte paint, ladder lattices.
327. Box 772R, GMI 4G (3) 3, Phase 3; bowl body sherd and shoulder with base of handle; dark gray fabric, reddish brown to the surfaces; pale brown to pink lightly burnished micaceous slip; brown paint; body sherd with gray fabric, reddish brown to the surface; white lightly burnished slip; dark brown paint, ladder.
328. Box 646 (\#7166), GMI 4G (2), Phase 3B; bowl body sherd; gray lightly burnished slip; very dark reddish-brown paint.
329. Box 647 (\#7167), GMI 5G TT1 (1), Phase 3, Room D3?; bowl rim and body sherds; white or pinkish slip; brown and dark brown paint; rim with ladder lattice, not dotted.
330. Box 434?, GMI 3F (1), topsoil; bowl body sherd, near base; gray fabric; pale brown lightly burnished slip; ladder lattices and parallel lines.
331. Box 509L, GMI 1F (3A); unstratified/Phase 1; bowl body sherds; dark gray fabric; very pale brown lightly burnished micaceous slip; dotted row; other sherd with red fabric, part of a very dark brown painted band.
332. Box 558R (\#7097), GMI 4D (93), Phase 3?; bowl rim and body sherd; Ladder Lattice Pattern Style; diam. 18-20 cm; dark gray fabric, medium coarse; light brown to light gray slip, burnish worn; dark brown paint, rim not dotted.
333. Box 559R (Figure 11.9r, \#7098), GMI 5H-F (1) 6, Phase 3a?; bowl rim and body sherd; Ladder Lattice Pattern Style, small deep shape; diam. 18.0-20.0 cm; gray fabric, red to the surfaces; light brown lightly burnished micaceous slip; brown paint, rim not dotted, pendent ladder and ladder.
334. Box 560R (\#7099), GMI 3F (+), unstratified; bowl rim sherd; diam. $\sim 20-22 \mathrm{~cm}$; gray fabric, reddish brown to the surfaces, many minute white, brown, and black grits, medium fabric; very pale brown, chalky, cracking slip; brown paint, rim not dotted.
335. Box 561R (\#7101), GMI 2E (4), Phase 3?; bowl body sherd; dark gray medium fabric, brown to the surfaces; very pale brown cracking slip; dark brown paint.
336. Box 562R (\#7102), GMI 3F (3), unstratified; bowl body sherd; gray medium fabric; very pale brown lightly burnished slip; dark brown paint.
337. Box 565R (\#7108, bottom center), GMI 3D (2); unstratified; bowl rim sherd; gray fabric; light gray, lightly burnished slip; very dark brown paint, ladder lattice at the rim, rim not dotted.
338. Box 565R (\#7108, bottom right), GMI 3D (2); unstratified; bowl body sherd; gray fabric; very pale brown, lightly burnished slip; very dark brown paint, ladder lattice.
339. Box 567 R (7110, bottom right), GMI 4D (1), Phase 1; bowl body sherd; gray fabric; very pale brown lightly burnished slip; brown paint, end of a ladder lattice.
340. Box 570R, GMI 4D (3) 4, Phase 3; bowl body sherd; gray fabric, reddish brown to the interior; very pale brown slip, traces of burnish; dark reddish-brown paint.
341. Box 572R, GMI 4D (4A), Phase 3; bowl rim sherd; diam. 18.0 cm ; gray fabric to the interior, reddish-brown exterior; very pale brown, lightly burnished slip; dark brown paint, ladder lattice at the rim, rim not dotted, pendent ladder.
342. Box 573R (\#7100), GMI 5D (1A), Phase 1; bowl body sherd; dark gray fabric, brown to the surfaces, many minute white grits; light brown, micaceous, lightly burnished slip; brown matte paint.
343. Box 574R, GMI 5D (2), unstratified/Phase 3; bowl rim sherd; diam. 18 cm ; gray fabric, reddish brown to the surface; very pale brown burnished slip; dark reddish brown at rim, ladder lattice, rim not dotted, partial pendent ornament.
344. Box 576R (\#7119), GMI 5D (7A), Phase 3; four bowl body sherds, two bowls?; gray fabric, some red to the surface; very pale brown or white lightly burnished slip; brown or very dark brown paint, pendent ladder lattice and dots.
345. Box 581R (\#7126), GMI 2E (+), phase unknown; bowl body sherd; gray fabric, reddish brown to the surfaces; pale brown micaceous lightly burnished brown paint, pendent ladder lattice.
346. Box 582R (\#7128, bottom row), GMI 2E (4), Phase $1 / 3$ ?; four bowl body sherds, one to four bowls; white, very pale brown, and very pale gray slips; light brown, brown, and very dark brown paint.
347. Box 587R (\#7131, bottom row), GMI 5E (5), phase unknown; bowl body sherd near rim; dark gray fabric; white to very pale brown lightly burnished micaceous slip; very dark brown paint.
348. Box 588R, GMI 4F (1), Phase 1?; bowl body sherd; gray fabric red to the surfaces; white slip; very dark brown paint.
349. Box 594R (\#7135), GMI 1F (4), phase unknown; bowl rim sherd; diam. 16 cm ; gray fabric, reddish brown to the surface; very pale brown lightly burnished micaceous slip; dark brown paint, ladder lattice at the rim, rim not dotted.
350. Box 594R (\#7136), GMI 1F (4) 1, phase unknown; two bowl body sherds; light brown micaceous slip, lightly burnished; one with brown painted ladder lattice, the other with ladder.
351. Box 597R (Figure 11.9m, \#4523), GMI 1F (12) 1, Phase 3; bowl rim sherd; Dotted Row Style; diam. 16.0 cm; gray fabric, reddish brown to the surfaces; very pale brown burnished micaceous slip; brown paint, rim not dotted.
352. Box 598R (Figure 11.9n, \#7138), GMI 1F (2), phase unknown; bowl base sherd; dark gray fabric, brown to the surfaces, burnt?; brown slightly burnished surface; dark brown pendent ladder lattices and ladders, alternating.
353. Box 599R (\#7139), GMI 1F (3A), phase unknown; two bowl body sherds; dark gray fabric; pale brown burnished
slip; dark brown paint, dots; other with reddish-brown fabric; light brown burnished slip; traces dark brown paint.
354. Box 600-602R (\#7140, bottom left, top right), GMI 2F (2), Phase 1B/3?; two bowl body sherds; dark gray fabric; very pale brown lightly burnished slip; reddish-brown paint, pendent ladder lattices, possible ladder.
355. Box 600-602R (\#7140, top center, bottom right), GMI 2F (1), Phase 1; bowl rim and body sherd, two bowls?; dark gray fabric; very pale brown lightly burnished slip; dark brown paint, ladder lattice, tip of frontal ornament; rim sherd with reddishbrown paint.
356. Box 600-602R (\#7140, top left), GMI 2F (1), Phase 1; bowl rim, base of one arm of the handle; Parallel Line Style; diam. 16 cm ; grayish-brown fabric; pale brown lightly burnished micaceous slip; brown to dark brown paint.
357. Box 606-609R (\#7143, bottom right), GMI 3F (6), Phase $2 / 3$; bowl body sherd; gray fabric, fine walled; white to very pale brown lightly burnished micaceous slip; brown paint, pendent parallel lines.
358. Box 606-609R (\#7143, bottom row, first and second from left), GMI 3F (1), topsoil; two bowl body sherds; pale brown slip, pendent ladder and ladder lattice.
359. Box 606-609R (\#7143, top left), GMI 3F (1), topsoil; bowl rim sherd; diam. 20 cm ; gray fabric, reddish brown to the surface; white to very pale brown medium burnished slip; dark brown paint, rim not dotted, ladder lattice at the rim, pendent ladder, pendent dotted row.
360. Box 606-609R (\#7143, top right), GMI 3F (2), topsoil; bowl body sherd; gray fabric, reddish brown to the surfaces; pale brown micaceous lightly burnished slip; dark brown paint, pendent ladder lattice and pendent dotted row.
361. Box 610-611R (\#7144, left), GMI 4F (1), Phase 1/3?; bowl rim sherd; gray fabric; very pale brown lightly burnished micaceous slip; very dark brown paint, ladder lattice at the rim.
362. Box 612-613 (\#7148), GMI 4F TT2 (2), Phase 3?; two bowl body sherds; white micaceous lightly burnished slip; dark brown to very dark brown paint, ladder lattices on both sherds.
363. Box 616R (\#7146), GMI 4F (+), topsoil; bowl body sherd; very light gray slip; very dark brown paint; bottom of the frieze near the handle.
364. Box 617-618R (\#7149), GMI 4F (3A), Phase 3; bowl body sherd; dark gray fabric; lightly burnished gray slip; dark brown paint, ladder.
365. Box 620R (\#7147, bottom right), GMI 4F TT1 (3), Phase 3; bowl body sherd near base; dark gray fabric; very pale brown and gray mottled lightly burnished micaceous slip; dark brown paint, pendent ladder lattice and ladder with dots in between.
366. Box 623-624 (\#7154), GMI 5F (3) 2, phase unknown; two bowl body sherds; gray matte or light brown lightly burnished slip; very dark brown ladder lattice and motif at right angles to it, pendent ladder and dotted row.
367. Box 626R (Figure 11.9f, \#7152), GMI 3G (1-1A), Phase 3A/3; bowl rim sherds; Ladder Lattice Pattern Style; diam. 18.0 cm ; gray fabric, reddish brown to the surfaces; light gray
burnished slip; very dark brown paint, ladder lattice, rim not dotted, pendent ladder, ladder lattice, dotted rows.
368. Box 628R (\#7156, left), GMI 3G (2) 1, Phase 3, Unit L; bowl handle; gray fabric, reddish brown to the surface; very pale brown, lightly burnished slip; dark brown paint.
369. Box 629-630 (\#7157), GMI 3G (4) 1, Phase 4; bowl rim and body sherds; body sherd with pinkish-brown micaceous lightly burnished slip, brown paint, ladder lattice.
370. Box 631-632 (\#7158, left), GMI 3G (10), Phase 6; bowl handle; white slip; dark brown paint.
371. Box 631-632 (\#7158, right), GMI 3G (10), Phase 6; bowl body sherd near base; dark gray fabric; lightly burnished gray slip; very dark brown paint, ends of ladder lattices and ladders.
372. Box 633-634 (\#7160, top center and right, bottom center and right), GMI 3 G (8) 5, Phase 5; bowl rim and four body sherds; white to light gray slip; light gray paint, dotted rim has ladder lattice; one body sherd very dark gray medium brown interior, possibly burnt; black painted ladder lattice.
373. Box 633-634 (\#7160, top left), GMI 3G (7) 2, Phase 5; bowl body sherd; gray fabric, reddish brown to the surface; pink lightly burnished slip; ladder lattice with pendent ladder and dotted row.
374. Box 635-636R (\#7161), GMI 3G P3, Phase 4; bowl body, two rim and handle sherds; rim sherds with gray fabric, many minute white grits; very pale brown and very pale gray slip, both with ladder lattices and dotted rims; body sherd with gray fabric; very light gray slip; end of a ladder lattice; handle with gray fabric, gray and light brown slip, worn surface.
375. Box 637-638 (\#7162, left), GMI 3G (5), Phase 3?; bowl body sherd; gray fabric; white to very pale brown lightly burnished slip; very dark brown paint, ladder lattice and pendent ladder lattice.
376. Box 637-638 (\#7162, right), GMI 3G W1, Phase 3; bowl body sherd.
377. Box 641-643 (\#7165, right), GMI 4G (1-3) 1, Phase 3; bowl, four body and handle sherds; light brown slip, brown paint.
378. Box 645R (\#4503), GMI 4G (8) 2, phase unknown; bowl rim sherd; diam. $16-18 \mathrm{~cm}$; reddish-brown fabric, sandy texture; not slipped; weak red paint, one band below the rim, vertical widely spaced bands from the rim.
379. Box 650R (\#7169), GMI 5G (1) 4, Phase 3; bowl rim sherd; diam. 20.0 cm ; gray fabric, reddish brown to the surface; pink micaceous, lightly burnished slip; dark brown paint, ladder lattice at the rim, pendent ladder lattice and dotted row, rim not dotted.
380. Box 651B (\#7170), GMI 5G (1) 5, Phase 3; bowl, four body sherds; gray or white slip; brown paint, ladder lattice and ladder.
381. Box 652/653 (\#7171), GMI 5G (1), Phase 3; bowl rim and body sherd; brownish-gray fabric; pink slip; rim sherd with ladder lattice but no rungs, rim not dotted.
382. Box 654R (\#7172), GMI 5G (1) 6, Phase 3; bowl body sherd; gray fabric, reddish brown to the surface; pink micaceous lightly burnished slip; dark brown paint, ladder lattice.
383. Box 655R (\#7174), GMI (+), topsoil; bowl body and two rim sherds from multiple vessels; one rim sherd with ladder lattice, rim not dotted.
384. Box 655R (\#7174, top left), GMI (+), topsoil; bowl handle; gray fabric, red to the surfaces; white slip; very dark brown paint.
385. Box 708/710 (\#7114, bottom right), GMI 4D (4), Phase 3?; bowl body sherd; gray fabric; white to very pale brown slip.
386. Box 711R (\#7114, top row, bottom left), GMI 4D (4), Phase 3?; bowl rim and body sherds; diam. 16.0 cm ; gray fabric, light reddish brown to the surface, sandy texture; white to very pale brown lightly burnished slip; dark brown to very dark brown matte paint, ladder lattice at rim, rim not dotted, pendent ladder lattice and ladder, pendent ladder on body sherd.
387. Box 716R (\#7128, top right), GMI 2E (4), Phase 1/3?; bowl rim sherd; diam. 16.0 cm ; gray fabric, reddish brown to the surface; lightly burnished pale brown to pink slip; dark brown paint, ladder lattice at the rim, rim not dotted, pendent ladder.
388. Box 716R (\#7128, top left), GMI 2E (4), Phase 1/3?; bowl rim sherd; gray fabric, reddish brown to the surfaces; very pale brown slip; very dark brown paint, ladder lattice at the rim, rim not dotted.
389. Box 721R (\#7210, right), GMI 3G (5), Phase 4; bowl rim sherd; gray fabric; gray medium burnished surface; ladder lattice at the rim, very worn, rim probably not dotted.
390. Box 729, 730, or 771R (\#7150, second row, middle), GMI 6F (1), Phase 3?; bowl body sherd; gray fabric, red to the surfaces; very lightly burnished pale brown slip; reddish-brown paint, ladder lattice.
391. Box 741R (\#7112 second row, second and third sherds; bottom row, first, third, and fourth sherds), GMI 4D (3), Phase 3?; bowl, five body sherds; gray fabric, red to the surfaces; very pale brown lightly burnished slip, brown paint, ladders, ladder lattices, and dots.
392. Box 741R (\#7112, top row, first and fourth sherds), GMI 4D (3), Phase 3?; bowl rim and handle; gray fabric, reddish brown to the surface; lightly burnished white slip; very dark brown paint, ladder lattice at the rim, rim not dotted, pendent ladder.
393. Box 741R (\#7112, top row, second sherd; second row, first and fourth sherds; bottom row, second sherd), GMI 4D (3), Phase 3?; bowl rim and three body sherds; gray fabric; gray lightly burnished slip; brown paint, ladder lattice at the rim, rim not dotted.
394. Box 764R (\#7144, right), GMI 4F (+), topsoil; bowl handle; gray core, reddish brown to the surfaces; light brown lightly burnished micaceous slip; dark brown paint, bands.
395. Box 767R (Figure 11.9e, \#7147, left), GMI 4F (3A), Phase 3; bowl rim sherd; diam. 18.0 cm ; gray fabric, brown to the surface, minute white grits; pale brown lightly burnished slip; dark brown paint, rim not dotted, ladder lattice at rim, pendent ladder lattice, pendent dotted row.
396. Box 771R (\#7147, right), GMI 4F (3A), Phase 3?; bowl, two body sherds; dark gray fabric; gray lightly burnished
slip; dark brown paint, pendent ladder lattice and ladder, cursory painting.
397. Box 771R (\#7150, second row, first and third sherds), GMI 6F (1), Phase 3?; bowl, two body sherds; dark gray fabric; micaceous, lightly burnished white and very light gray slip; brown and very dark brown paint, probably ladder lattice at the rim.
398. Box 771R (\#7150, top left), GMI 6F (1), Phase 3?; bowl rim sherd; diam. 20 cm ; dark gray fabric, reddish brown to the inner surface and mixed; very pale brown to very pale gray medium burnished slip; brown paint, ladder lattices at the rim and pendent, rim not dotted.
399. Box 771R (\#7150, top right), GMI 6F (1), Phase 3?; bowl rim sherd with base of handle; diam. 18.0 cm ; dark gray fabric, reddish brown to the surfaces; pink medium burnished slip; dark brown paint, ladder lattice at rim, dots continue the ladder lattice rungs.
400. Box 845R (\#7244, right), GMI 4D (4) 4, Phase 3?; bowl body sherd
401. Box 849R (\#7248, left), GMI 2E (4), Phase 1/3?; bowl body sherd.
402. Bag 3628 (\#7248, left), GMI 6E (1), Phase 3; bowl body sherd; gray fabric; matte white slip interior, very pale brown exterior, no burnish; reddish-brown paint.
403. Bag 3628, GMI 6E (1), Phase 3; bowl body sherd; gray fabric; matte white slip interior, very pale brown exterior, no burnish; reddish-brown paint.
404. Bag 3628, GMI 5E (2) 1, phase unknown; bowl rim and body sherd; white lightly burnished micaceous slip; brown paint, ladder at the rim, rim not dotted, pendent dotted row; very pale brown lightly burnished micaceous slip, traces of very dark brown paint.
405. Bag 3628, GMI 1F F2, Phase 1; bowl rim sherd; diam. 20.0 cm ; Ladder Lattice Pattern style; dark gray fabric, dark brown to the surface; brown and gray mottled matte or lightly burnished slip; brown paint, rim not dotted, pendent ladder lattice and ladder, dotted rows in between.
406. Box 580 (\#7125), GMI 2E (0), topsoil; bowl rim and body sherds; rim with ladder lattice, probably not dotted.
407. Box 564R, GMI 5D (0), topsoil; bowl body sherd; gray fabric, reddish brown to the surfaces; micaceous very pale brown slip, lightly burnished; dark brown paint, ladder lattice with two middle posts lightly painted.
408. Box 566R (\#7109), GMI 4D (0), topsoil; bowl body sherd; gray fabric; gray micaceous slip, lightly burnished; brown paint, ladder lattice.
409. Box 571R (\#7116), GMI 4D (4A), Phase 3; bowl rim sherd; gray fabric, reddish brown to the inner surface; very pale brown lightly burnished slip; dark brown paint, ladder lattice at the rim, pendent ladder, rim probably not dotted.
410. Box 572R (Figure 11.9o, \#7117), GMI 4D (2) 2, Phase 1; bowl handle; reddish-brown fabric; micaceous pale brown slip; brown paint.
411. Box 574R (\#7117), GMI 5D (2), unstratified/Phase 3; bowl, two body sherds; red to reddish-gray fabric, very fine
walled; pink micaceous lightly burnished slip; dark brown painted line groups.
412. Box 575R (\#7118), GMI 5D (5); unstratified; bowl body sherd; gray fabric; light gray lightly burnished slip; thinly applied brown paint, ladder lattice.
413. Box 577R (\#7121), GMI 5D (7B), Phase 3; bowl rim sherd; gray fabric, reddish brown to the surface; white to very pale brown slip; dark brown paint, rim not dotted, ladder lattice at the rim, pendent ornament.
414. Box 579R (\#7124), GMI 5D W9, Phase 3; bowl body sherd; gray fabric; pale brown micaceous matte slip; dark brown paint, ladder lattice.
415. Box 582R (\#7127), GMI 2E (2), Phase 1; bowl rim and body sherd; diam. $16-18 \mathrm{~cm}$; gray fabric, reddish brown to the surface; pink lightly burnished slip; dark brown paint, dotted rim, ladder lattice at the rim, part of a pendent ornament, two pendent parallel lines, body sherd.
416. Box 585R (\#7129), GMI 5E (0), topsoil; bowl rim sherd; diam. 16.0-18.0 cm; dark gray fabric; dark gray slip, lightly burnished; dark brown paint, ladder lattice at the rim, rim not dotted, pendent motif.
417. Bag 3601 (\#7129), GMI 6E (2), Phase 3/4?; bowl body sherd; gray fabric, red to the surface; pink slip interior and exterior; worn brown paint.

## WSII Derivative (Handmade)

418. Box 604 (Figure 11.9g, \#4509), GMI 2F (2), Phase 3A; bowl rim sherd; dark grayish brown fabric, light red to the surfaces, compact, minute grits; unslipped or wet smoothed exterior, very thin pinkish slip interior; purplish-brown, weak red matte paint, ladder at the rim framed only on the lower side, pendent ladder lattice with three vertical bands, pendent ladder.
419. Box 568R (Figure 11.8e, \#7113), GMI 4D (3), Phase 3?; bowl body sherd; gray fabric, brown to the surfaces, sandy texture, compact; smoothed and lightly burnished; purplishbrown paint, widely spaced ladder lattice.
420. Box 569R (\#7115), GMI 4D (4) 4, Phase 3; bowl rim sherd; gray fabric; unslipped, buff surface; very faded dark red to weak red paint, line along the rim, two pendent from it.
421. Box 576R (Figure 11.8h, \#7120), GMI 5D (7A), Phase 3; bowl, two body sherds; light grayish-brown to light purplishbrown fabric; unslipped; faded purplish-brown paint.
422. Box 578R (Figure 11.8f, \#7122), GMI 5D (7B), Phase 3; bowl rim sherd; diam. $\sim 16.0-18.0 \mathrm{~cm}$; gray to greenish-white fabric like white painted ware; faded weak red paint, ladder lattice with widely spaced rungs.
423. Box 584R (Figure 11.9b, \#4518), GMI 4E-F (2), phase unknown; bowl, two rim sherds; 0.5 cm thick, brownishgray core, light red to the surfaces, sandy texture, few minute grits; surface smoothed, not slipped, slightly micaceous; red to purplish-red paint, sloppily applied; ladder lattice at the rim.
424. Box 640R (Figure 11.9d, \#4500), GMI 4G (3), Phase 3; bowl(s) rim and base sherds; diam. 20.0 cm ; gray, pink to the surfaces, smoothed, not slipped, matte, micaceous surface; purplishbrown matte paint, ladder lattice at the rim, loosely painted.
425. Box 648/649R (Figure 11.8g, \#7168, top left), GMI $5 \mathrm{G}(+)$, topsoil; bowl body sherd; gray fabric; smoothed, not slipped, matte, micaceous surface; purplish-brown matte paint.
426. Box 655R (\#7174, bottom left), GMI (+), topsoil; bowl body sherd; pink micaceous slip.
427. Box 856R (\#7150, bottom), GMI 6F (1), Phase 3?; bowl, two body sherds; grayish-brown compact fabric, few minute grits; pink very lightly burnished or smoothed light brown slip; thinly applied paint, ladder lattice of three bands.
428. Bag 3442, GMI 2E (4), Phase $1 / 3$ ?; bowl rim sherd; gray fabric, many small black, white, and red grits; light brown matte slip; reddish-brown paint.

## WSIIA

429. Box 574R (Figure 11.9a, \#4496), GMI 5D (2), unstratified/Phase 3; bowl rim and body; Framed Lozenge Style; about a quarter of the bowl, diam. 18.0 cm , height 7.0 cm ; gray fabric, brownish red toward the rim; white slip interior, pink exterior, chalky and mat; matte very dark brown paint, pendent ladder lattice has three posts, pendent group of three lines, crisscross frontal ornament, dotted rim.
430. Box 583R (Figure 11.9c, \#4519), GMI 2E (4), Phase $1 / 3$ ?; bowl rim sherd; Framed Lozenge Style; diam. 18.0 cm; gray fabric, reddish brown to the surface; very worn, matte white to very pale brown slip; brown paint, dotted rim.
431. Box 583R (\#4520), GMI 2E (4), Phase $1 / 3$ ?; bowl body sherd; gray sandy textured fabric; gray matte smeary slip; brown paint, isolated cross-hatched lozenge, two bands at the edge.
432. Box 583R (\#4521), GMI 5D (93), Phase 3; bowl body sherd; red fabric; white chalky slip; very dark brown matte paint; four narrow bands between wider horizontal bands.
433. Box 586R (Figure 11.81, \#7130), GMI 5E (0), phase unknown; bowl (body); reddish-brown fabric; white very lightly burnished slip; black paint, two horizontal bands, four thin pendent bands.
434. Box 595R (Figure 11.8m, \#4512), GMI 1F (4) 1, phase unknown; bowl rim sherd; diam. $\sim 18-20 \mathrm{~cm}$; red fabric, reddish gray to the surfaces; pale brown micaceous lightly burnished or matte slip; dark brown matte painted parallel-line-framed lozenges, double cross-hatched, two lozenges pendent below the lower border of frieze, dotted rim.
435. Box 741R (\#7112, top row, 3rd from left), GMI 4D (3), phase unknown; bowl body sherd; reddish-brown fabric, white matte slip; black paint, two bands at right angles and a dot.
436. Box 863R (\#7128, top center), GMI 2E (4), Phase $1 / 3$ ?; bowl body sherd; gray fabric, reddish tinge; pink micaceous lightly burnished slip; very dark brown paint, hatched lozenge and parallel lines; could also be a regional WSII variant.
437. Box 589 (Figure 11.8b, \#7132, top center), GMI 5E (4) 2, phase unknown; bowl rim sherd; diam. $18.0-20.0 \mathrm{~cm}$; gray fabric, reddish brown to the surface; pale brown micaceous lightly burnished slip; dark brown paint, rim not dotted, ladder lattice at the rim, pendent ladder lattice, dotted row.
438. Box 619 (\#7153), GMI 4F (5) 2, Phase 3?; bowl rim sherd; diam. 16.0 cm ; dark gray, reddish brown to the surface; brown micaceous lightly burnished slip; dark brown paint, ladder lattice at the lightly dotted rim, pendent ladder lattice, pendent dots.
439. Box 565R (Figure 11.8k, \#7108, top and bottom left), GMI 3D (2), phase unknown; bowl rim and body sherds; Ladder Lattice Pattern Style; diam. $\sim 18.0 \mathrm{~cm}$; gray fabric, one coarser, with many minute black and white grits; light brown micaceous slip, body sherds with white or light gray slips, all lightly burnished; very dark brown paint, ladder lattices at the rims, rims not dotted, body sherd with a ladder lattice.
440. Box 591R (\#4524), GMI 6E(2), Phase 3/4?; bowl rim sherd; dark gray fabric, burnt; micaceous gray slip below the ladder lattice frieze is lightly burnished, light brown above it; dotted rim, part of a pendent ornament.
441. Box 596 (Figure 11.8a, \#4511), GMI 1F (2) 1, Phase 1; bowl rim sherd; diam. 18.0 cm ; dark gray fabric, dark brown to the surface; worn pale brown micaceous matte slip; dark brown paint, ladder lattice at the rim, rim not dotted, pendent ladder, ladder lattice under one arm of the handle.
442. Box 603R (\#7141), GMI 2F (4), Phase 1B/3?; bowl rim sherd; diam. 16.0 cm ; reddish-brown fabric, coarser than usual, sandy texture; very worn, very pale brown(?) slip, lightly burnished, burnt?; very dark brown paint, ladder lattice at the rim, rim not dotted, pendent ladder.
443. Box 625R (\#4525), GMI 3G (1) 1, Phase 3; bowl rim sherd; diam. 14.0 cm ; dark gray fabric, reddish brown to the surfaces, few minute white grits; brown micaceous slip, lightly burnished; brown paint, rim not dotted, ladder lattice at the rim, pendent ladder.
444. Box 648/649R (Figure 11.8j, \#7168, bottom), GMI 5G (0), unstratified/topsoil; bowl, two rim sherds, from one or two bowls, base of one arm of the handle; Parallel Line Style; diam. $16.0-18.0 \mathrm{~cm}$; gray fabric, reddish brown to the surface(s); very pale brown slip; dark brown paint; second sherd with light brown and light gray slip.
445. Box 648/649R (\#7168, top right), GMI 5G (0), unstratified/topsoil; bowl rim sherd; gray fabric, reddish brown to the surface; very pale brown slip; dark brown paint, ladder lattice at the rim, rim not dotted.
446. Box 843R (\#7243, top right), GMI 4D (2A), Phase 1; bowl (rim and body sherds from one or two vessels).
447. Box 846R (Figure 11.8d, \#7245, top right), GMI 4D (9), phase unknown; bowl rim sherd.
448. Box 850R (\# 7249, top right), GMI 5E (2), Phase 2; bowl handle and body sherds.
449. Box 851R (Figure 11.8c, \#7251, top right), GMI 5E (2), Phase 2; bowl handle and body sherd.

## Iron Age WP or Bichrome (Intrusive)

450. Box 849R (Figure 11.12i, \#7248, right), GMI 2E (4), Phase $1 / 3$ ?; body sherd, closed vessel; brown matte paint, line group.
451. Box 857R (Figure 11.12k, \#7256), GMI 4F TT1 (1), Phase 1; handle fragment, closed vessel.
452. Box 862R (\#7264, left), GMI 3G (20), Phase 8; amphora?, rim sherd; diam. 12.0 cm ; wheel made.

## BOR (Intrusive)

453. Box 484 (\#0288), GMI 5D (2) 7B, Phase 3; juglet spout fragment; diam. $4.0 \mathrm{~cm}, 0.4 \mathrm{~cm}$ thick; pink, very fine, clean fabric, very hard; red surface, lightly burnished inside, matte exterior; matte very dark brown paint.

## Field I FUR

## ROB/ROR

454. Box 828R (Figure 11.4g, \#7086), GMI FUR (3) 2, Phases 1-2; bowl body sherd; buff fabric, black highly burnished slip inside and out; matte dark red bands inside and out.

BRII
455. Box 477 (\#0286), GMI FUR (0), topsoil; body sherd, closed vessel; fabric dark brown to the interior, dark gray to the exterior, minute white grits, very hard and dense; very dark gray matte slip; white matte paint.

## Mycenaean

456. Box 480 (\#0280, left), GMI FUR W1, Phase 3; body sherd, closed vessel; red fabric; very fine, light red slip; light red paint, highly burnished.
457. Box 478/1 (\#0283, left), GMI FUR (2), Phase 2; shoulder sherd, closed vessel; light pink, very fine grained fabric, very hard; smoothed, lightly burnished surface; dark red lustrous paint.
458. Box 480 (\#0280, top right), GMI FUR W1, Phase 3; body sherd, closed vessel; pink fabric; very fine, pink surface; very dark brown paint, highly burnished.
459. Box 480 (\#0280, bottom right), GMI FUR W1, Phase 3; body sherd, closed vessel; pink fabric; very fine, pink surface; dark red lustrous paint.

## Greek Archaic?

460. Box 478/2 (Figure 11.12j, \#0283, right), GMI FUR (2), Phase 2; shoulder sherd, closed vessel; pink to light red fabric, few minute white and black grits, very hard and dense; matte surface as paste; red matte paint.

Field I KB

## Mycenaean

461. Box 489 (\#0290), GMI KB F11 7; shoulder sherd, closed vessel; pink fabric, very fine grained, hard, compact, 0.5 cm thick; surface smoothed, lightly burnished; lustrous red paint.

BOR
462. Bag 1320 (\#0248), GMI KB (6), Phase KB1; flask body sherd; red fabric, $0.2-0.3 \mathrm{~cm}$ thick; red burnished surface; black paint.

Field II
WPVI
463. No box number (\#0239), GMII A3 (+), topsoil; juglet handle fragment; pink fabric, soft, very fine grained, width 1.7 cm thick; desurfaced.

## WP Indeterminate

464. Box 513 (\#0301), GMII C2 (4B), Phase 4; body sherd, closed vessel; very pale yellow, many minute black and white grits, slightly sandy, medium grain, 0.6 cm thick; wet smoothed surface, traces of light burnish; very dark reddish-gray paint.

## $R O B / R O R$

465. Box 501 (\#0294, left), GMII C1 TTC, topsoil; body sherd, closed vessel; very light red fabric, very fine grained, very hard, 0.7 cm thick; dark reddish gray slip interior and lightly burnished exterior worn.

BRII
466. Box 738 (\#0299), GMII D (9), phase unknown; body sherd, closed vessel; dark gray fabric; lightly burnished dark gray slip; white paint.
467. Box 502, GMII A3 TT3, Phase 6; body sherd, closed vessel; gray slip; matte white painted pendent bands.
468. Box 517/1 (Figure 11.6b), GMII C3 (AB), Phase 6/7; bowl handle fragment.

## Mycenaean

469. Box 496 (\#0291), GMII A5 (+), topsoil; body sherd, closed vessel; pink, very fine, hard, 0.3 cm thick; burnished pink surface; red lustrous paint.
470. Box 509 (\#0304), GMII C1 W1, Phase 2 (2A); body sherd, closed vessel; very light red fabric, very hard and compact, 0.3 cm thick; highly lustrous red slip.
471. Box 502, GMII C1 (1), Phase 0; closed body sherd; pink fabric, very fine grain, hard, 0.3 cm thick; burnished pink surface; red lustrous paint.
472. Box 520 (Figure 11.10d), GMII D4 F3, Phase 7?; two body sherds, closed vessel(s); light red, fine fabric; lustrous red painted bands.

## WSII

473. Box 493 (Figure 11.9p), GMII A3 TT1 (18), Phase 6; body sherd, open vessel; very dark gray fabric, few minute white
grits, 0.2 cm thick; brown lightly burnished slip; reddish-brown matte paint.
474. Box 518, GMII B3 (21), Phase 6; bowl rim sherd; Ladder Lattice Pattern Style(?).
475. Box 517/2 (Figure 11.91), GMII C3 (AB), Phase 6/7; bowl rim sherd, not dotted; very pale brown lightly burnished slip; dark reddish-brown matte paint.
476. Bag 4683 (\#2417), GMII B3 TT3 (6), Phase 6; bowl rim sherd; dark gray fabric, very hard, 0.4 cm thick; light gray lightly burnished slip; dark reddish-brown paint, dotted rim, ladder lattice at the rim.

## WSIII

477. Box 520A (Figure 11.8n), GMII A3 TT2 (19), Phase 6; bowl rim sherd; Parallel Line Style.

## WSII Derivative

478. Box 496 (Figure 11.9j), GMII A5 (+), topsoil; bowl rim sherd; pale brown slip; matte dusky red paint.

## BOR

479. Box 22R (Figure 11.12b, \#7095), GMII C1 $(2,6) 2$, Phase 1; body sherd, closed vessel; very pale brown fabric, few minute black and white grits, very fine grained, 0.4 cm thick; dark red highly burnished slip; dark red brown paint, burnished over the paint.
480. Box 506 (\#0298), GMII C1 (2), Phase 1; body sherd, closed vessel.
481. Box 512 (\#0299), GMII C2 (1), Phase 2?; body sherd, closed vessel; pink fabric, very fine grained, 0.4 cm thick; worn matte red slip; weak red matte paint.

## Iron Age WP

482. Box 521, GMII D5 W1, Phase 6/7?; body sherd, closed vessel; very pale brown to light pink fabric, few visible grits, fine to medium grain, very hard and compact, 0.4 cm thick; self-slip, lightly burnished; matte, thin purplish-black paint.

## Iron Age WP or Bichrome

483. Box 501 (\#0294, right), GMII C1 TTC, topsoil; body sherd, closed vessel; pink fabric, few minute to small white grits, fine to medium grain, $0.3-0.4 \mathrm{~cm}$ thick; very faded dark brown matte paint.

## Field IV

WPV
484. Box 340 (\#0257), GM 2B W6, Phase 2/3?; body sherd, closed vessel; light pink fabric, minute black and white grits, medium to fine grain, 0.4 cm thick; smoothed, lightly burnished
surface; cracked very dark brown paint, pendent/other motifs largely flaked off.
485. Box 257 (\#0251), GM 2B (35) 2A, Phase 5; body sherd, closed vessel; pink fabric, minute black and white grits, very hard, compact, medium to fine grain, $0.4-0.6 \mathrm{~cm}$ thick; very pale brown slip; lustrous very dark brown paint, lightly burnished over both slip and paint.
486. Box 273 (\#0258), GM 2B W7, Phase 4?; body sherd, closed vessel; pink fabric, few minute black and white grits, medium to fine grain, 0.5 cm thick; very pale brown slip; matte, very dark brown paint.

## WPV/VI

487. Bag 3766 (\#0238), GM 2A (29), Phase 7(A?); neck sherd; pink fabric, many minute black and white grits, 0.7 cm thick; thin slip, color as paste, lightly burnished(?); cracked very dark brown paint.

## WPVI

488. Box 867R (Figure 11.3g, \#7267), GM 1B EBR (8), Phase 3; trefoil-mouth jug, mouth and neck fragment; height 4.7 cm , mouth $\sim 5 \mathrm{~cm}$ long; pink fabric, very hard, minute black and white grits, 0.5 cm ; matte surface; bichrome dark red and very dark reddish-brown paint, four bands on the neck, bichrome strap on the front of the vessel.

## WP Indeterminate

489. Box 838R (\#7238), GM 1A TT1 (6), phase unknown; body sherd, closed vessel.

## BRII

490. Box 259 (\#0252), GM 2B (12), Phase 3?; three body sherds, juglet?; red fabric, few minute white grits, very fine and compact, very hard, $0.2-0.3 \mathrm{~cm}$ thick; dark gray matte slip; matte white paint.
491. Box 262 (\#0253), GM 2B (8), Phase 5; body sherds, closed vessel; dark gray fabric, few minute white grits, $0.4-0.6$ cm thick; matte dark gray slip, white paint.
492. Box 324 (\#0261, right), GM 1C (4), Phase 3; jug handle; two deep grooves down the back; gray fabric, red to the surfaces, minute black and white grits, 2.3 cm wide, 0.8 cm thick; very dark gray lightly burnished slip.
493. Box 442 (\#0326), GM 0B (6) 2, Phase 3; body sherd, closed vessel; very dark gray fabric, few minute white grits, metallic, 0.2 cm thick; very dark gray matte slip; matte white paint.
494. No box number (0244-0247), GM 2C W2, Phase $2 / 3$ ?; jug rim, neck, and handle; one incision down the back of the handle, plain everted rim; gray fabric, red to the surface, minute black and white grits, $0.2-0.5 \mathrm{~cm}$ thick; bumpy and worn surface; gray matte slip; very pale brown paint, traces of line groups pendent from the base of the neck.

## Mycenaean

495. Box 64 (\#0266), GM 1A (1A) 8, Phase 3/4; body sherd, closed vessel; very light red fabric, fine grained, no visible grits, 0.3 cm thick; red lustrous paint.
496. Box 214 (\#0268), GM 1B (10B) 8, Phase 5; body sherd, closed vessel; pink fabric, very fine, $0.5-0.6 \mathrm{~cm}$ thick; red to dark red lustrous paint.
497. Box 217, GM 1B (5) 8, Phase 3?; body sherd, closed vessel; very pale brown fabric, very fine, 0.5 cm thick; slip as paste; dark brown faded matte paint.
498. Box 416 (0320-0321), GM 0A (6), Phase 3/4; body sherd, closed vessel; pink fabric, very clean, hard, and compact, 0.3 cm thick; highly burnished surface; lustrous light red paint.
499. Box 466 (\#0273), GM 00B TT1 (2), phase unknown; closed body sherd; brownish-pink fabric, very hard and dense, 0.4 cm thick; darker, burnished surface; very dark brown lustrous, worn paint.
500. Box 470 (\#0280, top left), GM 00B (3), Phase 2; body sherd, closed vessel; pink fabric, minute black grits, very fine and dense, 0.4 cm thick; matte red paint.
501. Bag 5209 (\#0234), GM 2B P35, Phase 10b?; body sherd, closed vessel; light yellowish-red clean fabric, compact, 0.4 cm thick; burnished surface; light red and red paint.

## WSII

502. Box 248 (\#0249), GM 2B (14), Phase 3?; bowl rim sherd; diam. $\sim 16.0 \mathrm{~cm}$; gray fabric, reddish brown to the surface, minute black and white grits, $0.5-0.6$ thick; lightly burnished pink slip; dark brown paint, rim not dotted.
503. Box 255 (\#0250), GM 2B (46) 2, Phase 10; bowl rim sherd; Parallel Line Style; diam. $\sim 16.0 \mathrm{~cm}$; gray fabric, minute black and white grits, $0.4-0.7 \mathrm{~cm}$ thick; lightly burnished gray slip; dark brown paint, rim not dotted.
504. No box number (\#0254), GM 2B NBR (+), topsoil; body sherd, open vessel; light gray fabric, 0.3 cm thick; very pale brown slip; dark brown paint.
505. Box 267 (\#0255), GM 2B W1, Phase 3; bowl body sherd; light gray fabric, 0.3 cm thick; lightly burnished white slip; dark brown paint.
506. Box 320 (\#0260), GM 1C (13) 3, Phase 4/5?; bowl body sherd; red fabric, minute black and white grits, medium to fine grained, 0.4 cm thick; lightly burnished pink slip; very dark brown faded matte paint, ladder lattice at the rim.
507. Bag 6392 (\#0236), GM 2B W17, phase unknown; bowl rim sherd; Parallel Line Style; diam. 14.0 cm ; gray fabric, brown to the surfaces, minute black and white grits, 0.5 cm thick; chalky white highly micaceous slip; dark brown paint.

## $B O R$

508. Box 868 (Figure 11.12a, \#7034), GM 2B P17, phase unknown; juglet or flask, restored; rim diam. 3.3 cm , maximum diam. $\sim 7.0 \mathrm{~cm}$; red highly burnished slip; black paint.
509. Box 50 (Figure 11.12c, \#0265), GM 1A (1B) 6, Phase 2; body sherd, closed vessel; light red fabric, clean and fine grained, 0.2 cm thick; burnished red slip; matte weak red paint.
510. Box 287 (Figure 11.12d, \#0259), GM 2B P17; Iron IIB; four body sherds, closed vessel; very pale brown and light red fabrics, fine grained, no visible grits, $0.2-0.4 \mathrm{~cm}$ thick; light red, red, and dark, weak red highly burnished surfaces; matte black paint.
511. Box 366, GM 2C W4, phase unknown; body sherd, closed vessel; light red fabric, clean and very fine grained, 0.2 cm thick; burnished red slip; matte weak red paint.
512. Box 426 (Figure 11.12e, \#0327), GM 0B (+), topsoil; body sherd, closed vessel; red fabric, clean, very fine, compact and hard, 0.3 cm thick; highly burnished red surface; black paint, burnished over the paint.
513. Bag 3695 (\#0235), GM 2A (2), Phase 7; body sherd, closed vessel; pink fabric, few minute white grits, 0.2 cm thick; worn red slip; dark red paint, burnished over both slip and paint.
514. Bag 6381 (\#0237), GM 1C W8, Phase 6B/7; body sherd, closed vessel; very pale brown clean fabric, fine grained, 0.3 cm thick; dark red slip; faded black paint, burnished over both slip and paint.
515. Box 554R, GM 1C (28), Phase 6?; juglet or flask spout; rim diam. 4.2 cm ; light red fabric; dark red matte slip, mostly worn; dark reddish-brown paint.
516. Box 553E, GM 1C (8), Phase 1; juglet or flask spout; rim diam. 3.2 cm ; red fabric; dark red slip; very dark reddishbrown paint, surface is worn and chipped.

## Iron Age Bichrome

517. Box 4, GM 1A TT11 (15), Phase 3/4? Jug body sherd; pink fabric, many minute and small white grits, minute black grits, very hard, $0.4-0.5 \mathrm{~cm}$ thick; very pale brownish-white matte slip; very dark red and faded black matte paint.
518. Box 451 (Figure 11.12h, \#0330), GM 0B (1) 1, Phase 3; jug body sherd; pink fabric, many minute and small white calcite grits, very hard, 0.5 cm thick; matte surface, not well smoothed; bichrome weak red and very dark brown paint.

## Iron Age WP

519. Bag 1859A (\#0241), GM 2B P10, Phase 7 or 8 ?; amphora rim sherd; diam. 22.0 cm ; flat/ledge rim; pink fabric, few small black and white grits, very dense and hard, fine to medium grained, 0.6 cm thick; very dark brown, matte smeary paint, wide band at the rim, band on top of the shoulder.

## Iron Age WP or Bichrome

520. Box 240 (\#0241), GM 2B TT3 (20), Phase 4?; jug, base of neck with handle stump; neck diam. $\sim 3.4 \mathrm{~cm}$; very pale brown fabric, few small white and black grits, medium to fine grained and compact, $0.5-0.7 \mathrm{~cm}$ thick; surface smoothed; faded very dark brown matte paint, one thin band on the neck below
the handle, one at the base of the neck, concentric circles with a wider outer band on the body.
521. Box 269 (\#0256), GM 2B W5, Phase 3; body sherd, closed vessel; gray fabric, many minute and small black and white grits, medium grained, $0.3-0.5 \mathrm{~cm}$ thick; smoothed matte surface; dark brown matte paint wider outer band on the body.
522. Box 385, GM 1D (3) 1, Phase 3?; jug neck and rim; diam. $\sim 8.0 \mathrm{~cm}$, height 3.5 cm , short, flaring mouth; white to very light pink fabric, few minute black and white grits, medium hard, $0.4-0.7 \mathrm{~cm}$ thick; matte surface; matte very dark brown paint.
523. Box 426, GMIV 0B (+), topsoil; closed vessel, handle fragment, 2.0 wide, 1.3 cm thick, oval section; very pale yellow fabric, minute black grits, fine to medium grain, medium hardness; very dark brown cracked paint.
524. Box 441 (Figure 11.121, \#0329), GM 0B (2) 2, Phase $3 / 4$ ?; jug body sherd; pale pink fabric, few minute and small white grits, very hard, 0.5 cm thick; matte surface; worn dark purplish-gray paint.
525. Box 467 (0271-0272), GM 00B TT3 (1), Phase 2; everted rim sherd, amphora?; diam. 14.0 cm ; light brown fabric, medium sandy, many minute black, few small white calcite grits, $0.4-0.5 \mathrm{~cm}$; smoothed surface; very dark brown paint, lightly burnished over both slip and paint, rim exterior edged in dark brown, broad band inside top of rim.
526. Box 470 (\#0280, top right), GM 00B (3), Phase 2; body sherd, closed vessel; light brown fabric, many minute and small black and white grits, slightly sandy, medium grain, 0.5 cm thick; smoothed surface, as fabric; faded very dark brown paint.
527. Box 470 (\#0280, bottom left), GM 00B (3), Phase 2; body sherd, closed vessel; light brown fabric, many minute and small black and white grits, slightly sandy, medium grain, $\sim 0.3$ cm thick; smoothed surface as fabric; faded very dark brown paint.
528. Box 470 (\#0280, lower right), GM 00B (3), Phase 2; neck sherd, closed vessel; pink to pinkish-brown fabric, minute white grits, slightly sandy, medium grain, very hard and dense, 0.5 cm thick; very pale brown matte slip; weak red matte paint.

## FieLd STI

## WP TLS

529. Box 776R (\#6885, extreme left), GM ST1 (20); body sherd, jug?; light red fabric, many minute black and white grits, compact, very hard, 0.5 cm thick; smoothed and burnished surface, traces of mica; lustrous red paint.

## WP ABBWL

530. Box 776R (\#6885, top row), GM ST1 (20); body sherd, jug?; light pink fabric, minute black and white grits, compact, hard, 0.4 cm thick; smoothed surface; matte red to very dark brown paint.
531. Box 779R (\#6888, center), GM ST1 TT2 (1); body sherd, closed vessel; very pale brown to white fabric, few minute white grits, very fine and compact, 0.5 cm thick; burnished over the smoothed surface; very dark brown paint.
532. Box 779R (\#6888, right), GM ST1 (1); body sherd, closed vessel; pink fabric, minute black grits, traces of mica, very fine grain, 0.6 cm ; burnished over the smoothed, worn surface and very dark brown paint.

## WPV

533. Box 780R+781R+782R, GM ST1 (4B); body sherd, closed vessel; pink fabric, minute black grits, 0.7 cm thick; smoothed surface; very dark brown cracked paint, lightly burnished over surface and paint.
534. Box 780R+781R+782R (\#6901, second row, left), GM ST1 (3); body sherd, closed vessel; pink fabric, minute white grits, 0.4 cm thick; lightly burnished self-slip; very dark brown lightly burnished paint, burnished over slip and paint.
535. Box $780 \mathrm{R}+781 \mathrm{R}+782 \mathrm{R}$ (\#6901, top left), GM ST1 (2); body sherd, closed vessel; very pale pink fabric, many minute black grits, hard, 0.6 cm thick; self-slipped, smoothed; dark brown cracked and worn paint.
536. Box 780R+781R+782R (\#6901, top right corner), GM ST1 (2); sherd near rim, jug?; pink fabric, many minute black grits, hard, compact, 0.7 cm thick; very dark brown cracked paint.
537. Box 780R+781R+782R (\#6901, top, second from left), GM ST1 (2); jug, fragment, rectangular section handle, plain rim; very pale pink to greenish-white fabric, minute black grits, 1.3 cm thick; self-slipped; dark brown paint, flaking and worn, horizontal bands on the back of the handle and down its sides, broad horizontal band inside the rim.
538. Box 780R+781R+782R (\#6901, top, third from left), GM ST1 (3); body sherd, closed vessel; pink fabric, few minute black grits, some mica, medium fired, compact, 0.5 cm thick; self-slipped and lightly burnished; lustrous reddish-brown paint.
539. Box 780R+781R+782R (\#6901, second row, right), GM ST1 (2); body sherd, closed vessel; pink fabric, minute black grits, compact, 0.5 cm thick; self-slipped and lightly burnished; very dark brown cracked paint.
540. Box 780R $+781 \mathrm{R}+782 \mathrm{R}$ (\#6901, second row, right), GM ST1 (2); body sherd, jug?; very pale brown to pinkish-white fabric, minute black grits, hard, 0.5 cm ; surface smoothed; very dark brown paint, almost completely cracked off.
541. Box 780R+781R+782R (\#6901, bottom, second from left), GM ST1 (4); body sherd, closed vessel; light red fabric, minute white grits, hard and compact, 0.5 cm thick; smoothed surface; red paint, burnished.
542. Box 780R+781R+782R (\#6901, bottom, third from left), GM ST1 (4); body sherd, closed vessel; light red fabric, minute white grits, traces of mica, hard and compact, 0.4 cm thick; smoothed surface; red paint, burnished.
543. Box $780 \mathrm{R}+781 \mathrm{R}+782 \mathrm{R}$, GM ST1 (2); body sherd, closed vessel; pink fabric, light red to the surface, minute white grits, traces of mica, hard and compact, 0.6 cm thick; smoothed surface; red paint, burnished, slightly cracked.
544. Box 779R (\#6888, left), GM ST1 TT2 (1); body sherd, closed vessel; very pale brown to very pale pink fabric, many minute black grits, porous, medium hardness, 0.4 cm thick; smoothed surface, very dark brown paint, cracked and worn.
545. Box 837R (\#7236, bottom left), GM ST1 TT1 (8); body sherd, closed vessel; probably Broad Band Style.
546. Box 837R (\#7236, bottom right), GM ST1 TT1 (8); body sherd, closed vessel.
547. Box 837R (\#7236, top left), GM ST1 TT1 (8); body sherd, closed vessel.

## WPVI

548. Box 780R-782R, GMST1 (2); body sherd, closed vessel; pink fabric, minute black grits, hard, porous, $0.5-0.6 \mathrm{~cm}$ thick; smoothed surface, very worn; brown cracked and flaking paint.

## AUTHOR NOTE

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## NOTE

1. Robert Koehl, e-mail message to author, August 3, 2011. I thank Professor Koehl for sharing his expertise in evaluating the Mycenaean material.


BOX 493


BOX 502


BOX 5171


BOX 5172

APPENDIX 11.1


BOX 518


BOX 520


BOX 520A


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694 - SMITHSONIAN CONTRIBUTIONS TO ANTHROPOLOGY



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716. SMITHSONIAN CONTRIbUTIONS TO ANTHROPOLOGY





720 - SMITHSONIAN CONTRIbUTIONS TO ANTHROPOLOGY


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# Decorated Philistine Pottery David Ben-Shlomo 

## INTRODUCTION AND OVERVIEW

This chapter discusses Decorated Philistine Iron Age pottery recovered from the Tell Jemmeh excavations, combining all fields of excavation as well as relevant finds from poorly defined contexts. Tell Jemmeh's location several kilometers from the city of Gaza puts it well within the region of the Philistine material culture. Philistine pottery is the better known, more abundant and most distinct component of the Philistine material culture. Philistine Bichrome pottery was recognized as such for the first time in the beginning of the 20th century CE by F. B. Welch (1900) and then by D. Mackenzie in his excavation of tombs at Beth Shemesh (Mackenzie, 1913). R. A. S. Macalister after his excavations at Gezer published much Philistine Bichrome pottery (Macalister, 1912) and integrated it in the concept of the Philistine culture (Macalister, 1914; see review by Dothan, 1982:94; Sharon, 2001:560-576). Philistine Bichrome pottery, initially defined according to its decoration, is a distinct ware with black and red decoration over white slip depicting various imaginative decorative motifs. The excavations at Tell Qasile inspired T. Dothan, and later M. Dothan, to study the Philistine material culture, especially the pottery, in a more systematic way. This resulted in The Philistines and Their Material Culture by T. Dothan (1967, 1982), creating the typological framework for the Philistine Bichrome pottery and other aspects of Philistine material culture and focusing on its Aegean origins. Philistine Iron I pottery has received more attention since T. Dothan's $(1967,1982)$ seminal works, particularly when the new finds, mainly from the four excavated Philistine pentapolis city sites, were discussed (mostly Ashdod, Tel Miqne-Ekron, and Ashkelon; see, e.g., Mazar 1985b; Dothan and Dothan, 1992; Killebrew, 1998a, 1998b; Dothan and Zukerman, 2004; Ben-Shlomo, 2006a).

In general, Philistine pottery forms and decoration are related in various degrees to Mycenaean pottery prototypes in the Aegean region and Cyprus (see, e.g., Dothan, 1982; Dothan and Zuckerman, 2004, for an overview). The earlier Philistine decorated pottery can be subdivided according to style of form and decoration into three stages.

1. Philistine Monochrome pottery (also termed Mycenaean IIIC:1b; see, e.g., Killebrew, 2000; Dothan and Zukerman, 2004; also termed Philistine 1 by Dothan et al., 2006), which does not appear at Tell Jemmeh, is characterized by forms and decorative motifs more faithful to the Mycenaean prototypes, finer clay, and decoration with one color and no white slip. This pottery is found almost exclusively in the main Philistine cities and probably dates to the early and mid-12th century BCE, or the Iron IA (Ashdod, Strata XIIIb-XIII; Tel Miqne, Stratum VII; Ashkelon, Grid 38, Phase 19).
2. Philistine Bichrome pottery (also termed Philistine 2; Dothan et al., 2006) is characterized by black and red decoration on chalky white slip in most cases. This pottery dates probably to the late 12 th century and the 11 th century BCE, or the Iron IB (possibly also early 10th century; Ashdod, Strata XIIIa-XI; Miqne, Strata VI-V).
3. Philistine "degenerated/debased" pottery and/or red slipped (also termed Philistine 3; Dothan et al., 2006) has the Philistine form appearing in a degenerated form and/or is covered by red slip and lacks the red and black decoration (Ben-Shlomo, 2006a:30-31, 45; Zukerman, 2012:285-286). It should be noted that this pottery is often decorated by one color, yet it is distinct from the earlier Philistine Monochrome ware. This Philistine pottery is probably dated to the late 11th century and 10th century BCE (e.g., Tel Miqne, Stratum IV). There is a certain overlap between each of these chronological phases; that is, at Ashdod, Stratum XII; Ashkelon, Phase 18; and Miqne, Stratum VI both Monochrome and Bichrome Philistine pottery appear.

More recently, Iron II decorated pottery appearing in Philistia was also included in this category and was defined as Late Philistine Decorated Ware (LPDW; see Ben-Shlomo et al., 2004; Ben-Shlomo, 2006a; Kang and Garfinkel, 2009b). This pottery is characterized by "coastal" forms, mostly kraters, amphorae, jugs, and jars, and decoration or red slip, vertical hand burnish, and black and
white painted decoration. Although the forms are not derived from the Aegean world, this ware seems to function as a typical decorated tableware like the Philistine pottery and is rather unique to Philistia (although the relative quantities are smaller). Chemical and petrographic analysis shows that this pottery was made in production centers at Ashdod and Gath (Ben-Shlomo et al., 2004; Ben-Shlomo, 2006a).

The absence of Philistine Monochrome pottery at Jemmeh is not surprising, as it is not one of the pentapolis sites and was probably only a secondary site in relation to Philistine culture, although it is located well within Philistia. The period of the appearance of Philistine Monochrome pottery during the early 12 th century BCE is represented only by Phase 7 in Field III and possibly the later part of Phase 1 in Field I (also possibly the town of the XVIII Dynasty excavated by Petrie, 1928: pl. VI). In these contexts the pottery includes LBII forms.

A substantial amount of Philistine Bichrome pottery from Tell Jemmeh was published by Petrie (1928:23, pls. LXIII, LXIV), yet it is not possible to estimate the percentage of this pottery from the entire pottery assemblage of the Iron I. In the plates, most of the Philistine pottery, which is all Bichrome or degenerated, seems to comes from H, G, and later units, dated to the XXth Dynasty town (Petrie, 1928: pl. VII, the Iron IA); a minority of the fragments comes from Units J and K, dated to the XVIII Dynasty town (Petrie, 1928: pl. VI, roughly dating to the late LBII and Iron IA). These could have come from an intermediate floor level not detected by Petrie between the two "towns," especially in the open areas as in Units JA, JB, JP, JS, and KA. Therefore, it might be assumed that the Philistine pottery at Tell Jemmeh comes from the XXth Dynasty town in Petrie's excavations and in the Smithsonian Institution's excavations from the Iron IB levels mainly in the nearby Field I FUR, above Phase 1 (FUR Phases 4-2), and in Field III in Phases 6 and 5. The morphological and decorative repertoire at Tell Jemmeh is nevertheless quite limited (see below); the relative quantity of this ware does not seem to be as high as at Philistine main city sites (see, e.g., Dothan and Zukerman, 2004; Ashdod, Stratum XI, Dothan and Ben-Shlomo, 2005:132, fig. 3.42 ); clearly, it comprises less than the $50 \%$ of the Iron I assemblages in Field III and Field I FUR, but exact numbers are not available. This is, again, not surprising, as the site was a secondary Philistine site, and, moreover, the Iron IB levels were exposed in very limited areas, especially in the Smithsonian Institution's excavations (practically only in the small Field I FUR and the Field II and III trenches). Later, more degenerated Philistine decorated pottery (group 3 above) and late Philistine pottery were exposed, as the lower phases of Field IV (Phases 11-9, dated to the Iron IIA) also included this pottery. In this period further types may reflect hybrid forms (especially one bowl type, Type BL5; Figure 12.5j-n) related to both Philistine and local pottery traditions.

The pottery will be discussed below according to morphological typology and the different groups as well as according to the decorative motifs that appear.

# PHILISTINE BICHROME POTTERY 

Typology

## Bell-Shaped Bowls

Bell-shaped bowls (Figure 12.1) are the most common Philistine type at Tell Jemmeh as at other sites in Philistia. The Philistine Bichrome bell-shaped bowls (BSB) have a deep hemispherical body, with the rim usually everted and a ring or concave base and two horizontal handles with a rounded section. There are variations in size and shape, especially of the body profile (for example, Figure 12.1b has a more carinated body); sizes vary from small (diameter of $8-12 \mathrm{~cm}$ ) to medium (diameter of $12-18 \mathrm{~cm})$. The decoration includes white slip or wash with red and black decoration. Several nearly complete examples were found (Figure 12.1a,b). The rims are usually simple and everted; one example (Figure 12.1f) has a more thickened rim. Although some of the bowls have the typical black and red decoration over white slip (see below), several examples have decoration only in red or brown (e.g., Figure 12.1d,e) over white slip. Most of the larger examples show a decorative composition of spirals stemming from the rim area (Figure 12.1h) and reaching the lower body, where they are delimited by horizontal lines. The handles are sometimes decorated by red vertical stripes (Figure 12.1c).

The parallels for Philistine Bichrome BSB are numerous (see, e.g., Ben-Shlomo, 2006a, 2012a). Many examples come from Miqne, Strata VI-V (Dothan and Zukerman, In press b: pls. 40, 57), Ashdod, Strata XII-XI (e.g., Dothan, 1982:98-106; Dothan and Porath, 1993: figs. 26, 40:1,2; Dothan and Ben-Shlomo, 2005: fig. 3.46), Batash, Stratum V (Panitz-Cohen, 2006a:47-49, Type BL8), and Tell es-Safi (Bliss and Macalister, 1902: pl. 35; Maeir, 2006: fig. 2:4; Zukerman, 2012: pls. 13.2-13.5). Other examples come from Azor (Ben-Shlomo, 2012a: fig. 5.3:1-4), Aphek, Strata X10-X9 (Gadot and Yadin, 2009: figs. 8.68:7,8, 8.73:11), and Tel Yarmut, Strata IV-IIIA (Jasmin, 1999: pls. 82, 84).

## Bell-Shaped Kraters

Also common are bell-shaped kraters (Figure 12.2), although no complete example was found. Philistine bell-shaped kraters have a similar profile to the bell-shaped bowls and also have two horizontal handles but are larger and usually have a thickened rim. The Philistine Bichrome kraters can reach a diameter and depth of $40-45 \mathrm{~cm}$. Their shape becomes less rounded with a slight body carination (see Dothan, 1982:106-115; Mazar, 1985a:90-92, Type 2; also from Jemmeh, Petrie, 1928: pl. LXIV:42). Rims are thickened or flattened, either horizontal or slightly oblique, sometimes inward bulging (Types 2 a and 2 b at Qasile, Mazar, 1985a:90). Several rim sherds from Jemmeh show thickened (Figure 12.2d), inward slanting (Figure 12.2a), or even ledge rims (Figure 12.2b). Bell-shaped kraters are more elaborately decorated with spirals and other motifs (Figure 12.2e-j), which in our case are represented only in a fragmentary form. The top of the rim is often decorated by a red or black (Figure


FIGURE 12.1. Philistine Bichrome bell-shaped bowls: (a) GMI FUR (1) 2, (b) GMIII A2 (18), (c) GMI FUR (1) 2, (d) GMI FUR (1), (e) GMI FUR (2) 2, (f) GMIII A2 (18), (g) GMIII A2 (13), (h) GMI FUR (1) 2, and (i) GMI FUR F2, Bag 5665.
12.2d) or a double band (Figure 12.2b). Philistine Bichrome kraters are the second most common Philistine form after bell-shaped bowls, both in number and in geographical distribution, and they appear at Tel Miqne, Strata VIA-V; Ashdod, Strata XIIIA-XI; Tell es-Safi; and Ashkelon (see, e.g., Dothan, 1982:106-115; BenShlomo, 2006a:30-31, and references therein).

## Closed Vessels

Other types of Philistine Bichrome pottery are closed vessels, although they are rare at Tell Jemmeh. These include a couple of examples of stirrup jars (Figure 12.3a-d) represented by
the spout and "false handle" (see also, from old excavations, Petrie, 1928: pl. LXIV:82-84). These are decorated by red bands on the hollow spout or the top of the false spout (Figure 12.3a,b). This very well known Aegean form, common in the LBII imports found at Levantine sites, is quite rare in the Philistine Monochrome pottery. The stirrup jars have a globular body and a ring base, two loop handles, a false spout and a vertical cylindrical spout rising to the same height as the false one (Furumark, 1941: type nos. FS170-171/173-177).

Other closed vessels are represented only by body fragments (Figure 12.3f-o, Field III, Phase 6), which represent strainer-spouted jugs or other types of jugs. One body fragment of a Philistine


FIGURE 12.2. Philistine Bichrome bell-shaped kraters: (a) GMI FUR (2) 2, (b) GMI FUR (1) 2, (c) GMIII A2 (19), (d) GMI FUR (2) 2, (e) GMIII A3 (4), (f) GMI FUR (3) 2, (g-i) GMIII A2 (18), and (j) GMIII A2 (19).

Bichrome closed vessel (Figure 12.3e) has perforations, indicating it was a strainer-spouted jug. Examples of spouts of strainer jugs appear more commonly later in red slip (see Figure 12.6).

## Types Related to Philistine Pottery

Several vessels may be related to Philistine Bichrome pottery because of their decoration style, but they do not conform to
any known Philistine Bichrome form (Figure 12.4). These include a large carinated bowl decorated by white slip and red stripes on the rim (Figure 12.4a) and several smaller open bowls with a rounded profile, decorated by white slip and inner red bands (Figure 12.4b,c). An open shallow bowl with a double horizontal handle (Figure 12.4 d ) is also decorated in white slip and may be similar to bowls with bar handles from Ashdod (Strata XII-XI, Dothan and Porath, 1993: figs. 26:9, 39:6; Stratum X, Dothan


FIGURE 12.3. Philistine Bichrome stirrup jars and closed vessels: (a) GMI FUR (0) 3, Bag 5667; (b, c) GMI FUR (2) 2; (d) GMIII A2 (19), Bag 1538/6; (e, f) GMIII A2 (19); (g) GMI FUR (0) 2; (h) GMI FUR (1), Bag 5661; (i) GM 1A (1) 10, Box 81; (j) GMI FUR (2) 2; (k) GMI FUR (1) 2; (l) GM 2B (47) 2, Bag 6436A; (m) GMIII A2 (15) 1; (n) GMI FUR (0) 2; and (o) GMI FUR (1) 2.
and Ben-Shlomo, 2005: fig. 3.68:1) and Tomb D56 at Azor (BenShlomo, 2012a: fig. 4.36:12,13). Dothan (1982:185-188, Type 13 , figs. 54, 55, and references therein) described this form as a hybrid of Canaanite and Egyptian forms, possibly imitating wooden bowls from Egypt (Dothan, 1982:188). The example from Jemmeh could also be a rim of a kylix (see Ben-Shlomo, 2006a:31, for this type in Philistine pottery), but that is less likely.

A tall vertical neck of a jug (Figure 12.4 h ) with a flaring rim may also be related to Philistine forms, with parallels from

Azor (Ben-Shlomo, 2012a: fig. 5.4:11). A neck of a jug(?) (Figure 12.4 f ) is decorated by black over white slip and may be related to Philistine style.

## Decorative Motifs

Generally, the decorative motifs on Philistine Bichrome pottery are placed in horizontal registers: one on open vessels and two on closed ones (belly and shoulder). The most common


FIGURE 12.4. Forms possibly related to Philistine pottery: (a) GMI FUR (1), Bag 5661; (b) GMI FUR (2) 2; (c) GMI FUR (3) 2; (d) GMI FUR (0) 2; (e) GM 2B W37, Bag 5225; (f) GMI FUR (0) 2; (g) GMI FUR (0) 3, Bag 5667; and (h) GMI FUR (+), Bag 5629.
motifs include horizontal lines; single, antithetic (separated by a vertical wavy line), and stemmed spirals; antithetic and stemmed tongues (separated by various motifs); quirks; suspended semicircles; circles and half circles; birds; fish; checkerboards; lozenges; and triglyphs. Only some of these motifs appear in our assemblage.

## Spirals

Spirals are the most common motif appearing both on bellshaped bowls and kraters (e.g., Figures 12.1, 12.2b,e,f). In most cases the spirals, drawn in red (as in Figure 12.2e) or black (as in Figure 12.2 f ), stem from the top of the vessel, create a loop sideways (Figure 12.1e), and spiral into their center (Figure 12.2j). Commonly, on bowls at least two symmetric spirals are drawn on each side (see Dothan, 1982:204), whereas on kraters more spirals can appear. In some cases the spirals are carelessly drawn and the loop is omitted (Figure 12.1i), or they are not perfectly rounded or symmetrical (Figure 12.1b). In a few cases a vertical wavy line is drawn between the spirals (Figure 12.1b,h, mostly in bowls; see also Petrie, 1928: pl. LXIV:66-68). Another variant of this motif has a wavy line delimited between two straight lines (Figure 12.1e). Parallels for such spirals and wavy lines are common on Philistine BSB and bell-shaped kraters (e.g., Dothan, 1982: fig. 66:2-6; Dothan and Ben-Shlomo, 2005: fig. 3.15:5,7,10,11). In a few examples the "eye" of the
spiral is filled, either in red (Figure 12.2f, body fragment) or in a pattern resembling a Maltese cross (Figure 12.2j; see Dothan, 1982:204, fig. 66:18-20 for this motif). Spirals are combined with hatched lozenges (see below) on several krater fragments (Figure 12.2b). Another fragment (Figure 12.2c) shows the upper arm of a spiral filled with a ladder design; parallels come from Ashdod, Strata XII-XI (Dothan and Ben-Shlomo, 2005: figs. 3.18:2, 3.20:10,11, 3.44:4).

## Triglyphs

Triglyphs are the vertical element separating the decorative zones on the vessel's body and are very common on Philistine pottery. These can comprise two vertical lines with a wavy line or zigzag in between (Figure 12.1 g ). Also appearing on body fragments of closed vessels are series of vertical lines in black (Figure 12.3 i , may be part of a more complex motif; also possibly on a krater, Figure 12.2 g ). To these vertical rows of dotted semicircles are applied in a few cases (Figure 12.3g,i). For this design, see, e.g., Dothan (1982:214-215) and Ben-Shlomo (2006a:45). Horizontal registers are delimited by horizontal bands, usually in red (Figure $12.3 \mathrm{~h}, \mathrm{k}$ ), appearing sometimes near the rims and usually below the motifs (two or three parallel lines, Figure 12.3j). Another example from a shoulder of a jug (Figure 12.3h) shows a vertical chevron design (see also Petrie, 1928: pl. LXIV:50).

## Lozenges

Lozenges appear on several examples of kraters, usually associated with spirals (Figure 12.2b). These are drawn in black and are hatched and usually lie in between two spirals (Figure 12.3f; see also Petrie, 1928: pls. LXIII:19,21, LXIV:62,71). Lozenges are common in Philistine Bichrome pottery (e.g., Dothan, 1982:212, fig. 70); for this specific composition on kraters, see, e.g., Ashdod, Stratum XII (Dothan and Ben-Shlomo, 2005: fig. 3.19:1,2).

## Other Motifs

Other motifs do not appear clearly, yet the following motifs were found in Petrie's excavations: double axe (Petrie, 1928: pls. LXIII:30, LXIV:75), filled semicircles or scales (Petrie, 1928: pl. LXIV:63), and a Maltese cross (Petrie, 1928: pl. LXIV:47). One of the best-known Philistine motifs is the bird, yet it does not appear fully on any of the Philistine fragments from Tell Jemmeh, although fragments of this motif may appear on a few sherds. For example, Figure 12.2 f may show the lower edge of a bird's
tail on the left side; similarly, partial bird motifs may appear on smaller body fragments in Figures 12.3j,k and 7.55d.

## PHILISTINE DEGENERATED AND RED-SLIPPED POTTERY

Degenerated Philistine pottery is represented by degenerated and/or red-slipped bell-shaped bowls (Figure 12.5; see also Petrie, 1928: pls. XLVII:10, L:23u-y,24o,q). These appear alongside the Philistine Bichrome pottery in later Iron IB phases such as in Field I FUR, Phases 1 and 2 and Field III, Phase 5. Furthermore, these bowls appear also in Field III, Phases 5-4 (Figures $3.165 \mathrm{c}, 3.168 \mathrm{~d}-\mathrm{g}$ ) and Field II, Phases $4-3$ (Figure 4.29 h ) as well as Field IV, Phases 11-9 (Figure 12.5f-h), dated to the Iron IIA. The nonslipped degenerated bell-shaped bowls could have a regular rounded profile, but the horizontal handle would be fully attached to the body of the vessel (Figure 12.5b) and thus degenerated (see, e.g., Dothan, 1982:197; Ben-Shlomo, 2006a:30, fig. 1.17:10-12). One example has four parallel bands under the handle (Figure 12.5a), but otherwise, these do not show


FIGURE 12.5. Degenerated Philistine bowls, red-slipped Philistine bowls, and hybrid bowls: (a) GMI FUR (1), Bag 5661; (b) GMI FUR F2, Bag 1073; (c) GMI FUR (2) 2; (d) GMI FUR (3) 2; (e) GM 2B TT10; (f) GM 2C (7) 1, Bag 4383; (g) GMI KB (26) 5, Bag 1320A; (h) GM 2B (64), Bag 4983A; (i) GM 1C (28) 4, Bag 3020; (j-1) GM 2B (58), Bag 5227; (m) GM 2B (58A), Bag 4975; and (n) GM 2B P35, Bag 5178.
decorative motifs. Parallels for these bowls come from Qasile, Strata XI-X (Mazar, 1985a: figs. 19:1,2, 24:12,13, 34:6), Ashdod, Strata XI-X (e.g., Dothan, 1971: Fig. 74:3), Tel Miqne, Stratum IV (e.g., Ortiz, 2000:162-163, fig. 7:1-5), Aphek, Strata X10-X9 (Gadot and Yadin, 2009:208, fig. 8.15:1), and Azor (Ben-Shlomo, 2008a:43, 2012a: Type BSB2; see also BenShlomo, 2006a: fig. 1.17:10-12).

Red-slipped (and burnished) BSBs with degenerated horizontal handles appear in Iron IIA and IIB-C levels of Fields II, III, and IV (Figure 12.5e-h) and have an almost straight profile near the rim (Figure 12.5f,g), which is often thickened (Figure $12.5 \mathrm{e})$. The handle can be very small and is totally merged with the body. One example (Figure 12.5i) from Field IV, Phase 6 has a carination under the vertical rim. Another complete example from Phase 11 (Figure 12.5e) has a more rounded body but two grooves under the rim, similar to coastal Iron IIA bowl types (see Figures $8.26 \mathrm{c}-\mathrm{f}, 8.11 \mathrm{o}$-p from Field IV). Parallels for red-slipped bell-shaped bowls come, for example, from Tel Miqne (Ortiz, 2000: fig. 7:6), Qasile (Mazar, 1985a: figs. 25:11, 29:14-15, 34:9), Aphek (Gadot and Yadin, 2009: fig. 8.83:10), Ashdod (Dothan, 1971: fig. 74:2; Dothan and Porath, 1993: figs. 45:1, 47:10), and Azor (Ben-Shlomo, 2012a: fig. 5.3:4).

Fragments of red-slipped and sometimes burnished strainerspouted jugs (SSJ; Figure 12.6a-g) also appear; these usually occur in the form of spout fragments attached to the perforated body part (Figure 12.6a,b); a number of these were collected from Field III, Phase 4 and Field IV, Phases 10-7 (Figure 12.6c-g). A red-slipped and burnished basket handle from Field IV, Phase 8 (Figure 8.43 d ) possibly also belongs to a strainer-spouted jug. Another variant of this type is red-slipped strainer-spouted jugs with long spouts (Figure 8.281,m, Field IV; see also Petrie, 1928: pls. XLVII:6, LVIII:67s; these could also belong to the LPDW group as we do not know the style of decoration on the body). This type also appears at Azor cemetery (Ben-Shlomo, 2012a: fig. 5.4:3,4, Type SSJ2) dated to the late Iron IB and Iron IIA and
at Khirbet Qeiyafa (Kang and Garfinkel, 2009b:154-155, fig. 7.4) in the early Iron IIA. For other examples of red-slipped and degenerated SSJ, see Dothan (1982:191-194, Type 17, and references therein), Ashdod, Stratum X (Dothan and Ben-Shlomo, 2005: fig. 3.72), and Qasile, Stratum X (Mazar, 1985a: figs. 35:2,3, 36:1, 50:2,3). A spout of strainer-spouted jug from Field I, Square KB (Figure 12.6h) has black and white stripes on the top of the red-slipped rim. It is therefore decorated in the LPDW tradition (see below).

Another long conical spout from a similar context at GMI KB (Figure 12.6i) is red slipped and burnished and may belong to a jug of the feeding bottle type. This type of vessel also has sources in Mycenaean pottery and has a globular or ovoid body, ring base, short cylindrical spout applied on the shoulder, elongated neck, everted rim, and a basket handle (Furumark, 1941: type no. FS162). It appears in the Philistine Monochrome and Bichrome styles (Dothan and Zukerman, 2004:24, Type J, fig. 30:6, and Aegean parallels therein), whereas Iron IIA examples are covered with red slip and can be related to the late Philistine degenerated pottery like that at Ashdod, Stratum X (Dothan, 1971: fig. 74:12; Dothan and Porath, 1982: fig. 45:1; BenShlomo, 2003:93, fig. 4:7, 2006a: fig. 1.19:13).

## LATE PHILISTINE DECORATED POTTERY

The pottery ware defined as Late Philistine Decorated Ware (LPDW, or Ashdod ware) appears in Philistia in the periods immediately after the disappearance of "classical" Philistine pottery of the Iron I (Ben-Shlomo et al., 2004; Ben-Shlomo, 2006a:46-88). Although the forms characterizing the Iron I Philistine pottery, with roots in the Aegean world, disappear in this stage, a certain type of decorated pottery can be defined that is unique to Philistia. The quantities of this pottery are nevertheless lower than the Iron I Philistine pottery. At Tell Jemmeh only a few examples


FIGURE 12.6. Red-slipped strainer-spouted jug fragments and spouts: (a) GM 2B (41), Bag 1850/1; (b) GMIII A2 (9), Bag 5025/4;(c) GMIII A2 (9), Bag 5024/3; (d) GM 2B (61) 3, Bag 5200; (e) GMIII A2 (7), Bag 1494/2; (f) GM 2B (57), Bag 5003/4; (g) GM 2B P35, Bag 5178/4; (h) GMI KB P3, Bag 608; and (i) GMI KB P4, Bag 746.
of LPDW appear (Figures 12.7, 12.8); however, they are distinct and include several complete items (Figures 12.7b,c, 12.8a,b).

A good example of LPDW is shown by a jar fragment (Figure 12.7a). The fragment includes the shoulder and upper body of a jar that seems to be of a typical Iron II storage jar (see, e.g., Figure 8.63b). The decoration includes red slip and vertical burnish on the body; on the shoulder there are interchanging black and white horizontal bands (at least three sets). The handle is decorated by vertical and horizontal black bands creating a netted pattern, similar to the handle of Figure 12.7a. A similar jar type with LPDW decoration appears at Ashdod, Stratum X
(Dothan and Ben-Shlomo, 2005:176, fig. 3.72:4; see also Dothan and Freedman, 1967: fig. 36:16), yet this design is different. The base of a vessel, possibly a closed krater (Figure 8.65 n ), is red slipped and vertically burnished; the base has three handles attached to it, a known Iron II form (see, e.g., Kadesh Barnea, Stratum 2, Cohen and Bernick-Greenberg, 2007: fig. 11.98:17), but the decoration seems LPDW style.

Complete examples of LPDW appear in Field IV, Square 2B and include an amphora from Phase 8 (Figure 12.7 c ; see also Phase 10, Figure 8.12i). The neck is cylindrical with a thickened rim, and two loop handles are attached from a ridge in the


FIGURE 12.7. Late Philistine decorated pottery (LPDW): (a) GM 2B (41), Bag 1867/1; (b) GM 2B (41) 2, Bag 1853; and (c) GM 2B (42), "Ron Gardiner's List" 1 .


FIGURE 12.8. Late Philistine decorated pottery (LPDW): (a) GM 2B (41) 3, RV 1028; (b) GM 2B (41), RV 1013; (c) GM 2B (37) 2, Box 94; (d) GM 2B (60); (e) GM 2B (36) 2B, Bag 6584; (f) GM 2B (41) 2, Bag 2362; (g, h) GM 2A (30), Bag 3551; (i) GM 2B (42, 40 ) 4.
middle of the neck to the shoulder; the body is globular, and the base is rounded to slightly pointed. The vessel is decorated in sets of horizontal parallel black bands delimiting white bands on the neck and on the body. Another elongated cylindrical neck may belong to a jug or an amphora (Figure 8.43b) and has the same surface treatment, and one preserved handle was attached to a delicate ridge in the mid neck; thus, this vessel is probably an amphora similar to Figure 12.7 c . For this form, see Ben-Shlomo (2006a:53, fig. 1.29, especially Type AM1B, fig. 1.29:8). A fragment of a closed vessel decorated by vertical burnish on red lip may be an amphoriskos or a jug (Figure 8.42j; see Ben-Shlomo, 2006a:62, fig. 1.33:9; Shai and Maeir, 2012:338, Type JG8).

A fine example of a nearly complete LPDW vessel is a jug or flask richly decorated in the LPDW style (Figure 12.7b). The vessel, which was not restored, although many fragments of it were found, has a tall neck with a wide, flaring, vertical rim. One handle is attached from a ridge in the middle of the neck to the shoulder. The body of the vessel seems to be cylindrical
in its center, with the axis perpendicular to the neck, and more globular on its sides. The sides are closed by a spherical thrown shape showing a "nipple" from the outside, similar to flasks. Thus, the vessel's base was probably rounded. The decoration is rather complex: the vessel is red slipped and burnished. On the neck there are black and white horizontal bands; the handle has vertical and horizontal black bands creating a net pattern. On the body there seems to be a net design (lozenges?; see Petrie, 1928: pl. LX:86) painted in black and white, and the nippled sides have spirals or concentric circles on them.

This shape resembles earlier (late Iron I-early Iron IIA) Phoenician-type flasks or globular jugs/flasks, for example, from Petrie's excavations (Petrie, 1928: pl. LX:86), Qasile, Stratum X (Mazar, 1985a:67-68, fig. 41:11,13), Batash, Stratum IV (Mazar and Panitz-Cohen, 2001: pl. 79:10, Type JG31), and Tel Dor (Gilboa and Sharon, 2003: fig. 11:11), and also smaller Cypriot vessels (Tel Dor, Iron Age 1/2 horizon, Gilboa and Sharon, 2003: fig. 11:18). Similarly decorated flasks or jugs were found at Tel

Masos, Stratum I, House 314, Room 311 (Fritz and Kempinski, 1983: pl. 145:1) and Tel Qashish (Ben-Tor and Bonfil, 2003: fig. 146:6). Parallels for the LPDW decoration are rare (see Tell Keisan, Level 9, Briend and Humbert, 1980: pl. 62:6; also a similar design from Megiddo on a three-handled-base vessel, Schumacher, 1908:88, fig. 123).

Two nearly complete globular jugs with ridged rims from Phases $8-7$ (Figure 12.a,b) may also be related to the LPDW because of their surface treatment (vertical red burnish; see a similar shape from Ashdod, Dothan and Ben-Shlomo, 2005: fig. 3.85:9, in LPDW style). A complete jug found possibly in Phase 7 (Figure 12.8 b ) has a globular body, long neck, and a ring base; the handle is attached to the ridge in the neck; its surface treatment includes red slip and vertical burnish on the neck and upper body and possibly decoration on the body (black circles?), and thus it may relate to the LPDW group.

In addition to these examples, several body fragments from closed vessels carry LPDW-style decoration of vertical red burnish and black and white decoration of horizontal bands (Figure $12.8 \mathrm{c}-\mathrm{f})$. The neck of a large jar or bottle (or a stand; Figures $12.8 \mathrm{i}, 8.66 \mathrm{~m}$, Phase $7 / 8$ ?) is also decorated by red slip (no burnish) and interchanging black- and cream-colored horizontal bands. However, this vessel may not be related to the LPDW and may be linked to southern groups of Iron IIB-C pottery such as the Edomite or Midianite wares (see, e.g., Kadesh Barnea, Stratum 2, Cohen and Bernick-Greenberg, 2007: pl. 11.80:5).

## Hybrid Red-Slipped Bowls

A group of carinated bowls (Figure 12.5j-n, denoted Type BL5 in chapter 8) from Field IV, mostly Phases 10-8, may also be related to late Philistine pottery of the Iron IIA-B and possibly later. These include two nearly complete profiles (Figure 12.5j,k) and are characterized by a thick red slip with mostly hand but also wheel burnish, creating sometimes a glossy appearance (Figure 12.5n; see also Petrie, 1928: pl. XLIX:18d,e). The rim is vertical, slightly thickened on both sides; the section under the rim is vertical, creating a neck appearance, and is grooved or ridged, and the body of the bowl has a very sharp carination on the lower part, with a rounded outer profile. The connection to Philistine pottery is reflected by the very small degenerated horizontal handle applied on the neck region (e.g., Figure 12.5n, Bag 5178/3). As noted, the shape of these bowls may recall to a certain extent later Assyrian-style bowls, especially the grooving and sharp carination, as well as the rounded base, probably with some relation to metal bowls. However, the globular lower part and the degenerated horizontal handle might recall Philistine bell-shaped bowls. On the other hand, some plain bowls from the Iron IIA have similar profiles (e.g., Ashdod, Strata X-IX, Dothan and Ben-Shlomo, 2005: fig. 3.82:18; see more parallels in chapter 8 , Figure $8.26 \mathrm{~h}-\mathrm{p}$ ), with either a rounded or ring base. It seems, however, that this type, with its metallic attributes, is an Iron II hybrid type, maybe combining local Canaanite, Philistine,
and possibly Assyrian attributes (regarding the Assyrian issue, it should be noted that Assyrian-style pottery appears quite later during the late 8th and 7th centuries BCE).

## DISCUSSION

The Philistine decorated pottery at Tell Jemmeh can be seen as a reflection of a second level of distribution of this pottery in the Philistine core area. The first level would be the five Philistine city sites (see Ben-Shlomo, 2006a). The appearance of this pottery during the Iron IB and its later derivatives during the Iron IIA indicate that Tell Jemmeh was a site with Philistine material culture. In addition, several Aegean-style cooking jugs appear at the site (Figure 7.53b-d) and further display the Philistine influence there (see, e.g., Ben-Shlomo et al., 2008, on these vessels and their significance).

According to petrographic analysis, almost all the Philistine pottery analyzed was produced locally at the site or in its vicinity (possibly some came from the Ashkelon area; see chapter 15), and therefore, this pottery was produced and consumed at the site on a regular basis. Nevertheless, several elements of the Philistine material culture, such as Aegean-style figurines (see BenShlomo and Press, 2009) are missing, except for a single example from Petrie's excavations of a female with upraised arms, possibly mourning (Petrie, 1928: pl. XXXVI:2; Dothan, 1982:246, fig. 12:1), but this lack could be due to the limited exposure.

An interesting phenomenon is the more intensive hybridization occurring on pottery forms during the Iron IIA and possibly later. At least one bowl type (Figure 12.5; chapter 8, Type BL5) shows a mixture of Philistine traits such as the degenerated horizontal handle, local traits and elements such as the shape and the red burnished slip, and possibly Assyrian-related influences that are possibly evident in the highly carinated shape and metallic appearance. These bowls come mostly from Field IV, Phases 10-8, with a few examples from later phases. Thus, their chronological context makes the association with Assyrian types problematic. Nevertheless, there might have been earlier influences in this region from Neo-Assyrian-style pottery, resulting in this hybrid type, but only further research may prove this suggestion. It has been suggested that Assyrian-style pottery of the Iron IIC (see chapter 13) may have even replaced to certain extent the social and cultural role of Philistine decorated pottery, which was produced during the Iron I and Iron IIA-B (Zukerman, 2011:468).

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## 13

# Assyrian-Style Pottery (Palace Ware) 

## David Ben-Shlomo

## INTRODUCTION

One of the more distinct phenomena at Tell Jemmeh is the large amount of what is often termed Assyrian palace ware, or palace ware, and is termed here Assyrian-style pottery (Figure 13.1). This pottery ware was already identified by Petrie (1928:23-24, pl. LXV; Figure 13.2), making Tell Jemmeh the first place in the Levant where this pottery was recognized. In fact, this site is probably the most important site in the Levant for studying this pottery because, to date, it has produced more Assyrian-style pottery than all Levantine sites put together.

Assyrian palace ware is a term used for the luxury ware of the Neo-Assyrian Empire (e.g., Lines, 1954; Oates, 1959; see also Anastasio, 2010:32; Hausleiter, 2010), but it is also used in the Levant. This is a wheel-made (thrown?) ware produced in forms such as bowls, beakers, and miniature jars and bottles as well as goblets, all with everted or flaring rims. These vessels also illustrate an extreme thinness of the body walls and fine levigation of the clay and possibly were fired at a high temperature (Rawson, 1954; Oates, 1959:135-136; Hausleiter, 1999a, 1999b; Oates and Oates, 2002).


FIGURE 13.1. Collective photo of Assyrian-style pottery.


FIGURE 13.2. Assyrian-style pottery from Petrie's excavation (Petrie, 1928: pl. LXV).

The appearance and morphology of some of these vessels indicate they are most likely imitations of metal vessels (see, e.g., Nimrud, a silver beaker [Mallowan, 1966: fig. 356], a silver carinated bowl [Hussein, 2008: fig. 12f], golden carinated bowls [Curtis, 2008: fig. 29e], and bronze bowls [Curtis, 2008: fig. 29g]). As already noted by Petrie (1928:24), the Assyrianstyle pottery, or at least some forms of it, brings to mind late Assyrian metal and ceramic vessels: "The ware has always a matt surface, though the paste is very fine. The thin brown varieties are of a $1 / 12$ to $1 / 16$ th inch thick; the pale drab are only $1 / 20$ inch; the thinnest pottery that I have ever seen. The thinness of this resembles Assyrian dishes, and forms 1 to 3 are like an Assyrian silver bowl (Brit. Mus.)." A globular carinated bronze bowl in this form was recently published from an Assyrian burial at Tel Rehov (Mazar and Ahituv, 2011:274, fig. 8:6).

Bowls resembling palace ware bowls, especially globular carinated ones, probably made of precious metals, are often depicted in Assyrian iconography. Some examples are in the scene of Ashurbanipal poring libation over dead lions (a wall relief from Nineveh, Kuyunjik [Pritchard, 1954:324-325, no. 626]; also a king holding a globular bowl, Ashurnasirpal II [Ataç, 2010:18-19, figs. $13,14,74,75,96: H-29$, a fluted bowl]) and possibly also on a funerary stela from Zinjirli in northern Syria (Pritchard, 1954:325, no. 630, here a deeper bowl, possibly a beaker, is depicted). These depictions probably reflect the importance these vessels had in the Assyrian court and culture.

Although palace ware pottery from the Levant can show morphological technological affinities to the Assyrian palace ware, it cannot be assumed, however, that the assemblage from Tell Jemmeh, as well as most other vessels in the Levant termed palace ware, was actually produced in Assyria. In fact, most evidence so far indicates that these vessels or at least some of them were locally made in the Levant (see Engström, 2004; Stager et al., 2011:117-121; see also below and chapter 15), and so far no clear evidence has been found for any single vessel termed as palace ware found outside Assyria to have been imported from Assyria proper. In addition, only a fraction of the Assyrian palace ware types appearing in Assyria (e.g., Oates, 1959; Anastasio, 2010) appear in Levantine sites. A recent study has shown that the palace ware from Assyria proper (and the adjacent territories) shows a higher firing technique (about $1,050^{\circ} \mathrm{C}$ ) and a more finely levigated clay than vessels known in the Levant; the vessels in Assyria are also more standardized in form and capacity (Hunt, 2012a, 2012b).

Therefore, in discussion of the Assyrian-style pottery from Tell Jemmeh a "phenomenological" approach will be used, not immediately creating a strong link with the Assyrian center a priori. The assemblage from Tell Jemmeh will be defined and described according to its morphological typology and its technological and fabric characteristics; the context where these vessels were found will also be discussed. Similar vessels from the southern Levant will be surveyed, and only then will a comparison with pottery from Assyria be made.

## TYPOLOGY OF ASSYRIAN-STYLE POTTERY AT TELL JEMMEH

Assyrian-style pottery at Tell Jemmeh was already identified and separated within the excavation in the field. These pottery sherds were picked out according to both fabric and shape characteristics (Figure 13.1). These come from Iron IIC or later contexts almost exclusively from Field IV. The vessels and sherds (sometimes very small) included in the group are mostly made of light-colored highly levigated clay (but other clays also appear; see below) and/or illustrate several restricted forms (basically bowls and beakers) that are often characterized by a thin, eggshell body, globular shape, sharp carination, and sharp ridges on the vessel body, usually in the area of the shoulder. Thus, every single sherd with these traits was picked up and separated in the excavation. Of the 2,157 sherds picked out, 5 beakers and 176 bowls were reconstructed to complete or partial form (from which three beakers and eight bowls were complete). A selection of 134 items is illustrated and discussed here (see Table 13.2).

The typology of the Assyrian-style pottery in the Levant was recently studied by Stern (2001:36-41, In press). ${ }^{1}$ Basically, two classes of vessels appear in this group: bowls and beakers (or goblets/bottles), both characterized by an everted flaring rim and relatively wide opening and prominent ridges on the body. The bowls can generally be divided into two groups: carinated, globular, usually thin-walled bowls (Figures 13.3, 13.4) and thicker, shallow, open bowls (Figure 13.5), with flatter bases. However, as this is a large (the largest in the Levant) and somewhat diversified assemblage of Assyrian-style pottery, a finer and more detailed typology is also attempted. In addition, a large group of the Assyrian-style pottery was subjected to mathematical analysis on the basis of 3-D scanning (chapter 16), and a comparison between the visual typology and the mathematical analysis is referred in the two chapters.

For a complete typology of this ware, see Anastasio (2010:34-59) for the entire Near East and Stern (in press) for the southern Levant. These studies indicate that the forms found at Tell Jemmeh are only a small portion of the Neo-Assyrian pottery assemblage. Neo-Assyrian pottery also includes glazed pottery (see, e.g., Green, 1999:109; Anastasio, 2010:32, pl. 60), which is not represented in the Levant (apart from a possible fragment from 'Aroer; Barag, 2011).

## Bowls

## Globular Bowls

Globular bowls are the most common Assyrian-style pottery type. They have a flaring rim, usually thin or very thin, and sharp carination, often with one or two prominent ridges (e.g., Figure $13.3 \mathrm{a}, \mathrm{g}, \mathrm{i}, \mathrm{j})$ modeled and smoothed on the outer surface of the bowl and located just above the carination (e.g., Figure 13.3e, 16.5 cm diameter). In smaller and thinner bowls the ridges are either very thin (as Figure $13.3 \mathrm{~h}, \mathrm{~m}, \mathrm{o}$ ) or do not appear (Figures


FIGURE 13.3. Assyrian-style pottery: globular bowls.
$13.3 \mathrm{p}, 13.4 \mathrm{~m}, \mathrm{o}$ ). The base, when preserved, is rounded (Figures $13.3 \mathrm{~d}, \mathrm{k}, 13.61, \mathrm{~m}$ ) or almost flat (Figure 13.3a,n,p). The bowls vary in size and thickness; some have the thickness of an eggshell throughout (about 1 mm , Figure 13.3g), and some are very thin only near the rim (Figure $13.4 \mathrm{n}, \mathrm{o}$ ). The diameter ranges between 12 and 18 cm , with some very small examples at $8.5-10 \mathrm{~cm}$ (Figure 13.3o,p); height, when preserved, is between 6 and 8 cm . Examples come from Petrie's (1928: pl. LXV:1-3) excavations as well.

The profiles of the globular bowls can be tentatively further subdivided according to their location of carination: high, middle, or low on the body's profile. The most common are bowls with middle-height carination (Figure 13.3a-d,g). Several complete or nearly complete examples include Figure $13.3 \mathrm{a}-\mathrm{g}, \mathrm{k}-\mathrm{p}$. Many fragments are of thin, everted rims, probably belonging to this type, often with a diameter of $12-14 \mathrm{~cm}$ (Figure $13.4 \mathrm{~h}-\mathrm{r}$ ); many body fragments preserving the midbody outer ridges were also found. The proportions of the bowls also vary, as many flaring rim fragments indicate a wide opening (the bowl having its widest diameter on the rim, as in Figure 13.3a,g); other examples have their widest part in the carination area (Figure
$13.3 \mathrm{~m}, \mathrm{p})$. Several rounded base fragments, probably of globular bowls, are illustrated (Figure 13.61,m); these have delicate concentric grooving on their lower part. Some of the fragments of the flaring rim and ridged body sherds may belong to either globular bowls or beakers (Figure 13.7f-j; see below). This type of globular carinated bowl is also well defined according to mathematical analysis and clustering (see chapter 16, Types 1 and 2, Figure 16.4).

A few bowls (two or three complete examples at Figure $13.3 \mathrm{k}, \mathrm{n}, \mathrm{p}$ ) have a carination somewhat lower (denoted low carination globular bowls). One example has three ridges and an almost flat base (Figure 13.3n, from Building I, Room F; denoted by Van Beek as an "imitation"); another example (Figure 13.3 p) has a sharp carination with now ridges. The third example (Figure 13.3k) has a very low and sharp carination but no ridges above it; instead, there are three lines that were incised before firing horizontally under the rim and above the carination. Possibly, this decoration was intended to replace the ridges.

Several examples of globular bowls clearly have evidence of higher carination (Figure 13.4a-e, possibly also Figure 13.4f,g).


FIGURE 13.4. Assyrian-style pottery: globular bowls.

In a nearly complete large example (Figure 13.4a) with a diameter of 20 cm , the carination is just under the thick, slightly everted rim and has the thick ridge and a thinner ridge under it. These vessels (Figure 13.4c,d) were also clustered together on the mathematical analysis (chapter 16, Type 3, Figure 16.5, although Figure 13.4e was grouped with Type 7, Figure 16.10). Another small bowl (Figure 13.4b, diameter of about 10 cm ) with a rounded base has a somewhat inverted rim (very unusual for this ware) and a delicate ridge above the high carination. It seems that, in general, the high carination globular bowls have a less flaring rim than the more common globular bowls.

Mathematical analysis of the profiles of these bowls shows that, in general, this typological division is also created using mathematical procedures (see chapter 16, Figures 16.2-16.10), with a certain group being more well defined morphologically.

Globular Assyrian-style bowls are possibly the most common Assyrian-style type in the Levant, and parallels will be discussed below (in the distribution section). For this type in Assyria, see Oates (1959:132, 142, Type 59, pl. XXXVII:59) and Anastasio (2010:41-42, Type BW_30, pl. 15:1-10); this type is defined as a "carinated bowl with simple round base and accentuated everted lip" (Stern, In press: pl. 14.4.1:1-5,7). It should be noted that although this type is probably the most common one in Assyrianstyle pottery at Tell Jemmeh, it is considered very rare in the Assyrian Fort Shalmaneser and is found more commonly in Nimrud (Lines, 1954:165, pl. XXXVII:7,8; Oates, 1959:132).

## Open Bowls

The second category of bowls in the Assyrian-style pottery, less common than the globular bowls (at least from this assemblage), is open bowls (Figures 13.5, 13.6a-c; Stern, In press: pl. 14.4.2:1). These bowls usually have rather thick walls and flat bases but also show some variation in profile; they are generally made of coarser clay than the globular bowls. The most common form has a thick, flaring, almost horizontal rim, slightly rounded open body with one or two thick outer ridges (Figure 13.5a,b), and a flat disk base with a thick ridge creating a "step" above it (denoted stepped-base bowls). Often the disk base has a wide circular groove roughly in the middle (Figure 13.5a), creating a thick ring. Complete examples show a diameter of $18-26 \mathrm{~cm}$ and a height of 6-8 cm (e.g., Figure 13.5a, 22.5 cm in diameter). Several variants on this bowl were published by Petrie (1928: pl. LXV:11-12, 19-23; see also Figure 13.2 herein), and those complete examples have a diameter of up to 30 cm . In fact, according to him, this type, referred to as plates, was the most common type in the large pit deposit of Assyrian-style pottery excavated by him (see below and Petrie, 1928:24).

This type of bowl is possibly not as well defined or standardized as the globular carinated bowls; according to the mathematical analysis, most of these bowls are split between Types 4 and 8 (Figures 16.6, 16.10). A small carinated bowl (11.5 cm diameter) with a delicate ring base (Figure 8.117 c ) recalls


FIGURE 13.5. Assyrian-style pottery: open bowls.

Assyrian-style globular bowls but may be considered a hybrid or a derivative form because of the ring base.

Similar bowls appear in the southern Levant in several places, such as at Hazor (Yadin et al., 1960: pl. CLVI:6), Ashkelon, 7th century BCE (Stager et al., 2011:77, bowl 4 with red slip), Ashdod, Stratum VI (Dothan and Ben-Shlomo, 2005: fig. 3.105:14), 'Arad, Stratum VII (Singer-Avitz, 2002: fig. 43:7,8, both are burnished, one is red slipped), and Batash, Stratum II (Mazar and Panitz-Cohen, 2001:52, Type BL21, pl. 60:1). Note that this form may echo Phoenician open bowl forms with flat bases and everted rims from the same period (see, e.g., Tel Keisan, Level 5, Briend and Humbert, 1980: pl. 38) and also that the rim and body resemble local Iron IIC bowls such as at Kadesh Barnea, Stratum 2 (Cohen and Bernick-Greenberg, 2007: Types B4.1, B18, e.g., pl. 11.108:2,3). Other examples come from Tell Kheleifeh (Pratico, 1993:157, pl. 36:1) and Busayra (Bienkowski, 2002:252, fig. 9.9:6) in Edom and in the Ammonite tombs at Sahab (Hadidi, 1987:103, fig. 2, beneath top left item). Note that at Ashkelon a locally produced red-slipped version of this bowl is common, although other types of Assyrian-style pottery are not (Stager et al., 2011:76-77, bowl 4, figs. 5.14-5.16). Possibly, this was a sort of hybrid Canaanite/Philistine and Assyrian type produced by local potters at Ashkelon (carinated globular bowls produced at Tell Jemmeh, Figure $12.5 \mathrm{j}-\mathrm{n}$, may indicate a similar phenomenon).

Assyrian-style open bowls with flat bases appear in Assyria, e.g., Tell Halaf (Oppenheim, 1931: pl. 55; Albright, 1956:75;

Hrouda, 1962: pl. 62:172; Amiran, 1969:212, photos 225, 226, pl. 99), Nimrud (Gilboa, 1996: fig. 3:14,15), possibly Qasrij (Curtis, 1989: fig. 23:8,10), Fort Shalmaneser (Oates, 1959, pl. XXXVI:33), Tell Ahmar (Jamieson, 2012: figs. 3.3, 3.5; see also, probably, Anastasio, 2010:39, pl. 12:1, Type BW.06), and Tille Höyük, Level VIII (Blaylock, 1999: fig. 5:14,15,19). However, this type is not included in the palace ware pottery, and its fabric is coarser. Note that this type resembles that in Oates (1959: pl. XXXV:5), but the grooved flat base does not appear in Fort Shalmaneser or Nimrud (Lines, 1954). Actually, most open bowls in Oates's typology have a folded rim (Oates, 1959:132, pl. XXXV; see also, e.g., Tell Ahmar, Jamieson, 2012:56, fig. 3.3:9-18, and references therein), although some ring-based bowls have everted rims with ridges under them (Oates, 1959: pl. XXXVI:34; see also, Tell Ahmar, Jamieson, 2012:59, fig. 3.5:4,5). In fact, the flat-based bowls are more similar in their profile to Assyrian tripods (e.g., Lines, 1954: pl. XLI:2; see Figure 34.3 for location of the sites).

A complete example from Building I, Room F (Figure 13.5g) has a rather thin, flaring rim, flat ring base, carination under it, no ridges, and a delicate ring base (see also Petrie, 1928: pl. LXV:13,15; also similar are bowls in Figure 13.5k-m). This shape is somewhat similar to the globular bowls (the upper part; see Fort Shalmaneser, Oates, 1959: pl. XXXV:20), but the flat ring base shows a different concept. Two other examples (Figure $13.6 \mathrm{a}, \mathrm{b}$ ) have a wide open V-shaped profile, are shallow,


FIGURE 13.6. Assyrian-style pottery: bowls of various types.
and have a slight disk base. A variant of the open bowl has a horizontal thick rim and shallow body (Figure 13.5i,j; see also Petrie, 1928: pl. LXV:12; possibly Stern, In press: pl. 14.4.2:9). These bowls do not have ridges on their body and are generally somewhat less thick and heavy. Other open bowls have a flaring to horizontal rim and a more V-shaped body (Figure 13.5e-h); they usually have a delicate ridge under the rim. Mathematical analysis of the profiles of these bowls shows that they cluster well together (chapter 16, Figure 16.6). Two examples of open bowls (Figure 13.6a,b, one complete) are 7 cm in diameter and somewhat wider. A larger complete example (Figure 13.5n) has a disk base and a delicate ridge under the rim, more similar to Figure 13.5a,b. According to the petrographic analysis, one of these bowls (Figure 13.6a) is made of a nonlocal clay (chapter 15, Group ASS3, Sample 137); possibly, this bowl was imported from Syria or elsewhere. Similar bowls come from Nimrud (see Gilboa, 1996: fig. 3:14).

Another variant of the open bowls (Figure 13.6d-g) has a rather horizontal folded (turned down) rim with ridges, with its outer edge lowered; the body is slightly carinated. Parallels come from Dor (Gilboa, 1996) and Kabri (Lehmann, 2002:200, figs. 5.76:15, 5.77:7,8); for parallels from Assyria, see, e.g., Fort Shalmaneser (Oates, 1959:132, pl. XXXV:12-14) and Tell Ahmar (Jamieson, 2012:60, fig. 3.5:8-10). This is a quite common form in Neo-Assyrian pottery, although often not in palace ware fabric; it appears commonly at Dor and Kabri but rarely at Tell Jemmeh. A sherd found in the topsoil made in the whitish fabric is a bowl with a thin vertical knob (Figure 13.6i); this vessel may be related to Assyrian-style pottery, and although it has no parallels in the Levant, it is noted from the palace ware assemblage of Fort Shalmaneser (Oates, 1959:140, pl. XXXVI:29) as an imitation of a metal vessel (there a complete example has six knobs and a ridged, rounded base). A carinated open bowl (Figure 13.6h, Box 256) with ridges at the carination
(possibly as in Oates, 1959:140, pl. XXXVI:27) may also be such an imitation.

## Beakers

The other main class of Assyrian-style pottery is beakers (Figure 13.7; Petrie, 1928: pl. LXV:4-9), also termed goblets or bottles (see Lines, 1954:166, pls. XVIII:2, XL, XLI:1; Oates, 1959:133-134, 142-143, pl. XXXVII:60-67; Anastasio, 2010:48-52, Type BT_02, pl. 28:1-5; Stern, In press: pl. 14.4.5:1-13). These are oval vessels with a flaring rim, tall neck, and ovoid to globular body. The shoulder (between neck and body) can be slightly carinated (Figure 13.7a) or rounded (Figure 13.7 c ) and may have one or two outer ridges on it (Figure $13.7 \mathrm{~b}, \mathrm{~d})$. The base is either rounded or slightly pointed (Figure 13.7 c; see Tel Dothan, Assyrian burial, Master et al., 2005: fig. 10.89:17) or has a delicate ring base (Figure 13.7n). In some cases there is a sharp ridge under the rim (Figure 13.7b; see also Petrie, 1928: pl. LXV:4-6).

The height of these vessels is between 10 and 12 cm , and the rim diameter is $8-9 \mathrm{~cm}$. The shoulder is usually slightly wider than the rim, similar to the globular bowls. Generally, beakers have many similarities to globular bowls (and, as noted, their rim and some of their body sherds look similar to globular bowls); this form may be seen possibly as an elongated version of the globular bowl.

The beakers may be subdivided into two types: thicker and slightly larger ones with a smooth neck and body (Figure 13.7c) and thinner, slightly smaller ones with sharp flaring rims and an eggshell-thin, "dimpled" body (Figure 13.7a,b,e). The dimples are rounded areas in the body (up to 1 cm in diameter) that were depressed when the clay was wet or leather hard, creating dents; this also creates a metallic-like look for the vessels, which are usually very thin. These finger-made indentations in the thin


FIGURE 13.7. Assyrian-style pottery: beakers.
vessel wall is a typical Assyrian characteristic that is intended to imitate metal vessels (see, e.g., Lines, 1954:166, pl. XXXVIII:2; Rawson, 1954:168, pl. XL; Oates, 1959:143, XXXVII:60-67, sometimes with applied decoration as well). For examples from the Levant, see the distribution section below.

There are quite a few Assyrian-style or Assyrian-influenced pottery forms that are known from the southern Levant (Stern, In press) that do not appear at Tell Jemmeh. These include, for example, loop-handled bowls, tripod bowls, and various types of larger bottles, carrot-shaped bottles, and amphorae (more typical to northern Israel) and, rarer, lamp types. These forms will not be discussed here.

## FABRIC AND TECHNOLOGY

In the Levant in general and at Tell Jemmeh in particular the properties and appearance of the fabric are also important components of the identification of this class as Assyrian-style pottery. As noted, it is often mentioned that the Assyrian-style or palace ware pottery is made of a light whitish clay (Figure 13.1). In fact, only some of the vessels of this group are made from this clay (color: Munsell 5 Y 8/2, white, to $5 \mathrm{Y} 8 / 3$, pale yellow, gray), which is often well-levigated; a few other examples are made of a pinkish well-levigated clay (5YR $7 / 3$ pink; Figure 13.7e, Box

424 A ), whereas a substantial amount (of the items selected here, 55 are reddish clay and 72 are whitish clay) is made of a reddish clay (Munsell 2.5YR 6/6-2.5YR 6/4, light red). Usually this clay is also quite well levigated with no large visible inclusion, similar to the white clay. In several cases, however, a coarser clay was used with some larger visible inclusions, especially in larger open bowls (Figure 13.5d,h,k). This variability was already noticed by Petrie (1928:24). It seems that, in general, there is no relationship between the color and fineness of the clay and specific forms or types: all types appear in both whitish and reddish clay. Moreover, in many cases only the surfaces (outer and/or inner) of the vessel are whitish while the inner section (the main body of the clay) is reddish (for example, Figure 13.4r). In more thin-walled examples the entire section is often whitish. Thus, it seems that the whitish color effect of these vessels is a combination of both clay selection (probably highly calcareous) and firing effects (see Courtois and Doray, 1983; Anastasio, 2010:31-32). In addition, several of the vessels have soot marks on the body. This could be attributed either to the firing of the vessels or to fire occurring in the rooms where this pottery was found (especially in Room A of Building I and its vicinity).

Rawson (1954) describes the palace ware in Assyria as a fine ware made in the area around Nimrud from two different kinds of clay. The first has a clay paste low in iron but rich in aluminum, with a coarse siliceous component. This ware was
fired in an oxidizing environment that turned the body surface a pale pink (Rawson, 1954:169). The second type, more commonly associated with the term Assyrian palace ware, was manufactured from hyperlevigated clay, either naturally levigated by the river or artificially levigated in vats. This second ware also contained a high amount of aluminous clay minerals. When fired, the ware body turned a light green to pale cream with a distinctive waxy sheen to the vessel surface. This unusual color and surface grain was consistently produced for over a century (Rawson, 1954:169; Engström, 2004). Oates (1959:131, 136) suggests that it is not clear whether the two types are truly different clays or whether the differences in color and texture are due to differences in the firing temperature and kiln treatment. She describes the first type as a pinkish buff, with a surface so pale as to be almost white and a salmon-colored core. The second type is a buff yellow to pale green, with the surface color matching that of the core.

Clearly, the issue of defining and characterizing the Assyrianstyle pottery fabric should be studied by mineralogical and chemical analysis. Previously, Van Beek, Melson, and Stronach (unpublished data) compared eight sherds from Jemmeh (see Table 13.1) to five Assyrian palace ware sherds from Nineveh, employing X-ray fluorescence, yielding major and minor element composition. ${ }^{2}$ Two examples (Figures $13.4 \mathrm{~b}, 13.7 \mathrm{a}$ ) were also scanned by electron microscope probe scan, showing the fineness of the clay. Their study indicated that the Assyrian-style vessels were made of local highly calcareous clay: "The Tell Jemmeh and Nineveh wares are similar in that both are very high in CaO yet lack calcite or other carbonates. This suggests firing temperatures in excess of about $840^{\circ} \mathrm{C}$ to $900^{\circ} \mathrm{C}$, that is, above the stability of calcite. In both wares, Melson found by X-ray diffraction that gehlenite and/or plagioclase, high-temperature calcium aluminum silicates, have formed by complex de-carbonation reactions mainly between calcite, quartz and clay minerals during the firing." Interestingly, although all sherds had somewhat high calcium levels ( $9 \%-20 \%$ in oxide), within this range there is no compatibility between the more whitish examples and those with higher calcium content. This may indicate that although a
calcareous clay was selected (the local loess, for example), the actual whitish effect may be more related to the firing process (as noted regarding the proper Assyrian pottery above). Furthermore, according to this study, the composition of the Jemmeh sherds was different from the Nineveh sherds and seemed to indicate they were made of local clay at Tell Jemmeh.

More recently, Engström (2004) petrographically analyzed 17 so-called imitation palace ware sherds from Tell el-Hesi, a site located some 30 km northeast of Tell Jemmeh. The vessels were made of well-levigated clay but not fired above $850^{\circ} \mathrm{C}$. They were defined as imitations because they were locally made, and this definition could be compatible with our definition of Assyrian-style pottery. Most of the samples analyzed from Tell el-Hesi were made of alluvial loess or Negev loess (Engström, 2004: table 2; see more discussion of this in chapter 15). Engström (2004:77-79) suggests the origin of these groups is from the region of Tell Jemmeh.

Courtois and Doray $(1983: 129,131,135)$ suggested that Assyrian-style pottery in the Levant was produced locally by Assyrian potters; on the other hand, according to a study of Late Iron Age pottery at Kinet Höyük (Hodos et al., 2005:81), there seems to be no evidence in technological changes in the later Neo-Assyrian-influenced pottery at the site compared with earlier Iron Age wares.

In this report a study of an additional 24 Assyrian-style vessels was made using thin-section petrographic analysis (chapter 15). An attempt was made to analyze examples from all types and visual fabric groups. The results indicate that about half were made of clays identical to local clays used for regular pottery at Tell Jemmeh, whereas roughly the other half were made of clays that were treated somewhat differently and thus have a different appearance but probably are still of the same provenance. Several examples were made of other clays. Again, there was no apparent correlation between the color of the clay and the petrographic group. The differences indicate that even though most Assyrian-style pottery was locally produced, there might have been more than one workshop producing them (see more in chapter 15).

TABLE 13.1. Major and minor elemental concentrations of eight Assyrian-style vessels from Tell Jemmeh as measured by X-ray fluorescence (after W. Melson, unpublished data).

|  | Oxide (\%) |  |  |  |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Vessel (SI Cat. No., Figure No.) | $\mathrm{SiO}_{2}$ | $\mathrm{Al}_{2} \mathrm{O}$ | $\mathrm{FeO}^{*}$ | $\mathbf{M g O}$ | CaO | $\mathrm{K}_{2} \mathrm{O}$ | $\mathrm{Na}_{2} \mathrm{O}$ | $\mathrm{TiO}_{2}$ | MaO |
| A (SI Cat. No. 245.1, 13.7b) | 56.49 | 13.99 | 6.34 | 3.03 | 14.47 | 2.83 | 1.26 | 1.15 | 0.11 | 0.34 |
| B (SI Cat. No. 613, 13.3a) | 53.52 | 14.77 | 6.75 | 3.24 | 16.15 | 2.83 | 1.16 | 1.14 | 0.12 | 0.31 |
| C (SI Cat. No. 221, 13.4a) | 59.97 | 13.09 | 6.11 | 3.01 | 12.69 | 1.99 | 1.47 | 1.29 | 0.11 | 0.27 |
| D (SI Cat. No. 217.2, 13.4b) | 53.03 | 16.69 | 6.92 | 3.10 | 15.61 | 2.20 | 1.48 | 0.89 | 0.08 | 0.00 |
| E (SI Cat. No. 217.3, 13.3g) | 59.59 | 13.30 | 6.14 | 2.75 | 12.01 | 3.35 | 1.35 | 1.12 | 0.12 | 0.26 |
| F (SI Cat. No. 612, 13.7c) | 57.32 | 17.47 | 7.00 | 2.84 | 9.72 | 3.05 | 1.57 | 0.90 | 0.12 | 0.00 |
| G (SI Cat. No. 245, 13.7a) | 51.30 | 15.92 | 5.10 | 2.10 | 20.88 | 3.05 | 0.70 | 0.94 | 0.10 | 0.00 |
| H (SI Cat. No. 245.2, 13.7n) | 57.98 | 14.14 | 6.58 | 2.84 | 12.03 | 3.48 | 1.40 | 1.17 | 0.13 | 0.27 |

## CONTEXT OF ASSYRIAN-STYLE POTTERY AT TELL JEMMEH

The context distribution of the Assyrian-style pottery at Tell Jemmeh is highly restricted and might be, in fact, more distinctive than its fabric appearance. All items except four unstratified sherds that come from Field I, Square KB (Figure 13.4i,m) and two or three bowls from Phase 2 in Field II (Figure 4.40b,d,e) are from Field IV. Not a single sherd comes from a context dated earlier than Phase 5 (the Iron IIC). Of the 134 items presented here (Table 13.2), 57 come from Phase 5, 66 come from unclear or unstratified contexts, and three come from Phase 3. Moreover, of this group, 54 come from Building I (many from Room A or areas related to it; Figures 8.117, 8.118), and an additional 15 are from the fills directly above Building I; eight examples come from the nearby Building II. Thus, the phenomenon of Assyrianstyle pottery at Tell Jemmeh is restricted to Phase 5, dated to around 700 BCE (or the late 8th-early 7th centuries BCE), and a single occupation level and is concentrated in the "Assyrian" building, Building I. Petrie also notes that all of the Assyrianstyle pottery at the site (or at least the complete forms discussed by him, Figure 13.2; Petrie, 1928:23-24, pls. XLVII:13, LXV) was found in one grain pit dated to around 700 BCE, Pit DZ194 in the town of the XXIIIrd Dynasty (Petrie, 1928: pl. X, lower left, DZ). Although the Assyrian period in the Levant lies in the 8th century and first half of the 7th century BCE, a later date for the Assyrian-style or Assyrian imitation pottery throughout the Levant (mostly Judah) was also suggested by Thareani-Sussely and Na 'aman (2006).

As noted, many examples of Assyrian-style pottery were found in Field IV, Phase 5, Building I, Room A, including four complete or nearly complete thin bowls (Figures 13.3d,f,g, 13.4a,b, thick stepped-base bowl; see Figures 8.117, 8.118); the lower part of dimpled beaker was also found here (Figure 13.7 n ). A large amount of Assyrian-style pottery was found in Square 1B, Layers 10-11, Locus 1 (Layer 10, however, contains also Persian period sherds and thus is mixed) and Test Trench 3. These layers, although mixed, could have represented the upper or ground floor remains collapsing on the vaulted basement levels of Room A (see chapter 8; altogether, at least 40 fragments are illustrated, including several complete or nearly complete thin bowls, Figures $8.117,8.118$ ). Several complete examples come also from Room F in Building I (Figures 8.151a-h, 13.3n, $13.5 \mathrm{~g}, \mathrm{n}, 13.6 \mathrm{~b})$.

## DISTRIBUTION OF ASSYRIAN-STYLE AND PALACE WARE IN THE LEVANT AND THE NEAR EAST

## Assyria and its Near Eastern Colonies

The distribution of Assyrian pottery in other sites in the Levant and the Near East will be discussed below (see also Figures 34.1, 34.3). Note that palace ware indicates only the fine, welllevigated, thin pottery in most cases and not the entire assemblage
of Neo-Assyrian pottery forms (for this see, e.g., Hausleiter, 1999b; Anastasio, 2010). The primary distribution of Neo-Assyrian palace ware lies naturally in Assyria in the main centers of Assyrian palaces and administration (see Figure 34.3; see Hausleiter, 2010, for a recent retrospective). A good example comes from Room S in the Nimrud governor's palace (Mallowan, 1966: fig. 13), where a set of nearly 100 palace ware vessels were found in situ. Various quantities of palace ware were also found in other locations, such as in Nimrud (Hausleiter, 1999b:28-32, figs. 2, 10, 2008), Fort Shalmaneser (e.g., Oates, 1959), Nineveh (e.g., Lumsden, 1999:5, fig. 8), Dur Sharrukin/Khorsaban (Loud, 1936a; Loud and Altman, 1938), Tell Halaf (Hrouda, 1962: pls. 59:85-90, 60:136, 61:168-170, 62:171,172), and Assur (Hausleiter, 1999a: fig. 9:8; for more locations, see Anastasio, 2010:8-14). At Khirbet Qasrij and Qasrij Cliff, on the Tigris near Mosul, a local production of Neo-Assyrian pottery was possibly identified with a pottery kiln (Curtis, 1989:21-23; see Freestone and Hughes, 1989, for chemical and petrographic analysis; the Qasrij Cliff site might date somewhat later, however). Some of the pottery from these two sites is palace ware (Curtis, 1989: fig. 31) with beakers and globular bowls; various bottles types, (Curtis, 1989: fig. 40), with shapes copied in the Levant, were also found there.

In the upper Euphrates and northern Syrian sites, which may represent Assyrian "colonies" or Assyrian administrative centers, palace ware Assyrian-style pottery was also found, such as at Tell Ahmar on the western Euphrates (Jamieson, 1999: fig. 6:1,4,6,9,13), Sheikh Ramad (Pucci, 2008), Tell Jurn Kabir (Eidem and Ackermann, 1999: fig. 8:1-4), Tell Sheikh Hassan (Schneider, 1999: fig. 7), Kinet Höyük in Cilicia (Hodos et al., 2005:66), and Tille Höyük (Blaylock, 1999: figs. 4:8-12, 5:1321, 10:1-10) and at sites of the Khabur valley (e.g., Anastasio, 2007: fig. 8:1; for distribution, see also Anastasio, 2010). Certain quantities of Assyrian-style or Assyrian-inspired pottery were also found in the northern Levant at Tell Kazel (Capet and Gubel, 2000), Tell Tayinat (Harrison, 2005:23-32), and Tell Qarqur (carinated bowls; Dorrnmann, 2000: fig. 15:13-24). For a recent study and an account of the distribution of Late Assyrian pottery in the entire Near East, including palace ware types, see Anastasio (2010:15-25; see also Bloom, 1988:149-178; Stern, 2003:225-226; Hausleiter, 2008:222-224); for distribution in northern Mesopotamia, see Hausleiter (2008:221-224, figs 26c,d,e), as well as Anastasio (2010:28) for several sites in western Iran.

## Southern Levant Sites: North to South

At Hazor, Stratum IV a globular bowl was found (made of light brown well-levigated clay; Yadin et al., 1960: pl. XCVIII:44), as well as a large globular bottle(?) (Yadin et al., 1960: pl. XCVII:11). Assyrian-style carrot-shaped bottles and a globular carinated bronze bowl were found at the Assyrian tomb at Tel Rehov (Mazar and Aḥituv, 2011). A dimpled beaker was found at Megiddo, Stratum III (Lamon and Shipton, 1939: pl. 9:2).

At Kabri several Assyrian-style forms have been noted (Lehmann, 2002:200-201), including folded-rim bowls, bottles, and lamps. At Dor an assemblage of open bowls with folded,

TABLE 13.2. List of Assyrian-style pottery from Tell Jemmeh selected for this study. Abbreviations: Bld = building; NA = not available; $\mathrm{Rm}=$ room; $\mathrm{bl} / \mathrm{br}=$ bowl/beaker; diam. = diameter; $\mathrm{gb}=\mathrm{globular}$ bowl; $\mathrm{hc}=$ high carination; hgt. $=$ height; IAA $=$ Israel Antiquities Authority number; IMJ = Israel Museum, Jerusalem number; lc = low carination; mc = mid carination; ob=open bowl; sb=stepped base; us = unstratified.

| Box/SI <br> Cat. No. | Provenance | Phase | Architecture | Type | Subtype | Clay color | Size (cm) | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 84/1 | GM 2C (10) 1 | Post 3 |  | gb |  | White |  | 13.4q |
| 84/2 | GM 2C (10) 1 | Post 3 |  | gb | mc | White |  | 13.30 |
| 84/3 | GM 2C (10) 1 | Post 3 |  | gb |  | White |  | 13.4d |
| 84/4 | GM 2C (10) 1 | Post 3 |  | gb | hc | White |  | 13.4k |
| 84/5 | GM 2C (10) 1 | Post 3 |  | gb | hc | White |  | 13.4j |
| 99 | GM 1D W4 | 3 | Granary | gb | mc | Red |  | 13.4 n |
| 39/1 | GM 1B TT3 (1) | 5 | Bld I, Rm A? | gb | mc | White |  | 8.117 g |
| 39/2 | GM 1B TT3 (1) | 5 | Bld I, Rm A? | gb | mc | White |  | 8.117f |
| 39/3 | GM 1B TT3 (1) | 5 | Bld I, Rm A? | ob |  | White |  | 8.118 f |
| 32/1 | GM 1B (11) 1 | 5 | Bld I, Rm A? | gb | mc | White |  | 8.117y |
| 32/2 | GM 1B (11) 1 | 5 | Bld I, Rm A | gb | mc | White |  | 8.1171 |
| 32/3 | GM 1B (11) 1 | 5 | Bld I, Rm A? | gb |  | Red |  | 8.117t |
| 32/4 | GM 1B (11) 1 | 5 | Bld I, Rm A? | bl/br |  | Red |  | 8.117i |
| 32/5 | GM 1B (11) 1 | 5 | Bld I, Rm A? | gb |  | White |  | 8.117u |
| 32/6 | GM 1B (11) 1 | 5 | Bld I, Rm A? | gb |  | Red |  |  |
| 32/7 | GM 1B (11) 1 | 5 | Bld I, Rm A? | gb |  | Red |  | 8.117s |
| 32/8 | GM 1B (11) 1 | 5 | Bld I, Rm A? | gb |  | Red |  | 8.117j |
| 31/1 | GM 1B (11) 1 | 5 | Bld I, Rm A? | $\mathrm{bl} / \mathrm{br}$ |  | White |  | 8.117 o |
| 31/2 | GM 1B (11) 1 | 5 | Bld I, Rm A? | $\mathrm{bl} / \mathrm{br}$ |  | White |  | 8.117r |
| 31/3 | GM 1B (11) 1 | 5 | Bld I, Rm A? | $\mathrm{bl} / \mathrm{br}$ |  | White |  | 8.117 m |
| 31/4 | GM 1B (11) 1 | 5 | Bld I, Rm A? | $\mathrm{bl} / \mathrm{br}$ |  | White |  | 8.117n |
| 31/5 | GM 1B (11) 1 | 5 | Bld I, Rm A? | bl/br |  | White |  | 8.117p |
| 31/6 | GM 1B (11) 1 | 5 | Bld I, Rm A? | $\mathrm{bl} / \mathrm{br}$ |  | White |  | 8.117 z |
| 31/7 | GM 1B (11) 1 | 5 | Bld I, Rm A? | $\mathrm{bl} / \mathrm{br}$ |  | White |  | 8.117q |
| 31/8 | GM 1B (11) 1 | 5 | Bld I, Rm A? | bowl |  | White |  | 8.118c |
| 31/9 | GM 1B (11) 1 | 5 | Bld I, Rm A? | gb |  | Red |  | 8.117a |
| 31/10 | GM 1B (11) 1 | 5 | Bld I, Rm A? | ob | sb |  |  | 8.118i |
| 31/11 | GM 1B (11) 1 | 5 | Bld I, Rm A? | Beaker | Dimpled | Red |  | $\begin{aligned} & \text { 13.7k,l, } \\ & \text { 8.118o,p } \end{aligned}$ |
| 64/1 | GM 3B P4 | 2 ? |  | ob | sb | Red |  | 13.5i |
| 60/1 | GM 2B TT3 (2A) 1 | 5 | Bld II, Rm B | gb | mc | Red |  | 8.96p |
| 60/2 | GM 2B TT3 (2A) 1 | 5 | Bld II, Rm B | gb | mc | White |  | 8.96q |
| 60/3 | GM 2B TT3 (2A) 1 | 5 | Bld II, Rm B | gb |  | White |  | 8.96 m |
| 60/4 | GM 2B TT3 (2A) 1 | 5 | Bld II, Rm B | gb |  | White |  | 8.960 |
| 60/4 | GM 2B TT3 (2A) 1 | 5 | Bld II, Rm B | gb |  | White |  | 8.96n |
| 61/1 | GM 3B (2) | 3 ? |  | gb | mc | White |  | 13.3h |
| 38/1 | GM 1B TT2 | 5 | Bld I, Rm A? | gb | mc | White |  |  |
| 38/2 | GM 1B TT2 | 5 | Bld I, Rm A? | Beaker | Dimpled | White |  | 8.118q |
| 38/3 | GM 1B TT2 | 5 | Bld I, Rm A? | Beaker | Dimpled | Red |  | 8.118r |
| 65/1 | GM 3B Pit 7 | Unknown |  | gb | mc | White |  | 13.6 f |
| 65/2 | GM 3B Pit 7 | Unknown |  | gb | mc | White |  | 13.41 |
| 72/1 | GM 1C (7) 4 | 3 |  | gb |  | White |  | 13.4e |
| 111/1 | GM 00A (8) | 5 | Outside Bld I | gb |  | White |  | 8.173h |
| 111/2 | GM 00A (8) | 5 | Outside Bld I | gb |  | White |  | 8.173i |
| 113/1 | GM 00A (+) | us |  | Varia |  | White |  | 13.61 |
| 114/1 | GM 00A (1) 3 | 5 | Bld I, Rm F | gb | mc | Red |  | 8.151e |
| 114/2 | GM 00A (1) 3 | 5 | Bld I, Rm F | gb |  | Red |  | 8.151d |

TABLE 13.2. (continued)

| Box/SI <br> Cat. No. | Provenance | Phase | Architecture | Type | Subtype | Clay color | Size (cm) | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 119/1 | GM 0B (7) 5 | 4-5? | Bld I? | gb |  | White |  | 13.4h |
| 119/2 | GM 0B (7) 5 | 4-5? | Bld I? | $\mathrm{bl} / \mathrm{br}$ |  | White |  | 13.7i |
| 119/3 | GM 0B (7) 5 | 4-5? | Bld I? | ob | sb | White |  | 13.6j |
| 119/4 | GM 0B (7) 5 | 4-5? | Bld I? | bl/br |  | White |  | 13.7j |
| 119/5 | GM 0B (7) 5 | 4-5? | Bld I? | gb |  | White |  |  |
| 119/6 | GM 0B (7) 5 | 4-5? | Bld I? | gb |  | Red |  | 13.3m |
| 124/1 | GM 00B (8) | Unknown |  | gb | mc | Red |  | 13.4c |
| 137/1 | GM 1B TT1 (4) | Unknown |  | gb |  | White |  | 13.6c |
| 138/1 | GM 1B (10) 1 | 4/5? | Above Bld I, Rm A | ob | sb | Red |  | 8.118h |
| 138/2 | GM 1B (10) 1 | 4/5? | Above Bld I, Rm A | ob |  | Red |  | 13.6e |
| 139 | GM 1B Wall B | 3 |  | ob |  | White |  | 13.51 |
| 141A | GM Room A | 5? | Bld I, Rm A? | ob |  | Red |  | $\begin{aligned} & 8.118 \mathrm{~g}, \\ & 13.5 \mathrm{f} \end{aligned}$ |
| 156 | GM 1C (14) 4 | 5? |  | $\mathrm{bl} / \mathrm{br}$ |  | Red |  | 13.4p |
| 157 | GM 1C (9A) 3 | 4/5? |  | ob |  | White |  | 13.5 m |
| 161 | GM 1C (12) 3 | 4/5? |  | ob |  | Red |  | 13.5k |
| 192 | GM 0B Pit 4 (6) | 4 ? |  | Beaker |  | White |  | 13.7h |
| 207 | GM 2A WBR (19) 3 | 5? |  | Beaker |  | White |  | 13.7 g |
| 219 | GM 1B NBR (8) | Unknown |  | ob |  | Red |  | 13.5j |
| 224/1 | GM 1B NBR P16 (3) | 3? |  | ob |  | Red |  | 13.5c |
| 224/2 | GM 1B NBR P16 (3) | 3? |  | ob |  | Red |  | 13.5 d |
| 224/3 | GM 1B NBR P16 (3) | 3? |  | ob |  | Red |  | 13.5h |
| 206 | GM 2A WBR (15a) 3 | 4 ? |  | ob |  | White |  | 13.6a |
| 245 | GM 2A TT4 (+) | us |  | ob |  | White |  | 13.6d |
| 247 | GM 2A TT4 (6) | 5? | Bld I, Rm C? | $\mathrm{bl} / \mathrm{br}$ |  | Red |  | 8.135 e |
|  | GM 1B (12) 1 | 5 | Bld I, Rm A? | $\mathrm{bl} / \mathrm{br}$ |  | Red |  |  |
| 250/1 | GMI KB (0) | us |  | gb | mc | White |  | 13.4i |
| 250/2 | GMI KB (0) | us |  | Bowl |  | White |  | 13.6 g |
| 251 | GM 2A (20) | 5/4? |  | gb |  | White |  | 13.4 r |
| 252 | GM 1B (12a) 1 | 5 | Bld I, Rm A?? | ob |  | Red |  |  |
| SI Cat. | GM 2A TT1 F7 (1) | 4?/5? |  | gb | mc | Red |  | 13.3b |
| No. 253 |  |  |  |  |  |  |  |  |
| 255/1 | GMI KB (+) | us |  | gb | hc | White |  | 13.4 g |
| 255/2 | GMI KB (+) | us |  | gb | lc | White |  | 13.4 m |
| 259 | GM 2B (30) | 4/5? |  | gb | mc | Red |  | 13.4 f |
| 300A | GM 1B (11) 1 | 4/5? | Bld I, Rm A? | Bowl |  | White |  | 8.118k |
| $300 \mathrm{~B} / 1$ | GM 1B (9) 5 | 4?/5? |  | Bowl |  | Red |  | 13.6k |
| 300B/2 | GM 1B (9) 5 | 4?/5? |  | Bowl |  | Red |  | 13.61 |
| 300B/3 | GM 1B (9) 5 | 4?/5? |  | Bowl |  | Red |  |  |
| $300 \mathrm{C} / 1$ | GM 1B (10) 1 | 4/5? | Above Bld I, Rm A | gb |  | Red |  | 8.117k |
| $300 \mathrm{C} / 2$ | GM 1B (10) 1 | 4/5? | Above Bld I, Rm A | ob |  | Red |  | 8.118 f |
| 300 D | GM 1B (16) 2 | 5 | Bld I, Rm A? | Beaker | Dimpled | White |  |  |
| 301A | GM 1B (11) 1 | 5 | Bld I, Rm A? | gb | mc | White |  | 8.117 w |
| 301B | GM 0B (9) 5 | 4-5? | Bld I? | gb |  | Red |  | 13.4o |
| 302 A | GM 0B (7) 5 | 4-5? | Bld I? | Beaker |  | Red |  | 13.7 m |
|  |  |  |  |  |  |  |  | (continued) |

TABLE 13.2. (continued)

| Box/SI <br> Cat. No. | Provenance | Phase | Architecture | Type | Subtype | Clay color | Size (cm) | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 302B | GM 3B P7 | Unknown |  | Beaker |  | White |  |  |
| 305A | GM 0B (7) 5 | 4-5? | Bld I? | Beaker |  | White |  | 13.7 f |
| 305B | GM 1D (9) | 3 ? |  | Base |  | White |  | 13.6 m |
| 401A | GM 1B TT2 | 5 | Bld I, Rm A? | gb | mc | White |  | 8.117 d |
| 402A | GM 1B (11) 1 | 5 | Bld I, Rm A? | gb |  | Red |  | 8.117e |
| 403A | GM 1B (11) 1 | 5 | Bld I, Rm A? | gb | mc | Red |  | 8.117h |
| 404A | GM 1B (11) 1 | 5 | Bld I, Rm A | gb |  | Red |  | 8.117b |
| 405A | GM 1B (11) 2 | 5 | Bld I, Rm A | ob |  | White |  | 8.115n |
| 406A | GM 1B (11) 2 | 5 | Bld I, Rm A | ob | sb | White |  | 8.115p |
| 407A | GM 1B (11) 1 | 5 | Bld I, Rm A? | gb | mc | Red (white outside) |  | 8.117 v |
| 400A/1 | GM 2B NBR (31) 2A | 5 | Bld II, Rm B | gb |  | White |  | 8.96k |
| 400A/2 | GM 2B NBR (31) 2A | 5 | Bld II, Rm B | gb |  | White |  | 8.961 |
| 408A | GM 1B (11) 2 | 5 | Bld I, Rm A | gb | mc | White | diam. 12 | 8.1150 |
| 408B | GM 1B (10) 1 | 5 ? | gb | mc |  | White | body diam. 11 | 13.3j |
| 423 A | GM 2B TT3 (2A) 1 | 5 | Bld II, Rm A | gb | mc | Red | diam. 16 | $\begin{aligned} & 8.94 \mathrm{~m}, \\ & 13.31 \end{aligned}$ |
| 410A | GM 1B (11) 1 | 5 | Bld I, Rm A? | gb | mc | White | diam. $\sim 16$ | 8.117aa |
| 411A | GM 2B TT3 (2A) 1 | 5 | Bld II, Rm A | Beaker |  | Red |  | 8.94n |
| 426A | GM 0B (9) 5 | 5 ? | Bld I? | gb | mc | White |  | 13.3e |
| 420A | GM 0B (9) 5 | 5 ? | Bld I? | Bowl |  | Red |  |  |
| SI Cat. <br> No. 219 | GM 1B F18 | 3 ? |  | ob | sb | Red | diam. 17-18 | 13.5b |
| 425 A | GM 1B TT3 (1) | 5 | Bld I, Rm A? | gb | hc | Red (white outside) | diam. 16-17 |  |
| 253A | GM 0B (7) 5 | ? | gb | mc | Red | diam. neck |  |  |
| 427A | GM 3B P7 | ? |  | Bowl |  | Red |  | 13.3c |
| 422A | GM 1B TT2 | 5 ? | Bld I, Rm A? | Beaker |  |  |  | $\begin{aligned} & 8.118 \mathrm{~m}, \\ & 13.7 \mathrm{~d} \end{aligned}$ |
| 424A | GM 0B (7) 5 | 4/5? | Bld I? | Beaker | Dimpled | Pink | diam. 16 | 13.7e |
| 421A | GM 0B (7) 5 | 4/5? | Bld I? | gb | lc | Red (white outside) | diam. 16.5 | 13.3 i |
| 430A | GM 2A F7 (4) | 4/5? |  | gb | lc | Red | diam. 15.5 | 13.3k |
| SI Cat. <br> No. 536 | GM 00A (1) 3 | 5 | Bld I, Rm F | ob |  | Red | diam. 17, base 8 | $\begin{aligned} & \text { 8.151h, } \\ & 13.6 \mathrm{~b} \end{aligned}$ |
| SI Cat. <br> No. 530 | GM 00A (1) 3 | 5 | Bld I, Rm F | ob |  | Red | diam. 8.5 | $\begin{aligned} & 8.151 \mathrm{f}, \\ & 13.5 \mathrm{~g} \end{aligned}$ |
| NA | GM 2B (30) | 4/5? |  | Beaker? | Imitation? <br> (brown <br> decoration) | Red | diam. 9 | 8.175 e |
| SI Cat. <br> No. 531 | GM 00A (1) 3 | 5 | Bld I, Rm F | ob | Burnish |  |  | $\begin{aligned} & 8.151 \mathrm{~g}, \\ & 13.5 \mathrm{n} \end{aligned}$ |
| SI Cat. <br> No. 245 | GM 1B TT2 | 5 ? | Bld I, Rm A? | Beaker | Dimpled | White | diam. 11 | $\begin{aligned} & \text { 8.1181, } \\ & 13.7 \mathrm{a} \end{aligned}$ |
| SI Cat. <br> No. 458 | GM 0B (8) 5 | 5 ? | Bld I, Rm A? | Bowl |  | White | diam. 11 | 8.117c |
| SI Cat. <br> No. 533 | GM 3B (3)? | Unknown |  | gb | lc | Red | diam. 8.5, hgt. 6 | 13.3p |
| SI Cat. <br> No. 245.1 | GM 1B TT3 (1) | 5 | Bld I, Rm A? | Beaker |  | White | diam. 22 | $\begin{aligned} & 8.118 \mathrm{n}, \\ & 13.7 \mathrm{~b} \end{aligned}$ |

TABLE 13.2. (continued)

| Box/SI <br> Cat. No. | Provenance | Phase | Architecture | Type | Subtype | Clay color | Size (cm) | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SI Cat. <br> No. 332 | GM 0B (7) 5 | 4-5? | Bld I? | ob | sb | White | diam. 18 | 13.5a |
| SI Cat. <br> No. 221 | GM 1B TT2 | 5 ? | Bld I, Rm A ? | gb | hc | White |  | $\begin{aligned} & 8.118 \mathrm{~b}, \\ & 13.4 \mathrm{a} \end{aligned}$ |
| SI Cat. <br> No. 217.3 | GM 1B (11) 2 | 5 | Bld I, Rm A | gb | mc | White |  | $\begin{aligned} & 8.115 \mathrm{k}, \\ & 13.3 \mathrm{~g} \end{aligned}$ |
| SI Cat. <br> No. 217.2 | GM 1B NBR P16 (3) | $5 ?$ | Bld I, Rm A? | gb | hc | White |  | $\begin{aligned} & \text { 8.118d, } \\ & 13.4 \mathrm{~b} \end{aligned}$ |
| SI Cat. <br> No. 245.2 | GM 1B F14 | 5 | Bld I, Rm A | Beaker | Dimpled | White |  | $\begin{aligned} & 8.115 \mathrm{q}, \\ & 13.7 \mathrm{n} \end{aligned}$ |
| SI Cat. <br> No. 217.1 | GM 1B (11) 2 | 5 | Bld I, Rm A | gb |  | Pink | hgt. 8.8, diam. 14 | $\begin{aligned} & \text { 8.1151, } \\ & 13.3 \mathrm{~d} \end{aligned}$ |
| SI Cat. <br> No. 217 | GM 1B (11) 2 | 5 | Bld I, Rm A | gb | IAA 71-335, <br> IMJ |  |  | $\begin{aligned} & 8.115 \mathrm{~m}, \\ & 13.3 \mathrm{f} \end{aligned}$ |
| SI Cat. <br> No. 612 | GM 3B P7 | Unknown |  | Beaker |  | White | diam. 13.6 | 13.7c |
| SI Cat. <br> No. 532 | GM 00A (1) 3 | 5 | Bld I, Rm F | gb | lc | White | diam. 14, hgt. 7 | $\begin{aligned} & 8.152 \mathrm{a}, \\ & 13.3 \mathrm{n} \end{aligned}$ |
| SI Cat. <br> No. 613 | GM 1B P16 | 3 ? |  | gb |  |  |  | 13.3a |

ridged, or incised rims has been studied (Gilboa, 1996:122-123, fig. 1; this type appears in Nimrud, Oates, 1959: pl. XXXV:12, also see Gilboa, 1996: fig. 3:1-9). These have both flat grooved bases and ring bases; they are made of a more metallic fabric but do not have the whitish-buff appearance. Several shapes of carinated globular bowls also appear at Dor (Gilboa, 1996:125, fig. 2:1-10). Basically, the Dor pottery is Assyrian-inspired rather than Assyrian-style pottery (also because of the fabric). Note that two imitations of Assyrian seals were also found at Dor (Ornan and Sass, 1992; Keel, 2010a: 462, Dor No. 3). At Tel Keisan, Assyrian-style or "Syriennes" pottery from Level 5 includes several carinated globular bowls (Briend and Humbert, 1980: pl. 37:11a-e), as well as several wide-necked bottles or beakers (but not dimpled; Briend and Humbert, 1980: pl. 37:7-10); high bottles (also termed Syrian by Briend and Humbert, 1980: pl. 36) may also be considered Assyrian types (see Gilboa, 1996).

At Samaria, Period VII, a more variable assemblage includes Assyrian-style globular bowls with ridges (Crowfoot et al., 1957:128, figs. 11:22, 32:3-5, many fragments in buff and reddish ware) and Assyrian-inspired elongated bottles (Samaria, Period I, Crowfoot et al., 1957, 288, fig. 163). At Tell el-Farah (N) (Chambon, 1984:69-71, pls. 61, 83) at least 11 carinated globular bowls were published from Levels VIIe-VIId (Chambon, 1984: pl. 61:1-11); most are of a reddish-pinkish fabric. Although several bottles were found as well (Chambon, 1984: pl. 61:12-16), these are not dimpled beakers; another conical goblet
(Chambon, 1984: pl. 61:17) may also belong to the Assyrian-style pottery (see Jemmeh [Petrie, 1928: pl. XLIX:13d] and Ruqeish [Amiran, 1969: photos 219, 221, although possibly of an Iron Age IIA-B date]). The contexts of most of the Assyrian-style pottery at Tell Farah (N) come from a large courtyard building in Levels VIId-VIIe (Chambon, 1984: Palace 148, fig. 19, Plans IV-V) that may show Neo-Assyrian characteristics in its plan as well. At Tell en-Nasbeh a ridged bowl with low carination was found (Wampler, 1947: pl. 54:1197). A possible fragment of a dimpled beaker was found at Tel 'Ira, Strata VII-VI (Freud, 1999: fig. 6.68:19); a complete elongated Assyrian-style bottle/ jar was also found at Stratum VI of the site (Freud, 1999:223, fig. 93:6). At Tel Dothan two globular bowls (one red slipped and burnished) and two to three beakers ("Assyrian burials," Master et al., 2005:112, fig. 10.59:3,5,10,11,17) of Assyrianstyle pottery were found. At Ramat Rachel two complete dimpled beakers were found (Aharoni, 1964: fig. 18:22,23, pl. 33:1). At 'Ein Gedi Assyrian-style vessels from Stratum V include a fragment of a carinated bowl and a dimpled body sherd of a beaker (Stern, 2007:130-131, photo 4.3.1). At Batash, Strata IIIII, Assyrian-inspired or Assyrian-style vessels include carinated bowls (Mazar and Panitz-Cohen, 2001:42-44, Types BL17a and BL22, pls. 14:6, 60:2), two open flat-based bowls (Mazar and Panitz-Cohen, 2001:52, Type BL21, pl. 60:1, although these have a black fabric with black slip and thus are related to Samarian bowls), and Assyrian-style wide-necked bottles (Mazar
and Panitz-Cohen, 2001:129, Type BT1, pl. 49:8,9). At Gezer Assyrian-inspired or Assyrian-style carinated bowls were found in Stratum VA (Gitin, 1990: pl. 27:19-21).

## Southern Levant: Philistia

In the southern Levant Assyrian-style pottery is usually found in relatively small quantities in various sites in levels dating to the late 8th and 7th centuries BCE (Bloom, 1988; Anastasio, 2010:25-27; Stern, In press). A somewhat larger distribution is of Assyrian-inspired pottery forms, which include mostly sharply carinated bowls and various bottle types that come from Philistia and southern Israel (see, e.g., Thareani-Sussely and Na'aman, 2006; see, e.g., Batash [Mazar and Panitz-Cohen, 2001:42-44], Ashdod, Strata IX-VI [Dothan and Ben-Shlomo, 2005:202, figs. 3.88:1,2, 3.98:1-4, 3.105:7-10], and Ashkelon, late 7th century BCE destruction level [Stager et al., 2011:78, figs. 5.19-5.20]). Proper Assyrian-style pottery was found in various quantities (usually small) in several sites in this region (i.e., Philistia, most prominently Tell Jemmeh and also at Tell el-Hesi and Tel Sera'; see also Thareani-Sussely and Na'aman, 2006). At the Ashkelon 7th BCE century destruction only a small quantity of Assyrian-style pottery was found, including several carinated globular bowls, two of eggshell thickness (Stager et al., 2011:119-120, figs. 8.9-8.12), and carrot-shaped bottles (Stager et al., 2011:121, figs. 8.14, 8.15). According to petrography, these vessels made of buff fabric were made in a location southeast of Ashkelon, possibly in the region of Tell Jemmeh.

In addition, a group of locally made red-slipped open bowls with grooved bases was also found at Ashkelon (Stager et al., 2011:76-77, figs. 5.14-5.16). At the Assyrian structure north of Tel Ashdod (Kogan-Zehavi, 2007) only a handful of Assyrianstyle pottery sherds were found (Kogan-Zehavi and Nahshoni, Israel Antiquities Authority, personal communication); it should be noted, however, that only a small portion of this structure has been excavated so far.

At Tell el-Hesi, about 30 km north of Jemmeh, over 50 Assyrian-style pottery sherds were found (Engström, 2004:70), mostly beakers and small carinated bowls. The fabric of these sherds was gray brown to orange red, differing from the wellknown whitish buff fabric of palace ware. As noted, a group of these sherds was analyzed by petrography, indicating a southern Levantine source (possibly in the region of Tell Jemmeh). At Tel Miqne at least several globular bowls (Gitin, 1998:164, fig. 3:10,13,14, the latter two red slipped), two Assyrian-inspired goblets (Gitin, 1998: fig. 3.11,12), and Assyrian-style bottles (Gitin, 1998: fig. 4:9,13) were found.

## Southern Levant: The Negev

In the Negev at 'Aroer, Stratum IIb-a, several globular bowls defined as palace ware imitations were found (Biran and Cohen, 1981: fig. 15.12-20; Thareani-Sussely and Na'aman, 2006:6971, figs. 3:2,3, 4:1-3; Thareani, 2011:129, Types BL3, BL29, fig. 3.19, pls. 107:2, 108:1, 172:1, 176:4) as well as a glazed decorated bottle (Barag, 2011) and beakers (Thareani-Sussely and

Na'aman, 2006: fig. 4:4; Thareani, 2011:147, fig. 3.66). Some of these vessels were analyzed by petrography (Iserlis and Thareani, 2011) and were found to be made of either local loess-type clay or terra rossa soil clay (indicating a Shephelah origin). However, an Assyrian(?) decorated bottle (Thareani, 2011: pl. 127:5) is apparently imported and made of unprovenanced micaceous clay (Iserlis and Thareani, 2011: sample no. 20).

Fluted bowls (such as at 'Aroer, Biran and Cohen, 1981: fig. 15.13, made of buff clay; see also Stern, In press: pl. 14.4:12-16) or bowls with petaled decoration (such as examples from Sa maria, Tell Kheleifeh, and Tel Rekhesh) are often considered to be Assyrian style, imitating metal vessels, but may have Phoenician origins as well (see, e.g., Hestrin and Stern, 1973; Alexandre, 2002).

At Beer-Sheba, Stratum II, vessels with Assyrian characteristics include carinated bowls, globular bowls, and conical ridged bowls (Aharoni, 1973: pl. 41:1; Singer-Avitz, 1999:30-34, figs. 9:1-10,20-22; see also Singer-Avitz, 2004: fig. 1:1) as well as globular bottles (Singer-Avitz, 1999: fig. 10:28-32). The vessels that were analyzed by petrography indicate Levantine production with several sources (loess- and terra rossa-type clays are noted). At Arad, Strata X-VIII (Singer-Avitz, 2002:124, 192), Assyrianstyle pottery includes globular carinated bowls (Singer-Avitz, 2002:130, fig. 10:B15, possibly fig. 11:B29-B39), open bowls with ridges and a grooved, flat base (Singer-Avitz, 2002:130, figs. 10: B13, 43:7,8), and a wide-necked bottle (Singer-Avitz, 2002:156, fig. 41:10).

At Kadesh Barnea, Strata 3-2, several sherds are possibly from Assyrian-style globular bowls (Cohen and BernickGreenberg, 2007:159, Type BL19, pls. 11.48, 11.67:6,7, 11.73:103, the latter with fluted/petaled relief decoration, also pls. 11.98:8, 11.125:17-20, also possibly pl. 11.122:1); these bowls usually have a red fabric with gray core and are not well levigated.

A relatively large group of Assyrian-style globular bowls appears at Tell Kheleifeh (Glueck, 1967:35, fig. 4:2; Pratico, 1993: pls. 26:7-18, 27:1-11, also pl. 28:1-9 are inspired by this type). At the Edomite shrine of Horvat Qitmit, a relatively large number of globular carinated bowls resembling Assyrian-style pottery were published (at least 12 examples from the plates, Freud and Beit-Arieh, 1995:211, figs. 4.1:33,36-40, 4.5:3,4, 4.6:1,2, 4.18:3); some were mentioned as being made of fine, thin-walled clay of buff color.

## Southern Levant: Jordan

In Jordan several sites, mostly those associated with the Edomite, yielded some Assyrian-style pottery. At Busayra globular carinated bowls and bottles (see Bennet, 1974: figs. 15:2, 16:6; possibly Bennet, 1975: fig. 6:17,18, in buff ware; Bienkowski, 2002: figs. 6.9:20-22, 9.23:10-18, 9.26:13,17-19, 20,21 [as beakers], figs. 9.24, 9.26:14,17,22, 9.28, 9.29, 9.30 [with Edomite decoration]), as well as open bowls with thick, flat bases and also with examples on tripods (Bienkowski, 2002: fig. 9.5:8, 9.18:7-9), may reflect Assyrian-style pottery. Note that Assyrian-style architecture was also evidenced at this site
(Bennet, 1975:6, fig. 4; Reich, 1992; Bienkowski, 2002:479). At Tawilan, Levels II-III, globular carinated and fluted bowls were found (Bennet, 1984: fig. 3:872,841,803,885,860, note most of these are decorated with horizontal black lines). On the relationships between Edomite and Assyrian pottery forms, see ThareaniSussely and Na'aman (2006) and Singer-Avitz (1999:33, 2007).

Assyrian-style or Assyrian-inspired pottery may have also been found at Jawa (Daviau, 1997:26-27), Amman (tomb of Adoni Nur, Harding Lankester, 1953), and Sahab and Tell el Mazar (see Anastasio, 2010:27). At Cemetery A of Tell Mazar, dated to the late Iron Age and Persian period (Yassine, 1984), several Assyrian-style globular bowls and beakers were found (Yassine, 1984:66-69, figs. 3:3,6,7, 7:3-5) as well as widenecked bottles (Yassine, 1984: fig. 5) and metallic globular/ carinated bowls (Yassine, 1984: fig. 7:1,2). Globular carinated bowls were also found in a tomb at Mount Nebo (Saller, 1966:268, fig. 31:13). For other elements of material culture in Palestine and Transjordan related to the Neo-Assyrians such as seals, sealings, burials, and epigraphic evidence, see, e.g., Bloom (1988:190-283).

It should be noted that several types of Edomite bowls have a form similar to the carinated globular Assyrian-style bowls (e.g., Bennet, 1975: fig. 5:9,13,18; Bienkowski, 2002: figs. 9.249.30; Mazar, 1985:261, figs. 6:1-3; Singer-Avitz, 2004, 2007; Thareani-Sussely and Na'aman, 2006; Cohen and BernickGreenberg, 2007: pls. 11.79:5-7, 11.125:22,24; Thareani, 2011: figs. 3, 5:6); this phenomenon is especially noticeable at the site of Busayra (see above). Although the surface treatment of the Edomite pottery is different (white and black decoration over red slip), there probably was a substantial Assyrian influence on Edomite pottery, whereas Assyrian-style pottery in southern Israel may have been influenced from Edomite pottery as well.

## DISCUSSION

The issue of Assyrian-style pottery in the Levant along with the issue of the Assyrian presence and influence in this area during the late Iron Age is clearly not a simple one. One of the problems is distinguishing between various forms of local pottery that may resemble Assyrian forms by chance or because of influence and those of actual Assyrian style. The resemblances between the Edomite pottery form and Assyrian-style ones, for example, complicates this issue even further. Although the Assyrian-style pottery has been dealt with in the past (e.g., Bloom, 1988:149-178; Gilboa, 1996; Engström, 2004; Thareani-Sussely and Na’aman, 2006; Hunt, 2009, 2010, 2012a, 2012b), until recently, there has been no clear definition of this pottery, and various terms, such as palace ware, Assyrian-style pottery, Assyrian pottery, palace ware imitation, and Assyrian-influenced or Assyrian-inspired pottery, have been used in various cases.

Basically, pottery related to Neo-Assyrian pottery in the Levant could have various levels of relationships with the pottery from Assyria proper.

1. Assyrian-inspired pottery is produced by Levantine local potters and shows certain similarities to Assyrian pottery or is
influenced by it, mostly in its morphology. This pottery is more widespread in northern and southern Levantine sites during the 8th and 7th centuries BCE. The local potters may have been influenced by the Assyrian pottery, possibly after seeing some original pieces and/or because of demand for similarly styled pottery. The forms produced are sometimes hybrid, combining local and Assyrian characteristics. This pottery includes mostly sharply carinated bowls, globular carinated bowls, wide-necked bottles and other bottle shapes (see, e.g., Gilboa, 1996; for Batash, see Mazar and Panitz-Cohen, 2001:41-44, 158,162, where this type rises from $1 \%$ in Stratum III to $6 \%$ in Stratum II as a percentage of all the pottery).
2. Assyrian-style pottery is produced locally by local potters and is bearing a stronger resemblance to Assyrian palace ware and can also be denoted palace ware imitation (of various degrees of quality). This is due to both the form of the vessels (the use of sharp ridges, the method of production, highly thin walls, and decorated by denting) and the fabric of the vessels (often greenish, whitish buff, or pinkish, attesting to a well-levigated clay of special selection and possibly special firing techniques). This pottery has a much more limited appearance and is probably limited to sites with stronger Assyrian influence such as Tell Jemmeh, Tell el-Hesi, Tell Farah (N), 'Aroer, and Busayra, although it appears in smaller quantities in other regional sites as well. The forms appearing include mostly globular, sharply carinated bowls with ridges and thin walls, open bowls with grooved flat bases, and beakers.
3. Another possibility is pottery produced locally (as in category 2) but by Assyrian potters that highly resembles or is identical to Assyrian palace ware.
4. Palace ware pottery could have been imported from Assyria proper or from various Assyrian provincial centers in neighboring Assyria.

It should be noted, however, that there is no archaeological way to distinguish between categories 2 and 3 , which differ only by the ethnicity of the potters, and thus, this distinction is hypothetical. Therefore, there is no way to determine, so far, whether the Assyrian-style pottery at Tell Jemmeh, or elsewhere in the Levant, was produced by potters brought from Assyria or by the same local potters producing other types of pottery.

There is also no direct evidence for the employment of Assyrian potters in the Neo-Assyrian Empire provinces, even though potters of various nationalities, who were deportees away from their homeland, are mentioned in Assyrian texts. Thus, for example, one text deals with providing deported carpenters and potters from Samaria with work in Dur Sharrukin (Fuchs and Parpola, 2001:176-177, no. 280). Although producing this pottery requires a high degree of skill and possibly special clay mixing, any expert potter could learn to make such pottery within a few years if there was a demand for it. It is likely, however, that if this pottery was made by local potters, they had access to at least a few imported examples to copy from.

Clearly, Tell Jemmeh was a major center of production of Assyrian-style pottery for a short period during the late 8th and early 7th centuries BCE. This is evident from both the distribution of this pottery and petrographic analysis. This pottery was
probably exported from Jemmeh to other sites in the southern Levant. As a copy of the luxurious imperial Assyrian palace ware made of precious metals, these vessels probably carried a certain prestige more for the local elites, rather than appealing to any Neo-Assyrian administrators that happened to be around.

Although the Neo-Assyrian Empire may have brought significant changes to the Levant during the 8th-7th centuries BCE (see, e.g. Bloom, 1988; Stern, 2001, 2003; see chapter 34), all in all, actual imitations of Assyrian palace ware and other Assyrian elements of material culture were not very common or widespread in the Levant (see Thareani-Sussely and Na'aman, 2006). Moreover, Neo-Assyrian influences were also stronger in the 7th century BCE and are less evident in the 8th century BCE. It should be noted that the distribution pattern of Assyrian-style pottery in the Levant does not fit a "down-the-line" trade pattern from the Mesopotamian centers; it is rather more concentrated in a few sites near the southern coastal plains and in other administrative sites with fewer examples in northern Israel. In the northern Levant (such as at Qasrij and Tille Höyük; see above), secondary late Assyrian centers illustrate this pottery, but it could have been locally produced there as well. On the one hand, the

Assyrian-style pottery may be another case of "pots and people," thus identifying an actual Assyrian presence in the Levant, at least at Tell Jemmeh where this pottery was also found in large quantities and in a structure reflecting Neo-Assyrian architectural tradition. On the other hand, this pottery may have also had other meanings and functions, possibly as a local status symbol.

## AUTHOR NOTE

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## NOTES

1. I thank Ephraim Stern for making this as yet unpublished manuscript available to me.
2. I thank Bill Melson of the National Museum of Natural History for allowing us to consult his studies on the Tell Jemmeh Assyrian-style pottery.

# "East Greek" and Greek Imported Pottery of the First Millennium BCE 

 S. Rebecca Martin
## INTRODUCTION

The catalog that follows presents 396 fragments and complete vessels of East Greek and Greek manufacture imported to Tell Jemmeh from the 7th-2nd centuries BCE. Nearly all of these came from Field IV. The majority are either fine wares for drinking, eating, and storing perfume or lamps. The catalog that follows is not exhaustive. Body sherds, especially those from open Attic vessels whose precise forms could not be identified, were omitted. (The frequency of such small sherds results in part from the excavation's "total retrieval" saving practices [Van Beek, 1989a]; pottery identified or suspected as being imported was separated in the field and stored separately.) These imports were not found generally in good contexts, limiting their ability to clarify the archaeological interpretation. As is so often the case in the Persian era, at least, the imports best date themselves, not the stratigraphy. No attempt was made to refine the dates of the Attic pots (namely, to down-date them). The Agora volumes were used to establish types and to suggest date ranges; their relative chronology remains good. What follows focuses on what the assemblage can do: point to trade networks, establish dates of occupation, and shed light on everyday activity.

The general chronology of the assemblage can be commented upon at the outset. In the 7th-6th century Jemmeh imported a handful of East Greek oinochoai and over 40 so-called Ionian cups. By comparison, Ashkelon has yielded a far larger number of fragments: 239 from oinochoai (and jugs), 845 from Ionian cups, and 187 from transport amphorae, as well as a variety of other closed and open informs, including, significantly, 185 from cooking pots datable to the 7 th century (Waldbaum, 2011:127, n. 2, 130, tables 10.2, 10.4; see pp. 135-138 on the occurrence and meaning of cooking pots in the southern Levant). Jemmeh imports suggest that the major trading activity at the site was Persian, especially in the 5th century. At this time the site imported the later so-called East Greek products, closed table vessels, banded bowls, and the contents of a very few transport amphorae, and Attic table wares (Table 14.1).

Although several of the East Greek vessels may date to the early 6th century BCE, none of them must do so. The site seems to lack Corinthian imports (although see Cat. No. 397); the kotyle and aryballos in the Rockefeller collection identified by Clairmont (1955:101) as Corinthian may, in fact, be Attic according to Waldbaum (2011:144). No contemporary Attic fragments were found.

TABLE 14.1. Basic distribution of imports arranged according to fabric group.

| Fabric | Field I | Field II | Field III | GM $^{\mathrm{a}}$ | Date range (century BCE) |
| :--- | :---: | :---: | :---: | :---: | :--- |
| East Greek | $<1 \%$ | $<1 \%$ | $0 \%$ | $>98 \%$ | 7th-6th |
| Attic | $1 \%$ | $4 \%$ | $2 \%$ | $93 \%$ | Late 6th?-2nd? |
| Other | $0 \%$ | $0 \%$ | $0 \%$ | $100 \%$ | 5th-2nd |

[^4]TABLE 14.2. Basic typology of the Attic imports according to technique. Total retrieval accounts for the collection of some small fragments, but as a general rule, imported fine wares in occupational debris are very small sherds, particularly when they are in secondary or tertiary deposition. An exhaustive catalog is neither possible nor desirable. Included here are the most legible and particular fragments to give the reader concrete evidence of what data inform the general discussion. Specific type, iconography, attribution, and date are provided when reasonably secure. A dash (-) indicates the characteristic is not present.

| Shape | Black figure | Red figure | Black glaze | Over-painted | Total |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Skyphos, Type A | - | 7 (likely Type A) | 21 | - | 28 |
| Skyphos, Type B | - | 1 | - | - | 1 |
| Skyphos, Corinthian Type | - | - | 1 | - | 1 |
| Cup-skyphos | - | - | 5 | - | 5 |
| Stemless cup | - | - | 14 | - | 14 |
| Stemmed cup | - | - | 19 | - | 19 |
| Cup of uncertain type | 5 | - | 10 | - | 15 |
| Bolsal | - | - | 3 | - | 3 |
| Kantharos/cup-kantharos | - | 1 | 2 | 2 | 5 |
| Phiale | - | - | 1 | - | 1 |
| Krater | - | 2 | 2 | - | 4 |
| Bowl with incurved rim | - | - | 8 | - | 8 |
| Bowl with outturned rim | - | - | 5 | - | 5 |
| Convex- concave bowl | - | - | 1 | - | 1 |
| Small bowl | - | - | 4 | - | 4 |
| Bowl of uncertain type | - | - | 7 | - | 7 |
| One-handler | - | - | 1 | - | 1 |
| Plate | - | - | 1 | - | 1 |
| Fish plate | - | - | 3 | - | 3 |
| Dish, stemmed | - | - | 2 | - | 2 |
| Lekythos | 30 | 2 | 20 | - | 52 |
| Perfume pot | - | - | 1 ? | - | 1 ? |
| Feeder | - | - | 1 ? | - | 1 ? |
| Lamp | - | - | 12 | - | 12 |
| Open | 4 | - | 20 | 2 | 26 |
| Closed | 2 | - | 3 | - | 5 |
| Total | 41 | 13 | 167 | 4 | 225 |

Neither fact is surprising in the southern Levant (see Waldbaum and Magness, 1997; Stewart and Martin, 2005). A very few of the Attic imports may date to the end of the 6th century. Regardless, the imports cannot be used to establish continuous occupation from the 7 th-early 6 th centuries BCE into the Persian era. If the imports correctly signal a break in occupation at Jemmeh, one familiar from so many tell sites, the best evidence of reoccupation comes from the tight chronology offered by Attic imports (Table 14.2). The paucity of painted and securely datable pottery makes this task difficult but not impossible. There are examples of Archaic black figure of the Haimonian type as well as forms that date to ca. 500 BCE or the two decades thereafter (see Martin, 2007, especially no. 134; Stewart and Martin, 2005:83).

The great majority of dateable pots come from the 5th century BCE, generally. That only a few fragments may be assigned to the end of the 5th century BCE suggests that trade was less frequent then. There are 4th and 3rd century BCE types in the
assemblage, rouletting on open forms, lamps, and fish plates, but the quantities are considerably reduced (see Agora 12:30-31 [rouletting], 147-148 [fish plate]). It is not unusual to see a sharp decline in Attic imports by the end of the 4th to early 3rd century BCE, but Jemmeh drops off earlier (compare, for example, Tel Dor: Stewart and Martin, 2005, especially pp. 90-91). Moreover, the assemblage lacks much (or, in some cases, any) representation of ubiquitous 4th century BCE and Hellenistic types such as the bowl with an incurved rim (fewer than 20 examples), stamped amphora handles (none), eastern terra sigillata (none), and so-called Megarian bowls (none) and West Slope pottery (one). The very limited quantities of this material suggest that trade activity at Jemmeh was intermittent by the 4th or even later 5 th century BCE and minimal from the later 4th century BCE. It should be pointed out that this general picture does not fit W. M. F. Petrie's discussion of Jemmeh's Persian period stratigraphy (or Stern's reevaluation of it; Petrie, 1928; Stern, 1982).

## EAST GREEK POTTERY

Early East Greek pottery is rare in the southern Levant. Fewer than 10 sites have certainly produced imports dating to the early 7th century BCE (Waldbaum, 1994; Waldbaum and Magness, 1997; Waldbaum, 2002a, 2002b; Martin, 2007, especially pp. 125-129; Waldbaum, 2011). The bird bowls from Ashkelon (and probably other sites as well) date to the later 7th century BCE (Waldbaum, 2011:152). Most early East Greek is concentrated in the last quarter of the 7 th to early 6 th centuries BCE. Its distribution is relatively wide, and the range of types expands beyond that of any other class of early Greek imports to include lamps; so-called Ionian cups; Wild Goat style vessels, particularly oinochoai (see Jones, 1986:664-667, 670); chytrai (at Meşad Hashavyahu, Tel Batash, Ashkelon, and Kabri); and transport amphorae originating possibly from Miletus and Samos (at Ashkelon, Batash, Dor, Kabri, and Meşad Hashavyahu) and Chios (at Ashkelon and Dor) and maybe one or two examples from Lesbos (at Meşad Hashavyahu). Very few sites have produced Geometric, Corinthian, and East Greek pottery. Only Tel Dor certainly has all three, albeit in exiguous quantities (for Miqne, see Gitin, 1989). With over 1,500 cataloged fragments Ashkelon has yielded the largest number of 7th century BCE imports (Waldbaum, 2011).

The earliest of these imports found at Tell Jemmeh falls into the East Greek category, including 6 fragments of Wild Goat/

Fikellura oinochoai (Cat. Nos. 1-6) and 41 of Ionian cups (Cat. Nos. 7-47, Figure 14.1). To the latter group we might add a few of the cups that could not be typed with certainty (Cat. Nos. 48-58). The small number of Wild Goat fragments represents at least three vessels (Cat. Nos. 2, 4, 5). Each of these appears to belong to Robert M. Cook's Middle II period according to decorative schemes (Cook, 1962; Cook and Dupont, 1998:39-45; Wild Goat forms and decorative programs have recently been reevaluated by Kerschner and Schlotzhauer, 2005). One shows a sphinx in profile within a field of geometric motifs (Cat. No. 2) that can be assigned to Kerschner and Schlotzhauer's South Ionian Archaic Id (= SiA Id, 610-580/570 BCE; for the date, see Kerschner and Schlotzhauer, 2005:8). The other two preserve vegetal (lotus, rosette) and geometric motifs (Cat. Nos. 4, 5) also at home in the South Ionian MWGII repertoire. Catalog No. 4's (Figure 14.1c) rosette and lotus are sufficiently legible to assign the vessel with some confidence to SiA Ic (630-610 BCE). One strap handle may belong to SiA Ia-b (Cat. No. 1), which would place it early in the assemblage ( $670-650 \mathrm{BCE}$ ), although it is more likely to date later, to SiA Ic-d (i.e., after 630 BCE; cf. Waldbaum, 2011:271, no. 380). The small assemblage then falls within an absolute maximum range of 670-570 BCE, although $630-570$ BCE is probably more accurate, suggesting rather irregular trade.

The number of Ionian cup fragments, or Knickrandschalen fragments, as Schlotzhauer would have them described, is


FIGURE 14.1. East Greek imports and Ionian bowls.
impressive (Cat. Nos. 7-47), but the small size of the pieces makes approximating a total number of vessels impossible (see Schlotzhauer, 2000, 2001; Waldbaum, 2011:160-230, which were not, unfortunately, available at the time of study; cf. Schlotzhauer, 2006). The bulk of the cataloged fragments are portions of the characteristically offset rim, although there are also handles and feet identifiable because of their form and micaceous fabric. Clays are otherwise varied in terms of color (e.g., Munsell 7.5YR light brown) and represent several as yet unidentified production sites. Decoration is primarily in red and matte black brown (e.g., 2.5 YR $5 / 8$ red). Measurable rims average around 18 cm . Few feet were identified clearly. Some of the ring feet attributed to banded bowls might belong instead to these cups. Although their characteristics are clear, there is remarkable variety in Jemmeh's Ionian cups in terms of fabrics (gray, brown, red; small to very large mica inclusions), scale, weight, and decorative schemes (compare to Ashkelon: Waldbaum, 2011:160230). Several favor a more reserved body scheme (such as Cat. No. 10, Figure 14.1g). A few are quite large and heavy (such as Cat. No. 30).

Jemmeh's Persian era pottery commonly called East Greek is composed of two main groups: bowls with characteristic bands inside and out and a variety of closed table shapes (oinochoe, table amphora, and jug). The unsatisfactory name given to these vessels stems from the assumption that they were produced in East Greece in direct succession to the Iron Age pots described above. East Greek closed types have limited overlap with the contemporary Attic assemblage (e.g., askoi, although Jemmeh lacks them) and may sometimes offer a more complete fine table service. It is worth noting how their readily available counterparts in the Attic repertoire are almost ignored.

According to limited evidence, the closed shapes and banded bowls may appear in the southern Levant as early as the 6th century BCE (summarized by Mook and Coulson, 1995:95). The closed shapes do not penetrate beyond the mid-5th century BCE in any quantity (Risser and Blakely, 1989:71). Most published banded bowls date to 5th century BCE contexts, mainly in the latter half (Johns, 1933; Elgavish, 1968; Porath, 1974; Marchese, 1989:146-147, fig. 10.1.7). At Tel Mevorakh banded bowls were found in 4th century BCE contexts (Stern, 1978:41). The plentiful banded bowls from Apollonia are found in both Persian strata (late 6th to mid-4th centuries BCE) but are more common in Apollonia's Stratum 2 (that is, down to ca. 445 BCE; Roll and Tal, 1999:107-108, 132, 164, figs.15:1-2, 29:1-3, 4.45:1-4). Likewise, at Tel Dor they are found throughout the Persian period, although they concentrate, as do other East Greek imports, in the 5th century BCE. Unlike their presumed East Greek predecessors, the banded bowls at least are concentrated in the Levant, particularly in northern Syria (Lehmann, 2000, especially p. 100 and figs. 2-6). Their distribution lends some support to the idea that they are products of various eastern centers (Mook and Coulson, 1995:94, n. 4, which deals with the supposed imitations of these bowls in Cyprus). Banded bowls and their variations are extremely rare in Greece (Agora 12:357, see no. 1721 from the last quarter of the 5th century BCE; their resemblance to some decorated Attic one-handlers has been
noted by Roll and Tal, 1999:107). Their diameters (up to 24 cm , according to Mook and Coulson, 1995:93) and sturdy ring base suggest they were used for individual dining and serving.

Jemmeh produced 32 fragments of banded bowls (Cat. Nos. 59-88, Figure 14.2), a number which may approach that of whole vessels thanks to the type's characteristic (and therefore easily comparable) band schemes. Clays are fine and often micaceous, with colors ranging from red to light gray (sample Munsell readings: 2.5 YR $6 / 6$ very light red; 10YR $5 / 3$ brown; 5 YR $6 / 6$ reddish yellow). Decoration includes bands, especially in red and brown (5YR 4/2-4/6; 7.5YR 4/2 dark brown; 5YR 3/1 very dark gray). The measurable rims had an average diameter of 20 cm . The few "open" and "open decorated" vessels (Cat. Nos. 89-99) are considered East Greek because of their generally micaceous clay. When decorated, they use the same palette as the banded bowls. Many of these may also be bowls.

The closed vessels assigned to this group are characterized by the same fine micaceous clay and streaked glaze of the banded bowls (5YR $6 / 6$ reddish yellow; 7.5YR 7/4 tan; 10YR $7 / 4$ very pale brown). At Jemmeh are nearly 20 fragments of typical table vessels: oinochoe, table amphora, or jug (Cat. Nos. 99-116, Figure 14.3a-j). Distinguishing between these forms is very often impossible (when dealing with their ring bases) or difficult (when considering small rim pieces). All preserved walls are fairly vertical, which eliminates the biconical shape of the amphoriskos or the more ovoid shape of the askos. There are many fragments of closed decorated vessels (Cat. Nos. 117-133, Figure $14.3 \mathrm{k}-\mathrm{r}$ ), which are cataloged to emphasize the range of decorative schemes.

By comparison, Tel Michal has only around nine closed vessels of East Greek and Cypriot manufacture, including several jugs, table amphorae, and an askos. Five are from Michal's Stratum XI (dated by excavators to ca. $525-490 \mathrm{BCE}$; one is even earlier) and seem to be the earliest imports from the site. The rest are apparently redeposited in Strata VII-VI (ca. 400-300 BCE; see Marchese, 1989:145-147, fig. 10.1). Apollonia's Area H, Stratum Persian 2 (late 6th century to ca. 445 BCE) has seven closed vessels, all jugs and table amphorae, in addition to several unidentifiable body fragments. Stratum Persian 1 (ca. 445-335 BCE) has three East Greek closed body sherds and one example of Cypriot White Painted ware (V or VI); clearly most or all of these are in redeposition. The refuse pit from Apollonia's Area D produced only one possible East Greek jug and six fragments of decorated closed vessels, of which three are Cypriot White Painted ware (V or VI; see Roll and Tal, 1999:107, 133, 161: table 4.9, 164, 165, figs. 4.16:9, 4.29:9-12, 4.45:9, 4.46:1-6). The published areas of Tel Dor have produced around 50 closed East Greek vessels, including amphoriskoi, trefoil-mouth oinochoai, and small pouring jugs.

Rounding out the East Greek assemblage are 11 fragments of transport amphorae (Cat. Nos. 134-144, Figure 14.4). These were very difficult to type owing to their fragmentary state. Only the distinctive Chian types with a bulbous neck could be identified securely; the type is common. The range of fabrics is wide (red to brown), and most are micaceous (sample Munsell readings: 2.5 YR $6 / 6$ light red; 5 YR $6 / 6$ reddish yellow; 7.5YR


FIGURE 14.2. East Greek imports: banded bowls.


FIGURE 14.3. East Greek imports: decorated vessels.


FIGURE 14.4. East Greek amphorae.
$6 / 6$ reddish yellow). Petrographic analysis of four fragments (including a clear Chian type, Cat. No. 168) was inconclusive (see chapter 15). Decoration includes brown, red, and black stripes, especially on the handles (sample Munsell readings: 2.5 YR $5 / 8$ red; 5YR $6 / 5$ light reddish brown; 5YR $6 / 6$ reddish yellow). One Chian rim fragment (Figure 14.4 g , Cat. No. 141) preserves a decorative scheme that might have an early date (end of 6th century BCE?). The almost total lack of body sherds in the collection suggests that some of these fragments remain with the context pottery. Regardless, the total number of vessels was certainly small. There is vigorous debate about the meaning of early imports, particularly whether they are sufficient evidence of direct trade between the Levant and Greece or whether they sometimes attest to the existence of Greek settlements, mercenaries, or other settlers (especially in the north). At both Al Mina and Tell Sukas, early Greek imported pottery has provided the basis for the argument of Greek settlement; both interpretations are highly problematic considering the extent of excavation, the methods used to quantify and record finds, and the methods used to determine settlement versus trade (that is, the relative importance of imported ceramics versus other evidence from the site; see, recently, Lund, 1986; Boardman, 2002; Luke, 2003; on the relative importance of pottery as an ethnic indicator, see Papadopoulos, 1997; Waldbaum, 1997, 2002a, 2002b, 2011). In the southern Levant, later 7th century BCE Meşad Hashavyahu may provide the only legitimate case of Greek settlement, although the precise character of the settlement (mercenary or mercantile) is disputed (Naveh, 1962a, 1962b; Reich, 1989; Fantalkin, 2001; Waldbaum, 2002b, 2011). At this time, the prospect of regular direct trade between the southern Levant and Greece in the 7 th-6th centuries BCE seems unlikely owing to the very limited quantities of imports spread out over time and space. Rather, the pottery can be seen as a secondary commodity (as a small part of, for example, the trade in timber) or could perhaps be indicative of a more personal level of exchange (Waldbaum, 2002a:61; Gilboa, 1989:217; but see Papadopoulos, 1997:200).

Jemmeh contributes to this discussion because we can be fairly certain that all relevant pottery from excavated areas was indeed kept for analysis. The site's East Greek imports offer evidence of irregular trading activity but cannot comment otherwise on the manner of exchange or extent of contact. Trade
began in the 7th century BCE (Wild Goat oinochoai) with a gap starting no later than the first quarter of the 6th century BCE. Trade resumes probably no earlier than the 5th century BCE with banded bowls, closed table vessels, and a handful of transport amphorae. Although the stream of imports was certainly only occasional, we should note the continuity in preferred function: drinking vessels dominate, from cups to table vessels used in wine drinking, with a preponderance of the former. As will be seen, this general trend continues into the Attic assemblage.

## ATTIC POTTERY

Sometime in the first quarter of the 5th century BCE, Greek imports become a regular trade item at Jemmeh. This fact is most clearly signaled by the Attic imports (sample Munsell readings: 7.5YR $5 / 4$ brown to 7.5 YR $7 / 4$ pink) thanks to our superior understanding of their chronology in comparison to the later East Greek banded bowls and closed table wares. At several coastal sites in the southern Levant, Attic imports appear to mark the return of large-scale occupation (although not necessarily urban activity) after a gap of a century or more (see Shalev and Martin, 2012; see also Waldbaum, 2003, for a comparison of the imports to Dor, Tell el-Hesi, and Mikhmoret). So the presence of these imports is significant. They certainly signal trade and conspicuous consumption. The extent to which they point also to conscious emulation of or direct contact with Greeks is altogether unclear. The small numbers of painted fragments at Jemmeh make discussion of painters and iconographic themes all but impossible. What follows emphasizes type and chronology arranged according to technique: black figure, red figure, black glaze, and, finally, black glaze with overpainting.

Only a limited number of black-figure fragments were identified, 41 in all: 5 cups (Cat. Nos. 145-149) to which should probably be added the 4 open shapes (Cat. Nos. 150-153), 30 lekythoi (Cat. Nos. 154-183), and two closed forms (Cat. Nos. 184-185). Among the earliest datable vessels are the Haimonian cups (Cat. Nos. 145, 147, 148, and the open shape, Cat. No. 152), which may be as early as 480 BCE. Catalog No. 146 also looks early according to its fabric and decoration, but little more can be said. None of the scenes are legible, but two (Cat. Nos. 147, 153) may


FIGURE 14.5. Attic ware.
show human figures. Figure 14.5a (Cat. No. 147) may be attributable to the Painter of Elaios I according to the use of purple and refined painting of the accompanying vine. Although this identification is provisional, cups by the Painter of Elaios I have been identified elsewhere (at Tel Dor: Stewart and Martin, 2005: figs. 2:8, 3; an unpublished example from Dor Area D5).

The relatively high number of lekythos fragments is very interesting. Seventeen come from pattern lekythoi, which are, by reputation more than hard evidence, popular at inland sites (see Shefton, 2000). These are decorated with a wide repertoire of vegetal and geometric motifs, including rosettes, palmettes, ivy, net pattern, and bands. Pattern lekythoi are dated to the 5th century BCE. As the only datable vessels among the lekythoi, they may appear to skew the chronology of the Attic assemblage. It is clear, however, that Jemmeh's Attic assemblage is concentrated in the 5th century BCE. Of the dateable Attic fragments, around 75 were made in the 5 th century BCE (approximately 13 in the first quarter, 11 in the middle quarters, 3 in the last quarter, and 48 generally 5 th century BCE), whereas 22 were made in the 4th century BCE or later; if the lamps are excluded, the latter number drops to 15 . Other black-figure lekythos fragments show the usual motifs: palmettes (when on the shoulder, as in Cat. No. 176, maybe from red-figure vessels), rays, running dog pattern,
and black bands. At least one vessel had a human figure (Cat. No. 175, possibly also Cat. No. 177, Figure 14.5k,l). Two closed fragments could not be typed: one is decorated with net pattern and is generally round or ovoid (Cat. No. 184, Figure 14.6a). The other has an incision that resembles hair (Cat. No. 185, Figure 14.6b).

Jemmeh produced still fewer fragments of red figure, totaling only 13: 8 skyphoi (Cat. Nos. 186-193), 1 kantharos (Cat. No. 194), 2 kraters (Cat. Nos. 195-196), and 2 lekythoi (Cat. Nos. 197-198, Figure $14.6 \mathrm{k}, \mathrm{l}$ ). Three are dateable to the 5 th century BCE according to class or style. None appear to be Archaic. The Type B glaux (Cat. No. 186) belongs to the middle quarters of the century, making it the earliest-and only-securely datable piece (Agora 12:86-87; Agora 30:63-64 with extensive references; Johnson, 1955). A small scrap of drapery preserved from a Type A skyphos (Cat. No. 187, Figure 14.6c) belongs to the early or high Classical, as does the filleted female from a cylinder lekythos (Cat. No. 198, Figure 14.61). The white-ground kantharos (Cat. No. 194, Figure 14.6 h) may date to the 4th century BCE.

The number of black glaze is much more robust, with 167 diagnostic fragments: 22 skyphoi (Cat. Nos. 199-220), 48 cups of various classes (Cat. Nos. 221-268), 3 bolsals (Cat. Nos. 269-271), 2 kantharoi (Cat. Nos. 272-273), 1 phiale (Cat. No. 274), merely 2 kraters (Cat. Nos. 275-276), 25 bowls (Cat. Nos.


FIGURE 14.6. Attic ware.

277-301), 1 one-handler (Cat. No. 302), 4 plates (Cat. Nos. 303-306), 2 dishes (Cat. Nos. 307-308), 20 open forms (many of which are decorated, Cat. Nos. 309-328), 20 lekythoi (Cat. Nos. 329-348), possibly 1 perfume pot (Cat. No. 349), 1 spout that may belong to a so-called feeder (Cat. No. 350), 12 lamps (Cat. Nos. 351-362), and 3 closed forms of uncertain type (Cat. Nos. 363-365). The total number of vessels here is impossible to ascertain; some pieces certainly may belong to painted or overpainted pots. Nearly all of the skyphoi are Type A and belong to the 5 th century BCE according to their plain rim, vertical and gently sloping wall, and torus ring foot. Exceptions include an outturned rim of a possibly 4th century BCE skyphos (Cat. No. 203), an uncommon Corinthian-type skyphos (Cat. No. 204; see Agora 30:64-65), and one torus ring foot belonging to a skyphos of uncertain type (Cat. No. 219).

The cups are plentiful and varied. There are 14 stemless fragments in total. In the Athenian Agora they are very popular after 480 BCE through the end of the century (before yielding in popularity to kantharoi; see Agora 12:98-105). The earliest of these at Jemmeh in any concentration date to ca. 480 BCE and belong to the class of Agora P 10359, identifiable especially from the characteristic use of intentional red (Cat. Nos. 225, 232, 255; see Agora 12:99-100). Other stemless cups include several large classes (such as the light-walled Cat. No. 228, Figure 14.7 b , second half of the 5 th century BCE, and the delicate Cat. No. 231, ca. 450 BCE) and one small Rhenia cup (Cat. No. 229 , Figure 14.7 c , second half of the 5 th century BCE). Only one, a large stemless cup with an inset lip, could date as late as the 4th century BCE (the first quarter, Cat. No. 267).

Stemmed cups are especially plentiful, with 19 fragments (see, generally, Agora 12:88-97). Especially impressive are the 11 Vicups identifiable according to the profile of the foot, which is flat on top and often concave on its exterior face (e.g., Cat. No. 223). Vicup fragments with parallels in the Agora excavations point to a date to the second quarter of the fifth century.

The high number of Vicups at Jemmeh is remarkable, as, to my knowledge, none has been identified securely elsewhere in the southern Levant. The sturdy Type C cup is known from four to five fragments (Cat. Nos. 224, 249, 251, 268, and possibly 238). Dateable examples come from early in the 5 th century BCE, perhaps ca. 480 BCE . The fillet and rising foot of another stemmed cup rare in the region was identified, the Acrocup; it dates probably to 475-450 BCE (Cat. No. 240). One earlier (500-480 BCE) spreading foot of a Type B cup (Cat. No. 241, Figure 14.7e) was found. It, too, is rare. The latter has a Greek(?) graffito on the underside of the foot, perhaps a M with a cross bar. Five cupskyphoi were identified, albeit tentatively (Cat. Nos. 239, 250, 263, and 266).

Two of the three bolsals date approximately to the last quarter of the 5th century BCE (Cat. Nos. 269, 270, Figure 14.8a). The sole dateable kantharos is similar to one from the Agora dated to 450-425 BCE (Cat. No. 272). Rounding out the drinking vessels is a fragment of particular interest, a small portion of a phiale decorated in intentional red. Its horizontal ribbing hints at its Persian metal prototype (see Agora 12:105-106). The phiale may be the earliest securely datable vessel in the Attic (indeed, in the Persian) assemblage at ca. 500 BCE. It is difficult to know how accurate this date is, however, since the type is rare in ceramic.

With so many drinking vessels in every decorative technique, one misses the kraters. The two fragments in black glaze bring Jemmeh's total to a maximum of only five, which may belong to as few as two vessels. The slightly concave wall of Cat. No. 275 may belong to a calyx krater. Figure 14.8 c (Cat. No. 276) is a nice foot with a concave exterior and flat top that rises toward the fillet. It could belong to a calyx krater as well, although precise identification is impossible.

More in keeping with the general pattern in the southern Levant is the relatively large quantity of bowls. These include approximately eight bowls with incurved rim and five bowls with


FIGURE 14.7. Attic ware and glazed ware.


FIGURE 14.8. Attic ware and glazed ware.
an outturned rim. Examples of both types seem to date to the 5 th and 4th centuries BCE (5th century BCE: Cat. Nos. 278 and 283, Figure 14.8 e ). There are four small bowls, one with a broad rim (second quarter of the 5th century BCE, Cat. No. 284), probably two with a projecting rim (400-380 BCE, Cat. No. 287; Cat. No. 298), and probably one with an outturned rim (No. 299). The sole convex-concave bowl has a parallel in the Agora dating to 425-400 BCE (Cat. No. 285; see Agora 12:130-131). Decoration is limited to rouletting (Cat. Nos. 277, 279, and 286) and stamped palmettes (Cat. Nos. 288 and 291 [they are linked]).

One bowl has both in addition to an incised circle (Cat. No. 297, Figure 14.8i). On its underside is a Greek graffito, a $\Phi$. Rouletting is traditionally ascribed to the 4th century BCE, affirming that the bowls would stretch, however thinly, over two centuries. The one-handler is from ca. 400 BCE (Cat. No. 302).

Finishing out the table wares are the four plate fragments, three of which come from the fish plates known in the later 5th century BCE but so characteristic of the 4th (Cat. Nos. 303305; see Agora 12:147-148). These can be contrasted to the two stemmed dishes that must date to the type's short life span,
from the late 6 th to second quarter of the 5 th century BCE . The unidentified open forms contribute another decorative device, ovules (Cat. Nos. 312, 322, 327). Rouletting on other open vessels adds to the 4th century BCE count (Cat. Nos. 317, 323), as might the rising central cone of the floor of another fragment (Cat. No. 320).

As in black figure, closed shapes are relatively numerous. Six fragments are clearly from cylindrical types. Most of these were small; some might be fragments of pattern lekythoi (such as Cat. Nos. 332 and 337), and one is probably black bodied (Cat. No. 336). No squat lekythos was certainly identified, but there might be one or two examples (Cat. No. 329 and possibly Cat. No. 348). Three fragments were from large, possibly red-figure, vessels (Cat. Nos. 334, 346, and 347). The black-glaze mouth possibly belonging to a perfume pot would provide another example of a 4th century BCE shape (Cat. No. 349). A curious small spout is similar to the feeder, a shape of uncertain function (Cat. No. 350).

Three of the lamps preserved a complete profile or were whole (Cat. Nos. 351, 357, and 361, Figure 14.9a,c,d). These appear to belong to Agora Type 25A and A Prime (unglazed), although they may fall elsewhere in this long-lived and conservative class (Agora 4:67-68, 70-71, pls. 9, 10, 23, 38). Four
fragments also seem to belong to Type 25 (Cat. Nos. 354, 355, 356, and 358; for Type 25 and its variants, see Agora 4:67-82). Their maximum date range is from the second quarter of the 4th century to the second quarter of the 3rd century BCE, suggesting that the lamps were imported at a time when other Attic imports were rare or nonexistent at Jemmeh. The others belong generally to the wheel-made round shoulder type having a disk base. They may have handles. One rim may be an Agora Type 19B (Cat. No. 352; see Agora 4:40-41), an Attic version of a Persian lamp form also known in the Jemmeh assemblage (see Cat. Nos. 382-383). The type dates to the 5th century BCE. All preserved spouts show traces of burning.

There are seven overpainted Attic fragments (Cat. Nos. 366-370, Figure 14.9e,f). At least two of these belong to a kantharos of the St. Valentin class (Cat. No. 366), which is easily recognized thanks to its black-figure diamond pattern and added white. Two nonjoining cull fragments with white dots and blackfigure geometric decoration may come from another St. Valentin kantharos (Cat. No. 367; Howard and Johnson, 1954). The class dates to the middle quarters of the 5th century BCE and is one of the few Attic painted types found often in the southern Levant. Also from the 5th century BCE is an overpainted body fragment of an open shape with bands and dot rosettes or berries


FIGURE 14.9. Various Greek wares.
(Cat. No. 369). Another open fragment cannot be dated (Cat. No. 370). There is one true piece of so-called West Slope pottery, an open shape decorated with an added white olive wreath and berry. It may be another kantharos and could date as late as the first half of the 2 nd century BCE, making it one of the latest items in the Jemmeh import assemblage.

Virtually every site in Israel occupied in the Persian period has turned up at least one or two sherds of Attic pottery. The quantity of Attic imports at coastal sites is dramatically larger than at sites even slightly inland, contrary to the fairly even distribution seen in the later Iron Age, or so has been thought (see Martin, 2007:133). One factor complicating our understanding of distribution and quantity of Attic imports is the limited publication of the pottery in final (that is, stratigraphic) publication. Jemmeh makes a significant contribution to this discussion even though caution must be taken when such small fragments obscure the total number of vessels.

As is typical, the assemblage skews toward drinking vessels, and closed shapes are dominated by lekythoi (compare, conveniently, Waldbaum, 2003: figs. 19.10,11). Atypical is the frequency of cups (stemmed, especially) relative to skyphoi (otherwise ubiquitous). Also unusual in an assemblage producing so many cups is the tiny quantity of kraters. The number of lekythoi appears to be very large. Shapes lacking at Jemmeh but known elsewhere in the southern Levant include the lekanis (used as a casserole or perhaps a personal item), the askos (also for dining or private use), and other table wares (such as the salt cellar and table amphora). The three fish plates, a form that has uneven distribution (nearly 70 at Dor, possibly only 1 at Ashkelon), are noteworthy (Martin, 2007:318-319).

The extent to which Jemmeh enriches and complicates our surely too simplistic understanding of general trends in Attic imports can be highlighted by focusing on two examples: the stemmed cups and the pattern lekythoi. One of the commoner red-figure artists known in the southern Levant, the Pithos Painter, favored the stemmed cup, specifically Type C. Nearby Ashkelon has at least six examples, including one possibly by the Heraion Painter (in the Pithos Painter's circle; all as yet unpublished: see Martin, 2007:312). Dor has at least three, one of which is also attributable to the Heraion Painter (see Stewart and Martin, 2005:83, fig. 2:7). At both sites, these painted examples represent the majority of Type $C$ cups in the assemblage, and Type C is the most common stemmed cup. The absence of this artist at Jemmeh must be balanced by the apparent predilection for the stemmed cup, which extends to rare stemmed types, such as the Acrocup and Vicup. The infrequency of Type C cups may suggest that these were purchased specifically for their painted scenes, scenes for which, for unknown reasons, the people of Jemmeh lacked interest.

The greatest concentration of white-ground pattern lekythoi, which are not, apparently, found in the Athenian Agora, in the eastern Mediterranean is in the southern Levant (the most complete study is Kurtz, 1975:131-155; for a related lekythos from the Agora, see Rotroff and Oakley, 1992: no. 135, pl. 42). These were "cheap, mass-produced oil pots" with a long duration that spanned the entire life of the cylinder lekythos (Kurtz,

1975:131). Their distribution is uneven. Tel Michal apparently has no pattern lekythoi; Akko, only 1; Apollonia, at least 2; Ashkelon, 5; Dor, 4 or 5; Gezer, 3; and Tell el-Hesi, 9 or 10 (Apollonia: Roll and Tal, 1999:106, 161-163, figs. 4.14:12 [possibly a pattern lekythos that is attributed on very limited evidence to the Beldam Workshop], 4.44:3-4 [possibly No. 3, certainly No. 4], 4.48:8-9 [possibly No. 8, certainly No. 9]; Gezer: Gitin, 1990: no. 131 , pls. $31: 17,46: 18$ [the latter is certainly a pattern lekythos, not an oinochoe]; Tell el-Hesi: Risser and Blakely, 1989: nos. 74-83). Jemmeh appears to have at minimum 15 examples, which is truly impressive compared to sites such as Dor that have vastly larger quantities of Attic imports (over 1,500 fragments were studied in Stewart and Martin, 2005: fig. 1) and not even half the number of pattern lekythoi. Brian Shefton has suggested that pattern lekythoi were the successors in both form and function to locally produced oil bottles that appear to have been used ritually, at least in Jerusalem (Shefton, 2000:78, n. 14). No pattern lekythoi are known from strictly ritual contexts, and Jemmeh will not change that picture. Nonetheless, the preference for the pattern lekythos is as worthy of comment as the lack of interest in red-figure cups.

Possibly these preferences are attributable to the site's location. Although Jemmeh is in the southern coastal plain, the site itself is neither coastal (like Ashkelon, Apollonia, Tel Michal, Dor, and Akko) nor inland (like Tell el-Hesi and Gezer). What we may see at Jemmeh is a third scenario in which the opportunity to purchase and awareness of Attic imports is balanced by different social criteria. With the lekythoi we can imagine that the packaging, the consistently recognizable white ground covered with geometric motifs, signaled desirable contents, namely, perfume. Imported drinking and dining vessels, on the other hand, did not fully set many (if any) tables, even if Attic pots were used in concert with East Greek ones. The "missing" kraters remind us that the Attic symposion set is almost nowhere complete in the southern Levant, thanks to the infrequency of decanting vessels (cf. Berlin and Lynch, 2002). Why some sites, such as Dor with its 175 fragments (Stewart and Martin, 2005), would prefer the krater and others not is unclear. We might suppose that at Jemmeh the preferred medium of the krater was metal (cf. Rotroff, 1996), but this would not be in keeping with the site's other, relatively modest finds. It may be more appropriate to conclude that very few people were interested in mixing their wine with water in the Greek manner and could not see a use for the krater otherwise.

## OTHER GREEK FABRICS

The pottery here is imported from an unknown number of probably Greek sources that cannot be grouped with the clearly East Greek and Attic material discussed above. There are 11 bowls, likely all with incurved rims (Cat. Nos. 371-381, Figure $14.9 \mathrm{~g}-\mathrm{k})$. Most have the characteristic matte red-brown slip one associates with the 4th century BCE and Hellenistic version of this familiar form, although a few pieces have a metallic black glaze (and are therefore earlier?), such as Cat. No. 375 (Figure


FIGURE 14.10. Lamps and Hellenistic wares.
14.9h). One worn bowl(?) (Figure 14.9g, Cat. No. 374) has a Greek graffito on its underside: KPA.

Two open disk lamps of unclear Greek origin and Persian type are cataloged here (Cat. Nos. 382, 383). One of these is a complete profile preserving two antithetical spouts and an unglazed central tube (No. 383, Figure 14.10a). These features are characteristic of the Agora Type 19A lamp, dated to the last quarter of the 6th century to 480 BCE (Agora 4:39-40, pls. 5, 33). A second central tube of the same form and possibly the same lamp type was identified (Cat. No. 382). Eleven other lamps are cataloged here (Cat. Nos. 384-393, Figure 14.10b-d). They are wheel-made shoulder lamps inspired, it seems, by Attic types and generally unslipped on their exteriors. They can be dated to the 4th-2nd centuries BCE on the basis of general parallels from the Agora and Dor (such as Type 25B Prime, which dates to the third quarter of the 4th to second quarter of the 3rd centuries BCE [Agora 4:74-77], or Dor Type 6, which are dated to the 4th-2nd centuries BCE [RosenthalHeginbottom, 1995:235, nos. 1, 2, fig. 5.15:1,2]).

Closing the catalog are three fragments possibly of Greek fabric but unclear type: one may be a skyphos, although the rim appears to curve inward (Cat. No. 394); another may be a spouted jug with two strap handles (Cat. No. 395), and the last is an ovoid closed form with traces of what might be black-figure rosettes (Cat. No. 396).

## THE CATALOG

The following abbreviations are used in the catalog:

| B-F | black figure |
| :--- | :--- |
| c. | century |
| D | diameter |
| MPH | maximum preserved height |
| MPL | maximum preserved length |
| R-F | red figure |
| SiA | South Ionian Archaic |
| T | thickness |

As most fragments are very small, the thickness represents the maximum preserved as deemed appropriate. Generally, this
measurement is taken from the wall of the vessel rather than the lip, foot, or handle. Diameters are usually estimated, as indicated by use of the approximate sign (~). MPH and MPL should be taken as an indication of the size of the fragment only, not the size of the vessel. Maximum preserved length means that the vessel's orientation was ignored when taking the measurement, whereas MPH was taken according to preserved wheel marks and so on. Again, these measurements are included to give the reader a general indication of the fragment's size, which may prove helpful when trying to understand the relationship between the complete vessels published in, for example, Agora 12, and the very small fragments preserved in occupational debris in the Levant. All dates are BCE.

East Greek<br>\section*{Wild Goat/Fikellura}

1. SiA Ia-Id? Handle. Figure 14.1a. T: 1.4 cm , MPL: 7.85 cm . Box 42, GM 1A (5) 2. Coarse red clay with many black and white inclusions. Handle and wall slipped red. Thick strap handle with three ridges. Oinochoe of the type associated with the Wild Goat style. See Kerschner and Schlotzhauer (2005:9-25, characteristic handle at 18). 670-570, probably after 630.
2. SiA Id. Body fragment. Figure 14.1b. T: 0.85 cm, MPH: 5.7 cm . Box 73, GM 1A TT6 (2). Reddish clay with gray core and mica inclusions. Outside with thick white slip and brown paint. Portion of a sphinx facing right and geometric filling motifs. Surface very worn. South Ionian oinochoe. For decorative scheme, see Karlsruhe 72.133, which dates to ca. 615-600 (Cook and Dupont, 1998: fig. 8.8), upper register as in Kerschner and Schlotzhauer (2005: no. 67, fig. 33). Compare Kerschner and Schlotzhauer (2005: SiA Id, 33-45). 610-580/570.
3. Rotelle. T: $0.9 \mathrm{~cm}, \mathrm{D}: 3.4 \mathrm{~cm}$. Box 131, GM 2A (20). Red clay with white inclusions. Disk from the handle/lip zone of oinochoe of unclear origin.
4. SiA Ic? Body fragment. Figure 14.1c. T: 1.85 cm , MPH: 3.45 cm . Box 171, GM 2A P1A (1). Reddish-brown clay with mica inclusions. Outside with thick white slip and brown paint. Rosette and lotus flower. Oinochoe, probably South Ionian.

Decorative scheme suggests this oinochoe is early in the Middle II/SiA Ic. A close parallel is in the lotus flower motif on the upper register of Louvre A312, which dates to 625-605 BCE (Cook and Dupont, 1998: fig. 8.7, which equals Kerschner and Schlotzhauer, 2005: no. 51). Compare Kerschner and Schlotzhauer (2005: SiA Ic, 25-33). 630-610.
5. SiA I. Body fragment. T: 0.85 cm, MPH: 3.9 cm . Box 316, GM 1C (9) 3. Reddish-yellow clay with mica inclusions. Exterior white slipped with brown paint. Very worn, making design all but illegible. Perhaps a lotus and triangle. Oinochoe, probably South Ionian.
6. Double handle. Figure 14.1d. T: 0.6 cm , MPL: 5.7 cm . Box 440, GM 0B (1A) 2. Brown clay with black and mica inclusions. Brown paint on top of handle. Reddish-brown paint on outside of wall. Oinochoe, probably South Italian Middle Wild Goat or Fikellura.

## Ionian Cups

7. Rim (six joining and one nonjoining fragments). Figure 14.1e. T: $0.35 \mathrm{~cm}, \mathrm{MPH}: 4.5 \mathrm{~cm}, \mathrm{D}: \sim 18.0 \mathrm{~cm}$. Box 2, GM 0B? 1A? P6? (1? 7A?) 3? Reddish clay with white inclusions. Sloppy matte brown on outside of lip and in a band below the handles. Underside of handles apparently painted. Inside of lip reserved with matte black below, perhaps for entire inside.
8. Rim (three joining fragments). T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 2.2 \mathrm{~cm}$, D: $\sim 20.0 \mathrm{~cm}$. Box 15, GM 1D (1) 1 and TT1 (+). Brown clay with mica inclusions. Matte brown on lip inside and outside. Reserve band at top inside of lip.
9. Rim (three joining fragments). Figure 14.1f. T: 0.5 cm , MPH: $3.9 \mathrm{~cm}, \mathrm{D}: \sim 22.0 \mathrm{~cm}$. Box 16, GM 1B (+), 1B EBR (9), and 1B (14) 2 and Box 207, GM 1B (14) 2 and 1B TT2. Fine buff clay with fine micaceous inclusions. Outside with red band. Inside red.
10. Rim (five joining fragments). Figure 14.1g. T: 0.4 cm , MPH: 7.8 cm , D: 22.0 cm . Box 20, GM 1C (5A/6), 1C (14) 3, 1C P4 (1), and 1C EBR (4). Reddish clay with black and mica inclusions. Streaky matte black on lip inside and outside; appears to cover entire inside. Reserve band just below lip inside. Thinner brown band below handle zone outside. Handles appear to have been painted black, at least on top. Ionian cup similar to Cook and Dupont (1998: fig. 18.1b).
11. $\operatorname{Rim}(18$ fragments, of which 10 join). Figure 14.1h. T: 0.3 cm , MPH: 5.2 cm, D: $\sim 20.0 \mathrm{~cm}$. Box 21, GM 00A (1) 3 . Brown clay. Very top of lip with matte black band outside. Black band below lip zone and thick band (perhaps to bottom of the bowl) as bowl angles back to foot. Outside and top of handles painted. Top of lip reserved inside; rest of bowl apparently matte black. Ionian cup. Similar to Cook and Dupont (1998: fig. 18.1e).
12. Rim. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 2.2 \mathrm{~cm}, \mathrm{D}: \sim 18.0 \mathrm{~cm}$. Box 41, GM 1A NBR (3A) 2. Brown clay with white inclusions. Black on top of pointed lip. Outside reserved below lip, then two brown bands, the first thinner than the second. Inside top of lip reserved, then brown band.
13. Rim. T: 3.5 cm, MPH: $1.7 \mathrm{~cm}, \mathrm{D}: \sim 20.0 \mathrm{~cm}$. Box 111, GM 2A (0). Red clay. Brown band below lip inside and outside.
14. Rim (two nonjoining fragments). T (of rim): 0.45 cm , MPH: 2.2 cm . Box 131, GM 2A (20). Reddish-brown micaceous clay. Metallic red on lip inside and outside. Reserved band at inside projecting rim. Body fragment is reserved outside with metallic red inside.
15. Rim. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.7 \mathrm{~cm}$, D: 18.0 cm . Box 154, GM 2A TT4 (+). Reddish-brown micaceous clay. Black (metallic and gray in parts) on lip inside and outside, continues inside until break. Reserve band at top of lip inside. Rim near Cook and Dupont (1998: fig. 18.1e).
16. Rim. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 2.0 \mathrm{~cm}, \mathrm{D}: \sim 6.0 \mathrm{~cm}$. Box 156, GM 2A TT4 5. Light brown micaceous clay. Matte black below lip outside. Inside has thin black band at lip. Small Ionian cup?
17. Handle. Figure 14.1i. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 3.3 \mathrm{~cm}$. Box 167, GM 2A TT4 (5). Red clay with white and mica inclusions. Matte red to black inside and outside. Worn. Handle panel and small band below lip reserved. Lip offset on outside. Bell-shaped handle.
18. Handle. T (of handle): 1.25 cm, MPL: 4.3 cm . Box 222, GM 1B WBR 1. Red micaceous clay. Outside buff with red above horizontal handle and reddish brown on top of handle. Inside red.
19. Rim. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 1.8 \mathrm{~cm}, \mathrm{D}$ : incomplete. Box 229, GM 1B P17 EBR. Reddish clay with white and mica inclusions. Metallic streaky red inside and outside with reserve band inside.
20. Handle. T (of wall): 0.5 cm , MPL: 3.45 cm . Box 234, GM 2B (0). Red clay with small white inclusions. Outside and top of horizontal handle matte black. Black line runs under handle and down wall. Inside matte black.
21. Handle. Figure 14.1j. T (of handle): 1.2 cm, MPL: 6.85 cm. Box 241, GM 2B TT4 (1). Brown micaceous clay. Outside matte brown on face of horizontal handle with trace of more matte brown below. Handle panel reserved. Inside brownish red.
22. Rim. T: 0.6 cm, MPH: 2.2 cm , D: incomplete. Box 251, GM 2B (17A). Brown clay with white inclusions. Lip reserved outside with thick matte black and brown bands outside. Inside matte black.
23. Rim. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.15 \mathrm{~cm}$, D: too small to measure. Box 253, GM 2B (23A). Brown clay with black inclusions. Matte black inside and outside. Compare rim of Cook and Dupont (1998: fig. 18.1e), although the Jemmeh example lacks the stripes characteristic of this variant.
24. Rim. T: $0.45 \mathrm{~cm}, \mathrm{MPH}: 1.6 \mathrm{~cm}$, D: too small to measure. Box 282, GM 2B P4. Reddish-brown clay with mica inclusions. Lip streaky reddish brown inside and outside with reserve band inside.
25. Rim and handle. Figure 14.1k. T: 0.35 cm, MPH: 4.6 $\mathrm{cm}, \mathrm{D}: \sim 16.0 \mathrm{~cm}$. Box 299, GM 3B P4. Reddish-yellow clay with mica inclusions. Red on lip inside and outside with reserve band at top. Handle panel reserved with red band below. Matte brown on handle. Strongly projecting rim. A similar decorative scheme for this and other cups from Box 299 (Cat. Nos. 26, 27) can be found on cups from Salamis, such as Calvet and Yon in Gjerstad (1977:17, nos. $88-89$, pl. IX). These are dated to the late 7thearly 6 th c .
26. Rim and handle. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 2.6 \mathrm{~cm}, \mathrm{D}: \sim 18.0 \mathrm{~cm}$. Box 299, GM 3B P4. Clay, decoration as Cat. No. 25, although lip band descends farther and lip projects more sharply.
27. Rim. T: 0.4 cm, MPH: $4.3 \mathrm{~cm}, \mathrm{D}: \sim 14.0 \mathrm{~cm}$. Box 299, GM 3B P4. Clay, decoration as Cat. No. 25.
28. Rim. T: $0.45 \mathrm{~cm}, \mathrm{MPH}: 2.15 \mathrm{~cm}$, D: too small to measure. Box 300, GM 3B P6. Brown clay with black inclusions. Two brown bands below lip outside. Inside brown. Flaring rim. See Cook and Dupont (1998:129-131, fig. 18.1). 7th-6th c.
29. Rim. T: 0.45 cm, MPH: 1.7 cm , D: too small to measure. Box 304, GM 1C TT1 (2). Brown clay with mica inclusions. Red lip inside and outside. Flaring, rounded rim.
30. Rim. T: $0.65 \mathrm{~cm}, \mathrm{MPH}: 4.0 \mathrm{~cm}$, D: too small to measure. Box 318, GM 1C (11) 3. Brown clay. Outside reserved with thin, dilute red bands on lip; brown band below. Inside matte brown below reserved lip. Large Ionian cup. For decorative scheme, see Calvet and Yon in Gjerstad (1977:17, nos. 88, 89, pl. IX). These are dated to the late 7 th-early 6 th c .
31. Foot. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 1.9 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 8.0 \mathrm{~cm}$. Box 338, GM 2C (+) 1. Brown clay with mica inclusions. Matte black inside and outside. Resting surface of low ring foot and underside of floor reserved. See Cook and Dupont (1998: fig. 18.1b).
32. Rim. T: 0.3 cm, MPH: $2.2 \mathrm{~cm}, \mathrm{D}: \sim 15.0 \mathrm{~cm}$. Box 350, GM 2C (9) 1. Reddish-brown clay with mica inclusions. Matte black outside. Inside of lip reserved with thin black band. Black below. Very worn.
33. Body fragments (three joining). T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 5.1 \mathrm{~cm}$. Box 350, GM 2C (9) 1. Reddish-yellow clay with white and mica inclusions. Thick matte black band outside. Inside streaky brown.
34. Foot. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 5.0 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 8.0 \mathrm{~cm}$. Box 350, GM 2C (9) 1. Brown clay with mica inclusions. All preserved areas matte black. Flaring ring foot, probably of an Ionian cup. See Cook and Dupont (1998: pl. 18.1c).
35. Handle. T: 0.4 cm, MPH: 3.0 cm . Box 352, GM 2C (10) 1. Brown clay with white and mica inclusions. Red below lip outside and on horizontal handle face. Inside brown.
36. Rim. T: $0.45 \mathrm{~cm}, \mathrm{MPH}: 2.0 \mathrm{~cm}$, D: too small to measure. Box 352, GM 2C (10) 1. Brown clay with mica inclusions. Metallic reddish brown inside and outside with reserve band inside.
37. Rim. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 1.4 \mathrm{~cm}$, D: too small to measure. Box 352, GM 2C (10) 1. Light brown clay with white and mica inclusions. Matte brown outside. Brown band inside with a thin reserve band.
38. Rim. T: $0.45 \mathrm{~cm}, \mathrm{MPH}: 1.9 \mathrm{~cm}, \mathrm{D}: \sim 18.0 \mathrm{~cm}$. Box 355, GM 2C (3) 2. Brown clay with mica inclusions. Metallic brown inside and outside except with thin reserve inside.
39. Foot. Figure 14.11. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 1.0 \mathrm{~cm}$. Box 378, GM 1D TT2 $(2,4)$. Reddish-yellow clay with mica inclusions. Reddish brown paint inside and out. Resting surface and underside of floor reserved. Groove at junction of wall and low ring foot. Profile of foot similar to the simple cup type seen in Cook and Dupont (1998: fig. 18.1b), which dates to the last quarter of the 7th-early 6th c.
40. Rim. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 2.1 \mathrm{~cm}$, D: too small to measure. Box 408, GM 2D (8). Red clay with white and mica inclusions. Three brown bands outside. Reddish-brown band below lip inside.
41. Rim. T: $0.3 \mathrm{~cm}, \mathrm{MPH}: 2.05 \mathrm{~cm}$, D: too small to measure. Box 409, GM 2D (9). Brown clay with black and mica inclusions. Red on lip inside and outside with reserve band inside.
42. Rim. T: $0.35 \mathrm{~cm}, \mathrm{MPH}: 1.1 \mathrm{~cm}$, D: too small to measure. Box 422, GM 0A (7). Light brown clay. Red on lip inside and outside with reserve band inside. Small Ionian cup.
43. Rim. T: 0.6 cm, MPH: 1.9 cm, D: $\sim 22.0 \mathrm{~cm}$. Box 428, GM 0B (0). Light brown clay with mica inclusions. Matte black on lip inside and outside with reserve band inside.
44. Rim. Figure 14.1 m. T: 0.4 cm, MPH: $4.3 \mathrm{~cm}, \mathrm{D}:$ too small to measure. Box 445, GM 0B (7) 5. Brown clay with mica inclusions. Red on lip inside and outside with reserved band inside, red below.
45. Rim. Figure 14.1n. T: $0.3 \mathrm{~cm}, \mathrm{MPH}: 1.5 \mathrm{~cm}, \mathrm{D}$ : too small to measure. Box 445, GM 0B (7) 5. Reddish clay with white and mica inclusions. On outside, a thin red line around the lip, the rest of which is reserved; red below lip. Inside appears to repeat this pattern.
46. Fragmentary rim. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 4.2 \mathrm{~cm}, \mathrm{D}:$ incomplete. Box 451, GM 0B F1A (1) 1. Brown clay with black and mica inclusions. Matte black on lip inside and outside.
47. Rim. T: 0.4 cm, MPH: $2.9 \mathrm{~cm}, \mathrm{D}: \sim 18.0 \mathrm{~cm}$. No box number. Reddish-brown clay with white inclusions. Streaky red on lip inside and outside with reserve band inside.

## Other Cups

48. Foot. T (of floor): $0.3 \mathrm{~cm}, \mathrm{MPH}: 1.1 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 8.0 \mathrm{~cm}$. Box 32, GM 1A (0A). Reddish brown clay with white inclusions. Red inside and outside, including resting surface of foot. Inside of foot with buff band, then red. Torus ring foot. Cup or bowl.
49. Foot. Figure 14.1o. T (of floor): $0.5 \mathrm{~cm}, \mathrm{MPH}: 1.5 \mathrm{~cm}$, D (of foot): 3.6 cm . Box 156, GM 2A TT4 5. Gray(?) clay. Matte black slip. Underside of flaring ring foot reserved. Foot of the type seen on Vroulian and some Ionian cups. See Cook and Dupont (1998: pls. 14.1a, 18.1a).
50. Rim. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 1.0 \mathrm{~cm}$, D: too small to measure. Box 282, GM 2B P4. Brown clay with mica inclusions. Red on lip inside and outside with reserve band inside. Lip pointed and outturned. Cup.
51. Rim. T: $0.45 \mathrm{~cm}, \mathrm{MPH}: 2.8 \mathrm{~cm}$, D: too small to measure. Box 324, GM 1C SBR (4). Brown clay with mica inclusions. Red on lip inside and outside. Matte black band inside. Plain, pointed rim. Cup.
52. Rim. T: 0.3 cm, MPH: $2.1 \mathrm{~cm}, \mathrm{D}: \sim 16.0 \mathrm{~cm}$. Box 353, GM 2C WBR (10) 1. Reddish clay with mica inclusions. Brown on offset, thickened and slightly inturned lip with reserve band inside. Matte black inside. Cup.
53. Rim. T: $2.5 \mathrm{~cm}, \mathrm{MPH}: 1.8 \mathrm{~cm}$, D: too small to measure. Box 428, GM 0B (0). Red clay. Metallic black on lip inside and outside. Traces of dilute B-F palmette(?) in field. Lip gently offset and outturned. Cup.
54. Rim. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 1.6 \mathrm{~cm}$, D: too small to measure. Box 428, GM 0B (0). Brown clay with white and mica inclusions. Red on lip inside and outside. Plain rim pointed at top. Cup.
55. Rim. T: $0.3 \mathrm{~cm}, \mathrm{MPH}: 1.8 \mathrm{~cm}, \mathrm{D}$ : too small to measure. Box 429, GM 0B (1). Brown clay with mica inclusions. Reddish brown on lip inside and outside. Plain rim. Cup.
56. Rim. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 1.8 \mathrm{~cm}, \mathrm{D}: \sim 20.0 \mathrm{~cm}$. Box 451, GM 0B F1A (1) 1. Brown clay with black and mica inclusions. Matte reddish brown on lip inside and outside with sloppy reserve band(?) outside. Lip thickened and outturned. Cup?
57. Rim (two joining and two nonjoining fragments). Figure 14.2a. T: 0.4 cm, MPH: 1.3 cm, D: 7.0 cm . Box 459, GM 00A (1) 3. Reddish clay with black, white and mica inclusions. Outside slipped white with sloppy, streaky brown bands. Red band on lip inside. Rim appears to be straight and plain. Cup.
58. Rim and handle. T: 0.5 cm , MPL: $4.3 \mathrm{~cm}, \mathrm{D}: \sim 10 \mathrm{~cm}$. Box 464, GM 00A F8. Reddish-brown clay with white and black inclusions. Brown outside. Handle panel reserved. Inside reddish brown with reserve band below lip. Handle set into lip. Cup.

## Banded Bowls

59. Body and foot fragments (five joining and one nonjoining). Figure 14.2b. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 6.5 \mathrm{~cm}$. Box 6, GM 0B (6), $1 \mathrm{~B}(+)$, and 1B (9) 1. Gray clay with some large white inclusions. One brown band outside. Black metallic bands inside.
60. Complete profile (two joining fragments). Figure 14.2c. T: 0.9 cm, MPH: $7.9 \mathrm{~cm}, \mathrm{D}: 24.0 \mathrm{~cm}$. Box 18, GM 1A TT4 (6). Red clay with white inclusions, some large. Reddish brown on lip inside and outside with reserve band inside. Center of bowl has two or more reddish-brown concentric circles. Lower rim thickened on inside. Spreading ring foot. Banded bowl of Dor Type C. For the type and its distinctive rim, see Mook and Coulson (1995:94, fig. 3.3.1-9).
61. Rim. T: $0.7 \mathrm{~cm}, \mathrm{MPH}: 1.5 \mathrm{~cm}, \mathrm{D}: \sim 20.0 \mathrm{~cm}$. Box 31, GM 1A (0). Light red clay. Brown band outside. Reddish-brown band inside of lip. Outturned pointed rim. Probably a banded bowl.
62. Rim. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 3.9 \mathrm{~cm}$, D: too small to measure. Box 54, GM 1A (5A) 7. Red clay. Red band on lip inside and outside. Flattened rim.
63. Foot. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.0 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 8 \mathrm{~cm}$. Box 67, GM 1A TT1 (0). Buff clay? Matte black inside and outside. Ring foot with grooved resting surface of the type associated with the banded bowl.
64. Rim. Figure 14.2d. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 3.1 \mathrm{~cm}, \mathrm{D}: 16.0 \mathrm{~cm}$. Box 89, GM 1A P6 TT4 (8). Red clay. Outside has black band on lip and gray and brown bands below. Inside black. Thickened, pointed rim. Banded bowl of Dor Type A.
65. Rim. Figure 14.2e. T: $0.8 \mathrm{~cm}, \mathrm{MPH}: 3.1 \mathrm{~cm}, \mathrm{D}: \sim 22.0$ cm. Box 91, GM 1A, P6 (2A). Red clay with white inclusions. Red on lip inside and outside with reserve band inside. Banded bowl of Dor Type C.
66. Rim (two joining fragments). T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.7 \mathrm{~cm}$, D: 20 cm . Box 111, GM 2A (0). Light reddish-brown clay. Matte black glaze outside. Reddish-brown inside, scraped at top of rim. Incurving rim. Banded bowl?
67. Foot. Figure 14.2f. T: 0.7 cm , MPL: 9.0 cm . Box 113, GM 2A WBR (0). Red clay. Brown band inside around center with two (or more) red bands above. Ring foot. Wide (and shallow?) banded bowl.
68. Foot and body fragments (two nonjoining). T: 0.4-0.5 cm , MPH: 1.1 cm . Box 114, GM 2A (1). Outside matte black
band(?) with drips(?). Inside matte black. Very worn. Exterior of foot, resting surface, and underside of floor reserved. Ring foot. Banded bowl?
69. Rim. Figure 14.2g. T: 0.65 cm, MPH: $4.2 \mathrm{~cm}, \mathrm{D}: 20 \mathrm{~cm}$. Box 118 , GM 2A (6). Red clay with white inclusions. Red band on lip inside and outside. Rim flattened on top. Banded bowl of Dor Type E.
70. Rim. T: $0.75 \mathrm{~cm}, \mathrm{MPH}: 3.0 \mathrm{~cm}, \mathrm{D}: \sim 22.0 \mathrm{~cm}$. Box 119, GM 2A NBR (6). Gray fabric. Brown inside and outside. Outturned pointed rim. Banded bowl of Dor Type E.
71. Rim. T: $0.55 \mathrm{~cm}, \mathrm{MPH}: 3.1 \mathrm{~cm}$, D: too small to measure (over 20.0 cm ?). Box 119, GM 2A NBR (6). Light gray fabric. Brown band inside and outside. Exterior shows end of band. Banded bowl?
72. Rim. T: $0.85 \mathrm{~cm}, 3.5 \mathrm{~cm}, \mathrm{D}: 24.0 \mathrm{~cm}$. Box 130, GM 2A (12). Red clay with white inclusions. Red band on lip inside and outside with reserve band inside, then red band below. Lower portion of rim thickened on inside. Banded bowl of Dor Type C.
73. Rim. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 2.65 \mathrm{~cm}$. D: $\sim 22 \mathrm{~cm}$. Box 179 , GM 1B (+). Reddish brown clay with white inclusions. Brownish black on lip inside and outside. Outside below lip is a gray band, then matte black. Banded bowl of Dor Type A. See Mook and Coulson (1995:93-94, fig. 3.1).
74. Rim (three joining fragments). T: $0.35 \mathrm{~cm}, \mathrm{MPH}: 3.0$ $\mathrm{cm}, \mathrm{D}: 13.0 \mathrm{~cm}$. Box 194, GM 1B (5) 1. Brown, very micaceous clay. Red band on lip inside and outside. Thin band outside where body tapers from rim. Pointed lip of a banded bowl of Dor Type A1 or B1. Mook and Coulson (1995:93-94, figs. 3.1.11-18, 3.2.5-11).
75. Rim (two nonjoining fragments). T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 2.7$ cm , D: $\sim 12.0 \mathrm{~cm}$. Box 194, GM 1B (5) 1. Reddish clay with white inclusions. Matte black on outside of lip; red below and inside. Plain, pointed rim. Banded bowl?
76. Rim. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 2.8 \mathrm{~cm}$, D: too small to measure. Box 199, GM 1B (10) 1. Reddish-yellow clay with small black inclusions. Red band on lip inside and outside. Outside matte brown. Pointed plain rim, presumably of a banded bowl.
77. Rim (three fragments, two joining). T: $0.6 \mathrm{~cm}, \mathrm{MPH}$ : 3.25 cm , D: $\sim 18.0 \mathrm{~cm}$. Box 251, GM 2B (17A). Brown clay with black and white inclusions. Brown on lip inside and outside, forming a thick band inside. Banded bowl of Dor Type E. See Mook and Coulson (1995:94, fig. 3.5).
78. Foot. Figure 14.2h. T: 0.6 cm, MPL: $6.75 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 6 \mathrm{~cm}$. Box 279, GM 2B P2 WBR. Brown clay. Inside center has brown dot with two bands above. Flaring ring foot. Banded bowl foot of Dor Type F. See Mook and Coulson (1995:94, fig. 3.6).
79. Rim. T: 1.0 cm, MPH: 6.5 cm, D: 24 cm . Box 298, GM 3B P2. Reddish clay with white inclusions. Top and inside of rim in matte brown. White inside and outside. Rim offset inside and pointed. Banded bowl of Dor Type C. See Mook and Coulson (1995: cat. no. 219, fig. 3.3.8).
80. Foot. T: $0.55 \mathrm{~cm}, \mathrm{MPH}: 1.50 \mathrm{~cm}$. Box 300, GM 3B P6. Reddish-brown clay with mica inclusions. Resting surface and underside of foot reserved. Matte black outside. Red inside. Ring foot of the type associated with the shallow banded bowl, probably of Dor Type C or E.
81. Foot. T: 0.45 cm , MPL: 6.1 cm , D (of foot): $\sim 7 \mathrm{~cm}$. Box 311, GM 1C (5A). Brown clay with white and many mica inclusions. Matte black inside. Ring foot of the type belonging to a shallow banded bowl, probably Dor Type C or E.
82. Foot (two joining fragments). T: 0.7 cm, MPH: 1.85 cm , D (of foot): $\sim 8.0 \mathrm{~cm}$. Box 336, GM 2C (+). Brown clay. Traces of matte black band inside. Outside matte brown. Resting surface and underside reserved. High, beveled ring foot with a deep groove on its face of the type associated with the banded bowl.
83. Foot. T (of foot): 0.8 cm , MPL: 4.4 cm . Box 401, GM 2D (2). Brown(?) clay. Matte black outside. Resting surface of foot reserved, as is apparently the underside except for some drips. Ring foot of the type associated with the banded bowl.
84. Rim. T: 0.35, MPH: 1.3 cm , D: too small to measure. Box 406, GM 2D (6). Reddish clay with white inclusions. Matte red on lip inside and outside. Inside below lip matte black. Thickened, flattened on top rim projects inside. Possibly a banded bowl of Dor Type C, although it seems more on the scale of a cup. See Mook and Coulson (1995: fig. 3.3).
85. Foot. T: 0.6 cm , MPH: 1.5 cm , D (of foot): $\sim 8.0 \mathrm{~cm}$. Box 433, GM 0B (1B) 1. Brown clay with mica inclusions. Matte black inside. Reddish brown outside. Reserved: resting surface and inside of foot, underside of floor. Spreading ring foot with beveled face of the type associated with the banded bowl of Dor Type F. Near Mook and Coulson (1995:94-95, cat. no. 202, fig. 3.6.14).
86. Foot. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 1.6 \mathrm{~cm}, \mathrm{D}$ (of foot): 5.4 cm . Box 547 , general site. Brown clay with black, white, and mica inclusions. Flaring ring foot with central nipple. Resting surface and underside of floor reserved. Reddish brown inside and outside. Ring foot of the type associated with the banded bowl.
87. Partial foot. T: $0.7 \mathrm{~cm}, \mathrm{MPH}: 1.6 \mathrm{~cm}$, D: incomplete. Box 547 , general site. Brown clay with white inclusions. Outside matte black. Inside matte brown. Inside of foot and underside of floor reserved. Banded bowl?

## Open Forms

88. Body fragment. Figure 14.2i. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 4.4 \mathrm{~cm}$. Box 282, GM 2B P4. Brown clay with white inclusions. Outside decorated with brown paint, perhaps an ivy leaf. Inside red with reserve band. Probably a banded bowl.
89. Body fragment. T: 0.85, MPH: 5.6 cm . Box 79 , GM 1A P2 (4). Red clay with black and mica inclusions. Red inside. Outside with red band. Heavy open vessel.
90. Rim. Figure 14.2j. T: 0.9 cm, MPH: 3.95 cm , D: $\sim 23.0$ cm . Box 81, GM 1A P2 (5A). Gray clay. Inside matte black. Outside lip matte black with a matte black band below. Incurved rim of a shallow bowl? Lid?
91. Body fragment. T: 0.6 cm, MPH: 7.4 cm . Box 81, GM 1A P2 (5A). Red clay with mica and white inclusions. Outside has one small and one wide red band. Burned? Ovoid?
92. Handle (two joining fragments). T: 1.5 cm , MPL: 5.8 cm. Box 131, GM 2A (20). Reddish-brown micaceous clay. Brown paint outside. Probably half of a double handle from a pouring vessel.
93. Rim (two joining fragments). Figure 14.2k. T: 6.5 cm , MPH: 5 cm , D: too small to measure. Box 188, GM 1B (1) 1 . Brown clay with many small black inclusions. Matte red-brown glaze inside and outside with lighter, thick band below rim on outside. Outturned rim.
94. Body fragments (three joining). T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 7.5 \mathrm{~cm}$. Box 237, GM 2B TT3 (2A) 1. Red micaceous clay with white inclusions. Outside gray. Inside brown with visible air bubble. Bowl shaped.
95. Rim. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 2.0 \mathrm{~cm}$, D: too small to measure. Box 245, GM 2B (8). Red clay. Matte black inside and outside. Rim offset inside. Shallow with curved wall. East Greek?
96. Body fragment. T: 0.6 cm , MPL: 3.0 cm . Box 300, GM 3B P6. Reddish-yellow clay with white inclusions. Matte black outside on and below carination. Trace of brown and drip line above carination. Brown inside.
97. Rim. T: 0.45 cm, MPH: $1.5 \mathrm{~cm}, \mathrm{D}: \sim 20.0 \mathrm{~cm}$. Box 344 , GM 2C NBR (3). Brown clay with black and mica inclusions. Flat, thickened rim projects inside and outside.
98. Foot. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.1 \mathrm{~cm}, \mathrm{D}$ (of foot): 10.0 cm . Box 361, GM 2C (10) 2. Metallic black. Resting surface of high ring foot reserved and grooved. Scraped groove at join of wall and foot. Bowl? East Greek?

## Oinochoe/Table Amphora/Jug

99. Decorated body fragments (two joining and one nonjoining). Figure 14.3a. T: 0.6 cm , MPH: 6.1 cm . Box 3, GM 0B TT1 (0), 1B (2) 1, and 1B TT (2) 1. Brown micaceous clay. Brown horizontal band. Body of a jug or table amphora. See Mook and Coulson (1995: cat. no. 15, fig. 3.10.13).
100. Body and foot fragments (five joining). Figure 14.3b. T (at foot): $0.9 \mathrm{~cm}, \mathrm{MPH}: 6.8 \mathrm{~cm}, \mathrm{D}$ (of foot): 3.95 cm . Box 7 , GM 00A (1) 3. Buff micaceous clay. Two horizontal reddishbrown bands. Jug with flat bottom. For body shape and decorative scheme, see Mook and Coulson (1995:97, 122, no. 15, fig. 3.10.13).
101. Body and handle fragments ( 12 joining). Figure 14.3c. Measurements not available. Box 8, GM 00B (2). Light buff clay with white and small mica inclusions. Reddish-brown decoration outside: bands at belly and ribbon around and below stub of vertical handle whose ends extend on top of belly bands. Beside handle is beginning of typical scallop decoration. Table amphora.
102. Body and shoulder (10 fragments, some joining). T: 0.6 $\mathrm{cm}, \mathrm{MPH}: 4.6 \mathrm{~cm}$. Box 10, GM 1A TT11 $(4,5,9)$. Buff clay with white inclusions. Brown horizontal bands. Closed vessel with a narrowed neck (table amphora?).
103. Body fragments (two joining and two nonjoining). T: 0.6 cm, MPH: 5.0 cm . Box 13, GM 2A $(13,15)$. Buff clay with brown horizontal band(s). Table amphora or jug.
104. Rim. T: 0.6 cm, MPH: 2.6 cm , D: too small to measure. Box 56 , GM 1A (9) 7. Light brown clay with white inclusions. Brown band on lip inside and outside, extending farther inside.
105. Body fragment. Figure 14.3 d . T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 7.2$ cm . Box 69, GM 1A TT1 (3). Red clay with fine white and mica inclusions. Outside buff with red band. Table amphora or jug.
106. Shoulder fragment. T: 0.6 cm, MPL: 6 cm . Box 81, GM 1A P2 (5A). Cream clay. Outside matte black. Rounded shoulder that is flat on top favors the table amphora.
107. Rim (three nonjoining fragments). Figure 14.3e. T: $0.45 \mathrm{~cm}, \mathrm{MPH}: 2.7 \mathrm{~cm}$, D: incomplete. Box 82, GM 1A P2 (1). Brown clay with white inclusions. Top and below lip matte black. Another matte black band on a body fragment that probably belongs to the same vessel. Thickened rim, pointed at the top. Probably a table amphora or jug.
108. Shoulder fragment (two joining). Figure 14.3f. T: 0.6 cm, MPL: 6.1 cm . Box 131, GM 2A (20). Reddish-brown clay with small white inclusions. Red band near bottom of neck. On shoulder a red wavy line (and trace of other decoration). Just below shoulder, double red lines. Probably a table amphora.
109. Rim. Figure 14.3g. T: $0.85 \mathrm{~cm}, \mathrm{MPH}: 4.3 \mathrm{~cm}, \mathrm{D}:$ too small to measure. Box 173, GM 2A P12 WBR (9). Brown clay with black inclusions. White-slipped inside and outside. Matte reddish-brown band on lip inside and outside. Thickened, flattopped, outturned rim of a table amphora.
110. Foot. T: 0.7 cm, MPH: $2.9 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 7.0 \mathrm{~cm}$. Box 190, GM 1B (2) 1. Reddish-brown clay with small white and mica inclusions. String-cut base.
111. Neck. Figure 14.3h. T: 0.5 cm, MPH: 5.35 cm . Box 298, GM 3B P2. Light reddish clay with white and mica inclusions. Outside buff with brown horizontal lines. Groove at junction of neck and shoulder. Probably a table amphora.
112. Double handle (four joining fragments). Figure 14.3i. T (width of handle): 2.9 cm , MPL: 8.55 cm . Box 318, GM 1C (11) 3. Reddish-yellow clay with white and mica inclusions. Outside buff with reddish-brown decoration: bands on handle's sides and irregular horizontal stripes across the face. Form and decorative scheme similar to an oinochoe from Cyprus dated to the 6th c. BCE (Gjerstad in Gjerstad, 1977: cat. no. 165, pl. XIX:6).
113. Foot. T: 0.4 cm , MPL: $7.4 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 18.0 \mathrm{~cm}$. Box 377, GM 1D TT1 (3). Brown clay with white and mica inclusions. Matte black outside. Foot and underside of floor reserved. Squared, projecting ring foot of a table amphora.
114. Body fragment. T: 0.8 cm, MPH: 4.1 cm . Box 428, GM 0B (0). Reddish clay with white, black, and mica inclusions and a gray core. Outside white with thick matte black bands of a pattern similar to the amphora from Cyprus in Gjerstad (1977: no. 182, pl. XXI.4). Closed.
115. Foot. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.0 \mathrm{~cm}, \mathrm{D}$ (of foot): 10.0 cm . Box 461, GM 00A P3. Light brown clay with white and mica inclusions. Torus ring foot of a closed vessel. Table amphora?
116. Shoulder fragments (two joining). T: $0.45 \mathrm{~cm}, \mathrm{MPH}$ : 2.6 cm . Box 470, GM 00B (3). Brown clay with white and mica inclusions. Brown band at shoulder. Oinochoe or table amphora.

## Closed Forms

117. Body fragments (five, several joining). T: $0.9 \mathrm{~cm}, \mathrm{MPH}$ : 12.2 cm . Box 19, GM 2B (4). Red clay with white, black, and mica inclusions. Decoration outside: buff slip and reddish-brown bands. Very worn. Belly of a closed vessel.
118. Body fragment. Figure 14.3j. T: 0.6 cm, MPH: 2.7 cm . Box 32, GM 1A (0A). Red clay. Outside cream with three bands: dilute black, red, and dilute black.
119. Body fragment. Figure 14.3 k . T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 3.0 \mathrm{~cm}$. Box 15, GM 1A W1 NBR. Gray clay with tiny mica inclusions. Outside has reserve band then black band, on top of which are added white-red/purple-white bands at top and bottom(?) (sherd breaks off). The use of white (and lack of incision) precludes a Vroulian identification (Cook and Dupont, 1998:114-115). Decorative scheme is like the Ionian cup (Cook and Dupont, 1998:129-131; fig. 18.1a,b). Such banding is used also on bird and rosette bowls (Cook and Dupont, 1998:26-28). There is no mention of the scheme on closed shapes.
120. Body fragment. T: $0.45 \mathrm{~cm}, \mathrm{MPH}: 3.1 \mathrm{~cm}$. Box 86 , GM 1A P5 (5A). Red clay with white, black, and mica inclusions. Cream with three red bands.
121. Body fragment. T: 0.6 cm, MPH: 6.2 cm . Box 70, GM 1A TT2 (3). Red clay with white inclusions. Outside has one thin and one thick reddish-brown band.
122. Body fragment. Figure 14.31. T: 0.6 cm, MPH: 3.5 cm . Box 123, GM 2A (11). Brown clay with white inclusions. Two matte black bands outside.
123. Body fragment. Figure 14.3 m . T: $0.7 \mathrm{~cm}, \mathrm{MPH}: 2.7$ cm. Box 123, GM 2A (11). Reddish-brown clay with white inclusions. Outside has two matte black bands.
124. Body fragment. Figure 14.3 n . T: $0.4 \mathrm{~cm}, 3.2 \mathrm{~cm}$. Box 123, GM 2A (11). Light buff clay. Outside has two brown bands.
125. Body fragment. T: $0.65 \mathrm{~cm}, \mathrm{MPH}: 6.0 \mathrm{~cm}$. Box 125, GM 2A (13). Buff clay with white inclusions. Brown band outside. Deep interior wheel marks.
126. Body fragment. T: $0.3 \mathrm{~cm}, \mathrm{MPH}: 2.4 \mathrm{~cm}$. Box 125 , GM 2A (13). Fine brown clay with white and mica inclusions. Thin brown band outside.
127. Body fragment. Figure 14.3o. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 1.9 \mathrm{~cm}$. Box 128, GM 2A (18). Gray clay with white inclusions. Brown leaves?
128. Body fragments (four joining). Figure 14.3p. T: 0.7 cm , MPH: 6.3 cm . Box 135, GM 2A TT4 (10). Cream clay with white inclusions. Two brown bands outside.
129. Body fragment. T: 0.45 cm, MPH: 5.6 cm . Box 179, GM 1B (+). Reddish-brown clay with very fine mica inclusions. Outside three brown and red bands as vessel narrows toward its foot. Globular or rounded closed vessel. Appears burnt.
130. Body fragments (four joining). T: 0.65 cm, MPH: 9.9 cm . Box 199, GM 1B (10) 1. Reddish-yellow clay with gray core and white inclusions. Two matte brown bands outside. From lower portion of a closed vessel with rounded body.
131. Body fragment. T: 0.4 cm , MPL: 2.2 cm . Box 274, GM 2B W2 NBR. Brown clay with white inclusions. Thin reddishbrown bands outside.
132. Body fragment. Figure 14.3q. T: 0.8 cm , MPL: 6.6 cm . Box 507, GMII C1 (2B) 2 + Box 510, GMII C1 P2 (2). Reddish-brown clay with white inclusions. Concentric circles outside in brown and red. Rounded bottom of a circular or closed ovoid vessel.
133. Shoulder and neck fragment. Figure 14.3 r . T: 0.7 cm , MPH: 4.75 cm . Box 547, general site. Brown fabric with white
inclusions. Exterior has brown paint with ivy(?) leaves. Globular vessel.

## Transport Amphora

134. Body fragment. Figure 14.4 a . T: $0.9 \mathrm{~cm}, \mathrm{MPH}: 10.9$ cm . Box 59, GM 1A (10) 7. Dark red clay with white and mica inclusions. Outside buff with two thin red bands.
135. Rim. Figure 14.4b. T: 1.1 cm, MPH: 4.7 cm, D: $\sim 8.0$ cm. Box 93, GM 1A P6 (4). Reddish-brown clay with white inclusions. Inset rim with thickened, outturned lip.
136. Rim. Figure 14.4c. T (of rim): 2.2 cm, MPH: $4.0 \mathrm{~cm}, \mathrm{D}$ (of exterior of rim): $\sim 14.0 \mathrm{~cm}$. Box 131, GM 2A (20). Reddishbrown clay with white and mica inclusions and gray core. Red on exterior of lip. Thick, rounded projecting rim.
137. Handle. Figure 14.4d. T: 3.5 cm, MPH: 5.4 cm . Box 131, GM 2A (20). Reddish-brown clay with white inclusions. Trace of brown vertical line and four brown horizontal lines outside. Short, thick curving handle. Probably Chian.
138. Handle. Figure 14.4e. T: 3.5 cm , MPL: 6.15 cm . Box 168, GM 2A TT4 (6). Reddish brown clay with white, black, and mica inclusions. Matte black paint over handle and in a thin stripe down its length. Probably Chian.
139. Shoulder. Figure 14.4f. T: 1.0 cm , MPL: 7.0 cm . Box 389, GM 1D (9) 1. Reddish-yellow clay with white inclusions. Brown band at transition to neck.
140. Rim. T: 1.0 cm, MPH: $3.7 \mathrm{~cm}, \mathrm{D}: \sim 10.0 \mathrm{~cm}$. Box 432, $\mathrm{GM} 0 \mathrm{~B}(+) 1$. Light brown clay with white and black inclusions. Red band on outside of lip.
141. Rim. Figure 14.4g. T: $1.3 \mathrm{~cm}, \mathrm{MPH}: 7.4 \mathrm{~cm}, \mathrm{D}: \sim 13.0$ cm . Box 435, GM 0B (4) 1. Brown clay with white, black, and mica inclusions. Brown paint on top and outside of lip. Brown circle(?) on neck. Thickened, outturned rim, bulbous neck, and start of handle just below the lip. A "swollen-necked" Chian amphora. See Cook and Dupont (1998:149, fig. 23.2d-f). The painting scheme suggests this example dates early in the development of the type, which begins in the end of the 6th c. May be the same amphora as Cat. No. 142.
142. Handle. T: $3.3 \mathrm{~cm}, \mathrm{MPH}: 12.2 \mathrm{~cm}$. Box 450, GM 0B P4 (8). Reddish-brown clay with white and mica inclusions. Thin brown line down length of handle. Chian? May be the same amphora as Cat. No. 141.
143. Body fragment. T: 0.8 cm , MPL: 10.0 cm . Box 476, GM 00B F5. Reddish clay with white and mica inclusions. One red and one white band outside.
144. Body fragment. T: 0.9 cm, MPH: 4.3 cm . Box 854 , GMI 1F F4 (1). Reddish clay with white inclusions and a few very fine mica inclusions. Red vertical band outside.

$$
\begin{gathered}
\text { Attıc Ротtery } \\
\text { Black Figure: Cup (Skyphos) }
\end{gathered}
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145. Body and handle (two nonjoining fragments). T: 0.4 $\mathrm{cm}, \mathrm{MPH}: 1.1 \mathrm{~cm}$. Box 37, GM 1A (3). Body fragment with B-F decoration, probably a crude Haimonian palmette. Judging from
the small handle, which is very likely from the same vessel, this is a cup. 5th c.
146. B-F body fragment. T: 0.4 cm , MPL: 1.7 cm . Box 111, GM 2A (0). Illegible B-F decoration. Cup. Early 5th c.?
147. B-F body fragment. Figure 14.5a. T: $0.2 \mathrm{~cm}, 1.8 \mathrm{~cm}$. Box 199, GM 1B (10) 1. Horizontal vine in brownish purple with black dots and blob (probably a human figure). Very fine fabric of a delicate cup. Probably Painter of Elaios I, who was part of the Haimon Group, as suggested by the delicacy and use of brownish purple. Circa 480.
148. B-F body fragment. Figure 14.5b. T: $0.6 \mathrm{~cm}, \mathrm{MPH}$ : 3.7 cm . Box 266, GM 2B NBR (16). Portions of dot vine and palmette above double black bands. Haimonian drinking vessel. A carefully painted example. Circa 480.
149. Rim. Figure 14.5c. T: 0.4 cm, MPH: 2.4 cm, D: 16.0 cm . Box 547, general site. Exterior of lip offset but vertical with brownish-red glaze. Below reserved with blobby B-F decoration. Attic? Cup?

## Black Figure: Open Forms

150. B-F body fragment. T: 0.5 cm, MPH: 2 cm . Box 120, GM 2A (7). Illegible B-F decoration.
151. B-F body fragment. Figure 14.5d. T: 0.7 cm , MPH: 1.85 cm . Box 409, GM 2D (9). Ivy(?) chain with dots in the loops. Fragment is very flat and could be from a ledge rim of a calyx krater.
152. B-F body fragment. T: 0.5 cm , MPL: 1.8 cm . Box 419, GM 0A (5). Thin B-F bowl bands and a bit of a blob palmette. Haimonian drinking vessel.
153. B-F body fragment. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 3.1 \mathrm{~cm}$. Box 421, GM 0A (6A). B-F drapery(?) with incision.

## Black Figure: Lekythos

154. B-F shoulder and neck fragments (four joining). Figure 14.5e. T (of neck): 0.6 cm , MPH: 2.3 cm . Box 14, GM 2A (4) and 2A (6). B-F palmettes and trace of thin band near base of neck. Cylinder lekythos. 5th c.
155. B-F body fragments (four joining). Figure 14.5f. T: $0.35 \mathrm{~cm}, \mathrm{MPH}: 3.9 \mathrm{~cm}$. Box 27, GM 2A (15) and 2A NBR (15). White ground with B-F checkerboard above portions of three palmettes. Glaze reddish brown and abraded. Pattern lekythos. 5th c.
156. B-F body fragment. T: 0.65 cm, MPH: 3.1 cm . Box 61, GM 1A (12) 7. White ground. Traces of B-F bands, almost completely worn off. Pattern lekythos. 5th c.
157. B-F body fragment. Figure 14.5 g . T: $0.3 \mathrm{~cm}, \mathrm{MPH}$ : 4.05 cm . Box 784, GM, no square (+). White ground. B-F meander within double thin bands. In field below: palmettes in circles(?), probably oriented toward center. Pattern lekythos. 5th c.
158. B-F body fragments (two nonjoining). T: 0.3 cm, MPL: 3.0 cm . Box 118, GM 2A (6). B-F palmette and illegible B-F decoration (circle?) from area below neck of a lekythos.
159. B-F body fragment. Figure 14.5 h . T: 0.6 cm, MPH: 6 cm . Box 127, GM 2A (15). White ground. B-F decoration: five
thin bands; below, in the field, palmettes in circles oriented toward center to create a petal or similar motif. Pattern lekythos. 5th c.
160. B-F? foot. T: 1.0 cm , D (of foot): 3.5 cm . Box 127, GM 2A (15). Face of foot concave. Glaze streaky. Underside reserved. Foot of a small cylindrical lekythos. Might go with Cat. No. 159.
161. B-F shoulder and neck (three joining fragments). Figure 14.5i. T: $0.8 \mathrm{~cm}, \mathrm{MPH}: 2.9 \mathrm{~cm}$. Box 145, GM 2A (6A) 3. B-F line(s) around neck (fragmentary) and palmettes with varying orientation connected by fine line. Cylinder lekythos.
162. B-F(?) body fragment. T: $2 \mathrm{~cm}, \mathrm{MPH}: 3.95 \mathrm{~cm}, \mathrm{D}:$ $\sim 4.45 \mathrm{~cm}$. Box 152, GM 2A TT2 (4). Probably white ground. Dilute black-brown bands. Four incised lines, three in a group around body's widest point. Metallic glaze. Lower body of a cylindrical, probably pattern, lekythos.
163. B-F shoulder. T: 0.6 cm, MPH: 2.7 cm . Box 183, GM 1B TT1 (5). Rays on top of shoulder. Body with very worn white field and traces of black decoration. Pattern lekythos.
164. B-F neck and shoulder (two nearly joining fragments). T: 0.8 cm, MPH: 4.4 cm . Box 194, GM 1B (5) 1. Neck reserved. B-F rays on shoulder. Large lekythos.
165. B-F body fragment. T: 5.5 cm, MPH: 3.1 cm . Box 194, GM 1B (5) 1. White ground. Black bands. Pattern lekythos. Possibly from same vessel as black-glaze spout, Cat. No. 337. 5th c.
166. B-F body fragment. T (not complete): 1.0 cm , MPL: 3.7 cm . Box 197, GM 1B (8) 1. White ground. Below are alternating black bands. Small pattern lekythos. Might be from same vessel as Cat. Nos. 338 and 339.
167. B-F body fragment. T: 1 cm, MPH: $4.45 \mathrm{~cm}, \mathrm{D}$ (maximum, of body): $\sim 8.0 \mathrm{~cm}$. Box 199, GM 1B (10) 1. White ground. Field once decorated with rosettes above thin dilute black band and thick black band. Very worn. Pattern lekythos.
168. B-F body fragment. T: 1.2 cm, MPH: 2.95 cm . Box 212, GM 1B EBR (8B). White ground. Three B-F bands in field. Pattern lekythos. 5th c. Might be same vessel as Cat. No. 169.
169. B-F body fragment. T: 0.45 cm , MPH: 3.0 cm . Box 218, GM 1B NBR (8). White ground. B-F band and illegible decoration. Surface worn. Pattern lekythos. 5th c. Might be same vessel as Cat. No. 168.
170. B-F body fragment. T: 0.45 cm , MPH: 2.3 cm . Box 265, GM 2B NBR (13). White ground. Dilute black bands. Very worn. Pattern lekythos. 5th c.
171. B-F body fragment. T: $0.9 \mathrm{~cm}, \mathrm{MPH}: 4.95 \mathrm{~cm}$. Box 277, GM 2B FA/F1 NBR. Field has trace of B-F decoration (a blob). Below are black bands. Small cylinder lekythos.
172. B-F body fragment. T: 0.55 cm, MPH: 3.5 cm . Box 279, GM 2B P2 WBR. White ground. Trace of black band overpainted with thin white band. Pattern lekythos. 5th c.
173. B-F body fragment. Figure 14.5j. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 5$ cm. Box 290, GM 3B TT1 (2). White ground. Ivy above reserve band and black band. Pattern lekythos. 5th c.
174. B-F shoulder. T: 0.4 cm , MPH: 2.6 cm . Box 291, GM 3B (1). Rays on shoulder, black on handle exterior, body (as preserved) reserved. Very worn. Small cylindrical lekythos.
175. B-F body fragment. Figure 14.5k. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 1.5$ cm. Box 372, GM 2C P4 (1). B-F incised drapery and vertical line. Not too fine. Probably a cylinder lekythos.
176. B-F(?) shoulder. T: 0.3 cm , MPL: 2.4 cm . Box 376, GM 1D TT1 (2). B-F palmette, dot and circle(?) from shoulder of a lekythos. Could be red figure.
177. B-F body fragment. Figure 14.51 . T: $0.4 \mathrm{~cm}, \mathrm{MPH}$ : 2.1 cm . Box 385, GM 1D (3) 1. B-F incised drapery? Lekythos? Fragmentary and burnt.
178. B-F body fragment. Figure 14.5 m . T: $0.5 \mathrm{~cm}, \mathrm{MPH}$ : 3.75 cm . Box 418, GM 0A (4). B-F drapery? May once have had added white. Cylinder lekythos.
179. B-F body fragment. Figure 14.5n. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 4.2$ cm . Box 420, GM 0A (6). White ground. Illegible B-F decoration, something loose and looping. Below: thin black lines, dots, black bands. Pattern lekythos. 5th c. Might go with Cat. No. 180.
180. B-F shoulder. T: 0.6 cm, MPH: 4.5 cm . Box 420, GM 0A (6). Shoulder decorated with B-F rays. Lekythos. Might go with Cat. No. 179.
181. B-F Shoulder. Figure 145.5 o. T: 0.4 cm, MPH: 2.7 cm . Box 439, GM 0B (1) 2. Reserve band below shoulder with B-F running dog pattern. Black line above and below. Squat patterned lekythos. The running dog pattern here is unusual and approaches a degenerate meander that is unlinked. Sometimes careless approaches to meander are seen on pattern lekythoi, such as the example from Petrie's excavations at Jemmeh (Petrie, 1928:29, cat. no. 45 , pl. XLVI:2). But the shape and approach to decoration here are of the squat lekythos. See Agora 12 (no. 1123, fig. 11, pl. 38; the shape is discussed on p. 154). 5 th c.
182. B-F body fragment. Figure 14.5 p. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 3.6$ cm. Box 516, GMII C3 (+). White ground. B-F net pattern and bands. Pattern lekythos?
183. B-F body fragment. T: 0.9 cm, MPH: 3.9 cm . Box 519 , GMII D4 (0). White ground. Traces of B-F lines. Below: thick black band with incised lines. Pattern lekythos. 5th c.

## Black Figure: Closed Forms

184. B-F body fragment. Figure 14.6a. T: $0.3 \mathrm{~cm}, \mathrm{MPH}: 2.5$ cm . Box 355, GM 2C (3) 2. Net pattern. Closed round or ovoid vessel.
185. B-F(?) body fragment. Figure 14.6 b . T: 0.65 cm , MPL: 2.5 cm . Box 364, GM 1A (1A) 8. Squiggly incised lines, as with hair. Closed vessel with uneven surface and roughly slipped inside (as with askoi).

## Red Figure: Skyphos

186. R-F rim. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 1.2 \mathrm{~cm}$, D: too small to measure. Box 186, GM 1B TT1 (1). Plain rim with trace of R-F owl head. Glaux, Attic Type B. 475-425.
187. R-F body fragment. Figure 14.6 c . T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 1.9$ cm. Box 197, GM 1B (8) 1. Fragmentary draped figure(?) with an extended hand. Vertical wall and thickness suggest this comes from a skyphos. Drapery points to a date in the 5 th c.
188. R-F body fragment. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 2.6 \mathrm{~cm}$. Box 244, GM 2B (4). B-F meander and trace of a field. The decorative scheme and vertical wall suggest this is a skyphos.
189. R-F body fragments (two joining). Figure 14.6d. T: 0.5 $\mathrm{cm}, \mathrm{MPH}: 3.7 \mathrm{~cm}$. Box 330, GM 1C P2 (6, 7). Draped figure? Skyphos?
190. R-F body fragment. Figure 14.6e. T: 0.5 cm , MPH: 5.3 cm. Box 394, GM 1D P1 (1). R-F palmette. Probably an Attic Type A skyphos filling ornament.
191. R-F body fragment. T: 0.6 cm, MPH: 4.6 cm . Box 399, GM 2D TT3 (4). Very small portion of meander, likely the ground line of a R-F scene. Attic Type A skyphos.
192. R-F body fragment. Figure 14.6f. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.4$ cm. Box 404, GM 2D (4). Meander and checker (some open boxes have an added dot) between reserve lines set off by high relief lines. Likely from a R-F scene on an Attic Type A skyphos.
193. R-F body fragment. Figure 14.6 g . T: 0.6 cm , MPL: 4.3 cm. Box 409, GM 2D (9). Fragment of drapery. Probably from a skyphos.

## Red Figure: (Cup) Kantharos

194. Attic (?) R-F(?) body fragments (two nonjoining). Figure 14.6h. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 3.4 \mathrm{~cm}$. Box 115, GM 2A (3) and $2 \mathrm{~A}(12 \mathrm{~A})$. One fragment has white ground with alternating red and black petals above a red band. The other has white ground with alternating red and black petals. Below are three bands, red, reserve, and black. Below black band are dilute squiggly lines. Apparently a kantharos. 4th c.?
195. B-F body fragment. Figure 14.6i. T: 0.8 cm, MPH: 3.0 cm . Box 298, GM 3B P2. B-F tongue pattern, probably from a R-F krater.
196. R-F body fragments (two joining). Figure 14.6j. T: 0.6 cm, MPH: 6.7 cm . Box 371, GM 2C P3 (0). Knee of draped figure and palmette above reserved ground line with one (perhaps two) thin black line(s). Pretty sloppy. Krater?

## Red Figure: Lekythos

197. R-F body fragment. Figure 14.6 k . T: $0.5 \mathrm{~cm}, \mathrm{MPH}$ : 2.5. Box 424, GM 0A W1. Drapery(?), thin horizontal bands, and meander. Cylinder lekythos.
198. R-F body fragment. Figure 14.61. T: 0.25 cm , MPH: 3.6 cm . Box 547 , general site. Meander band above a draped female figure facing left, wearing fillet. The continuous line from top of forehead to tip of nose and forward pupil suggests a date in the early or high Classical era. See, for example, Boardman (1989:13, 61). Cylinder lekythos. 5th c.

## Black Glaze: Skyphos

199. Rim (three joining and one nonjoining fragments). T: 0.6 cm, MPH: 4.5 cm, D: 16 cm . Box 9, GM 1A P6 (7B). Plain rim. Attic Type A skyphos. Metallic glaze. 5th c.
200. Rim. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 3.3 \mathrm{~cm}, \mathrm{D}: \sim 16.0 \mathrm{~cm}$. Box 57, GM 1A (6A) 7 and 1A (7) 7. Plain rim. Attic Type A skyphos. 5th c.
201. Rim. T: 0.65 cm, MPH: 7.0 cm, D: 12.0 cm . Box 89 , GM 1A P6 TT4 (8). Plain rim. Attic Type A skyphos. 5th c.
202. Foot. T (of floor): $0.95 \mathrm{~cm}, \mathrm{MPH}: 2.7 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 10.0 \mathrm{~cm}$. Box 118, GM 2A (6). Torus ring foot. Black glaze outside, some peeled. Red glaze inside. Scraped groove at junction of wall and foot. Resting surface and extant underside of floor reserved. Attic Type A skyphos. 5th c.
203. Rim. T: $0.7 \mathrm{~cm}, 1.4 \mathrm{~cm}$. Box 118, GM 2A (6). Thickened outturned rim. Possibly an Attic Type A skyphos of the 4th c.
204. B-F body fragment. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 1.1 \mathrm{~cm}$. Box 120, GM 2A (7). B-F rays or lines. Probably from the lower wall of a Corinthian-type skyphos.
205. Foot (two joining fragments). T (of floor): 0.5 cm , MPH: $1.4 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 9.0 \mathrm{~cm}$. Box 123, GM 2A (11). Torus ring foot. Attic Type A skyphos. 5th c.
206. Rim. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.2 \mathrm{~cm}, \mathrm{D}: \sim 18.0 \mathrm{~cm}$. Box 130, GM 2A (12). Plain rim. Glaze fired red in parts. Attic Type A skyphos. 5th c.
207. Foot. T (of floor): $1.05 \mathrm{~cm}, \mathrm{MPH}: 2.85 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 10.5 \mathrm{~cm}$. Box 163, GM 2A F7 2. Torus ring foot. Scraped groove at junction of wall and foot. Resting surface and underside of foot reserved. Attic Type A skyphos. 5th c.
208. Handle and rim. T (of rim): 0.5 cm , MPL: 4.3 cm . Box 195, GM 1B (6) 1. Plain rim and horseshoe handle of a skyphos, probably Attic Type A. Glaze peeled. 5th c.
209. Rim (two nonjoining fragments). T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 4.1$ cm. Box 298, GM 3B P2. Plain rim. Attic Type A skyphos close to Agora 12 (no. 342, fig. 4, pl. 16). Circa 470-460.
210. Rim. T: 0.4 cm, MPH: 3.15 cm, D: $\sim 16.0 \mathrm{~cm}$. Box 308, GM 1C (4). Plain rim. Attic Type A skyphos. 5th c.
211. Handle. T: 0.4 cm, MPL: $5.3 \mathrm{~cm}, \mathrm{D}: \sim 14 \mathrm{~cm}$. Box 311, GM 1C (5A). Plain rim and horseshoe handle. Smaller Attic Type A skyphos. 5th c.
212. Foot. T: $0.7 \mathrm{~cm}, \mathrm{MPH}: 2.3 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 9 \mathrm{~cm}$. Box 344, GM 2C NBR (3). Torus ring foot. Resting surface reserved. Groove at junction of wall and foot. Attic Type A skyphos. 5th c.
213. Rim and handle. T: 0.6 cm, MPH: 3.1 cm , D: too small to measure. Box 349, GM 2C (7) 1. Plain rim and horseshoe handle. Attic Type A skyphos. 5th c.
214. Foot. T: $1.3 \mathrm{~cm}, \mathrm{MPH}: 2.9 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 12.0 \mathrm{~cm}$. Box 383, GM 1D EBR (3). Torus ring foot. Scraped groove at junction of wall and foot. Resting surface and underside of foot reserved. Attic Type A skyphos. 5th c.
215. Foot. T: $0.9 \mathrm{~cm}, \mathrm{MPH}: 2.8 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 10.0 \mathrm{~cm}$. Box 411, GM 2D P2 (1). Torus ring foot. Scraped groove at junction of wall and foot. Resting surface and underside of floor reserved. Attic Type A skyphos. 5th c.
216. Rim (three joining fragments; four additional wall and one floor fragments). T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 4.2 \mathrm{~cm}, \mathrm{D}: \sim 16.0 \mathrm{~cm}$. Box 422, GM 0A (7). Plain rim. Underside of floor has two circles and a dot. Attic Type A skyphos. 5th c.
217. Foot. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.3 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 9.0 \mathrm{~cm}$. Box 428, GM 0B (0). Torus ring foot. Resting surface and underside of floor reserved. Scraped groove at junction of wall and foot. Attic Type A skyphos. 5th c.
218. Foot. T: 0.8 cm, MPH: 2.6 cm, D (of foot): $\sim 10 \mathrm{~cm}$. Box 456, GM 00A (4). Torus ring foot. Attic Type A skyphos. 5th c.
219. Foot. T: 0.4 cm , MPL: $4.35 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 9 \mathrm{~cm}$. Box 499, GMII A6 (+). Torus ring foot. Resting surface of foot and underside of floor reserved. Specific type uncertain.
220. Rim. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 3.7 \mathrm{~cm}, \mathrm{D}: \sim 13.0 \mathrm{~cm}$. Box 505, GMII C1 (6). Glaze peeled and fired red inside and out. Plain rim. Attic Type A skyphos. 5th c.

## Black Glaze: Cup (Skyphos)

221. Foot (two joining fragments). T: 1.0 cm, MPL: 4.0 cm . Box 1, 0B (7) 5. Small central fragment of flat-topped foot. Scraped groove on top of foot. Center of cone reserved. Stemmed cup, probably a Vicup.
222. Body fragments (two joining). T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 3.75$ cm . Box 17, GM 2B W6. Lower wall of probably a stemless cup.
223. Foot. T: 0.7 cm , MPL: 3.2 cm , D (of foot): $\sim 5.0 \mathrm{~cm}$. Box 42, GM 1A (5) 2. Flat-topped foot. Scraped groove on top. Concave outer face. Outside of foot and band on part of resting surface reserved. Vicup. See Agora 12 (nos. 434-438, fig. 5, pl. 20). Second quarter of the 5 th c .
224. Foot. T: 1.0 cm , MPL: $4.3 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 8 \mathrm{~cm}$. Box 65, GM 1A W1 NBR. Torus foot. Face and underside probably reserved. Very worn. Type C cup. See Agora 12 (nos. 398-431, fig. 4).
225. Foot. Figure 14.7a. T: 0.7 cm , MPL: 3.75 cm , D (of foot): $\sim 7 \mathrm{~cm}$. Box 73, GM 1A TT6 (2). Inside intentional red with black circle around center. Outside wall intentional red. Top of foot's face reserved then black. Underside reserved. Very fine. The profile of the foot and decorative scheme (including intentional red) point to the class of Agora P 10359, in particular Agora 12 (nos. 453-454, fig. 5, pl. 21). Circa 480.
226. Handle. T (of handle): 0.8 cm , MPL: 4.3 cm . Box 96, GM 1A P6 TT4 (10). Horizontal cup handle.
227. Handle. T (of handle): 1.3 cm , MPL: 5.7 cm . Box 101, GM 1A P3 TT11 (1). Squared horizontal handle that rises up to or over the rim (too fragmentary to determine). Handle panel apparently reserved. Glaze peeled in parts. Cup.
228. Foot. Figure 14.7b. T: $1.1 \mathrm{~cm}, \mathrm{MPH}: 1.65 \mathrm{~cm}, \mathrm{D}$ (of foot): 11-12 cm. Box 110, GM 2A WBR (+). Molded foot. Side and resting surface reserved. Groove at junction of foot and wall. Profile of foot similar to a large and light-walled stemless cup from the Agora dating to 440-430 (Agora 12: no. 581, fig. 6, pl. 26, frontispiece). Diameter and profile of foot suggest further it is a stemless cup that dates to the 5 th c., probably the second half.
229. Handle stub. Figure 14.7 c. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 2.3 \mathrm{~cm}$. Box 115, GM 2A (3). Handle at rim. Below handle wall turns in sharply like the small stemless Rheneia cup. Both of these features, the handle on the rim and the angular wall, place this shallow cup in the second half of the 5th c. Compare Agora 12 (no. 460, fig. 5, dated to ca. 425).
230. Rim (four joining fragments). T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 2.6 \mathrm{~cm}$, D: too small to measure. Box 120, GM 2A (7). Inset lip. Profile similar to stemless cups and cup-skyphoi of the 5 th c. Compare Agora 12 (no. 456, fig. 5, pl. 21). 5th c.
231. Foot (two joining fragments). T (of floor): $1 \mathrm{~cm}, \mathrm{MPH}$ : 2.0 cm, D (of foot): $\sim 9.0 \mathrm{~cm}$. Box 123, GM 2A (11). Spreading
ring foot, lipped. Glaze red inside and outside. Resting surface reserved with central dot underneath. Surface worn and encrusted. Heavy. Profile of foot similar to a large stemless cup (delicate class) from the Agora of 450 (Agora 12: no. 483, fig. 5 , pls. 23, 50).
232. Rim. T: $0.3 \mathrm{~cm}, \mathrm{MPH}: 2.75 \mathrm{~cm}$, D: too small to measure. Box 123, GM 2A (11). Inset lip. Bowl in intentional red inside and outside. Glaze metallic and dilute. Class of Agora P 10359. Circa 480.
233. Rim and body fragments (six joining and two nonjoining). Figure 14.7 d . T (of rim): 0.3 cm , MPH: $2.9 \mathrm{~cm}, \mathrm{D}: 14 \mathrm{~cm}$. Box 127, GM 2A (15) and Box 128, GM 2A (18). Inset rim. Glaze matte or greenish in parts. Reserve area on portions of lower rim and below (for B-F decoration?). Profile of rim similar to the stemless Rheneia cup, although other possibilities remain, such as the Type C cup with concave lip or the Vicup (Agora 12: nos. 398-414, fig. 4; nos. 434-438, fig. 5; 456-463, fig. 5). Probably from the same cup as Cat. No. 234. 5th c.
234. Rim and body fragments (19, about half of which are joining). T: $0.3 \mathrm{~cm}, \mathrm{MPH}: 2.7 \mathrm{~cm}, \mathrm{D}: 15 \mathrm{~cm}$. Box 127, GM 2A (15) and Box 128, GM 2A (18). Inset lip from a cup. Probably from same cup as Cat. No. 233. 5th c.
235. Body fragment. T: $0.85 \mathrm{~cm}, \mathrm{MPH}: 3.1 \mathrm{~cm}$. Box 130, GM 2A (12). Lower part of rim from a large stemless cup with lip inset on outside and offset inside. Heavy. Extant rim similar to that of a cup from ca. 470-450 (Agora 12: no. 471, fig. 5). 5th c.
236. Foot. T: 0.9 cm , MPL: 3.3 cm . Box 140, GM 2A (1) 3 . Flat-topped foot with concave face and light ridges. Outside of foot and resting surface reserved. Vicup.
237. Foot. T: 0.75 cm, MPH: $2.0 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 10 \mathrm{~cm}$. Box 153, GM 2A TT3 (5). Spreading ring foot. Outside concave and reserved. Groove at junction of wall and foot. Probably from a cup-skyphos similar to Agora 12 (nos. 573, 575, 576, fig. 20, pl. 25), dated to 490-480.
238. Rim (six fragments, half of which are joining). T: 0.7 cm, MPH: 2.75 cm, D: 16 cm . Box 156, GM 2A TT4 5. Glaze greenish in parts. Inset rim with thickened lip slightly pointed at top. Strong incurve of rim similar to, for example, the Type C cup (Agora 12: no. 413, fig. 3, pl. 19), although it is similar also to some stemless cups.
239. Foot. T: 1.05 cm, MPH: $1.5 \mathrm{~cm}, \mathrm{D}$ (of foot): 8 cm . Box 161, GM 2A F7. Spreading foot. Concave face in intentional red (or reserved?). Glaze peeled. Resting surface reserved. Very worn. Foot slopes up toward stem. Stemmed vessel, perhaps a pinch-based cup-skyphos.
240. Stem. T: 2.4 cm, MPH: 2.7 cm . Box 172, GM 2A P2. Fillet at join of stem and bowl with grooves at top and bottom. Glaze very worn. Probably from an Acrocup with rising foot. See Agora 12 (nos. 442-445, fig. 5, pl. 20). Probably 475-450.
241. Foot (two joining fragments). Figure 14.7e. T: 0.7 cm , D (of foot): $\sim 9 \mathrm{~cm}$. Box 178, GM 2A WBR (15) 3. Spreading foot. Exterior, resting surface, and under stem reserved. Type B cup with foot profile similar to Agora 12 (no. 432, fig. 4), which is dated to $500-480$. Graffito on underside: perhaps a M with a cross bar at top.
242. Foot. T: 0.8 cm, D: $\sim 9 \mathrm{~cm}$. Box 181, GM 1B TT1 (3). Stemmed foot with scraped groove on exterior. Trace of scraped groove closer to stem. Resting surface reserved. Glaze on top of foot brownish and peeled. Vicup?
243. Rim. T: 0.5 cm, MPH: 2.8 cm , D: too small to measure. Box 183, GM 1B TT1 (5). Lip offset inside and out. Large stemless cup with inset lip. See Agora 12 (469-473, fig. 5, pl. 22).
244. Rim. T: 0.4 cm, MPH: 2.5 cm, D ~18.0 cm. Box 186, GM 1B TT1 (1). Plain rim of shallow vessel. Stemless cup?
245. Foot. T: 0.75 cm , D (of foot): 7 cm . Box 198, GM 1B (9) 1. Resting surface, center of cone, and exterior of foot reserved. Vicup. Second quarter of the 5 th c .
246. Incised body fragment. Figure 14.7 f . T: 0.4 cm , MPL: 1.9 cm . Box 258, GM 2B SBR (5). Small fragment from bottom of floor showing a tongue pattern within a circle. Delicacy, quality, and flatness of fragment, along with its restrained decoration, suggest it is from a stemless cup.
247. Foot. T: 0.9 cm, MPH: 2.4 cm . Box 290, GM 3B TT1 (2). Scraped groove at junction of foot and wall. Very worn. Short-stemmed cup foot.
248. Foot. Figure 14.7 g . T: $1.75 \mathrm{~cm}, \mathrm{MPH}: 2.4 \mathrm{~cm}, \mathrm{D}$ (of foot): 6.5 cm . Box 292, GM 3B (2). Resting surface, high inside stem, and exterior of foot reserved. Scraped groove on top of foot. Foot rises toward stem. Exterior of foot very slightly concave. Vicup. Between nos. 434 and 437 of Agora 12.
249. Foot. T: 0.8 cm , MPL: $5.3 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 9 \mathrm{~cm}$. Box 292, GM 3B (2). Exterior and resting surface of foot reserved. Type C cup foot. See Agora 12 (no. 420, fig. 4, pl. 20). Circa 500-480.
250. Foot. T: 0.55 cm , MPL: $8.05 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 10.0 \mathrm{~cm}$. Box 297, GM 3B P1. Ring foot. Resting surface of foot and underside of floor reserved, the latter with circle (and presumably a dot). Foot sharply offset from wall. Perhaps from a cup-skyphos.
251. Foot. T: 0.85 cm , MPL: 4.4 cm, D (of foot): $\sim 9 \mathrm{~cm}$. Box 325, GM 1C SBR (10) 4. Foot very flat and exterior slightly convex. Top of foot scraped. Exterior and resting surface of foot reserved. Type C cup, probably from early in the 5th c.
252. Rim. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 1.3 \mathrm{~cm}$, D: too small to measure. Box 414, GM 1E TT1 (1). Gently outturned rim. Thin reserve band just inside lip. Cup?
253. Foot. T: 0.5 cm , MPL: 2.8 cm . Box 436, GM 0B (5) 1 . Disk foot. Glaze almost completely peeled from inside. Underside of foot reserved. Probably a stemless cup.
254. Foot. T: 0.8 cm , MPL: $4.9 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 7 \mathrm{~cm}$. Box 445, GM 0B (7) 5. Foot rises gently toward stem. Exterior very slightly concave. Scraped groove on top. Resting surface and face of foot reserved. Vicup. Between nos. 434 and 437 of Agora 12 (fig. 5, pl. 20). Circa 475-460.
255. Rim (two joining and one nonjoining fragments). T: 0.3 cm , MPH: 2.3 cm, D: $\sim 16.0 \mathrm{~cm}$. Box 449, GM 0B P4 (6A). Rim inset and outturned. Bowl intentional red inside and out. Stemless cup, class of Agora P 10359. Circa 480-470.
256. Rim (two joining and one nonjoining fragments). T: 0.4 cm, MPH: 3 cm, D: $\sim 21.0 \mathrm{~cm}$. Box 450, GM 0B P4 (8). Lip inset and outturned. Cup or cup-skyphos.
257. Foot. T: 0.7 cm, MPL: $2.8 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 10.0 \mathrm{~cm}$ (?) (very small). Box 450, GM 0B P4 (8). Flat-topped foot. Exterior,
resting surface, and center of stem reserved. Vicup. Between nos. 434 and 437 of Agora 12 (fig. 5).
258. Foot. T: 0.9 cm, MPL: $5 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 10 \mathrm{~cm}$. Box 451, GM 0B F1A (1) 1. Flat-topped foot. Exterior concave. Exterior of foot and resting surface reserved. Bands of intentional red underneath. Vicup. Foot close to Agora 12 (no. 437, fig. 5, pl. 20).
259. Foot. T: 0.6 cm , MPL: 3.1 cm , D (of foot): $\sim 8 \mathrm{~cm}$. Box 456, GM 00A (4). Flat-topped foot. Exterior slightly concave. Four fine and one standard scraped groove on top of foot. Exterior of foot, resting surface, and center of stem reserved. Vicup.
260. Foot. T: 1.05 cm , MPL: 2.3 cm . Box 469, GM 00B (2). Exterior concave. Resting surface and exterior of foot reserved. Vicup. Foot profile similar to Agora 12 (no. 434, fig. 5, pl. 20).
261. Foot. T: 0.7 cm , MPL: 3.7 cm . Box 470, GM 00B (3). Low disk foot, rising slightly in center. Spreading wall. Glaze fired red inside and out. Stemless cup.
262. Foot. T: 0.5 cm, MPL: 2.3 cm , D (of foot): $\sim 9 \mathrm{~cm}$. Box 488, GMI 3G (0). Resting surface reserved. Cup foot of uncertain type.
263. Rim. T: $0.45 \mathrm{~cm}, \mathrm{MPH}: 3.4 \mathrm{~cm}$, D: too small to measure. Box 500, GMII A6 (0). Lip outturned and offset inside and out. Glaze very worn. Probably a cup-skyphos (a bit heavy for a stemless cup).
264. Rim. T: 2.5 cm , MPH: 0.8 cm , D: too small to measure. Box 508, GMII C1 F2. Offset, concave lip. Cup.
265. Rim. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 1.7 \mathrm{~cm}$, D: too small to measure. Box 522, GMIII A1 P1. Rim offset inside (outside fragmentary). Worn. Stemless cup?
266. Foot. T: 0.8 cm , MPL: $5.1 \mathrm{~cm}, \mathrm{D}$ (of foot): 13 cm . Box 523, GMIII A1 F2 (1). Spreading ring foot. Resting surface, underside of floor, and area above the groove at the join of foot and wall reserved. Cup-skyphos?
267. Rim and handle. T: $0.8 \mathrm{~cm}, \mathrm{MPH}: 3.75 \mathrm{~cm}, \mathrm{D}: \sim 17 \mathrm{~cm}$. Box 547, general site. Lip offset, inside and outside. Handle at lip and handle panel reserved. Large stemless cup with inset lip. Compare to lip of Agora 12 (no. 471, fig. 5). Type dates from the second quarter of the 5 th c . to first quarter of the 4 th c .
268. Rim. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 3.6 \mathrm{~cm}$, D: $\sim 14.0 \mathrm{~cm}$. Box 547, general site. Lip gently offset inside and outside. Lip concave and thickened at end. Greenish glaze on outside. Probably a Type C concave lip cup, likely from toward the end of its development. See Agora 12 (no. 413, fig. 5, pl. 19). Circa 480?

## Black Glaze: Bolsal

269. Foot. T: 0.6 cm, MPH: 2.6 cm , D (of foot): $\sim 8.0 \mathrm{~cm}$. Box 97, GM 1A P6 (7). Flared ring foot. Glaze fired red inside. Foot comes to a point, similar to that of bolsals dated from ca. 430 to 400 (Agora 12: nos. 541-554, fig. 6, pl. 53).
270. Foot. Figure 14.8a. T: 0.45 cm, MPH: 1.5 cm , D (of foot): $\sim 10 \mathrm{~cm}$. Box 247, GM 2B (13). Flaring ring foot. Groove at join of wall and foot. Underside of floor reserved with black band. Very fine. Bolsal. Foot as Agora 12 (no. 541, fig. 6, pl. 22), which is dated to 420 .
271. Rim. T: 0.4 cm, MPH: 2.1 cm , D: too small to measure. Box 266, GM 2B NBR (16). Very fine plain rim, perhaps from a bolsal.

## Black Glaze: (Cup) Kantharos

272. Rim and handle. T: 0.45 cm, MPH: 3.35 cm , D: ~16.0 cm . Box 298, GM 3B P2. Vertical strap handle set below outturned lip. Black glaze peeled inside and outside. A variant on the kantharos similar to Agora 12 (no. 646, fig. 7), which dates to 450-425.
273. Body fragment (two joining). T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.7 \mathrm{~cm}$, D (of wall): $\sim 14.0 \mathrm{~cm}$. Box 339, GM 2C (0) and Box 396, GM 2D TT2 (1). Appears to be the convex lower wall of a kantharos or cup-kantharos.

## Black Glaze: Phiale

274. Body fragment. Figure 14.8b. T: 0.6 cm, MPH: 3.35 cm . Box 249 , GM 2B (15). Outside with horizontal ribbing. Intentional red inside and outside. The ribbing, profile, and intentional red on the bowl identify this as a phiale (Agora 12: no. 520, fig. 6; a similar example, although larger and lacking the intentional red, is no. 521, fig. 6, pl. 23). For the Attic phiale, which is a shape not common in ceramic, see Agora 12 (105-106). Circa 500.

## Black Glaze: Krater

275. Body fragments (two joining). T: $1.0 \mathrm{~cm}, \mathrm{MPH}: 8.55$ cm . Box 90, GM 1A P6 (1). Flaring, slightly concave wall from a large open vessel. Glaze greenish on outside. Calyx krater?
276. Foot. Figure 14.8c. T: $0.85 \mathrm{~cm}, \mathrm{MPH}: 4.1 \mathrm{~cm}$, D (of foot): $\sim 14 \mathrm{~cm}$. Box 402, GM 2D (3). Elaborate foot with concave exterior and flat top rising toward fillet. Resting surface, underside, and exterior of foot reserved. Scraped groove below the now-lost fillet. Krater.

## Black Glaze: Bowls

277. Foot (two joining fragments). Figure 14.8d. T: 6.5 cm , MPH: $2.5 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 10 \mathrm{~cm}$. Box 25, GM 2C (7) 2. Ring foot. Double row of rouletting. Grooved resting surface reserved. Scraped groove at junction of wall and foot. Bowl. 4th c.
278. Rim. Figure 14.8e. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.1 \mathrm{~cm}$, D: too fragmentary to measure. Box 110, GM 2A WBR (+). Rounded rim. Outside below rim are a groove, ridge, and second groove. Trace of white band below lowest ridge. Bowl with incurving rim of the type similar to Agora 12 (no. 783, fig. 8, pls. 32, 57). 5th c.
279. Foot. T (of floor): $0.65 \mathrm{~cm}, \mathrm{MPH}: 1.8 \mathrm{~cm}, \mathrm{D}$ (of foot) $\sim 10 \mathrm{~cm}$. Box 111, GM 2A (0). Ring foot. Grooved resting surface reserved. Double row of rouletting. Bowl? 4th c.
280. Foot. T (of floor): $0.35 \mathrm{~cm}, \mathrm{MPH}: 1.8 \mathrm{~cm}$, D (of foot): $\sim 9 \mathrm{~cm}$. Box 120, GM 2A (7). Ring foot. Completely glazed. Bowl?
281. Rim. T: 0.6 cm, MPH: 1.8 cm , D: too small to measure. Box 125, GM 2A (13). Incurved rim with light ridge at top. Glaze red inside and outside, peeled in parts. Bowl with incurved rim?
282. Rim (two joining fragments). T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.05$ $\mathrm{cm}, \mathrm{D}: \sim 18 \mathrm{~cm}$. Box 127, GM 2A (15). Groove below rim on outside. Bowl with incurved rim similar to Agora 12 (no. 828, fig. 8, pl. 33), although Jemmeh bowl is rather larger. 4th c.
283. Rim (two joining and one nonjoining fragments). T: $0.6 \mathrm{~cm}, 1.6 \mathrm{~cm}, \mathrm{D}: \sim 18 \mathrm{~cm}$. Box 127, GM 2A (15) and Box 128, GM 2A (18). Thickened outturned rim, rounded at top. Probably from a bowl with outturned rim from the 5 th c .
284. Rim. Figure 14.8f. T: 1 cm, MPH: 2.25 cm, D: too small to measure. Box 261, GM 2B WBR (29). Thickened rim projects inside. Small bowl with broad rim. Compare to Agora 12 (no. 849, fig. 9). Second quarter of the 5 th c.
285. Rim. Figure 14.8 g . T: 0.7 cm, MPH: 1.7 cm, D: too small to measure. Box 263, GM 2B W2 WBR. Shallow-walled, convex-concave bowl. Rim as Agora 12 (no. 821, fig.8), which dates to 425-400.
286. Foot. T: 0.45 cm, MPH: 1.7 cm . Box 314, GM 1C (5) 2. Ring foot. Scraped groove at bottom of foot and at junction with wall. Glaze matte or fired red in parts. Approximately seven rows of rouletting, applied sloppily. Probably a bowl with outturned rim. 4th c.
287. Rim. T: $0.7 \mathrm{~cm}, \mathrm{MPH}: 2.3 \mathrm{~cm}, \mathrm{D}$ : too small to measure. Box 330, GM 1C P2 (6-7). Flat, projecting ledge rim. Small bowl with projecting rim. See Agora 12 (no. 880, fig. 9), which dates from 400 to 380 .
288. Foot. T: 0.7 cm, MPH: 2.25 cm , D (of foot): 10 cm . Box 334, GM 2C TT5. Ring foot. Stamped palmettes. Resting surface grooved and reserved. Scraped groove at junction of wall and foot. Matte and streaked glaze. Very worn. Bowl. 4th c. or later.
289. Rim. T: $1 \mathrm{~cm}, \mathrm{MPH}: 3.4 \mathrm{~cm}$, D: too small to measure. Box 339, GM 2C (0). Glaze peeled on outside. Bowl with incurved rim similar to Agora 12 (no. 828, fig. 8, pl. 33).
290. Rim (three joining and one nonjoining fragments). T: $0.75 \mathrm{~cm}, \mathrm{MPH}: 2.3 \mathrm{~cm}$, D: too small to measure. Box 339, GM 2C (0). Glaze peeled inside and outside. Bowl with incurved rim.
291. Foot. Figure 14.8h. T: 0.9 cm, MPH: 2.05 cm , D (of foot): $\sim 7 \mathrm{~cm}$. Box 355 , GM 2C (3) 2 . High ring foot with grooved resting surface. Linked palmettes. Scraped groove at junction of foot and wall. Resting surface of foot reserved. Underside completely glazed with central nipple. Bowl. 4th c.
292. Rim. T: 0.6 cm, MPH: 2.1 cm, D: $\sim 13 \mathrm{~cm}$. Box 358, GM 2C (7) 2. Bowl with incurved rim.
293. Rim (two joining fragments). T: $0.55 \mathrm{~cm}, \mathrm{MPH}: 5.6$ $\mathrm{cm}, \mathrm{D}: \sim 14 \mathrm{~cm}$. Box 359, GM 2C (8) 2. Bowl with incurved rim.
294. Rim (five joining fragments). T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.6 \mathrm{~cm}$, D: $\sim 15 \mathrm{~cm}$. Box 367, GM 2C F1A. Metallic glaze. Bowl with incurved rim similar to Agora 12 (no. 828, fig. 8, pl. 33). Probably from same bowl as Cat. No. 323. If so, 4th c.
295. Rim. T: 0.4 cm , MPL: 2.45 cm , D: too small to measure. Box 373, GM 2C P5 TT1 (4). Bowl with outturned rim?
296. Rim. T: 0.5 cm, MPH: 1.4 cm , D: too small to measure. Box 379, GM 1D TT2 (5). Scraped groove outside at junction of lip and wall. Bowl with outturned rim.
297. Foot. Figure 14.8i. T (of floor): $0.7 \mathrm{~cm}, \mathrm{MPH}: 1.7 \mathrm{~cm}$, D (of foot): $\sim 7 \mathrm{~cm}$. Box 382, GM 1D EBR (0), Reg. No. 4072. Ring foot. Rouletting surrounding stamped palmettes with small incised circle apparently at center. Grooved resting surface reserved. Scraped groove at junction of foot and wall. Underside graffito of a $\Phi$. Probably a bowl. For decorative scheme, see Agora 12 (nos. 752, 799, pls. 56, 58). 4th c.
298. Partial rim. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.5 \mathrm{~cm}$, D: too fragmentary to measure. Box 383, GM 1D EBR (3). Probably a small bowl with projecting rim. See Agora 12 (no. 880, fig. 9).
299. Rim. T: 0.5 cm, MPH: 1.5 cm , D: too small to measure. Box 403, GM 2D (1). Probably a small bowl with outturned rim.
300. Foot. T: 0.9 cm , MPL: 4.0 cm , D (of foot): $\sim 14.0 \mathrm{~cm}$. Box 497, GMII A5 (0). High ring foot. Resting surface grooved and reserved. Bowl.
301. Rim. T: 0.3 cm, MPH: $1.7 \mathrm{~cm}, \mathrm{D}: \sim 18.0 \mathrm{~cm}$. Box 522, GMIII A1 P1. Bowl with outturned rim.

## Black Glaze: One-Handler

302. Rim. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 1.4 \mathrm{~cm}, \mathrm{D}: \sim 14.0 \mathrm{~cm}$. Box 515, GMII C2 P3. Flat-topped rim slopes inward. Similar to the onehandler in Agora 12 (no. 755, fig. 8), which dates to ca. 400.

## Black Glaze: Plate

303. Foot. Figure 14.8 j . T: $0.95 \mathrm{~cm}, \mathrm{MPH}: 2.3 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 8 \mathrm{~cm}$. Box 111, GM 2A (0). Ring foot. Glaze very worn and chipped. Grooved resting surface reserved. Scraped groove at junction of wall and foot. Fish plate similar to Agora 12 (no. 1075, fig. 10), which dates to 325-310.
304. Body fragment. T: 1 cm , MPL: 5.3 cm . Box 359, GM 2C (8) 2. Completely glazed except for deep scraped groove around central depression. Fish plate. 4th c.
305. Foot. T: 0.9 cm , MPL: 5.85 cm . Box 383, GM 1D EBR (3). High ring foot. Scraped groove around central depression. Resting surface grooved and reserved. Fish plate. 4th c.
306. Foot. T: 1.4 cm , MPL: 6.6 cm . Box 398, GM 2D TT3 (2). Ring foot? Damaged. Wall seems to rise out of ring foot. Underside of floor reserved. Plate?

## Black Glaze: Dish

307. Foot (two nonjoining fragments). T: 0.9 cm, MPL: 3.1 cm . Box 55, GM 1A (8B) 7. Underside reserved except in cone (a band?). Broad foot of the type seen in the convex and small stemmed dish (cf. Agora 12: nos. 974-978, fig. 9, pl. 35). These dishes have a short life span, from the late 6th to second quarter of the 5th c. Those with a broad foot are dated to ca. 525-480.
308. Rim. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 3.3 \mathrm{~cm}, \mathrm{D}: \sim 24.0 \mathrm{~cm}$. Box 522, GMIII A1 P1. Reserved on outside below lip. Lip sharply undercut. Rim similar to the stemmed dish (Agora 12: no. 958, fig. 8, pl. 35). For date, see Cat. No. 307.

## Black Glaze: Open Forms

309. Body fragments (two joining). T: $0.9 \mathrm{~cm}, \mathrm{MPH}: 3.9$ cm . Box 5, GM 00B (1) and 0A (5). Lower wall of a drinking vessel. Trace of scraped groove at junction of wall and stem/foot. Glaze outside dilute in parts.
310. Rim. T: $0.25 \mathrm{~cm}, \mathrm{MPH}: 1.3 \mathrm{~cm}$, D: too small to measure. Box 56, GM 1A (9) 7. Reserve band inside lip. Outturned, flaring rim.
311. Rim. T: 0.4 cm, MPH: 1.6 cm, D: 12 cm . Box 109, GM $2 \mathrm{~A}(+)$. Outturned rim from a drinking vessel.
312. Body fragment. T: 0.6 cm , MPL: 3.5 cm . Box 111, GM 2A (0). Stamped palmette around double groove containing ovules. Light-walled drinking vessel.
313. Handle. T: 1.3 cm , MPL: 4.75 cm . Box 121, GM 2A NBR (7). Horseshoe handle. Metallic glaze peeled in parts.
314. Handle. T (of handle): 1.1 cm , MPL: 5.1 cm . Box 195, GM 1B (6) 1. Bell-shaped handle of a skyphos or cup. Glaze greenish and peeled.
315. Body fragments (three joining). T: $0.35 \mathrm{~cm}, \mathrm{MPH}: 3.2$ cm . Box 198, GM 1B (9) 1. Bottom of bowl. Two thin reserve bands above a groove. Drinking vessel.
316. Rim. T: $0.35 \mathrm{~cm}, \mathrm{MPH}: 1.7 \mathrm{~cm}, \mathrm{D}$ : too small to measure. Box 263, GM 2B W2 WBR. Plain rim. Drinking vessel.
317. Body fragment. T: 0.7 cm , MPL: 3.8 cm . Box 299, GM 3B P4. Sloppy palmette stamp and rouletting. 4th c.
318. Rim. T: 0.7 cm, MPH: $2.5 \mathrm{~cm}, \mathrm{D}: \sim 22 \mathrm{~cm}$. Box 327, GM 1C P2. Thickened, projecting, flat-topped rim. Scraped groove at junction of lip and wall.
319. Body fragment. T: 0.4 cm , MPL: 3.7 cm . Box 328, GM 1C P2 (2). Two rows of rouletting. Very fine. 4th c.
320. Body fragment. T: 0.3 cm , MPL: 4.4 cm . Box 343, GM 2C (2). Traces of four stamped palmettes around rather sloppy small circle at center of floor. Underside is all black and has the rising central cone so characteristic of many 4th c. shapes, such as the bolsal (especially from ca. 350 ). See Agora 12 (p. 107). Drinking vessel. 4th c.
321. Body fragment. T: 0.25 cm , MPL: 2.1 cm . Box 345, GM 2C (7). Linked palmettes from the center of the floor. 4th c.
322. Body fragment. T: 0.4 cm , MPL: 3.1 cm . Box 359 , GM 2 C (8) 2 . Ovules around incised circle, the latter enclosing probably stamped palmettes.
323. Body fragment. T: 0.7 cm , MPL: 3.95 cm . Box 367, GM 2C F1A. Metallic glaze. Two rows of rouletting. Probably from same bowl as Cat. No. 294. 4th c.
324. Foot? T: 0.7 cm, MPL $2.6 \mathrm{~cm}, \mathrm{D}: \sim 14.0 \mathrm{~cm}$. Box 371, GM 2C P3 (0). Flaring ring foot? Black glaze peeled almost completely off. 325. Shoulder. T: 0.5 cm , MPL: 2.3 cm . Box 378, GM 1D TT2 (2, 4). Black glaze inside and outside. Lid?
325. Rim. T: $0.55 \mathrm{~cm}, \mathrm{MPH}: 1.4 \mathrm{~cm}, \mathrm{D}$ : too small to measure. Box 419 , GM 0A (5). Thickened, slightly outturned rim.
326. Body fragment. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 1.7 \mathrm{~cm}, \mathrm{D}: \sim 10 \mathrm{~cm}$. Box 522, GMIII A1 P1. Linked palmette around incised lines containing slanted ovules. Bowl with outturned rim?
327. Rim? T: $0.7 \mathrm{~cm}, \mathrm{MPH}: 1.8 \mathrm{~cm}$, D: too small to measure. Box 522, GMIII A1 P1. Large scraped groove at junction of lip and wall. Incurved rim.

## Black Glaze: Lekythos

329. Body fragment (two joining). T: 4.5 cm , MPH: 5.8 cm . Box 11, GM 1A TT1 (1A) and GM 1A TT4 (3). Vertical wall from a (squat?) lekythos. Glaze chipped.
330. Foot (three or more joining fragments). T: $1.75 \mathrm{~cm}, \mathrm{D}$ : 7 cm . Box 23, GMII C1 (+). Broad foot. Groove at top of foot's exterior. Exterior and underside reserved. Cylinder lekythos.
331. Foot. T: 0.7 cm , MPL: $2.1 \mathrm{~cm}, \mathrm{D}$ (of foot): $\sim 5 \mathrm{~cm}$. Box 66, GM 1A W4. Exterior and resting surface reserved.
332. Body fragment. T: 1.5 cm, MPH: 2.2 cm . Box 109, GM 2A (+). Lower body of small cylinder (pattern?) lekythos. Metallic glaze.
333. Body fragment. T (of floor): 1.1 cm, MPH: 1.5 cm . Box 109, GM 2A (+). Floor and stub of disk foot. Completely glazed as preserved.
334. Spout. T: 1.6 cm, MPH: $2.7 \mathrm{~cm}, \mathrm{D}: \sim 6 \mathrm{~cm}$. Box 109, GM 2A (+). Top of lip reserved. Large lekythos.
335. Spout (two joining fragments). T (of bowl rim): 0.5 cm, MPH: 1.5 cm . Box 129, GM 2A (17). Streaky black glaze. Small lekythos.
336. Body fragment. T: 1.7 cm, MPD: 3.1 cm . Box 193, GM 1B (4A) 1. Glaze red at bottom, metallic at top, and very worn. Lower body of small cylinder lekythos, probably a black-bodied type.
337. Spout. T: 1.15 cm, MPH: 1.7 cm . Box 194, GM 1B (5) 1. Top of spout apparently reserved. Otherwise, black glaze inside and outside. Possibly from same vessel the pattern lekythos, Cat. No. 165.
338. Foot. T: 1.1 cm , D (of foot): 4.5 cm . Box 197, GM 1B (8) 1. Disk foot. Exterior has scraped groove at top; below is a band. Underside of foot reserved. Small cylinder lekythos. Might be from same vessel as Cat. Nos. 166 and 339.
339. Handle. T: 0.6 cm , MPL: 2.7 cm . Box 197, GM 1B (8) 1. Strap handle. Glaze peeled on exterior. Probably from a small lekythos. Might be from same vessel as Cat. Nos. 166 and 338.
340. Body fragment. T: 2.05 cm , MPD: 3.6 cm . MPH: 2 cm . Box 292, GM 3B (2). Exterior glazed. Lower part of body of a small cylinder lekythos.
341. Attic(?) spout. T: $0.2 \mathrm{~cm}, \mathrm{MPH}: 1.8 \mathrm{~cm}, \mathrm{D}: \sim 4 \mathrm{~cm}$. Box 335, GM 2C TT7. Metallic black glaze on lip. Neck appears to be reserved. Small lekythos spout. Maybe Attic.
342. Spout. T: $0.65, \mathrm{MPH}: 1.6 \mathrm{~cm}, \mathrm{D}: \sim 3 \mathrm{~cm}$. Box 394 , GM 1D P1 (1). Metallic glaze. Small lekythos spout.
343. Body fragment. T: $0.6 \mathrm{~cm}, \mathrm{MPH}: 2.0 \mathrm{~cm}$. Box 419, GM 0A (5). Two reserve bands. Small cylinder lekythos.
344. Foot. T/MPH: $1 \mathrm{~cm}, \mathrm{D}$ (of foot): 3.9 cm . Box 422, GM 0 A (7). Disk foot with flat top and concave exterior. Exterior and underside of foot reserved. From a small lekythos.
345. Shoulder. T: 0.6 cm, MPH: 4.8 cm . Box 462 , GM 00A P3A. Trace of shoulder and body. Outside worn. Cylinder lekythos.
346. Spout. T: 1.4 cm, MPH: 2.05 cm, D: 6 cm . Box 487, GMI 2F (0). Top of flat lip reserved. Large lekythos.
347. Spout. T: 1.3 cm, MPH: 2.1 cm, D: 6 cm . Box 504, GMII C1 (5). Top of flat lip reserved. Large lekythos.
348. Shoulder and spout. T: $0.7 \mathrm{~cm}, \mathrm{MPH}: 2.2 \mathrm{~cm}$. Box 549, GM 2A (2) 1. Rounded shoulder. Groove at neck of shoulder and spout. Lekythos of uncertain type (squat?).

## Black Glaze: Perfume Pot

349. Mouth fragment? Figure 14.8 k . T: 0.6 cm, MPH: 3.6 cm . Box 339, GM 2C (0). Identical to the fragmentary hollow mouth of a perfume pot as in Agora 12 (no. 1204, fig. 11),
which is dated 375-350. On the perfume pot, see Agora 12 (pp. 162-164).

## Black Glaze: Feeder

350. Spout. T: $0.55 \mathrm{~cm}, \mathrm{MPH}: 1.2 \mathrm{~cm}$. Box 88, GM 1A P4 (2). Small spout of the type seen on a feeder, a vessel of uncertain function. For the form of the spout, see Agora 12 (nos. 1197-1199, fig. 11, pl. 39).

## Black Glaze: Lamp

351. Complete profile. Figure 14.9a. T (of wall): 0.6 cm , MPH: 4.2 cm , D (of extant vessel): 5.5 cm . Box 674, GMI 5D $(+)$. Ridge rises high above rim and steps down to shoulder. Between is a scraped groove. Rounded shoulder. Underside of concave disk foot reserved. Inside slipped. Thick floor rises to a cone. Small portion of handle preserved. Agora 4 (Type 25A, $67-68$, pls. $9,23,38$ ). Middle of the second quarter of the 4th to first quarter of the 3 rd c.
352. Attic(?) rim. Figure 14.9 b . T: 0.35 cm , MPL: 3.5 cm, D: $\sim 8.0 \mathrm{~cm}$. Box 106, GM 1A TT11 (8). Fine rim with large central tube and a second small hole. Buff clay and black matte slip on lip of both openings and inside. This may be Agora Type 19B, the Attic example of Cat. Nos. 382-383 (Agora 4: Type 19B, 40-41, pls. 5,33 ), which dates to the last quarter of the 6 th c. to 480.
353. Shoulder. T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 1.0 \mathrm{~cm}, \mathrm{D}: \sim 7 \mathrm{~cm}$. Box 131, GM 2A (20). Glazed fired red in places and peeled. Sharp shoulder.
354. Nozzle and top half of body (two joining fragments). MPH: 3.2 cm , MPL: 3.6 cm . SI Cat. No. 270.1, GM 1C P2. Wheel-made round shoulder lamp. Lower wall angles in sharply toward foot. Rounded lip surrounded by groove. Two light grooves at top of shoulder. Trace of lug handle on one side. Short spout with burning. Encrusted. Interior slipped. Agora 4 (Type 25A Prime, $70-71$, pls. $12,23,38$ ), late in the second quarter of the 4 th to second quarter of the 3 rd c.
355. Rim and spout. MPH: 3.3 cm , D: 5.65 cm . SI Cat. No. 270.3. Type as Cat. No. 351, although rim not well articulated. Deep spout with traces of burning on nozzle. Inside slipped red.
356. Rim and shoulder. T: 0.6 cm, MPH: 2.75 cm . SI Cat. No. 270.4 (no box number), GM 2C TT 3 (2). Same variation on Cat. No. 351 as is above, Cat. No. 355. Trace of lug handle.
357. Complete vessel. Figure 14.9c. MPH: 3.3 cm , MPL (back wall to end of nozzle): 8.2 cm . SI Cat. No. 267, GM 2C (0). Same type as Cat. No. 351. Nozzle rounded at end with signs of burning. Inside at least partially slipped. Outside may have been slipped, in which case it is a Type 25A. Concave disk base. Thick floor above foot rising to a point. Agora 4 (Type 25A or A Prime, 67-68, 70-71, pls. 9, 10, 23, 38). Publication: Van Beek (1989a).
358. Rim and shoulder. T: 0.45 cm, MPH: 2.5 cm . SI Cat. No. 268 (no box number). Same type as Cat. No. 151 with a more sloping rim. Not slipped in or out.
359. Foot. T: 0.65 cm, MPH: 1.85 cm . Box 344, GM 2C NBR (3). Disk foot of a lamp.
360. Foot. T: 1.1 cm , MPL: 5.2 cm . Box 347, GM 2C (11). Disk foot of a lamp. Black slipped inside and outside, although bottom of foot is streaky. Encrusted and worn.
361. Complete profile (three joining fragments). Figure 14.9d. MPH: 4.0 cm , MPL (back wall to end of spout, as preserved): 7.8 cm. SI Cat. No. 271, GM 2C NBR (6). Same general type as Cat. Nos. 351, 357, although rim and wall more articulated, disk base higher, spout shorter, two stubs of a wide strap handle at back, slipped black inside, and outside fired red in places. Bottom of foot reserved. Middle of the second quarter of the 4th to first quarter of the 3rd c. Publication: Van Beek (1989a).
362. Spout. T: 0.85 cm , MPH: 1.1 .8 cm . Box 358, GM 2C (7) 2. Round shoulder lamp with deep groove on shoulder and thick spout. Worn. Metallic glaze.

## Black Glaze: Closed Forms

363. Body fragment. T: 0.6 cm, MPH: 2.7 cm . Box 118, GM 2A (6). Wall fragment?
364. Spout or neck. T (only partially preserved): 0.5 cm , MPH: 1.35 cm , D (of rim): $\sim 4 \mathrm{~cm}$. Box 216, GM 1B NBR (0). Preserved areas fully glazed. On shoulder(?) is one stamped ovule. Closed.
365. Neck? T: 0.7 cm, MPH: 3.1 cm . Box 403, GM 2D (1). Narrow, concave body fragment, probably from the neck of a closed vessel.

## Overpainted

366. B-F rim and body fragments (two nonjoining). Figure 14.9 e . T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 2.9 \mathrm{~cm}$, D: too small to measure. Box 26, GM 1B (0). B-F vertical lines and dots below rim, double horizontal bands, diamond pattern with added white. Traces of dilute brown glaze. The slightly outturned rim favors a kantharos over a skyphos. St. Valentin class. See Agora 12 (pp. 85, 113) and Howard and Johnson (1954). Middle quarters of the 5 th c.
367. B-F body fragments (two nonjoining). T: 0.45 cm , MPL: 1.7 cm . Box 547, general site. Both fragments have B-F decoration with added white dots. High gloss. One is a cull fragment. Above the cull are portions of white dots; the cull has B-F geometric decoration, perhaps vertical lines or meander. The other fragment is convex, so from the area above the cull, with undecipherable B-F geometric(?) decoration. Possibly a kantharos of the St. Valentin class; see Agora 12 (85, no. 22). Compare profile, generally, to Agora 12 (nos. 624-639, fig. 7, pl. 27). Probably 475-400.
368. Open body fragment. Figure 14.9 f . T: 0.4 cm , MPH: 2.9 cm . Box 161, GM 2A F7. Added white olive wreath and berry set off by reserve bands and trace of another scheme above with white and reserve areas. Vertical wall, as on a kantharos. True West Slope of the 3rd to early 2nd c.? See, generally, Rotroff (1991).
369. Open body fragment. T: 0.5 cm, MPH: 2.95 cm . Box 275, GM 2B W4 NBR. Glaze fired red in parts inside and outside. Outside has two thin white bands and dot rosettes or
berries. Added white of the type seen in the 5th c. See Agora 12 (p. 19), Stewart and Martin (2005:85), and Rotroff and Oakley (1992:97-98, no. 142, fig. 8, pl. 43).
370. Open body fragment. T: 0.35 cm , MPL: 1.3 cm . Box 298, GM 3B P2. Two added white blobs and a thin white line. Could be B-F, R-F, or just overpainted.

## Other Greek Fabrics

## Bowls

371. Rim. T: $0.75 \mathrm{~cm}, \mathrm{MPH}: 3.0 \mathrm{~cm}$, D: too small to measure. Box 63, GM 1A (1) 8. Matte black. Large bowl with incurved rim. Profile similar to Guz-Zilberstein (1995: no. 9, fig. 6.1).
372. Foot. T: 0.6 cm, MPH: 1.85 cm , D (of foot): 8 cm . Box 85 , GM 1A P4 (5). Ring foot. Cream fabric with matte redbrown slip inside and outside. Drip lines. Bowl?
373. Rim. T: 0.55 cm, MPH: $3.3 \mathrm{~cm}, \mathrm{D}: \sim 12.0 \mathrm{~cm}$. Box 305, GM 1C (0) and Box 329, GM 1C P2 (3). Glaze fired red and peeling inside and out. Bowl with incurved rim.
374. Foot. Figure 14.9g. T: $0.95 \mathrm{~cm}, \mathrm{MPH}: 2.1 \mathrm{~cm}$, D (of foot): $\sim 7 \mathrm{~cm}$. Box 328, GM 1C P2 (2). Ring foot. Red clay with white inclusions and what appear to be air bubbles. Outside red brown and sloppy, inside brown. Resting surface and underside of foot reserved. Worn. Graffito on underside: KPA. Bowl.
375. Complete profile. Figure 14.9h. T (of rim): 0.5 cm , MPH: 4 cm , D: 11.6 cm . SI Cat. No. 251. High, grooved ring foot. Sloppily applied black glaze, metallic in places, peeled. Resting surface and underside reserved. Bottom of bowl is depressed. Bowl with incurved rim.
376. Rim. T: 0.85 cm , MPL: $7 \mathrm{~cm}, \mathrm{D}: \sim 20 \mathrm{~cm}$. Box 369 , GM 2C P1A (1). Glaze brown in parts and peeled on outside. Bowl with incurved rim. Hellenistic? Could be from earlier in the 4th c .
377. Rim. T: 0.65 cm , MPL: $6.5 \mathrm{~cm}, \mathrm{D}: \sim 16 \mathrm{~cm}$. Box 381, GM 1D (0). Matte black glaze inside and out. Very worn. Bowl with incurved rim. Hellenistic, possibly 3rd c.
378. Rim. T: $0.75 \mathrm{~cm}, \mathrm{MPH}: 3.2 \mathrm{~cm}, \mathrm{D}: \sim 16 \mathrm{~cm}$. Box 391, GM 1D (23A) 2. Matte black-brown glaze. Bowl with incurved rim. Hellenistic.
379. Complete profile. Figure 14.9i. T: 0.5 cm, MPH: 2.7 cm , D: 10 cm . Box 393, GM 1D P1. Spreading ring foot. Glaze fired red in parts. Central nipple underneath. Small bowl with incurved rim.
380. Complete profile (restored from 11 fragments). Figure 14.9j. MPH: 4.5 cm, D: 15 cm . SI Cat. No. 252 (no context). Completely slipped in matte black. Peeled and fired red in parts, except perhaps resting surface and underside of foot. Bowl with incurved rim. Similar to Guz-Zilberstein (1995: no. 6, fig. 6.1.6). Publication: Van Beek (1989a).
381. Complete profile (restored from three fragments). Figure 14.9 k . T: $0.5 \mathrm{~cm}, \mathrm{MPH}: 5.6 \mathrm{~cm}$, D: 22.0 cm . Box 400 , GM 2D (+). High ring foot is grooved. Matte black slip does not quite cover foot or underside of floor. Bowl with incurved rim. Hellenistic.

## Lamps

382. Spout. T (of spout rim): 0.4 cm , MPH: 1.75 cm , MPL (of spout): 1.4 cm, D: 2 cm . Box 209, GM 1B EBR (1) 1. Red clay with small micaceous inclusions. Outside matte black. Short wheel-made spout with fine, plain rim. Inside of spout not glazed. Central tube of an open disk lamp, possibly with double spouts. See Cat. No. 383.
383. Complete vessel (five or more joining fragments, now restored). Figure 14.10a. MPH: 2.0 cm , MPL: 12.2 cm . SI Cat. No. 420, GM 0B P4 (8). Open disk lamp with double spouts and central tube. Glaze fired red in parts. Agora 4 (Type 19A, no. 131, pls. 5, 33). Early 5th c. to 480.
384. Rim to lower wall. Figure 14.10b. T: 0.7 cm , MPL 3.2 cm. Box 43, GM 1A NBR (5) 2. Rounded wheel-made shoulder lamp. Rim set off from shoulder with a pronounced groove. Very encrusted. No traces of glaze inside or outside. Extant profile resembles Dor Type 6 lamps, thought to be of "local" manufacture in imitation of Attic types. See Rosenthal-Heginbottom (1995:235, nos. 1-2, fig. 5.14.2). 4th-2nd c.
385. Complete vessel. Figure 14.10c. MPH: 3.8 cm , MPL (back wall to end of nozzle): 8.25 cm . SI Cat. No. 216, GM 2D (2) 8. No trace of handle. Short spout. Nozzle damaged with signs of burning. Sloppy black line extends from spout to wall on one side. Trace of slip on rim. Interior encrusted but appears slipped. Publication: Van Beek (1989a).
386. Complete profile (restored). MPH: 3.8 cm , MPL: 7.1 cm. SI Cat. No. 270.2A, GM 2D (+) and GM 2C (7) 2. Type as Cat. No. 384. Short spout, nozzle broken off with signs of burning. Interior slipped red. 4th-2nd c.
387. Body and foot fragment. MPH: 3.6 cm , D: 6.2 cm . SI Cat. No. 270.2B, GM 2D (1). Fine brown fabric. Slipped red inside. Trace of lug handle. Extant portions otherwise as Cat. No. 389. Publication: Van Beek (1989a).
388. Complete profile. Figure 14.10d. MPH: 3.85 cm , MPL: 7.2 cm . SI Cat. No. 272, GM 3B (no layer). Brown clay. Heavier example of Cat. No. 389 with a less well articulated rim and rounder transition from wall to foot. Stub of handle. Most of nozzle missing with traces of burning. Publication: Van Beek (1989a).
389. Shoulder. T: 0.4 cm , MPL: 4.15 cm . Box 339, GM 2C (0). Unglazed round-shouldered lamp. Groove around opening surrounded by double concentric circles. Similar to Cat. No. 384. 4th-2nd c.
390. Foot. T: 1.2 cm , MPL: 5.2 cm . Box 347, GM 2C (11). Disk foot. Traces of slip inside. Outside reserved.
391. Complete vessel. Figure 14.10e. MPH: 4.3 cm , MPL (wall to end of nozzle): 8.2 cm . SI Cat. No. 268, GM 1D EBR (2). Reddish-brown clay with white inclusions. Although its rim is fairly well articulated, it is heavy with a short spout and has a rounder transition from wall to foot. Rim slopes down. Burning on end of nozzle, which is partly broken off. Encrusted. Otherwise similar to Cat. No. 384.
392. Shoulder. T: 0.6 cm , MPL: 3.1 cm . Box 397, GM 2D TT3 (1). Dark brown (burnt?) clay. Fill hole and shoulder of a wheel-made rounded-shoulder lamp. Two grooves at shoulder. Unglazed.
393. Foot. T: 1.4 cm, MPL: 5.2 cm . Box 401, GM 2D (2). Disk foot. Inside has metallic glaze. Outside unglazed.

## Skyphos

394. Rim. T: $0.4 \mathrm{~cm}, \mathrm{MPH}: 3.45 \mathrm{~cm}, \mathrm{D}: \sim 14.0 \mathrm{~cm}$. Box 303, GM 1C TT1 (1). Gently incurving rim. Reddish-brown clay with white inclusions. Matte black slip inside and outside. Drinking vessel, perhaps a skyphos.

## Jug

395. Spout and handle stubs. Box 347, GM 2C (11). T: 0.5 $\mathrm{cm}, \mathrm{MPH}: 5.3 \mathrm{~cm}, \mathrm{D}: 4.6 \mathrm{~cm}$. Reddish clay with mica inclusions. Outside slipped red. Irregular lip offset and concave. Two strap handles attach to neck lower down. They would have curved up toward spout. Jug of uncertain type.

## Closed Form

396. B-F(?) body fragment. Box 418, GM 0A (4). T: 0.3 cm , MPL: 3.2 cm . Fine buff clay. Traces of what might be B-F rosettes on outside. Very worn. Aryballos? (Too thin for a Corinthian Orientalizing aryballos.)

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# Petrographic Analysis of Pottery: Chalcolithic to Persian Period 

 David Ben-Shlomo
## INTRODUCTION

This chapter presents the results of an initial petrographic study of the Tell Jemmeh pottery. Carrying out thin-section petrographic analysis (TSPA) on the Tell Jemmeh pottery had several goals. The major goal was to investigate the development of pottery production throughout periods attested in the site, i.e., to compare the MBIIB-C, LBII, and Iron Age pottery assemblages. This issue includes several topics: trade patterns of pottery (whether most vessels are locally made or imported), clay selection patterns within the site catchment area, and the change in clay and temper selection in different periods, the homogeneity of the pottery, and the estimated firing temperature. A pottery kiln dated to the Iron I was discovered at the site, yet the pottery assemblage from this period is small because of limited exposure; moreover, no kiln wasters could be identified in the kiln and its vicinity. Therefore, the study of pottery production related to the kiln is restricted.

Other aims were to examine several groups or wares of pottery that may have specific cultural or other importance. These include the Philistine Bichrome ware and the Assyrian-style pottery; the provenance of these vessels could have important implications. In the case of the Philistine Bichrome a more intraregional question is at hand: whether these vessels were produced at Tell Jemmeh or were imported from one of the main Philistine cities. In regard to the Assyrian-style pottery, the question was whether these vessels or some of them were imported from Assyria or other distant Assyrian centers or were made in the Levant or even locally at the site. Moreover, several fabrics were attested in these group according to visual appearance, and their provenance according to petrography was examined. In addition, more pinpointed questions were also addressed such as the analysis of special items such as the Tell el-Yahudiyeh zoomorphic cup, several "white-slip imitation" milk bowls (examining whether they were locally made or imported), several marked handles from the LBII, and several so-called East Greek vessels from the Persian period.

To accomplish these goals, 145 samples were selected for analysis (Table 15.1), mostly from Fields III and IV, including 5 samples from the Chalcolithic period, 29 from the MBIIB-C, 41 from the LBII, 14 from the Iron I (all Philistine Bichrome), 13 from the Iron IIA, 39 from the Iron IIB-C (of these, 24 are Assyrian style), and 4 from the Persian period. In the major periods analyzed (i.e., the MBII, LBII, and Iron II) an attempt was made to collect samples from the main pottery types and classes appearing, such as open vessels (various bowls and kraters), cooking pots, jars, and closed vessels (jugs, juglets) as well as decorated wares when relevant; this selection dictated the size of the sample from each period. It should be noted that considering the wide chronological scope of this assemblage, the sample is not very large or representative, and thus, this study should be considered more as a preliminary pilot study carried out with regard to the limitations of the publication of the final report on the site. Further studies on these topics may be carried out in the future.

## METHODOLOGY

Thin-section petrography was carried out by the author at the Institute of Archaeology, The Hebrew University in Jerusalem. Samples were obtained by standard thin sectioning of the pottery sherds to a thickness of about $30 \mu \mathrm{~m}$, at which most of the minerals are transparent. The slides were then examined through a petrographic polarizing microscope (in this study Nikon and Zeiss [for

TABLE 15.1. List of samples from Tell Jemmeh. Abbreviations are as follows: NA = not available; WS = White Slip ware; TEY = Tell el-Yahudiyeh ware; RWB = Red, White, and Blue ware; WP = White Painted ware; BSB = bell-shaped bowl; BC = Philistine Bichrome ware; AS = Assyrian-style pottery; Phil. = Philistine; deg = degenerated; rs= red slip; rsb = red slip and burnish.

| Sample No. | RV/Box/ <br> Bag No. | Provenance | Description | Figure | Period | Phase | Notes/ ware |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Jemmeh 1 | Box 568 | GMI 4D (3) | WS imitation milk bowl | 11.8e | LBII | 3 |  |
| Jemmeh 2 | Box 578 | GMI 5D (7B) 2 | WS imitation milk bowl | 11.8 f | LBII | 3 |  |
| Jemmeh 3 | Box 569 | GMI 4D (4) | WS imitation milk bowl |  | LBII | 3 ? |  |
| Jemmeh 4 | Box 576 | GMI 5D (7A) | WS imitation milk bowl | 11.8h | LBII | 3 |  |
| Jemmeh 5 | Box 648/649 | GMI 5G (+) | WS imitation milk bowl | 11.8 g | LBII | NA |  |
| Jemmeh 6 | Box 655 | GMI (+) | WS imitation milk bowl | 11.8j | LBII | NA |  |
| Jemmeh 7 | Box 131 | GM 2A (20) | Decorated amphora | 14.4c | EGR | 4 ? |  |
| Jemmeh 8 | Box 164 | GM 2A NBR F11 1 | Decorated amphora |  | EGR | 4 ? |  |
| Jemmeh 9 | Box 168 | GM 2A TT4 (6) | Decorated amphora | 14.4e | EGR | 4 ? |  |
| Jemmeh 10 | Box 435 | GM 0B (4) 1 | Decorated amphora | 14.4 g | EGR | 3/4? | Chian |
| Jemmeh 11 | Cat. 1003 | GMIII C1 (81), (+) | TEY zoomorphic vessel | 3.63 | MBIIB-C | 16 |  |
| Jemmeh 12 | RV 1050 | GMIII J2 (17) 1 | Storage jar | 3.49a | MBIIB-C | 17 |  |
| Jemmeh 13 | RV 1036 | GMIII J2 (17) 1 | Storage jar | 3.48 d | MBIIB-C | 17 |  |
| Jemmeh 14 | RV 1047 | GMIII J1 (17) 1 | Storage jar | 3.49d | MBIIB-C | 17 |  |
| Jemmeh 15 | Cat. 217.3 | GM 1B (11) 2 | Globular bowl; white clay | 8.115k | Iron IIC | 5 | AS |
| Jemmeh 16 | Cat. 245 | GM 1B TT2 | Dimpled beaker; white clay | 13.7d | Iron IIC | 5 ? | AS |
| Jemmeh 17 | Cat. 245.2 | GM (+) | Dimpled beaker; white clay | 8.115q | Iron IIC | NA | AS |
| Jemmeh 18 | Cat. 221 | GM 1B TT2 | Globular bowl; white clay | 8.118b | Iron IIC | 5 ? | AS |
| Jemmeh 19 | Box 421A | GM 0B (7) 5 | Globular bowl; white clay | 13.3i | Iron IIC | 5? | AS |
| Jemmeh 20 | Box 426A | GM 0B (9) 5 | Globular bowl; white clay | 13.3e | Iron IIC | 5 ? | AS |
| Jemmeh 21 | Box 427A | GM 3B P7 | Globular bowl; white clay | 13.3c | Iron IIC | Unknown | AS |
| Jemmeh 22 | Box 300A | GM 1B (11) 1 | Open bowl; red clay | 8.118k | Iron IIC | 5 | AS |
| Jemmeh 23 | SI Cat. No. 219 | GM 1B F18 | Open bowl; coarse red clay | 13.5b | Iron IIC | 3 ? | AS |
| Jemmeh 24 | Reg. No. 2200 | GMI 4D (3) 1 | Incised jar handle | 6.122g | LBII | 3 |  |
| Jemmeh 25 | Reg. No. 2007 | GMI 1F (12) | Incised jar handle | 19.1 g | LBII | 3 |  |
| Jemmeh 26 | Reg. No. 3819 | GMI 4D (3) | Incised jar handle | 19.1i | LBII | 3 |  |
| Jemmeh 27 | Reg. No. 3816 | GMI 5G (2) 4 | Incised jar handle | 6.97h | LBII | 3 |  |
| Jemmeh 28 | Bag 5289/2 | GMIII J2 (26) | V-shaped bowl | 3.13 k | Chalcolithic | 19 |  |
| Jemmeh 29 | Bag 5289/1 | GMIII J2 (26) | Krater/jar | 3.13 v | Chalcolithic | 19 |  |
| Jemmeh 30 | Bag 5300/1 | GMIII J2 (24) | V-shaped bowl | 3.13 g | Chalcolithic | 19 |  |
| Jemmeh 31 | NA | GMIII C2 TT2 (4) | V-shaped bowl | 3.13n | Chalcolithic | 19 |  |
| Jemmeh 32 | NA | Number 1 <br> GMIII C2 TT2 (4) <br> Number 2 | Large krater |  | Chalcolithic | 19 |  |
| Jemmeh 33 | Bag 2260/1 | GMIII F2 (17) 2 | Carinated bowl; burnish | 3.46a | MBIIB-C | 17 |  |
| Jemmeh 34 | Bag 2260/2 | GMIII F2 (17) 2 | Carinated bowl; burnish | 3.46 f | MBIIB-C | 17 |  |
| Jemmeh 35 | bag 2260/5 | GMIII F2 (17) 2 | Jar rim, thick | 3.461 | MBIIB-C | 17 |  |
| Jemmeh 36 | Bag 854/1 | GMIII J1 (17) 1 | Carinated bowl | 3.47c | MBIIB-C | 17 |  |
| Jemmeh 37 | Bag 854/4 | GMIII J1 (17) 1 | Cooking pot | 3.47 n | MBIIB-C | 17 |  |
| Jemmeh 38 | Bag 2241/1 | GMIII F2 (17) 2 | Bowl | 3.46b | MBIIB-C | 17 |  |
| Jemmeh 39 | Bag 2241/2 | GMIII F2 (17) 2 | Bowl | 3.46c | MBIIB-C | 17 |  |
| Jemmeh 40 | Bag 1020/1 | GMIII F2 P2 | Open bowl | 3.71 g | MBIIB-C | 16-17 |  |
| Jemmeh 41 | Bag 1020/2 | GMIII F2 P2 | Cooking pot | 3.71 q | MBIIB-C | 16-17 |  |
| Jemmeh 42 | Bag 1020/3 | GMIII F2 P2 | Cooking pot | 3.71 r | MBIIB-C | 16-17 |  |
| Jemmeh 43 | Bag 1166/1 | GMIII C1 (81) | Bowl | 3.58 f | MBIIB-C | 16 |  |
| Jemmeh 44 | Bag 1166/2 | GMIII C1 (81) | Bowl | 3.58 c | MBIIB-C | 16 |  |
| Jemmeh 45 | Bag 1166/5 | GMIII C1 (81) | Jar |  | MBIIB-C | 16 |  |

TABLE 15.1. (continued)

| Sample No. | RV/Box/ <br> Bag No. | Provenance | Description | Figure | Period | Phase | Notes/ ware |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Jemmeh 46 | Bag 468/1 | GMIII C1 (81) | Cooking pot | 3.59h | MBIIB-C | 16 |  |
| Jemmeh 47 | Bag 2177/1 | GMIII F1 (7) 5 | Open bowl |  | MBIIB-C | 15 |  |
| Jemmeh 48 | Bag 2177/2 | GMIII F1 (7) 5 | Carinated bowl; thin | 3.78d | MBIIB-C | 15 |  |
| Jemmeh 49 | Bag 2177/4 | GMIII F1 (7) 5 | Cooking pot | 3.781 | MBIIB-C | 15 |  |
| Jemmeh 50 | Bag 5318/1 | GMIII J1 P3 | Carinated bowl |  | MBIIB-C | 15 |  |
| Jemmeh 51 | Bag 5589/1 | GMIII J1 (8) 1 | Open bowl | 3.79 c | MBIIB-C | 15 |  |
| Jemmeh 52 | Bag 4477/1 | GMIII B F8 | Rounded bowl | 3.101 b | LBII | 13 |  |
| Jemmeh 53 | Bag 4477/4 | GMIII B F8 | Krater/cooking pot | 3.101i | LBII | 13 |  |
| Jemmeh 54 | Bag 4477/2 | GMIII B F8 | Cooking pot | 3.101h | LBII | 13 |  |
| Jemmeh 55 | Bag 4458/1 | GMIII B (64) 5 | Open bowl | 3.112 ${ }^{\text {j }}$ | LBII | 12 |  |
| Jemmeh 56 | Bag 4458/2 | GMIII B (64) 5 | Rounded bowl | 3.112 i | LBII | 12 |  |
| Jemmeh 57 | Bag 4458/4 | GMIII B (64) 5 | Carinated bowl | 3.112 n | LBII | 12 |  |
| Jemmeh 58 | Bag 4458/5 | GMIII B (64) 5 | Cooking pot | 3.112 r | LBII | 12 |  |
| Jemmeh 59 | Bag 1012/1 | GMIII B (59) 3 | Carinated krater | 3.124 b | LBII | 11 |  |
| Jemmeh 60 | Bag 4415/1 | GMIII B (5) 6 | Straight sided bowl | 3.112h | LBII | 12 |  |
| Jemmeh 61 | Bag 4415/2 | GMIII B (5) 6 | Carinated bowl | 3.1121 | LBII | 12 |  |
| Jemmeh 62 | Bag 4482/4 | GMIII B (62) 5 | Jar | 3.1241 | LBII | 11 |  |
| Jemmeh 63 | Bag 4525/1 | GMIII B (61) 3 | Rounded bowl | 3.124a | LBII | 11 |  |
| Jemmeh 64 | Bag 4437/1 | GMIII B (57) 3 | Carinated krater | 3.131 f | LBII | 10 |  |
| Jemmeh 65 | Bag 4442/1 | GMIII B (51A) | Straight sided bowl | 3.143 f | LBII | 9 |  |
| Jemmeh 66 | Bag 4429/2 | GMIII B (53) 2 | Krater base | 3.131 u | LBII | 9 |  |
| Jemmeh 67 | Bag 4486/1 | GMIII B (54) | Carinated bowl | 3.145 d | LBII | 9 | Greenish clay |
| Jemmeh 68 | Bag 4496/1 | GMIII B (58) 4 | Straight-sided bowl | 3.1311 | LBII | 10 | Reddish clay |
| Jemmeh 69 | Bag 4502/1 | GMIII B (57) 2 | Carinated bowl; small | 3.1451 | LBII | 10 |  |
| Jemmeh 70 | Bag 4502/3 | GMIII B (57) 2 | Cooking pot | 3.145 m | LBII | 10 |  |
| Jemmeh 71 | Bag 4439/1 | GMIII B (52) | Rounded bowl | 3.143a | LBII | 9 |  |
| Jemmeh 72 | Bag 4439/4 | GMIII B (52) | Carinated bowl | 3.143j | LBII | 9 |  |
| Jemmeh 73 | Bag 4439/5 | GMIII B (52) | Carinated krater | 3.143h | LBII | 9 |  |
| Jemmeh 74 | Bag 4439/6 | GMIII B (52) | Carinated bowl/krater | 3.143 g | LBII | 9 |  |
| Jemmeh 75 | Bag 4439/8 | GMIII B (52) | Cooking pot | 3.1431 | LBII | 9 |  |
| Jemmeh 76 | Bag 4439/7 | GMIII B (52) | Cooking pot | 3.143 k | LBII | 9 |  |
| Jemmeh 77 | Bag 4439/10 | GMIII B (52) | Jar/jug | 3.143 m | LBII | 9 |  |
| Jemmeh 78 | Box 230/1 | GMIII J1 (1) | RWB sherd | 3.182b | MBIIB-C | Unknown |  |
| Jemmeh 79 | Box 211/1 | GMIII C1 (81) | RWB sherd | $3.59 n$ | MBIIB-C | 16 |  |
| Jemmeh 80 | Box 211/2 | GMIII C1 (81) | RWB sherd | 3.591 | MBIIB-C | 16 |  |
| Jemmeh 81 | Box 825 | GMIII J2 (16) 2 | TEY juglet | 3.51a | MBIIB-C | 17 |  |
| Jemmeh 82 | Box 546 | GMIII F2 P2 | TEY juglet | 3.72i | MBIIB-C | 16-17 |  |
| Jemmeh 83 | Bag 1308 | GMIII C2 (82) | Cypriot WP sherd | 11.20 | MBIIB-C | 16 |  |
| Jemmeh 84 | Box 191 | GMIII B (52) | Decorated krater/jug | 3.144 b | LBII | 9 |  |
| Jemmeh 85 | Box 190 | GMIII B (51A) | Decorated krater/jug | 3.144a | LBII | 9 |  |
| Jemmeh 86 | Box 192/1 | GMIII B (55) | Decorated krater/jug | 3.132e | LBII | 10 |  |
| Jemmeh 87 | Box 193/1 | GMIII B (56) | Decorated krater/jug | 3.132 f | LBII | 10 |  |
| Jemmeh 88 | Bag 4482/6 | GMIII B (62) 5 | Scoop | 3.124 n | LBII | 11 |  |
| Jemmeh 89 | NA | GMIII A3 (4) | BSB, BC | 3.162 m | Iron I, Phil. | 6 |  |
| Jemmeh 90 | NA | GMIII A2 (14) 1 | BS krater, BC |  | Iron I, Phil. | 6 |  |
| Jemmeh 91 | NA | GMIII A2 (13) | BSB | 3.165c | Iron I, Phil. | 6 |  |
| Jemmeh 92 | NA | GMIII A2 (13) | deg BSB? | 3.165 b | Iron I, Phil. | 6 |  |
| Jemmeh 93 | NA | GMIII A2 (19) | BSB, BC | 3.162c | Iron I, Phil. | 6 |  |

TABLE 15.1. (continued)

| Sample No. | RV/Box/ <br> Bag No. | Provenance | Description | Figure | Period | Phase | Notes/ ware |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Jemmeh 94 | NA | GMIII A2 (19) | BSB, BC | 3.162d | Iron I, Phil. | 6 |  |
| Jemmeh 95 | NA | GMIII A2 (19) | BS krater, BC | 3.162 e | Iron I, Phil. | 6 |  |
| Jemmeh 96 | NA | GMI FUR (1) 2 | BSB; no slip | 7.54a | Iron I, Phil. | FUR 2 |  |
| Jemmeh 97 | NA | GMI FUR (1) 2 | BSB; no slip | 7.54c | Iron I, Phil. | FUR 2 |  |
| Jemmeh 98 | NA | GMI FUR (2) 2 | BS krater, BC |  | Iron I, Phil. | FUR 2/3 |  |
| Jemmeh 99 | NA | GMI FUR (2) 2 | BSB; no slip |  | Iron I, Phil. | FUR 2/3 |  |
| Jemmeh 100 | NA | GMI FUR (2) 2 | BS krater, BC | 7.54k | Iron I, Phil. | FUR 2/3 |  |
| Jemmeh 101 | NA | GMI FUR (2) 2 | deg BSB | 7.54h | Iron I, Phil. | FUR 2/3 |  |
| Jemmeh 102 | NA | GMI FUR (2) 2 | Stirrup jar, BC | 7.551 | Iron I, Phil. | FUR 2/3 |  |
| Jemmeh 103 | Bag 5227/1 | GM 2B (58) | Carinated deg rs BSB | 8.26 d | Iron IIA | 9 |  |
| Jemmeh 104 | Bag 5178/1A | GM 2B P35 | Carinated deg rs BSB |  | Iron IIA | 10 |  |
| Jemmeh 105 | Bag 4975/1 | GM 2B (58A) | Carinated deg rs BSB | 8.26i | Iron IIA | 9 |  |
| Jemmeh 106 | Bag 1861A/1 | GM 2B F57 | Open carinated rsb bowl | 8.11j | Iron IIA | 10 |  |
| Jemmeh 107 | Bag 5003/4 | GM 2B (57) | Cooking pot | 8.27i | Iron IIA | 9 |  |
| Jemmeh 108 | Bag 5003A/4 | GM 2B (57) | LPDW SSJ | 8.281 | Iron IIA | 9 |  |
| Jemmeh 109 | Bag 5212A/1 | GM 2B (60) | LPDW sherd | 8.12h | Iron IIA | 10 |  |
| Jemmeh 110 | Bag 5217/1 | GM 2B (64) | Carinated bowl, rsb |  | Iron IIA | 11 |  |
| Jemmeh 111 | Bag 5003/1 | GM 2B (57) | Carinated deg rs BSB | 8.26e | Iron IIA | 9 |  |
| Jemmeh 112 | Bag 5178/1 | GM 2B P35 | Carinated deg rs BSB | 8.11r | Iron IIA | 10 |  |
| Jemmeh 113 | Bag 3536/1 | GM 2A (30) 4 | Large krater | 8.611 | Iron IIB-C | 7 |  |
| Jemmeh 114 | Bag 3536/2 | GM 2A (30) 4 | Grooved-rim jar (JR3) |  | Iron IIB-C | 7 |  |
| Jemmeh 115 | Bag 1976 | GM 2B W9 | Grooved-rim jar (JR3) | 8.95c | Iron IIB-C | 5 |  |
| Jemmeh 116 | Bag 3689/3 | GM 2A (29) 3 | Rounded bowl; rs |  | Iron IIB-C | 7 |  |
| Jemmeh 117 | Bag 3689/2 | GM 2A (29) 3 | Cooking pot | 8.61d | Iron IIB-C | 7 |  |
| Jemmeh 118 | Bag 3768/3 | GM 2A (30) | Rounded bowl; rs | 8.62h | Iron IIB-C | 7 |  |
| Jemmeh 119 | Bag 3768/4 | GM 2A (30) | Rounded bowl; rs | 8.62 g | Iron IIB-C | 7 |  |
| Jemmeh 120 | Bag 1250/1 | GM 2B (37) 2 | Rounded bowl; rs | 8.85b | Iron IIB-C | 6 |  |
| Jemmeh 121 | Bag 1246/2 | GM 2B (38) 2 | Cooking pot | 8.85 t | Iron IIB-C | 6 |  |
| Jemmeh 122 | Bag 5880/2 | GM 1B (15) 1 | Jar (JR2) | 8.116t | Iron IIC | 5 |  |
| Jemmeh 123 | Bag 5920/3 | GM 1B (14) 2 | Jar (JR2) |  | Iron IIC | 5 |  |
| Jemmeh 124 | Bag 5920/4 | GM 1B (14) 2 | Jar (JR3) | 8.116d | Iron IIC | 5 |  |
| Jemmeh 125 | Bag 5883/4 | GM 1B (14) 2 | Cooking pot | 8.115 s | Iron IIC | 5 |  |
| Jemmeh 126 | Bag 4594/1 | GM 0B (15) 4 | Carinated bowl/chalice | 8.173m | Iron IIC | 5 |  |
| Jemmeh 127 | Bag 4594/4 | GM 0B (15) 4 | Jar (JR2) | 8.173p | Iron IIC | 5 |  |
| Jemmeh 128 | Bag 4853/4 | GM 00A (1) 3 | Jar (JR2?) | 8.152c | Iron IIC | 5 |  |
| Jemmeh 129 | Bag 4584/7 | GM 00A (1) 3 | Jar (JR2) |  | Iron IIC | 5 |  |
| Jemmeh 130 | Bag 3050/7 | GM 1A (3) 8 | Jar (JR2?) | 8.128 q | Iron IIC | 5 |  |
| Jemmeh 131 | Box 39/1 | GM 1B TT3 (1) | Globular bowl; white clay | 8.117 g | Iron IIC | 5 | AS |
| Jemmeh 132 | Box 61 | GM 3B (2) | Globular bowl; white clay | 13.3h | Iron IIC | 3 ? | AS |
| Jemmeh 133 | Box 84/1 | GM 2C (10) | Globular bowl; white clay | 13.4q | Iron IIC |  | AS |
| Jemmeh 134 | Box 32/6 | GM 1B (11) 2 | Globular bowl; reddish clay |  | Iron IIC | 5 | AS |
| Jemmeh 135 | Box 32/8 | GM 1B (11) 2 | Globular bowl; red-white clay | 8.117j | Iron IIC | 5 | AS |
| Jemmeh 136 | Box 404A | GM 1B (11) 1 | Globular bowl; reddish clay | 8.117b | Iron IIC | 5 | AS |
| Jemmeh 137 | Box 206 | GM 2A WBR (15a) 3 | Open bowl; pinkish clay | 13.6a | Iron IIC | 4 ? | AS |
| Jemmeh 138 | Box 138/1 | GM 1B (10) 1 | Open bowl; red-white clay | 8.118h | Iron IIC | 5 ? | AS |
| Jemmeh 139 | Box 141A | GM Room A | Open bowl; reddish clay | 13.5f | Iron IIC | 5 | AS |
| Jemmeh 140 | Box 139 | GM 1B Wall B | Open/large bowl; red-white clay | 13.51 | Iron IIC | 3 | AS |

TABLE 15.1. (continued)

|  | RV/Box/ <br> Bag No. | Provenance | Description | Figure | Period | Phase | Notes/ <br> ware |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Sample No. | Bemmeh 141 | Box 119/4 | GM 0B (7) 5 | Bowl/beaker; whitish clay | 13.7 j | Iron IIC | $4-5$ |
| Jemmeh 142 | Box 99 | GM 1D W4 | Globular bowl; reddish clay | 13.4 n | Iron IIC | 3 | AS |
| Jemmeh 143 | Box 407A | GM 1B (11) 1 | Globular bowl; red-white <br> clay | 8.117 v | Iron IIC | 5 | AS |
| Jemmeh 144 | Box 60/1 | GM 2B TT3 (2A) 1 | Globular bowl; pinkish clay <br> Globular bowl; white clay | 8.96 p | Iron IIC | 5.96 q | Iron IIC |

photography] models were used, with magnifications of $\times 25$ to $\times 400$ ). The fabric description of the slides includes general characteristics of the matrix, optical activity, spacing, and voids. A definition of the type of local soil may be given when applicable (in most cases according to maps and descriptions in Dan et al., 1972, 1975; Shahar, 1995; Goren et al., 2004; Goren and Halperin, 2004; Shapiro, 2006). Nonplastic inclusions are identified and characterized according to distribution, frequency, sorting, size ranges, and texture; the frequency of elements is according to the percentage of the entire slide view (see detailed description in Ben-Shlomo, 2006a, 2009). The samples are divided into petrographic groups (their numbering is arbitrary) according to the characteristics of the matrix (clay background, plastic inclusions) and inclusions (temper and nonplastic components). The geographic provenancing was made according to geological and pedological (soil) considerations and according to comparison to various previous petrographic studies (see below).

## GEOLOGICAL AND PEDOLOGICAL SETTING AND PREVIOUS RESEARCH

A short survey of the geology and pedology (soil distribution) of the region of Tell Jemmeh will be presented as a background for the geographical provenancing of the pottery samples according to their petrographic grouping and their relationship to soils and sediments occurring in this region and elsewhere. The site of Tell Jemmeh and its vicinity are dominated by loessial soils typical of the northern and northeastern Negev and southern coast of Israel (Figure 15.1; see, e.g., Horowitz, 1979; Goldberg, 1986; Melson and Van Beek, 1992). ${ }^{1}$ This is a late Quaternary deposit comprising wind-blown (aeolian) silt to clay-sized particles. Its composition is characterized by high calcium carbonate, and the clay derived from it is generally a calcareous one (see more in Melson and Van Beek, 1992:129-130). The alluvium beds of the Besor River to the north of the tell, which also contain soils from more eastern deposits, may also contribute sediments suitable for pottery production (as well as bricks). Loess deposition often occurs in flooding events (pluvial deposits) when the sediments are deposited in larger areas and by wind in between such events. According to analysis of pottery from Tell el-Hesi, the loessial


FIGURE 15.1. Map of loess soils in the area of Tell Jemmeh (after Goren et al., 2004: fig. 14.1).
profile is dominated by loess-derived grains of silt-sized quartz, microcline, and plagioclase (Engström, 2004:3). The paste is typically red, silty, and carbonitic, but in areas of the sample where the trace iron is less oxidized, the optically active (birefringent), carbonate-rich paste appears tan to light brown. The grain fraction often includes land snail fragments and other biocarbonitic material; this description agrees more or less with Melson and Van Beek's (1992) descriptions (see also Master, 2003, on loessial fabric pottery from Ashkelon).

Other than the loess outcrops the geology of this region includes some kurkar and sand dunes on the beach to the west (an about 5-km-wide strip). Small outcrops of Pleshet Formation (marl, conglomerate, sandstone) lie about 20 km or more to southeast; the closest Hamra outcrops are $12-15 \mathrm{~km}$ to
north-northeast (Sneh et al., 1998). In regard to soils, as noted, Tell Jemmeh lies on alluvial loess soil in the northwestern Negev (loessial arid brown soils); adjacent to the site are regosols, which are also located along the wadi bed of Nahal Besor (Dan et al., 1975). In addition small pararendzinas outcrops lie in the 5 km region around the site; $10-15 \mathrm{~km}$ to the north dark brown soils appear, $6-9 \mathrm{~km}$ to the south sandy regosols and arid brown soils can be found, and $10-12 \mathrm{~km}$ to the east loessial serozems are defined.

Melson and Van Beek (1992) have carried out a previous study on the geological background of the area of Tell Jemmeh and the characteristics of the soils appearing in this area and on the tell. Two trenches were examined on the slopes of the tell (Figure 15.2; Melson and Van Beek, 1992: fig. 1); one of these is a section created by the collapse of the tell soil due to a river flood (Melson and Van Beek, 1992: fig. 3). In this trench section (Figure 15.3) the original soil (denoted the paleosoil "A" horizon) can be seen as a dark horizontal band with an overbank flood deposit above it and the anthropogenic habitation debris above that (denoted "PHL"), mostly the collapsed mud brick.

In the eastern cut (Melson and Van Beek, 1992: fig. 4) several loessial soil type deposits can be seen having various colors and textures; some of these loess soils may have been modified by natural processes.

In the course of the study by Melson 13 soil samples were collected and analyzed by thin-section petrography, X-Ray diffraction (XRD), and X-Ray fluorescence (XRF; Melson and Van Beek, 1992:132-142, table 1). Petrographic analysis of the soil samples indicated a silty fabric with calcareous particles usually of clay size (thus, levigation, reducing the quartzic silt element, would result in a more calcareous clay). All samples have bimodal grain sizes (mostly quartz) with well-sorted silty angular (mostly quartz and some plagioclase and auxiliary minerals) and fine clay-sized grains (Melson and Van Beek, 1992: fig. 5). A component of larger sand-sized rounded quartz also appears but is more variable within the samples (Melson and Van Beek, 1992: fig. 6). As will be seen, this clay type can be well identified in many petrographic samples. Mineralogical analysis by XRD showed quartz and calcite are the major minerals, yet a small amount of micas and clay minerals occurs and probably derives


FIGURE 15.2. Tell Jemmeh from the air with the soil section made by Melson marked (Melson and Van Beek, 1992: fig.1).


FIGURE 15.3. Soil section made by Melson (Melson and Van Beek, 1992: fig. 3).
from aeolian dust coming from the Sinai and as far as the Sahara region (Melson and Van Beek, 1992:132, figs. 7, 8). Chemical analysis of the soil samples by XRF examining major elements showed that the clay is rich in iron, the silica component is roughly constant, and the calcium percentage is more variable. The soils from the overbank deposits ("mud flakes"), however, had a different composition than the loess soils from the east cut; thus, these alluvial clays could be seen as a source for a different clay fabric (Melson and Van Beek, 1992:140, fig. 11). In conclusion, it seems that many of the loess and reworked loess deposits in the area of the tell are suitable for raw ceramic clays (even at present Gaza potters are using loessial clays; see also, e.g., Goren et al., 2004:112-113).

## RESULTS OF THE ANALYSIS

To start, the various petrographic groups, or petrofabrics appearing in this assemblage, will be defined and described (Table 15.2). Of the 145 vessels ranging in date from the Chalcolithic to

Persian period, the large majority of the samples can be described as belonging to two main petrographic groups, Groups 1 and 2 (about 110 of the 145 samples), although these groups have a variety of subgroups. In addition, two to five other petrofabrics can be defined as "imported" fabrics (denoted IMP1-IMP4). The Assyrian-style pottery was classified tentatively in a separate grouping (Petrographic Groups ASS1-ASS3), and subsequently, these fabrics were compared to the general groups. Individual petrographic grouping is shown in Table 15.3.

## Petrographic Groups

Group 1
Group 1 is characterized by a usually dark matrix (under cross-polarized light), with $10 \%-20 \%$ of voids from the slide area; the clay matrix is not calcareous or have high birefringence in most cases (Figure 15.4a,b). Nonplastic inclusions are mainly quartz, which can comprise $25 \%-40 \%$. In most cases the texture of the quartz appearance is "bimodal" (denoted as

TABLE 15.2. Main characteristics of petrographic groups.

| Petrofabric | Matrix | Main inclusions | Related soil | Suggested provenance | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1a | Dark, porous | Silty quartz | Brown | Jemmeh/south coastal Philistia |  |
| 1b | Dark, porous | Bimodal quartz | Brown | Jemmeh/south coastal Philistia |  |
| 1c | Dark, porous | Sand quartz | Brown | Jemmeh/south coastal Philistia | Added temper |
| 2a | Birefringent, reddish, silty | Silty quartz, some sand, opaque, limestone, feldspar | Loess | Jemmeh, north Negev |  |
| 2b | Dark | Silty quartz, some sand/ bimodal, opaque, limestone, feldspar | Loess? | Jemmeh, NW Negev |  |
| 2c | Dark, reddish, silty | Silty, sand quartz | Loess | Jemmeh, NW Negev |  |
| 2d | Birefringent, reddish, silty | Silty quartz, sand limestone | Loess | Jemmeh, western Negev |  |
| 2 e | Birefringent, ferruginous, reddish, silty | Silty quartz, calcareous, opaque, pellets | Loess? | Jemmeh, western Negev |  |
| 2 f | Birefringent, reddish, silty | Silty quartz, mica | Loess | Jemmeh, western Negev |  |
| 2 g | Birefringent, reddish, silty | Crushed calcite, quartz | Loess | Jemmeh, western Negev | Cooking pot fabric |
| 2h | Birefringent, reddish, silty | Sand quartz | Loess | Jemmeh, western Negev |  |
| 3 | Birefringent, silty | Chalk, foraminifera, quartz | Rendzina | Shephelah |  |
| 4 | Dark/reddish | Bimodal quartz | Loess/brown? | Jemmeh region? |  |
| 5 | Brown, silty | Calcareous sand, quartz sand | Brown/ alluvial | Central coast | Zoomorphic <br> Tell el- <br> Yahudiyeh ware |
| 6 | Calcareous | Bimodal quartz, feldspar | Unknown | Imported? |  |
| 7 | Birefringent, silty | Foraminifera, quartz | Marl | North coast? |  |
| 8 | Reddish | Silty quartz, opaque, shale | Unknown | Unknown |  |
| ASS1 | Milky, fine, dark | Quartz, opaque, feldspar, mica | Brown? | Jemmeh, NW Negev? | Assyrian style |
| ASS2 | Dark/red, silty | Silty quartz, limestone, opaque | Loess? | Jemmeh, NW Negev? | Assyrian style |
| ASS3 | Milky, fine | Serpentine | Unknown | Imported (Syria?) | Assyrian style |
| IMP1 | Dark, milky | Serpentine, opaque | Unknown | Imported (East Greek/Cyprus?) |  |
| $\operatorname{IMP}($ ? $) 2$ | Dark | Quartz, limestone, feldspar, mica | Unknown | Imported? |  |
| IMP3 | Birefringent | Quartz, serpentine, polycrystalline quartz | Unknown | Imported (Cyprus/north Syria) |  |
| IMP4 | Opaque | Quartz, mica, chert | Unknown | Imported, north Syria |  |

Group 1b), as the grains are divided into a silty angular population and a smaller subangular to rounded sand-sized population (this quartz texture was also noted in Melson and Van Beek, 1992, in clay samples from the site; see above). Otherwise, samples were defined as Fabric 1a (Figure 15.4a); altogether 26-32 samples belong to this group, and 13-19 belong samples to Group 1b (Figure 15.4b). The coarse:fine:voids ratio (c:f: $\mathrm{v}_{20 \mathrm{um}}$, with a limit between coarse and fine set at $20 \mu \mathrm{~m}$ ) of the slides
from this fabric ranges between 45:45:10 and 55:35:10. Fabric 1 c , appearing in an LBII cooking pot (Sample Jemmeh 70), is characterized by a reddish matrix and a well-sorted rounded quartz sand probably added intentionally as temper. Fabric 1d has very well sorted silty quartz with no sand particles as well as some calcareous inclusions. Other inclusions are limestone fragments and calcareous concentrations, usually medium to coarse sand sized; their frequency is higher in Group 1b and

TABLE 15.3. Samples with petrographic grouping and suggested provenance.

| Sample | Petrogroup | Suggested provenance |
| :---: | :---: | :---: |
| Jemmeh 1 | 2b | Jemmeh, NW Negev |
| Jemmeh 2 | 2b | Jemmeh, NW Negev |
| Jemmeh 3 | IMP2? | Imported/Jemmeh? |
| Jemmeh 4 | 2b | Jemmeh, NW Negev |
| Jemmeh 5 | 1b/2b | Southern coast |
| Jemmeh 6 | IMP2? | Imported/Jemmeh? |
| Jemmeh 7 | IMP3 | Imported |
| Jemmeh 8 | IMP4 | Imported |
| Jemmeh 9 | IMP4 | Imported |
| Jemmeh 10 | IMP1? | Imported |
| Jemmeh 11 | 5 | Central coast |
| Jemmeh 12 | 2b | Jemmeh, NW Negev |
| Jemmeh 13 | 2b | Jemmeh, NW Negev |
| Jemmeh 14 | 2b | Jemmeh, NW Negev |
| Jemmeh 15 | ASS1 | Jemmeh, NW Negev? |
| Jemmeh 16 | ASS1? | Jemmeh, NW Negev? |
| Jemmeh 17 | ASS1? | Jemmeh, NW Negev? |
| Jemmeh 18 | 1b | Jemmeh, NW Negev/coastal plains |
| Jemmeh 19 | 2b | Jemmeh, NW Negev |
| Jemmeh 20 | 2e/ASS2? | Western Negev? |
| Jemmeh 21 | ASS2 | Jemmeh, NW Negev? |
| Jemmeh 22 | ASS2 | Jemmeh, NW Negev? |
| Jemmeh 23 | 2e | Western Negev? |
| Jemmeh 24 | 2a | Jemmeh, NW Negev |
| Jemmeh 25 | 2d | Jemmeh, NW Negev |
| Jemmeh 26 | 2a | Jemmeh, NW Negev |
| Jemmeh 27 | 2d | Jemmeh, NW Negev |
| Jemmeh 28 | 2d/2g | Jemmeh, NW Negev |
| Jemmeh 29 | $3 / 2 \mathrm{~g}$ | Shephelah? |
| Jemmeh 30 | 2 d | Jemmeh, NW Negev |
| Jemmeh 31 | 1a/2b? | Jemmeh, NW Negev |
| Jemmeh 32 | 2a | Jemmeh, NW Negev |
| Jemmeh 33 | 2b | Jemmeh, NW Negev |
| Jemmeh 34 | 2a | Jemmeh, NW Negev |
| Jemmeh 35 | 6 | Imported? |
| Jemmeh 36 | 1 b ? | Southern coast |
| Jemmeh 37 | 2c | Jemmeh, NW Negev |
| Jemmeh 38 | 2f/2d | Jemmeh, NW Negev |
| Jemmeh 39 | 2 e ? | Jemmeh, NW Negev |
| Jemmeh 40 | 1b | Southern coast |
| Jemmeh 41 | 7 | North coast? |
| Jemmeh 42 | 7 | North coast? |
| Jemmeh 43 | 2a | Jemmeh, NW Negev |
| Jemmeh 44 | 8 | Unknown |
| Jemmeh 45 | 2 e | Jemmeh, NW Negev? |
| Jemmeh 46 | 8 ? | Unknown |
| Jemmeh 47 | 1a | Jemmeh/south coastal Philistia |
| Jemmeh 48 | 1b | Southern coastal plains |
| Jemmeh 49 | 2 g | Jemmeh, NW Negev |
| Jemmeh 50 | 1 b | Southern coastal plains |
| Jemmeh 51 | 2a | Jemmeh, NW Negev |

TABLE 15.3. (continued)

| Sample | Petrogroup | Suggested provenance |
| :---: | :---: | :---: |
| Jemmeh 52 | 1a | Southern coast |
| Jemmeh 53 | 1a | Southern coast |
| Jemmeh 54 | 2c | Jemmeh, NW Negev |
| Jemmeh 55 | 2a | Jemmeh, NW Negev |
| Jemmeh 56 | 2b | Jemmeh, NW Negev |
| Jemmeh 57 | 2d | Jemmeh, NW Negev |
| Jemmeh 58 | 2a | Jemmeh, NW Negev |
| Jemmeh 59 | 2a | Jemmeh, NW Negev |
| Jemmeh 60 | 2a | Jemmeh, NW Negev |
| Jemmeh 61 | 2a | Jemmeh, NW Negev |
| Jemmeh 62 | 2 f ? | Jemmeh, NW Negev |
| Jemmeh 63 | 2b | Jemmeh, NW Negev |
| Jemmeh 64 | 2b | Jemmeh, NW Negev |
| Jemmeh 65 | 1a/2a | Southern coast |
| Jemmeh 66 | 2a | Jemmeh, NW Negev |
| Jemmeh 67 | 1 b ? | Southern coastal plains |
| Jemmeh 68 | 2 d | Jemmeh, NW Negev |
| Jemmeh 69 | 2a | Jemmeh, NW Negev |
| Jemmeh 70 | 1c | Southern coastal plains |
| Jemmeh 71 | 1 b | Southern coastal plains |
| Jemmeh 72 | 1b | Southern coastal plains |
| Jemmeh 73 | 2a | Jemmeh, NW Negev |
| Jemmeh 74 | 2a | Jemmeh, NW Negev |
| Jemmeh 75 | 2 g | Jemmeh, NW Negev |
| Jemmeh 76 | 2 g | Jemmeh, NW Negev |
| Jemmeh 77 | 1b | Southern coastal plains |
| Jemmeh 78 | 1b | Southern coastal plains |
| Jemmeh 79 | 1 b | Southern coastal plains |
| Jemmeh 80 | 2a | Jemmeh, NW Negev |
| Jemmeh 81 | 2a | Jemmeh, NW Negev |
| Jemmeh 82 | 3 | Shephelah |
| Jemmeh 83 | IMP1 | Imported |
| Jemmeh 84 | $1 \mathrm{~b} / 2 \mathrm{a}$ ? | Southern coast |
| Jemmeh 85 | 2a | Jemmeh, NW Negev |
| Jemmeh 86 | 2a | Jemmeh, NW Negev |
| Jemmeh 87 | 2a | Jemmeh, NW Negev |
| Jemmeh 88 | 1b | Southern coastal plains |
| Jemmeh 89 | 1b | Southern coastal plains |
| Jemmeh 90 | 2a | Jemmeh, NW Negev |
| Jemmeh 91 | 2b | Jemmeh, NW Negev |
| Jemmeh 92 | 2b | Jemmeh, NW Negev |
| Jemmeh 93 | 2a | Jemmeh, NW Negev |
| Jemmeh 94 | 2a | Jemmeh, NW Negev |
| Jemmeh 95 | 2a | Jemmeh, NW Negev |
| Jemmeh 96 | 2 e | Western Negev? |
| Jemmeh 97 | 1a | Jemmeh, NW Negev |
| Jemmeh 98 | 2b | Jemmeh, NW Negev |
| Jemmeh 99 | 2 e | Western Negev? |
| Jemmeh 100 | 2 e | Western Negev? |
| Jemmeh 101 | 1a | Jemmeh, NW Negev |

TABLE 15.3. (continued)

| Sample | Petrogroup | Suggested provenance |
| :---: | :---: | :---: |
| Jemmeh 102 | 3 ? | Shephelah? |
| Jemmeh 103 | 2 e | Western Negev? |
| Jemmeh 104 | 2 e | Western Negev? |
| Jemmeh 105 | 2e/2a | Western Negev? |
| Jemmeh 106 | 2a | Jemmeh, NW Negev |
| Jemmeh 107 | 3 | Shephelah |
| Jemmeh 108 | 2a | Jemmeh, NW Negev |
| Jemmeh 109 | 2c | Jemmeh, NW Negev |
| Jemmeh 110 | 2a | Jemmeh, NW Negev |
| Jemmeh 111 | 4a | Jemmeh, NW Negev |
| Jemmeh 112 | 4a | Jemmeh, NW Negev |
| Jemmeh 113 | 4a | Jemmeh, NW Negev |
| Jemmeh 114 | 2h | Jemmeh, NW Negev |
| Jemmeh 115 | 4a | Jemmeh, NW Negev |
| Jemmeh 116 | 2a | Jemmeh, NW Negev |
| Jemmeh 117 | 2 g | Jemmeh, NW Negev |
| Jemmeh 118 | 2a | Jemmeh, NW Negev |
| Jemmeh 119 | 2a | Jemmeh, NW Negev |
| Jemmeh 120 | 2a | Jemmeh, NW Negev |
| Jemmeh 121 | 2 g | Jemmeh, NW Negev |
| Jemmeh 122 | 2b | Jemmeh, NW Negev |
| Jemmeh 123 | 1b | Southern coast |
| Jemmeh 124 | 2 h ? | Jemmeh, NW Negev |
| Jemmeh 125 | 2 g | Jemmeh, NW Negev |
| Jemmeh 126 | $1 \mathrm{~d} / 2 \mathrm{e}$ | Jemmeh, NW Negev? |
| Jemmeh 127 | 2a | Jemmeh, NW Negev |
| Jemmeh 128 | 1b | Southern coastal plains |
| Jemmeh 129 | 1b | Southern coastal plains |
| Jemmeh 130 | 1b | Southern coastal plains |
| Jemmeh 131 | ASS1 | Jemmeh, NW Negev? |
| Jemmeh 132 | 1a | Jemmeh, NW Negev |
| Jemmeh 133 | ASS1 | Jemmeh, NW Negev? |
| Jemmeh 134 | 2a | Jemmeh, NW Negev |
| Jemmeh 135 | ASS2 | Jemmeh, NW Negev? |
| Jemmeh 136 | ASS2 | Jemmeh, NW Negev? |
| Jemmeh 137 | ASS3 | Syria? |
| Jemmeh 138 | $1 \mathrm{~d} / 2 \mathrm{e}$ | Jemmeh, NW Negev? |
| Jemmeh 139 | 2 e ? | Western Negev? |
| Jemmeh 140 | 1d? | Jemmeh, NW Negev? |
| Jemmeh 141 | 1a? | Jemmeh, NW Negev? |
| Jemmeh 142 | ASS2 | Jemmeh, NW Negev? |
| Jemmeh 143 | ASS2 | Jemmeh, NW Negev? |
| Jemmeh 144 | ASS2 | Jemmeh, NW Negev? |
| Jemmeh 145 | ASS1 | Jemmeh, NW Negev? |

can reach $15 \%$, as in Sample Jemmeh 71. Minor inclusions that also appear in most of the slides in small quantities are opaque minerals, brown and greenish mica and feldspar; rare to several polycrystalline quartz, chalk, and shell particles also appear in a few samples.

Generally, Group 1 may reflect a clay derived from brown soils (see, e.g., Ben-Shlomo, 2006a:165-167; Ben-Shlomo et al., 2009:2267-2268, Group 1) or an alluvial/quartzic dark brown soil (Wieder and Gvirtzman, 1999:233-234). Similar clays were found to be commonly used in the 7th century pottery of


FIGURE 15.4. Photographs of thin sections (all under cross-polarized light) for Groups 1 and 2. The sample number is given below each plot, with TSPA group in parentheses.

Ashkelon (Master, 2003:54, Stager et al., 2011:55-56, fig. 4.1, where it is similarly described, related to the "dark brown grumusol") as well as for MBIIB and Iron Age Tell Nagila (Uziel et al., 2009) and Iron IIA Khirbet Qeiyafa (Ben-Shlomo, 2009) pottery at other sites. The source of this clay could derive from the Besor River beds and also from the Ashkelon-Ashdod region (especially Group 1 b with more coastal quartz sand). It should be noted, however, that the difference between this soil and the coastal loess soil (see below, Group 2) can often be vague as the former is derived from the latter (Goren et al., 2004:295-298; see also the note in Stager et al., 2011:56, suggesting this is a high-firing-temperature variant of the loess fabric); therefore, in many cases the allocation of samples to Group 1 or 2 was not definitive (see Table 15.2).

## Group 2

This group, which is the most common in the Jemmeh samples (68-78 examples; Figures $15.4 \mathrm{c}-\mathrm{g}, 15.5 \mathrm{a}, \mathrm{b})$, generally reflects clay derived from loessial or loessial-derived soils. Although a large portion of this group is quite homogenous (Subgroups $2 \mathrm{a}, 2 \mathrm{~b}$, and 2 d ), some samples deviate from this, and thus, a large number of subgroups were defined; although some of these may have the same provenance as the main subgroups, others (such as Fabrics 2 e and 2 h ) may reflect different sources.

This fabric is characterized by a silty, slightly birefringent calcareous matrix, usually reddish in regular polarized light. The matrix of the fabric is slightly more compact than petrofabric 1 with $5 \%-10 \%$ voids; the inclusions are, however, more widely spaced; c:f: $\mathrm{v}_{\text {2онm }}$ ranges between 40:50:10 and 50:45:5. Quartz is again the dominant element with $25 \%-35 \%$ (rising rarely to $40 \%$ ). Fabric 2 a (Figure 15.4 c, d, with $30-34$ examples) has a quartz texture of moderately sorted to bimodal, usually with most grains silt sized angular to subangular. Rounded sand quartz appears in small quantities in most cases. Fabric 2 b (Figure 15.4e, 10-18 examples) has a bimodal to poorly sorted quartz texture, with somewhat more rounded sand-sized grains, yet its main difference from Fabric 2 a is in its dark matrix (under cross-polarized light) and numerous cracked quartz grains, probably indicating a higher firing temperature of the same clay (it is distinguished from Group 1b by the more numerous appearance of feldspar grains; however, in the high-fired samples it is often difficult to distinguish between loess and brown-soil-type clays).

Group 2 has a larger proportion of opaque (reddish or dark) minerals than Group 1, usually $1 \%-2 \%$ of the slide area; clay pellets appear in some slides too. Otherwise, this clay is characterized by a more common appearance of silty feldspar and some heavy minerals, such as hornblende (also olivine appears rarely), compared to Group 1. On the other hand, calcareous inclusions (limestone and calcareous concentrations) are less common, rarely reaching $5 \%$; only a few samples have a higher component of calcareous sand, and these were defined as Fabric 2d (Figure 15.4 g ), with up to $10 \%$ calcareous sand. The c:f: ${ }_{20 \mathrm{pm}}$ ratio of Fabric 2d ranges between 30:55:15 and 40:50:10. This fabric possibly resembles cooking ware fabric as it has crushed angular calcareous fragments (see below, Fabric 2g). Another
subgroup defined in the loess-derived fabrics includes Fabric 2c, which is highly fired and characterized by more rounded coarsesand quartz grains, often cracked, possibly beach sand added as temper. Interestingly, an Iron II Late Philistine Decorated Ware vessel belongs to this group. In a few samples laminated voids indicate the use of vegetative organic temper such as straw (Figure 15.4f, such as open bowls from the MBII and LBII; this may be considered an Egyptian pottery characteristic; see, e.g., Martin et al., 2009:376). Also, shell inclusions appear (such as in an Iron II bowl, Sample Jemmeh 119).

Fabric 2e (Figure15.4h), with 6-11 examples, is characterized by a more reddish ferruginous matrix and more calcareous inclusions (limestone, nari, and calcareous concentration, $2 \%-$ $7 \%)$. Quartz is still high, up to $25 \%-30 \%$, and usually highly silty; c:f: $\mathrm{v}_{20 \mu \mathrm{~m}}$ ranges between 50:42:8 and 55:45:5. This fabric could reflect clay of a different (as yet unlocated) source (possibly from the northern or western Negev rather than the coastal plains), which may be indicated by the appearance of more clay pellets (see Figure 15.4 h ). On the other hand, such clay may be derived from an area in the vicinity of Tell Jemmeh because the main loessial silty quartz component is still dominant. This group includes mainly Philistine or Philistine-related vessels.

Fabric 2 f includes only two possible examples and is characterized by more well-sorted silty angular quartz than other examples and some more mica. Fabric 2 g (Figure 15.5a), represented by six samples (all cooking pots dated to the MBIIB through the Iron II), is characterized by a substantial amount of silty to coarse-sand-sized angular calcareous inclusions reaching $15 \%$, including limestone, calcite, and a calcareous concentration often in very angular to rhombic shapes; consequently, the abundance of quartz decreases to $10 \%-20 \%$ of the slide area ( $c: f: v_{\text {2oum }}$ ranges between $30: 50: 20$ and $40: 45: 15$ ). These grains were probably intentionally crushed and added to the clay by the potter, creating a typical cooking pot fabric (see, e.g., Shoval et al., 1993:271-272; Miére and Picon, 2003; Ben-Shlomo et al., 2008, 2009:2270, fig. 10, top). The addition of crushed calcite to cooking vessels was probably related to their function, improving their thermal shock resistance (Shoval et al., 1993:271-272). This recipe was used for cooking pots throughout the Bronze and Iron Ages in the Levant (see, e.g., Ben-Shlomo et al., 2009:2271, for Tell es-Safi/Gath). Finally, Fabric 2h (Figure 15.5b), which includes two samples of Iron IIB-C jars of Type JR3, has a reddish matrix with more beach sand quartz that is often optically "zoned" (showing wavy extinction under cross-polarized light) and some nari grains.

Group 2 clay (especially Fabrics 2 a and 2 b ) is similar to general loess-type clays (see, for example, Master, 2003; Ben-Shlomo, 2006a:169-171; Cohen-Weinberger, 2006; Ben-Shlomo et al., 2009:2268-2269), although more similar to northern Negev "classic" loess (see Melson and Van Beek, 1992, and references therein) than to the coastal variations. The petrographic analysis of two LBII el-Amarna letters from Yurza (as well as chemical analysis) also show this composition, pointing to Tell Jemmeh as an origin (Goren et al., 2004:299-301). Petrofabrics derived from loess soils were widely reported from petrographic studies of pottery from the

a Jemmeh 117 (2g)

c Jemmeh 102 (3)

e Jemmeh 42 (7)

b Jemmeh 114 (2h)

d Jemmeh 113 (4)

g Jemmeh 131 (ASS1)

FIGURE 15.5. Photographs of thin sections (all under cross-polarized light) for Groups 2-4, 7, and ASS1. The sample number is given below each plot, with TSPA group in parentheses.
northern Negev, southern coast, inner plains, and the Shephelah (Figure 15.1; e.g., Goren, 1996:54; Master, 2003:55; Goren et al., 2004:9,112; Goren and Halperin, 2004:2554-2555; BenShlomo et al., 2009; Stager et al., 2011:56). Master (2003:55, fig. 4) points to the difference between the Shephelah, Negev, and coastal loess soils (see also Stager et al., 2011:56). The coastal loess is characterized by silty bimodal quartz and low quantities of sand or silt-sized calcite (on such loess soil from Tell Jemmeh, see Melson and van Beek, 1992:132-136), whereas the Shephelah loess is much richer in calcareous inclusions and has less sand-sized rounded quartz. In the region of the southern Shephelah there are soils indicating a mixture (probably natural) of loess and rendzina (see Goren and Halperin, 2004:2554-2555; Ben-Shlomo, 2006a:171-175). In the Tell Jemmeh assemblage we have a more typical and "clean" or classic loess-type clay with the dominant silty quartz and reddish matrix; some mixtures with other Negev soils or possibly terra rossa (Fabrics 2 e and 2 h ?) may also occur. Generally, the source of the clay of most examples of Group 2 comes from the typical loess soils of Tell Jemmeh and its vicinity (as described, for example, in Melson and Van Beek, 1992).

## Other Groups

The remainder of petrographic groups represents by far fewer samples. Group 3 (Figure 15.5 c ), with three to four examples, has a highly birefringent calcareous matrix that is rather compact ( $5 \%$ voids). The nonplastic inclusions are dominated by calcareous components, mostly chalk, shell, and microfossils (foraminifera), and calcareous concentrations (altogether $5 \%-15 \%$ ) and silty quartz (up to $20 \%-30 \%$ ); a few silty grains of feldspar and mica appear as well. This fabric seems to represent clay derived from rendzina soil, which is typified by the high proportion of microfossils deriving from chalk, and may be sourced to the southern Shephelah region or eastern coastal plains. Similar clay types were used (although not very commonly) for the production of Bronze and Iron Age pottery from Tel Miqne-Ekron (Ben-Shlomo, 2006a:171-175), Tell es-Safi/ Gath (Ben-Shlomo et al., 2009:2269), Tell Nagila (Uziel et al., 2009), and Khirbet Qeiyafa (Ben-Shlomo, 2009:163).

Group 4 is characterized by a dark to brown matrix ( $\mathrm{c}: \mathrm{f}: \mathrm{v}_{2 \text { oum }}$ : 50:45:5-60:35:10) with $30 \%-35 \%$ quartz with a bimodal texture, $5 \%-10 \%$ limestone/calcareous inclusions/chalk, coarse silt to fine sand, and some opaque minerals; feldspar, polycrystalline quartz, and mica also occur (Figure 15.5 d ). This is a fabric resembling Groups 1 and 2 and may reflect a natural(?) mixture of the loess and brown-type soils.

Group 5 includes only the MBIIB-C Tell el-Yahudiyeh ware zoomorphic cup (Sample Jemmeh 11). It is probably made of an alluvial (coastal?) clay with equal proportions of quartz and limestone sand (as well as foraminifera and chalk) and thus may be sourced to the central coast of Israel.

Group 6 also comprises only one possible example (Sample Jemmeh 35), a thickened jar rim of the MBIIB-C. It is similar roughly to Fabric 2b with bimodal quartz but has more feldspar (microcline?) and thus may be imported.

Group 7 has two examples, both MBIIB-C cooking pots (Figure 15.5e, Samples Jemmeh 41, 42), and is a calcareous marl-like fabric with coarse-sand-sized chalk and shell (possibly also Amphiroa algae), as well as limestone and silty quartz. This clay may be sourced to the northern Levantine coast (see, e.g., Goren and Halperin, 2004:2558), but that is unclear.

Finally, Group 8 (Figure 15.6a), with a single MBIIB-C bowl (Sample Jemmeh 44 and possibly cooking pot Jemmeh 46), has a reddish matrix with a few fine quartz, opaque, and feldspar inclusions as well as shale. The provenance of this fine fabric is unknown.

In addition, as noted, several Assyrian-style petrofabrics and imported petrofabrics were defined separately. Of the Assyrianstyle pottery Group ASS1 (Figure 15.5f,g, four to six examples) is a fabric with a yellowish compact matrix and is somewhat milky (regular polarized light), which indicates a high firing temperature, possibly of a calcareous clay. The $\mathrm{c}: f: \mathrm{v}_{2 \text { oum }}$ ranges between 35:55:10 and 40:55:5. Nonplastics are well-sorted silty angular quartz ( $15 \%-20 \%$ ) with $1 \%-2 \%$ opaque minerals and some mica laths and feldspar laths; no calcareous inclusions or other elements appear. Thus, the matrix does not seem like that of a loess-type clay as seen in the other pottery samples. This could have been, however, a well-levigated clay deriving from the same source as or possibly a well-fired variation of Group 1 (brown soil?).

Other samples defined as Group ASS2 (Figure 15.6b, four to seven examples) have a dark to reddish-brown matrix; c:f: $\mathrm{v}_{2 \text { oum }}$ ratio is 50:40:10-55:35:10, and nonplastics include silty quartz (no sand), $1 \%-5 \%$ coarse-silt to fine-sand limestone fragments, and $1 \%-2 \%$ opaque minerals, as well as substantial amounts of clay pellets and/or mud stone in a few of the samples in addition to mica and feldspar. Sample Jemmeh 135 has a high feldspar component, mostly elongated laths, whereas Sample Jemmeh 136 has about $3 \%$ mica, mostly laths. This fabric seems somewhat similar to Group ASS1. These two fabrics, although different from local fabrics represented by Groups 1 and 2, do not seem to be imported from a different region, as the main component is similar to the loess or loessial-derived soils of the region. Group ASS1 could, for example, reflect a more well-levigated and fired clay of the same source as the local clay.

In contrast, one Assyrian-style vessel defined as Group ASS3 (a bowl, Sample Jemmeh 137, Figure 15.6c) is clearly imported. The sample is of a fine fabric, with a dark milky matrix, and contains a high proportion of silty to fine-sand serpentine ( $10 \%$ ) and very low quartz (about $3 \%$ ). The high quantity of serpentine may indicate that it may possibly be provenanced to northern Syria.

Other fabrics that are clearly imported include a Cypriot White Painted ware (WP) MBIIB-C vessel (Sample Jemmeh 83), defined as Fabric IMP1 (Figure 15.6d). The matrix is dark and milky, and it contains mostly silty serpentine, opaque minerals, and quartz. Sample Jemmeh 10 is an East Greek amphora neck and is made of a similar ophiolitic fabric but with more polycrystalline quartz. Fabric IMP2 represents two White Slip/imitation milk bowls (reddish paint; Figure 15.6e, Samples Jemmeh 3, 6); these are slightly micaceous and contain mostly silty quartz and

a Jemmeh 44 (8)

c Jemmeh 137 (ASS3)

e Jemmeh 6 ('IMP'2)

g Jemmeh 8 (IMP4)

b Jemmeh 136 (ASS2)


FIGURE 15.6. Photographs of thin sections (all under cross-polarized light) for Groups 8, ASS2, ASS3, and IMP1IMP4. The sample number is given below each plot, with TSPA group in parentheses.
some feldspar and limestone. This fabric maybe imported. The exact provenancing of these fine fabrics by petrography alone is currently not possible.

## Results According to Period and Ware

## Chalcolithic Period

Only five Chalcolithic sherds from Field III were analyzed, three V-shaped bowls and two kraters. Two or three were made of loess-type clay, of the subgroups richer in coarser calcareous inclusions; one is inconclusively Group 1 or 2 , and one is possibly of rendzina-type soil, Group 3, or a highly calcareous group variant.

## Middle Bronze Age IIB-C

Altogether 29 samples from the MBIIB-C (Field III) were analyzed; 22 are common undecorated forms: four open bowls, one rounded bowl, seven carinated bowls, five cooking pots and five storage jars. In addition three Red, White, and Blue ware (RWB) sherds were sampled as well as three Tell el-Yahudiyeh ware (TEY) and one Cypriot WP (Figure 15.6d).

The petrographic results show a relatively highly variable picture as far as clay source selection is concerned, as almost all petrographic groups are represented. About six samples belong to Group 1; these are all carinated bowls or RWB ware (two of three sherds sampled). A similar phenomenon was encountered in the analysis of the MBIIB-C pottery from the nearby Tell Nagila (concerning the bowls, see Uziel et al., 2009). Possibly, this result reflects a certain regional production center of these bowls during this period. Note that the RWB sherds analyzed from Nagila were made of loess-type clay. Eleven samples were made of various
fabrics of Group 2; these include bowls, cooking pots, and one TEY sherd and one RWB sherd. Two of the TEY vessels are not local to the site; a juglet (Sample Jemmeh 32) belongs to Group 3 fabric, and the zoomorphic cup belongs to Group 5 (possibly central coast). Two of the cooking pots, Samples Jemmeh 41-42, were made of a different clay, rich in microfossils, possibly imported from the north Levant coast (Group 7). Notably, typologically, these reflect a nonlocal type (hole-mouth shape), and sometimes this type is associated with Egyptian form. Possibly, there was a northern source for hole-mouth globular cooking pots in the MBIIB-C as well. A carinated red-slipped bowl (Sample Jemmeh 44) and a cooking pot (Sample Jemmeh 46; gutter rim) were also made of an unusual fabric (Group 8); these might be imported, yet their typology is local.

## Late Bronze Age II

The analysis of the 41 LBII vessels showed a rather homogeneous picture, in sharp contrast to the MBIIB assemblage (see Figure 15.7). The LBII sample includes 35 local or Canaanite-style pottery: 13 bowls (three are straight-sided open bowls of a possibly Egyptian tradition, Samples Jemmeh 60, 65, 68), six kraters, four decorated biconic kraters, five cooking pots, one scoop, and six jars (of these, four are marked or incised transport jar handles). In addition, six milk bowls were analyzed; these had a more reddish clay and a more careless reddish decoration than the Cypriot White Slipped milk bowls (see chapter 11) and were analyzed in order to examined whether they are Cypriot imports of local imitations.

Of this sample up to 11 vessels belong to Petrographic Group 1, and 28 belong to Group 2 (mostly Fabrics 2a and 2b, except for several cooking pots made of Fabric 2 g ); only two milk bowls are different, possibly imported. There are no examples


FIGURE 15.7. Comparative grouping of local products (Groups 1 and 2 only) according to archaeological periods.
of other groups. The assemblage shows a strong dominance of the loess group clay type, similar to LBII pottery at Tell es-Safi (Ben-Shlomo et al., 2009); at Tell Jemmeh this phenomenon is even stronger. The decorated ware (Samples Jemmeh 84-87) is made of the same clay as the nondecorated ware, as are the jars, including most of the incised ones. The straight-sided bowls are also made of Group 2 clay, yet they show laminated voids, indicating straw temper (Sample Jemmeh 68 had a somewhat reddish appearance, maybe similar to Nilotic marl; the analysis showed it was made of Fabric 2d, but with more clay pellets and feldspar). Most cooking pots are made of loess clay cooking pot fabric tempered with either calcite (Group 2g) or quartz temper (Group 2c; one cooking pot, Sample Jemmeh 70, is made of brown soil fabric with quartz temper; see Ben-Shlomo et al., 2008).

The analysis of the White Slip II derivative (carelessly decorated) milk bowls (Samples Jemmeh 1-6; see chapter 11) indicated that at least four were probably locally made, whereas two are somewhat different, probably imported, but are still not similar petrographically to other Cypriot White Slip II fabrics.

## Iron I

Fourteen vessels were sampled from the Iron I (from Fields III and I FUR); all were Philistine Bichrome ware (nine bellshaped bowls, some of "degenerated" form, four more typical Philistine Bichrome bell-shaped kraters, and one stirrup jar), and thus, this group may not well represent the Iron I pottery at the site. In any case, their distribution among petrographic groups is quite similar to that of the LBII: 3 belong to Group 1 (all degenerated bell-shaped bowls), 10 belong to Group 2 (mostly to Fabrics 2 b and 2 e ), and 1 , the single stirrup jar fragment (Sample Jemmeh 102), belongs to Group 3 (possibly imported from inner Philistia, Tel Miqne area?). It seems that Philistine Bichrome was made locally at the site, and we have the production workshop, or part of it, in Field I FUR kiln. Possibly a few vessels came from the nearby Ashkelon area, and more elaborate forms (possibly earlier?) were imported from Philistine cities.

## Iron IIA

Ten vessels from the Iron IIA in Field IV (Phases 11-9) were analyzed (seven bowls, one cooking pot, and two Late Philistine Decorated Ware sherds); of these, none belong to Group 1, seven belong to Group 2, two belong to Group 4, and one belongs to Group 3 (the cooking pot, possibly imported from the Shephelah; the sample has some dolomite as well). Of the five carinated degenerated red-slip bell-shaped bowls (a possible Philistine-Assyrian hybrid form), three were made of Fabric 2 e (similar to some of the iron I Philistine sherds), and two were from Group 4 (a possibly clay mixture resembling Groups 1 and 2). The absence of vessels made of Group 1 clay in this period may be incidental.
Iron IIB-C (Local Style)

Eighteen local-style pottery vessels were analyzed from the Iron Age IIB-C (Phases 7-5 in Field IV), including typical forms:
five bowls (four simple rounded bowls of Type BL1), one large krater (Type KR2), three cooking pots (all three of the typical 8th century BCE Type CP2), six jars that are most likely of the tapering base type (JR2), although only one is a clear base fragment, and three grooved-rim jars (Type JR3). In addition, 24 Assyrianstyle pottery vessels from Phase 5 (or unstratified) were analyzed; thus, in total, 42 vessels from the Iron IIB-C were analyzed.

Five vessels were made of Group 1 clay, 11 were made from Group 2 clay, and 2 were from Group 4 clay, a result similar to the LBII-Iron I-IIA, indicating the dominance of Group 2 and no long- or short-distance imports. Most Group 1 examples (Fabric 1b) are jars, probably with tapering bases (Type JR2). This may indicate a somewhat different production center for these jars, as suggested by Zimhoni (1997b:247-250; she suggested a source in southern Israel) and later Bernick-Greenberg (2007:166), although one still local to the region. The grooved-rim jars, Type JR3, are not homogeneous in their clay.

All three cooking pots analyzed were made of the typical loess cooking fabric, Group 2 g , similar to LBII cooking pots. A similar result, showing consistency in production of cooking pots throughout periods, may come from the analysis of cooking pots at Tell es-Safi, where LBII cooking pots (Ben-Shlomo et al., 2008), although somewhat different from Iron I-IIA pots, are similar to the Iron IIB pots (analyzed later; similar results were found at Tel 'Eton; Ben-Shlomo, unpublished data). In contrast, at Ashkelon, the LBII and Iron I cooking pots are locally made and calcite tempered (Master, 2011: tables 3,4), whereas both the MBII and the Iron IIC pots are different and largely imported.

## Assyrian-Style Pottery

Twenty-four Assyrian-style vessels were analyzed; of these, 14 are globular-carinated bowls, 6 are open or "stepped-base" bowls, and 3 or 4 are beakers. In addition an attempt was made to sample the different visual fabrics of this pottery. Thus, 10 samples are of the whitish clay, 4 are of a fabric that is white on the outside and red on the inside, 2 are of a fine pinkish fabric, and 8 are of a reddish fabric (see Tables 13.2, 15.1). As noted, the petrofabrics appearing in this ware were denoted ASS1-ASS3, with six to seven examples of ASS1, five to seven examples of ASS2, and one of ASS3; in addition, four or five samples were of Group 1 clay, and four Assyrian-style samples were of Group 2. Apparently, similar to previous studies made on similar pottery from Tell Jemmeh (XRF; Hunt, 2012a, 2012b; Melson and Van Beek, unpublished data), Tell el-Hesi (petrography; Engström, 2004), and Ashkelon (petrography; Stager et al., 2011:57, 76-$77,119-121$, figs. $4.6-4.8$ ), the source of this pottery is probably in the southern Levant, most likely in the region of Tell Jemmeh. The provenance of most of these vessels is in the southern coastal plains or western Negev because of their general resemblance to the brown and loess clay fabrics. The results from Tell Jemmeh show a relatively high degree of variability in the sources of this pottery (possibly similar results come from Tell el-Hesi; Engström, 2004). Most of the pottery is made of clay not identical to that used for other vessels, and this is a different clay recipe or treatment, creating a different look for this pottery, which
highly resembles Neo-Assyrian palace ware from Mesopotamia. The clay probably is both highly levigated and fired.

It seems that different workshops or different clay recipes of this pottery reflect different degrees of imitation of "quality" in the production of this ware. The completely whitish fabric is a truer imitation of palace ware; indeed, all members of Petrographic Group ASS1 are of the whitish fabric. Most members of the ASS2 group are either vessels with a whitish exterior and reddish core or those with reddish fabric. Notably, all vessels from this petrographic group (ASS2) that were subjected to computerized typological analysis (chapter 16, Figure 16.11) were grouped on the same tree in the cluster analysis. Other examples are made of more regular Group 1 or 2 clays; most are reddish fabrics, but some are whitish (such as Sample Jemmeh 19, a bowl of Group 2a fabric, and Samples Jemmeh 132 and 141, a bowl and beaker/bowl of Group 1b fabric). On the other hand, there is no compatibility between typological forms and the different petrofabrics of the Assyrian-style pottery; all forms appear in all fabrics. The one vessel clearly imported (possibly from Syria), Sample Jemmeh 137, a thick open bowl, defined as Group ASS3, is of a fine pinkish fabric. Notably, this bowl form is rare in Mesopotamia and appears more commonly in Syria and the Levant.

## Persian Period

Four samples of so-called East Greek pottery from the Persian period include three decorated amphorae fragments and one neck of a Chian amphora (Figure $15.6 \mathrm{f}, \mathrm{g}$ ). As noted, all these vessels are clearly imported, yet their confidently determining their provenance according to petrography alone is difficult.

## DISCUSSION

The results of this diachronic study of Tell Jemmeh pottery production shows some interesting differences between periods (Figure 15.7, showing production of local styles only, Groups $1,2)$. There is a high variability in the production centers of the MBIIB pottery in both decorated and plain pottery, even though most are probably locally made (see also a similar result for MBII cooking pots from Ashkelon; Master, 2011:258, table 1). This picture also arises from the variety of Cypriot imports in this
period, which were not included in the petrographic sample. This variability is especially emphasized in comparison to the homogeneous nature of the local LBII pottery, both plain and decorated, which was largely made of loess-type soil. It should be noted, however, that Cypriot and Mycenaean wares (not analyzed) appear during these periods as well. This trend probably continues during the Iron I and IIA, and although the samples of these periods are not large, the trend is corroborated by the typology of the pottery. Unfortunately, no ceramic wasters or raw clay deposits could be identified from the Iron I kiln (although some slag was found), and therefore, the raw materials used in the kiln could not be checked directly. During the LBII a similar pattern occurs at Tell es-Safi/Gath (Ben-Shlomo et al., 2009), yet the sites diverge in their pottery production trends in other periods.

Especially noteworthy is the restricted nature of the pottery sources during the Iron IIB-C, where very few imports occur according to typology. Local manufacture includes the Assyrianstyle pottery, which is made of various locally sourced clay recipes. The sample shows hardly any imports from the central hills, the northern coast, Phoenicia, or other areas. This lack of imports is a substantial difference from the situation in late 7th century BCE Ashkelon, where imports from these regions occur commonly (Master, 2003; Stager et al., 2011). Possibly, the site of Tell Jemmeh had stronger relations during this period with the western Negev on the Arabia route (where mostly loess soils also prevail). However, only a more comprehensive petrographic study of a larger sample from the Iron Age can clarify this issue.

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## NOTE

1. I thank Bill Melson of the National Museum of Natural History for allowing me to consult his studies on the Tell Jemmeh area soils and pottery.

# Computerized Documentation and Analysis of Pottery Vessels Aushalom Karasik 

## INTRODUCTION

When the time came to work on the completion of the final report on the Smithsonian Institution Tell Jemmeh excavation within a strict time and budget frame, it was clear from the onset that the drawing of the large quantity of sherds that was needed for the report would be extremely difficult, if not impossible, within these constraints. Therefore, the choice of maximal employment of computerized recording methods (henceforth, 3-D scanning), which are at least twice as efficient and cheap as manual drawing, was very natural. Furthermore, semiautomatic recording or drawing of pottery vessels had been advanced and attempted by Gus Van Beek already several decades ago with the usage of a "profilograph" (Dolmazon, http://www.dolmazon.de/profilograph_e.htm). It is thus very fitting that this final report of Tell Jemmeh is one of the first final excavation reports to include a massive employment of computerized pottery recording as a standard archaeological tool. This method was described in detail in previous publications (e.g., Karasik and Smilansky, 2008; Karasik, 2010); a short and simplified description of the method is presented here. In addition, another section will discuss the mathematical analysis of profiles of one very important group of pottery vessels presented in the report, the Assyrian-style pottery.

In this report only nondecorated, fairly large rim fragments or base fragments were selected for 3-D scanning. Decorated pottery, body sherds, very small rims, handmade vessels, and completely or nearly completely reconstructed vessels were drawn manually. Rim sherds with handles were scanned in some cases. Altogether, about 950 pottery sherds from Tell Jemmeh were scanned by 3-D modeling, and a computerized drawing was produced for each sherd; the vast majority of these appear in this volume. The total number of pottery sherds and vessels presented in graphic form is about 2,400 . Of these, about 400 items were either previously drawn, only photographed, or technically unmovable to the Hebrew University at the relevant time. Thus, in this case, computerized recording was used to produce nearly $50 \%$ of the vessels, whereas the remainder were drawn manually. The output of the 3-D scanning procedure also includes a series of gray-scale images, but these were seldom used alongside the line drawing. Red slip or red horizontal bands were digitally added to the computerized drawings upon request.

## THE EMPLOYMENT OF 3-D SCANNING FOR DOCUMENTATION OF POTTERY VESSELS

One of the most time-consuming yet unavoidable tasks in archaeology is the study of ceramic potsherds. These findings provide a considerable part of the archaeological information, and yet it is exactly the abundance of potsherds (typically, thousands of indicative fragments per excavation season) that obstructs their detailed analysis. When the original vessels were axially symmetric, the potsherds can be completely characterized by their profiles. Extraction of the profile thus becomes the unavoidable first step in the analysis. Traditional methods for studying pottery, based on the slow and often inaccurate manual drawings, simply cannot handle the volume of information within a reasonable time and cost (e.g., Gilboa et al., 2004, and references therein). Various attempts to overcome these difficulties were proposed in the past (see details in Karasik and Smilansky, 2008). However, the application of computerized 3-D scanning for pottery analysis as a practical tool to accompany and serve archaeological projects did not reach beyond its embryonic stage. One of the main obstacles is the lack of a reliable and efficient algorithm for the extraction of the axis of symmetry and the subsequent drawing of a representative profile. This task is not trivial because several hurdles must be overcome:

1. The fragments usually cover a rather small part of the full perimeter of the original vessel. The smaller the fragment is, the harder it is to establish its correct positioning.
2. The original vessels are usually not perfectly symmetric. On the macroscopic scale, they might be slightly deformed or have interior and exterior faces that are not exactly concentric. On the microscopic scale, the surfaces of ancient ceramics are rough either because of the production techniques and materials or because of weathering and breakage during the long period of time that elapsed between their production and the present. These irregularities suffice to destabilize positioning algorithms that work perfectly well for smooth surfaces.
3. The 3-D surface obtained from the scanner includes points that are not a part of the original surface of the vessel (rather, they may belong to the fracture surface, which was generated when the original vessel was broken, or to surface defects, and these have to be systematically removed).

The system at the Hebrew University, including the cameras, the rotating table, and the software, can capture various types of archaeological artifacts with high precision (Figure 16.1). The 3-D scanning is based on the principle of structured light projected on the object and a 3-D image recorded by two digital cameras. After identifying the rotation axis, the overlapping cross sections assure that the extracted profile is accurate. The Computerized Archaeology Laboratory has developed an algorithm that overcomes all of these difficulties and finds the optimal alignment of even small fragments out of its 3-D model (Karasik and Smilansky, 2008). This algorithm was integrated into a user-friendly program that does all of the needed computations in the background of the software and produces print-quality drawings (Karasik, 2010). The average production rate of the complete procedure, from fragments stored in
b


FIGURE 16.1. The 3-D scanning apparatus in the Hebrew University: a) the camera; b) pottery sherd standing on the rotating wheel; c) a 3-D model of a well-positioned ceramic sherd; d) initial positioning in a reference coordinate system.
boxes to their digital final drawings, is about five fragments per hour. Furthermore, an analytical that mathematically and automatically classifies pottery vessels according to their profiles can be employed (see below).

## MATHEMATICAL ANALYSIS OF ASSYRIAN-STYLE POTTERY

A selection of about 84 Assyrian-style pottery sherds (see chapter 13), mostly bowl rims that were scanned and documented using the computerized method mentioned above, were selected for a more in-depth mathematical analysis. Two common bowl forms also from the Iron II at Tell Jemmeh were used as a comparative reference (see Figure 8.176, Types BL3 and BL5). The typological analysis is based on morphological parameters of the profiles of the vessels. The basic ideas of the method are described below, and its comprehensive description can be found in the original publication (Karasik and Smilansky, 2011).

## Statistical Method

This analytical method, which automatically classifies a given set of ceramic profiles, is based on accurate mathematical representations of the profiles and has shown very promising results so far. It was tested in several cases and proved to be archaeologically meaningful and relevant (Gilboa et al., 2004; Karasik et al., 2005; Karasik and Smilansky, 2008; AdanBayewitz et al., 2009; Karasik, 2010; Karasik and Smilansky, 2011). The concept at the heart of this method is to consider the cross-section profiles as planar curves. Each curve is further represented by three mathematical functions: radius, tangent, and curvature. Mathematically speaking, each of the three representations of the profile stores the entire morphological information of the curve. They have one-to-one correspondence, and each can be fully reconstructed from the other without any loss of information. They differ, however, in the sort of features to which they are most sensitive. The radius primarily displays the gross features of the profile, such as its size and mean inclination. The tangent focuses on the stance of the sherd and is sensitive to local variations and details, whereas the curvature emphasizes in the most conspicuous way the finer features of the profile, e.g., rim treatment, carination, grooving, etc.

We measure the distance between profiles in terms of the Euclidean distance between their corresponding representations (Karasik and Smilansky, 2011). Moreover, we attach weights for each representation (radius, tangent, and curvature), which one can adjust in the various steps of the classification. The distance function compares the matching sections along the two profiles and summarizes their similarity with one positive number. The distance value is zero if and only if the two profiles are identical; the higher it is, the lower the correlation is between the profiles.

The distance value is the data unit that summarizes the similarity information between any pair of profiles. However, knowing that two profiles have a distance value $X$ has a meaning only when it is compared relatively to the distances within the
rest of the assemblage. The similarity relationships in the data set are stored in the distance matrix, whose row and column indices denote the ceramic profiles in the assemblage. Clearly, this matrix is symmetric, and its main diagonal consists of the value zero, which corresponds to the self-difference of each profile. There are several statistical tools that can manipulate distance matrices and reveal inner structures and grouping. First of all, to avoid redundancies and to reduce the number of variables, we employ principal component analysis (PCA). This method transfers the original information from the correlation matrix into a new matrix, with no loss of information and with independent new columns that have a descending magnitude of variability. Only a few columns now suffice to represent most of the variability that exists in the assemblage. Second, in order to comprehensively reveal the full structure of the similarities within the assemblage, the PCA parameters have to be further manipulated. The most common and useful method is cluster analysis (CA). This technique is a way to investigate grouping in the data, simultaneously over various scales, by creating a cluster tree (Figure 16.2). The cluster tree is a very convenient mode to explore and illustrate connections that are based on resemblance. In this tree, similar objects are placed on one branch (cluster), and each branch represents a segregated group; clusters at one level of correlation are joined at the next higher level. The various leaves are connected to a branch that is itself also connected to a higher branch and so on until the top of the tree is reached (Karasik and Smilansky, 2011).

We base the typology on the structure of the cluster tree: A branch on the tree corresponds to a similarity criterion, and as more bifurcations exist on the branch, the similarity criterion is more distinctive, and the classification it induces is more refined. Moreover, at each step, we tune the weights by which the next branch is classified and consider more the fine details as represented by the distance function of the tangent and the curvature functions and less the radius function. When the assemblage is relatively uniform, as is the case with the Assyrianstyle pottery, the focus of the weights should be mainly on the fine details. The following section shows the results of the automatic classification for that group.

## Results

A total of 84 rim fragments were included in this analysis. Their corresponding cross-section profiles and the representative functions were computed and compared by the computer without any preassumptions. The only information that was decided in advance was the weights that set the relative portion of each representative function in the analysis. Several different sets of weights were tested, and since in most of them the global picture was similar (except for outliers that move between the groups), only one example is shown (for a detailed example of the effect of the weights see, Karasik and Smilansky, 2011). After the computerized analysis was done and the cluster tree was drawn (Figure 16.2), the various branches (Figures 16.3-16.10) were also compared to the typological classification and petrographic groups (Figures 16.3-16.11).


FIGURE 16.2. The cluster tree for the 84 bowls that were included in the analysis. Eight subtypes were defined on the basis of the morphology of the tree and its branches.

Figure 16.2 shows the cluster tree of the complete assemblage. Every line at the bottom of the tree corresponds to one vessel. The method is designed so that similar vessels end up being on the same branch. On the basis of the morphology of the tree eight subtypes were defined. Each of them was colored separately, and they are numbered from left to right (see Figure 16.2). Figures 16.3-16.10 illustrate the drawings of vessels that were clustered on each branch as pottery plates.

It is important to note that the results of the cluster analysis are dependent on the assemblage. Adding or removing objects affects the final classification. However, very similar vessels will always appear on the same branch even when the complete assemblage was modified. On the other hand, objects that have a low level of similarities may "jump" between the various branches whenever the assemblage is altered. The best method to test the stability of each object within its final branch is called discriminant analysis (DA; Karasik and Smilansky, 2011). On the basis of the results of this method we have defined the core of each group as the vessels that will always cluster together (appearing on the top of the pottery plate) and the periphery as the vessels that are less confident in this group (a threshold value of $70 \%$ confidence was used).

Figures 16.3-16.10 show the core and periphery drawings of each subtype that was defined on the basis of the different branches cluster tree in Figure 16.2. The morphological differences between the subtypes (denoted as types) are seen in the figures. Types 1 and 2 (Figure 16.3, 16.4) represent the classic Assyrian-style
globular-carinated bowl form (see Figure 13.3) with thin walls and a rim pointed diagonally outward. The two types are very similar, and in many of the different sets of weights that we tried, the inner groupings were different. Indeed, the "wrong" classification of the DA for the periphery of Branch 1 was always into Branch (Type) 2, except for B31_7 (bottom left in Figure 16.3), which was closer to Type 6 (Figure 16.8). In addition, one fragment of the periphery of Branch 2 is similar to Type 7 (see Figure 16.9). Type 3 (Figure 16.5) is very small and can be defined as the outliers of the left branch (Types 1-3, Figure 16.2). Still, its periphery (B124) was always classified together with Branch 2. Further examination of their shapes shows that they are very similar, but the radius of B124 is larger; this was defined as a subtype in the typological discussion as well (chapter 13).

The middle branch (with Types 4-7, Figures 16.6-16.9) represents a different style of the Assyrian-style pottery, as well as other versions of bowls. As will be discussed below, the manual classification has defined as two groups, which we named "local" and "hybrid." Their almost perfect correlation with the automatic classification (Branches 5 and 6) serves as a validation of the computerized method.

Type 4 (Figure 16.6) has thicker walls and a larger opening, and its rim part is more horizontal. This group has two fragments in its periphery: B139 has a similar shape but a larger radius, and therefore, it is not part of the core of the type; B156 is very different and was classified together with Type 1 in most of the DA analysis. Most of the members of this branch belong to

Type 1
core


FIGURE 16.3. Drawings of the fragments that were clustered on Branch 1: Type 1.

Type 2 core


FIGURE 16.4. Drawings of the fragments that were clustered on Branch 2: Type 2.

Type 3
core


B124.mat
0

FIGURE 16.5. Drawings of the fragments that were clustered on Branch 3: Type 3.

Type 4
core




B224_1.mat



B224_3.mat


B157.mat


B252.mat


B161.mat
periphery


10
20 cm

FIGURE 16.6. Drawings of the fragments that were clustered on Branch 4: Type 4.
the Assyrian-style type of thick open bowls (Figures 13.5, 13.6). Type 5 (Figure 16.7) shows a different form of vessel with strait walls and, in most cases, a rim with inner projection.Most of the group was defined independently as belonging to the hybrid type by the manual classification (see discussion). The walls of the fragments that belong to Type 6 (Figure 16.8) are relatively similar to the ones in Type 5, but their rims are different. As was already mentioned, this group includes 7 out of 10 pieces that were classified as local style. The core of Type 7 (Figure 16.9)
is represented by a shorter neck leaning outward. In its periphery there are two pieces, one that was found to be similar to Type 4 (B224_2) and another that has morphological similarities to Type 6 (B4594_3). Interestingly, the DA results for the latter match the manual classification, which has defined it together with the local type of Type 6 (Figure 16.8).

The rightmost branch of the tree is represented by only one type (Type 8, Figure 16.10). This group has no periphery, and it includes all of the unusual shapes that have no clear similarities

Type 5


FIGURE 16.7. Drawings of the fragments that were clustered on Branch 5: Type 5.


FIGURE 16.8. Drawings of the fragments that were clustered on Branch 6: Type 6.


FIGURE 16.9. Drawings of the fragments that were clustered on Branch 7: Type 7.

Type 8


FIGURE 16.10. Drawings of the fragments that were clustered on Branch 8: Type 8.
in this assemblage (most were classified as such in the typological discussion as well, Figure 13.5).

## DISCUSSION

The morphological groups that were defined by the cluster analysis and were validated and sharpened by the DA analysis (with the core and periphery definitions) are the basis for the
following discussion. We have compared the automatic results with two independent methods: manual classification and petrography. As was already mentioned, two types were defined by the regular manual pottery classification as the local type (see Figure 8.176, Type BL3, here mostly Type 6, Figure 16.8) and a hybrid (combining Assyrian, local, and Philistine characteristics; see Figure 8.177, Type BL5, here mostly Type 5, Figure 16.7); both types somewhat resemble many of the Assyrian-style bowls as they have a carination and are of a similar size.


FIGURE 16.11. Another plot of the cluster tree of the assemblage together with symbols for the petrographic groups (colored crosses) and the manual classification definitions (colored circles).

Figure 16.11 shows where the objects of each group were clustered on the tree with black and red circles for the hybrid and local groups, respectively. Both groups that were identified manually have a very good matching with the automatic procedure. All of the hybrid fragments are clustered on Type 5, and 7 out of 10 local pieces were classified into Type 6. It is worth noting that both groups are different from the classic Assyrian-style pottery and have clustered closely together.

The second aspect that is demonstrated in Figure 16.11 is the petrographic groups that were identified (see chapter 15). Two interesting observations should be made. One is that all of the objects that belong to Petrographic Group ASS2 (chapter 15) are clustered on the left branch in Types 1 and 2, which are very closely related (see above). Second, the two samples of Petrographic Group 2 belong to Type 4. This good agreement between morphological types and provenience emphasizes, once again, the potential of the automatic and the independent classification of pottery analysis. Although there are not enough petrographic samples and the statistics is not significant, one may conclude that different production centers or "production lines" also produced slightly different shapes of vessels.

To conclude we can say that the pottery of Tel Jemmeh is one of the first excavation reports that included such a large proportion of 3-D documented ceramics. The automatic procedure produces more accurate drawings in print-quality format that were also proved to be cheaper, faster, and easier to handle for the archaeological needs. Moreover, the computerized classification method that was tested here on a small scale for the Assyrian-style group of bowls is a great contribution to archaeological research. First, it saves time in the typological analysis and classification of the assemblage, and second, it opens new opportunities for quantitative and objective studies. Here we have demonstrated its potential for a comparative study of subtype morphology versus provenience of production.

## AUTHOR NOTE

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# Ceramic Figurines and Figurative Terra-cottas David Ben-Shlomo, Ron Gardiner, and Gus W. Van Beek 

## INTRODUCTION

This chapter discusses the ceramic figurines and figurative terra-cottas from Tell Jemmeh. A total of 127 items are included; of these, 27 are anthropomorphic (mostly female) figurines, and 53 are clearly zoomorphic figurines. Twenty-two additional items are fragments of zoomorphic figurines or vessels, and the other 24 items are other types of figurative terra-cottas, including anthropomorphic (one example) and zoomorphic vessels (13), masks (three examples), and other figurative items (nine items). Other ceramic objects with possible symbolic significance such as votive vessels, wheel models, and stands are discussed in chapter 19. The Tell el-Yahudiyeh ware zoomorphic cup is discussed in chapter 3 (Figure 3.63).

Apparently, the figurative assemblage from Tell Jemmeh is quite rich, as can also be seen from the publication of Petrie's excavation (e.g., Petrie, 1928: pls. XXXV-XXXIX, with 132 illustrated items), especially during the late Iron Age and Persian period. The main general typological groups are female plaque figurines of the Bronze and Iron Age as well as the Persian-Hellenistic periods and handmade zoomorphic figurines; zoomorphic libation vessels appear in smaller quantities. These objects are further subdivided into specific identifiable types according to style and theme, which will be discussed, with the individual items being listed in Tables 17.117.6; the different stylistic influences of the iconography of the terra-cottas will also be discussed when relevant.

## CONTEXT

Most of the figurines and terra-cottas found at Tell Jemmeh come from unstratified contexts or are surface finds, although about 35 come from more significant architectural contexts. Several figurines come from MBIIB and LBII contexts in Fields I, II, and III; the only possible clusters notable are two items in Field III, Phase 15, Room G and three items in Field I, Phase 3, Street J. The largest group comes from Field IV ( 84 items); many items, however, are from topsoil or unclear contexts (at least 33 items). Otherwise, 1 item comes from Phase 10, 3-4 come from Phase 7, 4-5 are from Phase 6, and 10-14 items are from Phase 5. About 18 items come from Phases $3-4$, and the rest are from Phases 1 and 2 or unclear contexts. Fourteen figurative terra-cottas were found in Field III, and they are sporadically distributed in the different phases. Eleven items were found in Field I, and 2 were found in Field I, Square KB. Six items were found in Field II, one was found in Trench SS1, and eight come from the tell's surface (GM (+)).

Generally, according to context, most well-stratified items were found in Iron IIB-C contexts, especially in Field IV, Phase 5, where in Building I three to seven items were found in Room A and two items were found in Room F. In Building II three or four items were found in Room A. In Building III, Phases 5-7, three to five items were found. No figurative terra-cottas were found in architecturally significant contexts of the Persian period phases. From the LBII three or four figurines were found in Phase 3 of Field I. It should be noted that fragmentary items are likely to be redeposited in fills and bricks and thus often date earlier than their find spot. All in all, the vast majority of the figurines and figurative terra-cottas discussed here are dated according to their typology and not by context.

## TYPOLOGY

The figurines and other figurative terra-cottas will be described and discussed below according to their general thematic typology.

## Female Figurines

All anthropomorphic figurines that can be identified by gender are female figurines, although the existence of fragmentary male figurines cannot be ruled out. Moreover, most items can be classified with relatively well known types such as plaque Astarte figurines (e.g., Pritchard, 1943:42-49, Type II, "hands holding
breasts"), Qedesh figurines (Pritchard, 1943:32-42, Type I), and hollow and pillar figurines. An exception is the horse and rider figurines, which are male; these will be discussed, however, with the zoomorphic figurines, as riders do not appear alone.

## Plaque Figurines

A group of 15 nude female plaque figurines was found in the excavations (Table 17.1, Figures 17.1, 17.2). These can be subdivided into earlier examples mostly from the LBII (Fields I, II, and III, seven to eight examples, Figure 17.1) and examples dating stylistically to the late Iron Age or later (Figure 17.2); most of the latter come from Field IV. All plaque figurines are

TABLE 17.1. Female plaque figurines. Bld = Building; us = unstratified.

| Reg. No. | SI Cat. No. | Provenance | Description | Phase | Context | Dimensions (cm) | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 618 | 314 | GMI (+) | Plaque figurine | us |  | $7.5 \times 5 \times 3.8$ | 17.2 g |
| 619 | 919 | GM (+) | Plaque figurine; possibly same mold as Reg. No. 1244 | us |  | $4.8 \times 3.4 \times 2$ | 17.2b |
| 621 | 399 | GM (+) | Plaque figurine, delicate, anklets | us |  | $6.2 \times 4 \times 1$ | 17.1e |
| 624 | 94 | GM 2B (19) | Head of plaque figurine | Unknown |  | $5.5 \times 4.4 \times 2.8$ | 17.2c |
| 626 | 209 | GM SS1 (+) | Plaque figurine? | us |  | $9 \times 4.8 \times 1.4$ | 17.1f |
| 627 | 375 | GM 1D (31B) 2 | Plaque figurine, pointed lower part | IV-5 |  | $6 \times 4.6 \times 3$ | 17.2 f |
| 628 | 602 | GMII D4 P1 (1) | Plaque figurine depicting goddess holding two lotus flowers | II-7? (LBII) |  | $6 \times 4.2 \times 1.2$ | 17.1a |
| 1240 | 623 | GMII A2 W1 (0) | Thick plaque figurine; red slip | II-us |  | $5.8 \times 4.4 \times 3.3$ | 17.2h |
| 1243 | 773 | GMI 1F (9) | Plaque figurine; white slip | I-3? (LBII) |  | $3.6 \times 5 \times 2.7$ | 17.1d |
| 1244 | 447 | GM 0B (15A) 4 | Plaque figurine, broken arms; possibly same mold as Reg. No. 619 | IV-5 | Bld I, Room F? | $3.8 \times 2.1 \times 5.2$ | 17.2a |
| 1245 | 227 | GM 1B (14) 2 | Plaque female figurine; Egyptian style hair; rear is smoothed | IV-5 | Bld I, Room A | $4.8 \times 4.1 \times 2.7$ | 17.2d |
| 1248 | 843 | GMI 4D (3) | Plaque figurine; lower part of hands | I-3 (LBII) | Room F (Field I) | $4 \times 3.3 \times 1.6$ | 17.1b |
| 2788 |  | GM 0B P8 (+) | Shoulder of female figurine; white slip | IV-us |  | $1.5 \times 1.2 \times 3$ | 17.1 g |
| Bag 3578 |  | GMI 2E (4) | Plaque figurine, slender body | I-1/3/us? (LBII) |  | $4.5 \times 3.6 \times 1.6$ | 17.1c |
| 4131 |  | GM (+) | Plaque figurine; red slip (Persian?) | us |  | $4.7 \times 3.6 \times 1.2$ | 17.2e |



FIGURE 17.1. Second millennium BCE female plaque figurines.
made by applying the clay to a mold (which was usually made of fired clay or stone). The nude female is depicted standing, with her hands at her sides (see Pritchard, 1943:49-52, Type III, the lying on bed figurine) or one or two hands on the belly or on the breasts; other hand postures also occur (Figure 17.1a). Usually, these postures and the modeling of the figurines seem to allude to pregnancy and fertility (see Albright, 1938:118-119; Pritchard, 1943; Tadmor, 1982; Keel and Uehlinger, 1998:97-105; Moorey, 2003:35-46). The back side is thickened, slightly convex, and smoothed. Plaque figurines appear in the southern Levant continuously from the Late Bronze Age through to the Persian period (see, e.g., Pritchard, 1943; Stern, 2010:11-14), conserving their basic concept. The details of the face and head and other body details, as well as the thickness of the figure and its proportions, vary, however, according to period and stylistic influences.

## Canaanite Plaque Figurines

No complete examples were found; the most complete is Figure 17.1a. This nearly complete, rather small plaque figurine comes from Field II, probably from Phase 7 (Figure 17.1a). This is a solid, mold-made plaque, broken just above the knees. It is an en face depiction of a nude figure with raised arms, with each hand holding a long-stemmed floral object, probably a lotus blossom. The head is large for the body, with short hair, a bulging forehead (possibly remains of a feathered headdress; see below), and prominent ears. The rest of the features are worn but were possibly never well defined. The back is very uneven,
with some traces of fingerprints. The sex of the figure is not emphasized, and the breasts are very low; however, this is probably a female figure, as no penis is depicted and also according to parallels (see, e.g., Pritchard, 1943: nos. 1, 4). This could also depict an androgynous or a "nonsexed" figure.

This figurine has the typical attributes of a Qedesh Astarte or 'Anat goddess, usually depicted as standing on a crouching lion (see, e.g., Pritchard, 1943:32-42, nos. 1-4; Tadmor, 1982:140; Cornelius, 1994, 2004). These figures usually have either a long Hathor headdress or a feather headdress (see, e.g., Pritchard, 1943:38-40). Figure 17.1a does not have long hair and possibly had a feather headdress that has worn away. Qedesh was introduced into Egypt along with the cults of other Asiatic divinities during the 18th Dynasty. In Egypt, Qedesh, whose full frontal nudity suggests sexuality and fertility, stands on the back of a lion, usually holding snakes and lotuses in her bent and extended arms (Ziffer et al., 2009:334-337; see also Negbi, 1976, for metal figurines of Qedesh). Good parallels in clay and metal come, for example, from Tel Beit Mirsim (Albright, 1938:43, pls. 25.1,2, 26.1, 27.7, 28.1), Aphek, Stratum X9 (Guzowska and Yasur-Landau, 2009:390, fig. 11.6), Batash, Stratum VII (PanitzCohen and Mazar, 2006:251-252, pl. 51:17), Lachish (Tufnell et al., 1940: pl. XXVIII:6; Tufnell, 1958: pl. 49:4; Clamer, 1980: fig. 1, in gold), Akko, Persian Garden (Ben-Arieh and Edelstein, 1977: pl. VI:1, in metal), Tel Harasim (Givon, 2002: fig. 2:1), and Minet el-Beida (Negbi, 1976: fig. 119; see Ziffer et al., 2009, and references and discussion therein, regarding a similar skirted male LBII figure from Beth Shemesh).

Three fragments of plaque figurines come from various LBII contexts in Field I (Figure 17.1b-d). The fragments in Figure $17.1 \mathrm{~b}, \mathrm{c}$ are both torso parts showing the thighs, hips, and belly; the body is relatively naturalistic but not very full. Figure 17.1b is a fragment of a female solid plaque figurine, poorly made (the surface is cracked because of poor drying). The item is preserved from waist to knees, en face, hands are at the sides, and the pubic triangle is defined by a delicate incision. The sides are knife trimmed, and the back is slightly convex, roughly finished (see, e.g., Ashdod, Dothan and Porath, 1982: pl. 34:1). The third example (Figure 17.1d), a fragment including only the middle part of the legs, is somewhat different, as the figure is somewhat higher in its relief (probably indicating a tighter pressure in the mold) and the figurine is covered with thick white slip. Similar Astarte-type plaque figurines come from many sites (see, e.g., Ashdod, Dothan and Freedman, 1967: figs. 26:1,2, 35:4; Dothan, 1971: fig. 35:9; recently, from an LBII building at Tell es-Safi, Shai et al., 2011b: fig.11).

Figure 17.1e shows the entire lower part of the nude body, with legs, hips, genitalia, and both feet turned to the right schematically depicted; the figure is rather slender, and three ankle bracelets are depicted on the lower part of each leg. The figure is framed by a raised frame, and as the hands are not seen, they were probably either raised or on the breast or belly. This is an Astarte-type figurine. LBII parallels come, e.g., from Lachish (Tufnell, 1958: pl. 49:1); for the ankle bracelets, see Aphek (Guzowska and Yasur-Landau, 2009:390, fig. 11.5) and Hazor, Area G, Stratum V (Yadin et al., 1961: pl. CCLIII:11).

A molded, rather flat female figurine from Trench SS1 (Figure 17.1f) is untypical in its form. This item illustrates a standing female figure; it is the lower half of a crude, handmade, solid plaque, from just above a high prominent navel, of a female en face, who is probably pregnant. The arms hang at the sides; the right hand is missing, and the left hand is represented possibly by three oversized fingers (or this represents something else). The figure has a narrow waist and wide hips, with a raised, enlarged pubic triangle, with the genitalia triangle and naval depicted. The legs are crude, with immensely long feet; both are shown turned to her left, one above the other, as if the figure were standing on a platform or connected to something (for a similar leg posture on a plaque figurine, see Hazor, Ben-Tor, 1997: fig. II.62:3). The plaque has rounded lower corners: the back is broken longitudinally, and the surface is missing. This figurine seems to be a crude attempt to copy similarly posed mold-made figurines (see Megiddo, Loud, 1948: pl. 242:15, for a similarly exaggerated pubic triangle and prominent navel, but with arms upraised). Another possibility is that the strange ending of the legs toward the right is part of a scene from a larger application. Possibly, the piece was broken from a stand or a shrine model(?) (see, e.g., the Iron IIA house models/stands from the Yavneh Favissa, e.g., Kletter et al., 2010: pl. 129) where this figure faces another figure or object to its left (viewer's right), and thus it may not be an independent figurine. The fact that the rear part of the object is broken relatively flat and does not show the smoothed surface all plaque figurines have could strengthen the possibility that the figurine was part of a stand.

A shoulder fragment of a female figurine (Figure 17.1g) is white slipped; the modeling style of the shoulder and arm might suggest this is an LBII or Iron I example, but this is not a molded plaque figurine as the shoulder and hand are also modeled on the reverse side. Found on the topsoil, this may resemble Philistine Iron I Ashdoda figurines depicting a seated female (see, e.g., BenShlomo and Press, 2009:49-54, possibly like fig. 5:6).

A figurine fragment (Figure 17.1h) was probably redeposited in the granary fill in Field IV. This is a fragment of a braided hair application including three parallel attached coils (the two inner ones are longer and the outer one is only partial) and a pellet (eye) applied on the inner coil. The style of the hair (long and curving) and the manner of application indicate this is a fragment of a female figurine of a type known from Bronze Age Syria and Cyprus, showing a standing or reclined nude female, who sometimes holds an infant (see, e.g., Pritchard, 1943: no. 13); for parallels for Bronze Age Syrian female figurine heads with this specific hair-style, see Tell Bi'a/Tuttul, Stratum VIII (Strommenger and Miglus, 2010:15-16, pls. 6-10, especially pls. 9:6, 10:1). Late Iron Age hair application fragments from the shrine at Qitmit were also published (Beck, 1995:89, figs. 3.58, 3.59), yet these are of a different style. The whitish color of the clay could indicate a Cypriote origin, and the date is probably LBII.

## First Millennium BCE Plaque Figurines

At least eight examples of late plaque female figurines were found, mostly in Field IV; again, no complete example was found, but most items include head and upper body fragments from Iron II, Persian, and unstratified contexts. Two items, one from Building I (Figure 17.2a, possibly from Room F) and one from the topsoil (Figure 17.2b), are very similar head fragments of plaque figurines that were possibly made from the same mold. The larger item (Figure 17.2a) shows more detail. The face is rather triangular with schematic eyes and eyebrows (four horizontal ridges) and the two ears, nose, and mouth also depicted as ridges; three strokes like a downward-pointing arrow are located between the eyebrows, possibly depicting a jewelry item on the forehead. The hair is in a fringe with two braids on each side (depicted by oblique ridges) to just below the chin line. Under the chin an object comprising four vertical curly ridges (see Petrie, 1928: pl. XXXV:8,10) probably depicts an amulet or necklace; the beginning of the arms can be seen. The back is thumb shaped, roughly hand finished, and pinched in near the bottom. As noted, Figure 17.2 b is very similar but more fragmentary, including a head fragment broken under the chin. Three or four additional plaque figurine fragments that are very similar, showing the same facial details, including jewelry, were published by Petrie (1928: pl. XXXV:8-10,16); possibly all six figurines were made with the same mold, a rather rare phenomenon in one site. The lower part of some of the examples from Petrie's excavations (Petrie, 1928: pl. XXXV:9,16) may indicate only the head was depicted while the lower part of the figurine was blank. A rather similar figurine with the same pendant and forehead decoration was fond in Khirbet Hoga (Kletter, 1996: fig. 7:1). A similar phenomenon occurs at Iron IIC Ashkelon, where some of the molded figurine


FIGURE 17.2. First millennium BCE female plaque figurines.
heads indicate they were made in one mold, probably local to Ashkelon (Press, 2007:216-232, 2012:166-180, 209-214).

Four additional plaque figurines (Figure 17.2c,d,g,h) were made in a higher molded relief and are somewhat more naturalistic. A female head (Figure 17.2c) has its head fully modeled to a line behind the ears. The hair is a fringe low on the forehead, with long strands tucked behind prominent ears, extending at least to chin level, below which the figurine is broken. The eyes are wide and naturalistically modeled with eyebrows; the
nose and lips are also naturalistically depicted but worn. The back is slightly convex and has traces of white paint; the neck is broken. Parallels come from Tell Jemmeh (Petrie, 1928: pl. XXXV:31), Tel Sera’ (Oren, 1993c:1333, right-hand figure, 7th c. BCE), Ashdod, Strata IX-VIII (Dothan and Freedman, 1967: fig. 43:4; Dothan, 1971: fig. 64; Dothan and Ben-Shlomo, 2005: fig. 3.96:5), and Tel Dor (Stern, 2010: fig. 14:3). Figurines of women holding a rounded object (tambourine?) also have
similarly styled headdress (see, e.g., Megiddo, Stratum IV, May, 1935: pl. XXVII:M4495).

The upper part of a plaque figurine (Figure 17.2 g ) was found in Field I topsoil; its style and coarser texture more closely resemble the first millennium figurines than the LBII ones. The head is rather worn, with detailed ears and small eyes, and two long braids of long hair can be discerned. On the chest the breasts are not depicted, but possibly, these are covered by the long hair. Less likely, this could be a male depiction. The hands are probably set to the sides of the body. Somewhat similar figurines come from Tell Jemmeh (Petrie, 1928: pl. XXXVI:36,38) and Batash, Stratum III (Mazar and Panitz-Cohen, 2001:203-205, photo 134, from a mold). Other parallels come from Persian period Dor (Stern, 2010:11-14, figs. 10, 11, and more discussion and parallels therein).

Another female head (Figure 17.2d) comes from Building I, Room A. The plaque is broken at the bottom, and some of the features are worn, with the mouth and part of the chin gone. However, the eyes are well defined; the ears are prominent, with the braids of an Egyptian-style wig tucked behind. The rounded back is hand finished, thinning sharply to the top. As the molded front is incomplete, continuing to the break, this is possibly a depiction of a reclining female (cf. Tadmor, 1982; Dothan and Nahmias-Lotan, 2010b:195-203); parallels also come from Tell Jemmeh (Petrie, 1928: pl. XXXV:29).

Another example from Field II topsoil (Figure 17.2h) is the upper half of a female solid plaque, which goes to just below the breasts and is rather crudely made. The face is very worn and has Hathor locks (reaching to the top of the breasts) and a necklace. The rounded back is unevenly hand finished, and the figurine is red slipped all over. Similar examples probably come from Tell Jemmeh (Petrie, 1928: pl. XXXVI:34).

The lower part of a female plaque figurine (Figure 17.2f) illustrates heavy thighs and belly. The belly is rounded, with a lightly defined public triangle, possibly depicting pregnancy. The thighs are heavy, and the surface of the lower legs and forwardfacing feet is missing; the arms hang at the sides. The back is roughly finished, semicircular in section at the waist, curving forward and thinning to meet the feet in a thin, flat edge, thus making it impossible for the figure to stand, but it was probably intended to lie supine (possibly a depiction of a woman in bed; Tadmor, 1982; see also Hazor, Yadin et al., 1960: pl. CXCV:7).

A rather large fragment of a red-slipped female figurine from the topsoil (Figure 17.2e) is made in a different style. The completely preserved head is freestanding, with naturalistic eyes, mouth, and nose; thick hair and/or possibly headgear is depicted. Hands (broken) are probably raised to hold the breasts. The back side is smoothed and also red slipped. This style is different from Iron II figurines, and this might be a Persian period example; possibly parallels come from Megiddo, Strata I-II (May, 1935: pls. XXIV:M2213, XXVI:M4551).

## Hollow and Pillar Standing Figurines

Three or four female heads (Figure 17.3a-d) are similarly made (by mold) and stylized as the Iron II plaque figurines but
are probably of pillar or standing figurines. In this case the head was inserted with a plug or attached to a hollow conical body (see Ashkelon, Press, 2007:241-243, 2012: cat. nos. 41, 42, 44). Some of these resemble Judean pillar figurines (JPFs; see Kletter, 1996:29-30). A large fragment of a molded head figurine (Figure 17.3a) has a thumb-shaped back that appears to have been knife trimmed. The head, tilted slightly back and to her left, is of a smiling woman. The features are worn, and the nose tip broken, but prominent cheeks and full lips in a rather exaggerated smile are easily discernable. The hair is parted in the middle, with a head covering leaving a single strand of curls exposed on each side of her face, following the jaw line and ending just below chin level. There are no shoulders, and the fragment converges into a pluglike lower part. The head covering ends 1.5 cm below the chin, below which the clay is irregular, roughly cylindrical, and broken at the bottom (see Petrie, 1928: pl. XXXVI:10). Parallels come from Ashkelon from the 7th century BCE (Press, 2007:94, 99, figs. 6:2,3, 7:1,4, 2012:172-179, cat. nos. 41, 42, 49), Ashdod (Dothan, 1971: fig. 65:1), and Batash, Stratum I (Mazar and Panitz-Cohen, 2001:208, pl. 99:1, photo 137).

The molded head of a female figurine (Figure 17.3c) shows breakage of a hollow neck (here the head was applied to the hollow body rather than plugged in); the head is somewhat tilted backward. The face is rather worn, with details of braided hair or a wig and the upper part of the eyes discernable. A lessworn molded head (Figure 17.3d) is also probably of a hollow standing figurine. The head is pressed in a half mold, and the face is tilted back, looking up, wearing an Egyptian braided hairstyle or wig, with the ears exposed. The features are somewhat worn, especially the mouth, and there are no details below chin level. At the point of breakage below the head the figurine is hollow. The back is roughly finished, with traces of white paint (see Megiddo, Stratum I, May, 1935: pl. XXII:M2925).

An unusual solid figurine (Figure 17.3b) is a mold-made plaque-type female bust showing the head and neck; apparently, this is a complete specimen as there was no body. The features are distinguishable, although the nose and the right side are badly worn. The hair, parted in the middle, is chin length. The back of the plaque is rounded and thins toward the top; it is roughly finished, facetted lengthwise by knife trimming. The lower end of the plaque, from about 1 cm below the figure, is missing its surface and appears to have been pared down into a short near-cylinder stem, about 2.5 cm at the bottom, suggesting possible reuse (conversion to a bottle stopper?); another option is that this was the upper part of a composite standing figurine. Such a freestanding bust plaque figurine is rare.

A different type of head, belonging to a pillar-type female figurine (Figure 17.3e) was found in Phase 5, Building II, Room A. The head is schematically depicted in a bird-style face with a prominent pinched nose and deep dented eyes. A clay coil applied on and around the head probably depicts a headdress (this component I sometimes refer to as a veil, scarf, or turban; the back or the head is somewhat pointed, possibly showing the headdress covered by the scarf; possibly, a somewhat similar figurine was published by Petrie, 1928: pl. XXXVI:14). This is the Judean pillar figurine type with a schematic head common in


FIGURE 17.3. Various composite female figurines.
the southern Levant, especially in Jerusalem and the Shephelah (Kletter, 1996: Type A, "pinched" JPFs, 2001; see also City of David [Gilbert-Peretz, 1996: fig. 10:20] and Ashkelon [Press, 2012:167]). A hollow handmade pillar base of a Judean pillar figurine was also found in Field IV topsoil (Figure 17.3f).

Judean pillar figurines (Kletter, 1996, 2001), probably related to some "Asherah cult" (Hadley, 2000, and references therein), were also found only in small numbers in eastern Philistia such as at Ekron (Gitin, 2012: pl. 51a; S. Gitin, Albright Institute, personal communication, objects 6159,6559 ) and Tel es-Safi/Gath (Ben-Shlomo, 2010: fig. 3.36; A.M. Maeir, Bal Ilan University, personal communication), as well as at other sites in Philistia (such as at Batash, Beth Shemesh, and Gezer; see Kletter, 1996, 2001). Few of these types of figurines were found at Iron II Ashdod (see, possibly, Dothan, 1971: fig. 65:4,5, but these can come from Persian levels too). This type is rather rare at

Tell Jemmeh probably because of its greater distance from Judah compared to Ekron and Gath (Kletter, 2001:185-188).

Another type of Iron II standing female figurine has large hollow bodies with hands on the breast (Figure 17.3g). The large, conical, hollow body (maximal diameter of 7.2 cm ) is wheel made and white slipped. The upper neck and head are broken; two pointed pellet breasts are applied on the upper body; the arms are broken, but both the hands were preserved (which are applied clay coils), depicted under the breasts, cupping them. These Iron IIB-C figurines are suggested to be of Phoenician influence and appear in Tell Jemmeh (Petrie, 1928: pl. XXXV:19,20) and elsewhere in Philistia in several examples (see, e.g., Culican, 1969; Kletter, 1996:31, Type Be, or 35-36, fig. 4:5; Ben-Shlomo, 2010:76-78, fig. 3.35:2; for Tel Miqne, see Gitin, 2003:287, fig. 4, and parallels therein; for Ashkelon, see Press, 2007:99, 104, 216-232, fig. 8:1,4, 2012:166-173, cat. nos. 33-63, "composite
figurines"). These are sometimes defined as composite figurines, with mold-made heads of various styles and hands cupping the breasts or holding a drum; they are usually treated as a LevantoPhoenician artifact (Pritchard, 1943:23-27, 56-57; Moorey, 2003:47-50; Press 2012:171-173, and references therein). Such hollow standing figurines from Ekron include an example with the molded head type and a Phoenician-style headdress (see
above). This figurine is especially important as it was found in the 7th century BCE Temple-Palace Complex 650.

## Other Anthropomorphic Figurines

Other examples of anthropomorphic figurines (Table 17.2) include Figure 17.4c, which comes from an LBII context (Field

TABLE 17.2. Standing, pillar, and other human figurines. Bld = Building; us = unstratified.

| Reg. No. | Cat. No. | Provenance | Description | Phase | Context | Dimensions (cm) | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 620 | 920 | GM (+) | Molded head, hollow body (pillar?) figurine | us |  | $6 \times 3.9 \times 2.6$ | 17.3 d |
| 623 | 215 | GM 1D (+) | Pillar figurine, plug molded head | IV-us |  | $6.5 \times 3.5 \times 2$ | 17.3a |
| 1241 | 523 | GM 00A (7) 1 | Molded head figurine, plugged to a body or plaque with no body | IV-5 | Outside Bld I | $3.8 \times 3 \times 7.2$ | 17.3b |
| 1242 | 207 | GM 1B TT2 | Molded head, pillar figurine (hollow body), worn | IV-5 ? | Bld I, Room A? | $3.8 \times 4 \times 6.3$ | 17.3c |
| 1246 | 714 | GM 1B (17) 1 | Pinched bird head with hat/headdress, pillar figurine | IV-5 | Bld II, Room A | $4 \times 3.75 \times 3.5$ | 17.3e |
| 2922 |  | GM 1B EBR (17) 1 | Female standing figurine, hollow wheel-made body, Phoenician style(?), white slip | IV-5 ? | Bld II, Room A? | $9.8 \times 7.2$ | 17.3g |
| Bag 7131/4 |  | GM 2A (0) | Base of Judean pillar figurine | IV-us |  | $4.7 \times 4.3$ | 17.3 f |
| 625 | 450 | GM (+) | Persian molded figurine with high polos hat | us |  | $5.7 \times 2.4 \times 2$ | 17.4a |
| 629 | 47 | GM 1B (5) 1 | Lower part of statue, legs of seated figure, Persian; white slip | IV-3? |  | $2.2 \times 3.8 \times 3$ | 17.4b |
| 642 | 3026 | GM 2D (5) | Hair of figurine, applied on head, probably from Syrian- or Cypriotstyle female figurine, whitish clay | IV-3 | Granary | $3 \times 1.7 \times 0.4$ | 17.1h |
| 1275 | 827 | GMIII B (59) 2 | Crude figurine, female? | III-10-11 | Unit 6 | $3.3 \times 3 \times 1.7$ | 17.4c |
| 3804 |  | GM 2A (20) | Very crude figurine(?) | IV-4/5? |  | $3.5 \times 4.4$ |  |
| 4079 |  | GMIII (+) | Very crude figurine(?) | III-us |  | $4.9 \times 2.2$ |  |



FIGURE 17.4. Various human figurines.

III, Unit 6, Phase 11-10). This is a crude handmade lower body of a figure with two legs and possible depiction of human genitalia. This figurine might resemble a small group of figurines from Iron I Philistia (Ben-Shlomo, 2010:72) depicted naked, probably females with emphasized genitalia, appearing in Iron I Ashdod, Stratum XI (Dothan and Ben-Shlomo, 2005:161, fig. 3.62:5) and Ashkelon (Press, 2007:111, 147, 248-251, fig. 10:3,5, 2012:182-183, cat. no. 77). These are made of coarse clay and are very crude in their style, which does not seem to recall any cultural tradition noted thus far; however, they may indicate a certain hybrid type that might have parallels from Cyprus (such as at Enkomi, Dikaios, 1969-1971: pls. 137.5,6,8, 147.40,41). Two additional coarse, badly fired handmade fragments (Reg. Nos. 3804, 4079, unillustrated) may be crude anthropomorphic figurine fragments of unclear nature.

Two items come from late or unclear contexts (Figure $17.4 \mathrm{a}, \mathrm{b})$ and may be stylistically dated to the Persian period. One example (Figure 17.4a) is a complete figurine head probably of a female wearing a very tall cylindrical hat or tiara. The head was made in mold and is hollow inside; the facial details are very fine with delicate eyes, nose, and mouth. The headgear is probably a high Aegean style polos (see, e.g., Müller, 1915; Holland, 1929:184) and includes the hair around the face and a cylindrical high $(3.5 \mathrm{~cm})$ hat above it. It is broken under chin level. This type of figurine, possibly of Hellenistic or late Persian date, is rare (see Higgins et al., 1954: pls. 13, 14.69, 68, 70, 71.3); figurine heads from Persian period Tel Halif (Lahav) may be similar (http://www.cobb.msstate.edu/dignew, items 70820, 1856). A figurine head from Apollonia (Roll and Tal, 1999:190, fig. 4.51:1; for other possible Persian period examples, see Stern, 1982:165) has a similar hat but is clearly male.

A lower fragment of a figurine of small stature shows two legs covered by a dress on a platform (Figure 17.4b). This is a hollow figure combining molding and hand manipulation, probably of a seated male or female (also see standing and seated female Persian period figurines from Dor, Stern, 2010: figs. 11:14, figs. 12:1, 22, 23, 25:4); the item is white slipped. Similar
figurines come from late Iron Age Ashkelon (Press, 2007:104, fig. 8:5, 2012: cat. no. 61) and Tell Keisan (Briend and Humbert, 1980: pl. 102:5,7).

## Zoomorphic Figurines

A larger group of terra-cottas from Tell Jemmeh contains zoomorphic figurines. At least 54 items are zoomorphic figurines or figurine fragments (Table 17.3), and some additional smaller fragments (Table 17.5) may also belong to figurines but could also belong to zoomorphic libation vessels. Generally, many of the zoomorphic figurines are not chronologically indicative, as these are crude, handmade, nondecorated, and mostly simplistic figurines, not varying in their style from the Neolithic through to at least the first millennium BCE (see, e.g., Ben-Shlomo, 2010:117-118). Although most examples come from Field IV and probably date to the late Iron Age or Persian period, several examples come from Field III MBIIB, LBII, and Iron I levels (see Table 17.3). Several types (such as the horse and rider figurines) are more culturally and chronologically indicative. Iconographically, most items depict quadrupeds, either horned (bovines, rams, ibexes, etc.) or unhorned (equine and other); a few items depict other animals such as birds, snakes, etc.

From an MBIIB context (Field III, Phase 15, Room G) a nearly complete horned figurine was found (Figure 17.5a). This example is rather small but carries some detail; two horns (broken) were attached to the top of the head, the snout is depicted by a slight pinching, and a delicate protrusion was possibly applied to the back of the head. The body is somewhat ovoid in section, and four legs were applied to it; only the front two were preserved and are pointed in their edges. A long side-turning tail, reaching almost to the ground, was applied to the back of the body. This is probably a bovine figurine because of the horns, body, and possible neck protrusion, as well as the tail (although it is unusually long). Another figurine from Phase 15, Room G (Figure 17.5b) is a head fragment of a horned figurine. The item is worn and heavily fractured, and therefore, hardly any details

TABLE 17.3. Zoomorphic figurines. Bld = Building; us = unstratified.

| Reg. No. | Cat. No. | Provenance | Description | Phase | Architecture | Dimensions (cm) | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 630 | 95 | GM 1C (1) 2 | Horned figurine (ram?), front | IV-2? |  | $5 \times 2.2$ | 17.5i |
| 631 | 452 | GM (+) | Head of bull figurine | us |  | $5 \times 5 \times 2.8$ | 17.5j |
| 633 | 238 | GM 2C (7) 1 | Cylindrical body and rear of figurine; Iron II horse figurine? | IV-Post 3 |  | $7 \times 5 \times 4.5$ | 17.7 d |
| 634 | 338 | GM 0B (10A) | Zoomorphic figurine body, upright tail, some soot | IV-5? | Locus 4? | $6.3 \times 3.8 \times 2.5$ | 17.5 m |
| 635 | 50 | GM 1B (9) 1 | Cylinder body; Iron II horse figurine? | IV-3? |  | $4.3 \times 5.8 \times 4$ | 17.7 f |
| 636 | 451 | GM 3B Pit 2 | Zoomorphic figurine with cylinder body | IV-us |  | $3.5 \times 6 \times 5$ | 17.7e |
| 637 | 539 | GM 00A (+) | Zoomorphic figurine with cylinder body | IV-us |  | $4 \times 5.5 \times 3.2$ | 17.71 |
| 640 | 336 | GMII A5 (0) | Solid bird figurine, wings attached to back, tail, three legs | II-us |  | $7 \times 4.7$ | 17.8b |
| 641 | 3022 | GM 1C (5A) | Hand of human or wing of bird figurine | IV-3 |  | $4.4 \times 1.8 \times 1.3$ |  |
| 1247 | 513 | GM 3B (10) | Human figure from horse and rider figurine | IV-5 | Bld III, Unit 2 | $3.8 \times 1.5 \times 7.5$ | 17.7a |
| 1250 | 1124 | GMI KB (35) 7 | Solid large leg of animal(?) with incised paw | KB3 |  | $6.6 \times 4.2$ | 17.8e |
| 1251 | 663 | GM 00B P10 | Head of zoomorphic figurine, ovoid body | Unknown |  | $3.3 \times 3.4 \times 4.3$ |  |
| 1253 | 854 | GMIII B (5) 6 | Neck and head of horned figurine | III-12 |  | $4 \times 2.7 \times 3.5$ | 17.5f |
| 1254 | 540 | GM 00A P7 | Cylinder body, hump or rider, applied mane | IV-1? |  | $7.5 \times 5 \times 4.5$ | 17.7i |
| 1255 | 211 | GM 1B TT3 (1) | Horse figurine, mane | IV-5 | Bld II, Room A? | $4.2 \times 2$ | 17.5k |
| 1256 | 3024 | GM 1B (10) 1 | Front of bovine figurine | IV-4/5? | Bld I, Room A? | $6 \times 5.5 \times 7$ | 17.51 |
| 1257 | 772 | GMI 5D TT3 (1) | Small figurine of crouching(?) animal, pointed tail, soot | I-3? | Street J? | $5.5 \times 2.5 \times 1.5$ | 17.5d |
| 1258 | 381 | GM 2C (10) 1 | Figurine leg | IV-Post 3 |  | $2.5 \times 1.4$ |  |
| 1260 | 510 | GM 3B (11) 1 | Cylindrical horse head, whitish surface, Iron II horse | IV-6 | Bld III, Unit 2 | $3.5 \times 2 \times 3$ | 17.7c |
| 1261 | 401 | GM 2B P6 (2) | Horned figurine (ram, curved-head goat) | IV-6 |  | $4.8 \times 4.4 \times 3.5$ | 17.5h |
| 1262 | 842 | GM 2B (40) 3 | Long cylindrical body, Iron II horse figurine? | IV-7? |  | $5.5 \times 3.7 \times 2.6$ | 17.7h |
| 1263 | 323 | GM 2B TT4 (1) | Zoomorphic figurine with cylinder body, long neck, and hump, probably camel; dark clay | IV-5? |  | $6 \times 4 \times 6.9$ | 17.6e |
| 1264 | 747 | GM 2A F18 | Zoomorphic figurine, cylinder body, hump, possibly camel | IV-5? |  | $3.5 \times 4.4 \times 5.9$ | 17.6 f |
| 1267 | 231 | GM 1D (31) 2 | Cylindrical body; Iron II horse figurine? | IV-5 |  | $4.8 \times 4.7 \times 2.6$ | 17.7 g |
| 1268 | 376 | GM 0B (8) 4 | Head of bovine figurine | IV-5? | Locus 4 | $2.5 \times 3$ | 17.5g |

TABLE 17.3. (continued)

| Reg. No. | Cat. No. | Provenance | Description | Phase | Architecture | Dimensions (cm) | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1270 | 806 | GMIII B (51A) | Miniature zoomorphic figurine, long neck, smoothed rear | III-9 | Room A | $3.5 \times 1.7 \times 1.2$ | 17.5c |
| 1272 | 993 | GM 2B (+) | Front figurine fragment | IV-us |  | $3 \times 2.8 \times 2$ |  |
| 1273 | 1013 | GMIII F1 (7) 5 | Miniature horned (bull?) figurine, long tail | III-15-16 | Room G | $2.5 \times 1.2 \times 1.9$ | 17.5a |
| 1274 | 239 | GM 1B (11) 2 | Schematic figurine, probably horse rider; white slip | IV-5 | Bld I, Room A | $4 \times 4.7 \times 2.2$ | 17.7b |
| 2031 |  | GM 2A (15) | Horned head of figurine | IV-4? |  | $5.2 \times 4$ |  |
| 2138 |  | GMIII J1 (9) 2 | Figurine head (horned) | III-15 | Room G | $1.8 \times 2.5 \times 2.6$ | 17.5b |
| 2180 | 1103 | GM 2A (29) | Horse/horned figurine, ovoid body | IV-7 | Outside Bld III | $7.5 \times 3 \times 6$ | 17.5e |
| 2680 |  | GM 00A (4) | Zoomorphic figurine body | IV-3/4 |  | $5 \times 2.5$ | 17.6b |
| 2711 |  | GM 0A (7) | Leg/horn of figurine | IV-4-5 |  | $4 \times 2.5$ |  |
| 2720 |  | GM 0B (+) | Leg of figurine? | IV-us |  | $1.9 \times 1.3$ |  |
| 2730 |  | GM 0B (0) | Stumpy leg of figurine | IV-us |  | $1.9 \times 1.3 \times 2.1$ |  |
| 2747 |  | GM 00B P8 | Stumpy (bovine?) figurine body | IV-1? |  | $7 \times 3.8 \times 3$ |  |
| 2748/2448 |  | GM 00B P8 | Complete bovine figurine body, zebu hump | IV-1? |  | $8.7 \times 5.6 \times 3.5$ | 17.6a |
| 2781 |  | GM 00B P8 | Bovine figurine head? | Unknown |  | $3.2 \times 3.5 \times 4$ |  |
| 2787 |  | GM 0B (+) | Leg of figurine | IV-us |  | $2 \times 1.4 \times 1.8$ |  |
| 2964 |  | GM 1B NBR (10) | Leg of figurine? | Unknown |  | $1.6 \times 1.2$ |  |
| 2971 |  | GM 2B NBR W6 | Zoomorphic figurine, side tail | Unknown |  | $5.5 \times 2.8$ | 17.6d |
| 3066 |  | GMII C1 F1 | Possibly a large horn? | II-1/2 |  | $5 \times 2.1 \times 1.3$ |  |
| 3107 |  | GMII C2 (1) 3 | Horn of figurine | II-3 |  | $3 \times 0.8$ |  |
| 3432 |  | GM 2B (33) 2B | Leg of zoomorphic figurine | IV-5 |  | $3.2 \times 2$ |  |
| 3452 |  | GMI KB (0) | Cylindrical body of zoomorphic figurine, thick tail | KB-us |  | $8 \times 3$ | 17.7 k |
| 3797 |  | GM 1B (10) 1 | Figurine torso | IV-4/5? | Bld I, Room A? | $4.5 \times 2.5$ |  |
| 3809 |  | GM 2A (29) | Cylindrical body of zoomorphic figurine | IV-7 | Outside Bld III | $5 \times 3$ | 17.7j |
| 3932 |  | GM 2B P6 (2) | Broken bovine(?) figurine head; white slip | IV-6? |  | $3.5 \times 4.5$ |  |
| 4083 |  | GMI 5D (7B) 2 | Leg of zoomorphic figurine | I-3 | Street J | $3.1 \times 1.7$ |  |
| 4084 |  | GMIII A3 (3) | Front fragment of snake (cobra?) figurine? | III-6-7 |  | $3.3 \times 2.4 \times 0.4$ | 17.8d |
| 4077 |  | GMIII C2 (89) | Horn of figurine? | III-18-19 |  | $2.6 \times 0.5$ |  |
| Bag 1832 |  | GM 2B Pit 36 | Bird on pillar figurine, red slip on top; small stem broken below, wings, tail, and neck broken | IV-10(A) |  | $4.1 \times 3.8 \times 1.6$ | 17.8c |
| Bag 2012 |  | GMI 5D T3 (1) | Possibly large head of figurine (bull?), snout and lips ( dark clay) | I-3? | Street J? | $4.1 \times 3.3$ | 17.5n |



FIGURE 17.5. Zoomorphic figurines.
can be identified (maybe only the neck and broken horns). Another example from an MBIIB context is a figurine horn fragment (Reg. No. 4077, unillustrated).

The front part of an animal figurine (Figure 17.5f) was found in Field III, Phase 12. The item includes a head, neck, and upper body (hollow?). It is broken at the base of the forwardstretching neck but has the start of a wide body present on one side. The head is small, with outlying heavy, short, upturned horns. The snout is broken underneath but is otherwise complete and slightly pointed upward, and the eyes are shallow punctures. This could be a bovine or goat figurine.

A very small, nearly complete figurine (Figure 17.5 c ) was found in Field III, Phase 9. The stumpy body is very short (1.7 cm ), and attached to it is a long, diagonal neck; the head is fragmentary and unclear. Four short legs are applied to the body, and the hind part is unusually flattened, but possibly, remains of an upturning tail can be discerned. Possibly, this object was attached to a larger object or a vessel. It is difficult to identify the animal depicted; it may be a schematic horse (see Tel Miqne, Ben-Shlomo, 2010:122, fig. 3.66:1).

Two or three items were found in Field I, Street J (Figure $17.5 \mathrm{~d}, \mathrm{n}$ and Reg. No. 4083). The most complete item (Figure 17.5 d ) is of a seemingly crouching quadruped. The two front legs are taller and straight, whereas the two hind legs are spread wider apart, and thus, the rear part is reclined. A thick, strait, pointed tail is attached to the rear, but the neck and head are broken. The figurine is made of coarse, badly fired clay, stained by soot marks. It is impossible to identify the animal with any certainty, but the crouched posture could allude to a dog or a lion. See similar hind fragments from Tell Jemmeh (Petrie, 1928: pl. XXXIX:7,8) and naturalistic crouching lions (Petrie, 1928: pl. XXXVIII:1,2). Another item from Street J (Figure 17.5n) is possibly a fragment of the large head of a figurine (possibly a bull?). The fragment is of the frontal cylindrical snout with deep parting of the lips in front; it is made of dark clay. Somewhat similar solid bovine heads are known from later periods such as the Iron Age IIC Qitmit shrine (Beck, 1995:185, fig. 3.82) and Tel Miqne (see Ben-Shlomo, 2010:120, fig. 3.62:7; see also Tell Jemmeh, Petrie, 1928: pl. XXXVII:2). A figurine leg (Reg. No. 4083) was also found in Street J (Figure 6.107g).

A horned figurine head, probably bovine, found in Field IV (Figure 17.5 g ) is possibly of an earlier date. The horns are high and wide curving, the snout is pointed, and the neck is narrow. It is made of fine whitish clay and is possibly either the head of a LHIIIB Mycenaean bovine figurine (see, e.g., French, 1971, 1985) or an imitation of it.

Other quadruped zoomorphic figurines are probably dated to the Iron IIB-C, mostly from Field IV (although many come from unclear context or may be residual), as Petrie's excavations also unearthed a large group of zoomorphic figurines from this period (Petrie, 1928: pls. XXXVII-XXXI). Several identifiable fragments are of various horned animals (Figure 17.5h-j). Of these, Figure 17.5 j has long, side-turning horns, a triangular snout, and applied pellet eyes, probably depicting a bovine. The other two (Figure $17.5 \mathrm{~h}, \mathrm{i}$ ) more likely depict rams or goats. Figure 17.5 h has two broken large horns, a triangular snout,
curving down toward the mouth, pinched ears, and applied pellet eyes. The posture of the snout may indicate a goat or ram was depicted (see, possibly, Ashkelon, Press, 2007: fig. 13:6, 2012:187, cat. no. 170). Figure 17.5i is the frontal part of a figurine with a seemingly horned head, pellet eyes, short snout with incised or punctured lips and nostrils, and two front legs, which are broken. The direction of the horns (somewhat downward) and short snout might indicate a ram goat. Other horned heads of figurines (including Reg. No. 2031, as well as possibly Reg. No. 2781, both unillustrated) are probably bovine.

Several stumpy quadruped bodies or torsos with ovoid section might belong to bovine figurines. These include Figure 17.5 m , which has a stumpy body, pointed frontal legs, and broken upturning tail (somewhat similar to Figure 17.5a); Figure 17.6a and Reg. No. 2748 are bodies of a humped animal, probably a zebu-type bull (see, e.g., Ben-Shlomo, 2010:115-118, and references therein; see also from Tell Jemmeh, e.g., Petrie, 1928: pl. XXXVII:21-23) that appears in various periods. Two torso fragments (Figure 17.6c,d) are also similar. Figure 17.51 is the frontal part of a figurine with two nearly complete legs, a heavy, stumpy body with ovoid section, and a ridge applied on the fore neck, probably a dewlap, which is also typical of bovines (see, e.g., Petrie, 1928: pl. XXXVII:2,21; Ben-Shlomo, 2010:105, 116, figs. 3.61:1-3,6, 3.62:7, on this feature in bovine figurines and libation vessels; note, however, that in most cases dewlaps are pinched from the clay's body whereas here it is applied). Another small quadruped figurine body (Figure 17.6b) has an ovoid section and might belong to a bovine.

The frontal part of a figurine from Phase 7 (Figure 17.5e) has a long neck and head with two ears or horns applied. The snout and the two frontal legs are broken, and the rear part is missing. This is more likely to be a horse figurine with ears depicted on the head because of the form of the neck. The head of a horse figurine was found in Phase 5 (Figure 17.5k). The head is forward leaning, with a long, thick neck, which is broken at the base. The muzzle is also broken. A mane is represented by a prominent ridge, with short incisions across it, extending in front of the forehead and curving down. The eyes are small applied clay disks, with small, broken ears above. Possible parallels come from Ashkelon (Press, 2007: fig. 11:2, 2012: cat. no. 97).

## Late Iron Age Horse Figurines

Probably the largest group of figurines from one type are schematic horse and horse and rider figurines (Figure 17.7) typical of the Iron IIB-C and possibly later also during the Persian period (from Petrie's excavations, see also Petrie, 1928: pl. XXXVIII:3-7,9-33). Altogether up to 12 items can be identified (although most are fragmentary and are identified as such according to body shape), including two riders (Figure 17.7a,b, both from good Phase 5 architectural contexts). All of these examples come from Field IV and are not earlier than Phase 7 (four are from unstratified contexts or Phase 1, two from Phase 3, three from Phase 5, one from Phase 6, and two from Phase 7).

A schematic human figurine found in Phase 5, Building III, Unit 2 (Figure 17.7a) is probably a rider from a horse and rider


FIGURE 17.6. Zoomorphic figurines.
figurine. This is a solid handmade figurine, broken at the bottom. The head is long, pointed, and beak-faced with no features defined and has a long, thick neck. The body is this and flat, with arms broken off flush with the chest, indicating that the arms had been extended forward. The body curves backward at the waist, at which point it is broken. Although the central lower part is smoothed on the side, two breakage marks may indicate the location of legs (that were attached to the horse); above the waist another faint breakage mark indicates an application in the frontal center of the body (possibly also to the horse and/ or saddle). This posture of the figurine suggests that the figure is a horse rider, leaning back. Parallels come, for example, from Beth Shemesh, Tomb 8 (Mackenzie, 1913: pls. 53, 55), Lachish, Level III (Tufnell, 1953: pl. 29:17,18; see also Gjerstad, 1948: pl. XIV.67), and Kadesh Barnea (Gera, 2007:213, fig. 13.1:1, although mentioned as a pillar figurine there). Another fragment of a flat schematic figurine from Building I, Room A (Figure 17.7b) is rather similar and also depicts a rider. The figurine is broken at the chest, and the arms are broken just below the shoulders. The crudely stylized, beak-type head is damaged in several places. The shoulders are hunched forward, suggesting that the arms were stretched to the front (probably holding the harness). A large clean break is located centrally on the chest (higher than in the previous example, Figure 17.7a) and could thus have been
where the figure was attached to the horse/saddle. The back side (smoothed) was possibly white slipped. Parallels come from Lachish, Level III (Tufnell, 1953: pl. 27:1,3). The southern variant of this type is more schematic (e.g., Im, 2006:79-183, and references therein), whereas the northern and Phoenician variants are more detailed.

Examples of horse figurine fragments include one head and nine possible body fragments. The head fragment (Figure 17.7c) comes from Phase 6 and has a smooth cylindrical shape (with no eyes or other details), is at a slight angle from the neck, and has two pointed, prominent ears. This shaping of the head is typical of Iron IIB-C horse figurines (see, e.g., Petrie, 1928: pl. XXXVIII:17,26). The curved-head horse figurines, common at Ashkelon (Press, 2007: fig. 11:7, 2012:183-186, cat. nos. 91104), do not appear at Tell Jemmeh (possibly only Petrie, 1928: pl. XXXIX:2). Generally, the Iron IIB-C horse figurines have a long, smooth body with either a nearly rectangular section or a cylindrical section; a thick, upturning tail is also common. According to these traits several body fragments (all cylindrical) of quadruped zoomorphic figurines (Figure $17.7 \mathrm{~d}-1$ ) were tentatively allocated to the same type of horse figurine. Only one body fragment from Jemmeh (Figure 17.7i) may have evidence of a rider applied on its back, although most other fragments are too small to be indicative.


FIGURE 17.7. Horse and rider and horse figurines.

Figure 17.7 d is a long, smooth cylindrical body with two rear legs, which are broken, and an upturning tail (also possibly typical for horse figurines, whereas bovine ones often have side-turning tails). Figure 17.7 f is another rear part of a figurine with a cylindrical, smooth body, two complete legs, which are flattened at the bottom, and a breakage mark of a thick, upturning tail. The figurine in Figure 17.7e has two complete conical legs attached to a smooth cylindrical body, and Figure 17.71 is another rear part of a figurine with a smooth cylindrical body and thick upturning broken tail. Figure 17.7 i is a more complete body of a figurine; it has a rather short cylindrical body, and an application and ridge near the neck could reflect either the
attachment of the rider or some depiction of the mane. The two front legs are missing, and the two rear legs are broken stumps; a wide breakage mark indicates the thick tail. Two more rear parts of figurines include one (Figure 17.7h) that has a long, thin, smoothed cylindrical body; the rear is flattened and indicates a broken thick tail. The other (Figure 17.7 g ) shows a smooth cylindrical body, two conical legs aligned backward, and a broken upturning tail. Another similar cylindrical body comes from Phase 7 (Figure 17.7j). Registration No. 2747 (unillustrated) is a torso with a long cylindrical body that also may belong to the same type. A complete figurine body (Figure 17.7 k ) has a more stumpy body (more typical of bovines), yet the thick upturning
tail may indicate its relation to the horse figurine type; no rider was attached.

The typical Iron IIB-C horse and horse and rider are very common in Judah and the Shephelah figurines (see, e.g., Jerusalem, especially Cave 1, Holland, 1995:183, Type D.I.a, and Gilbert-Peretz, 1996:29, Types B.2C-B.2C1, pl. 6.13,6.14; Keel and Uehlinger, 1998:392-394, figs. 333-336; Im, 2006:79183). These figurines are quite rare in most parts of Philistia (see Ben-Shlomo, 2010:124-125, fig. 3.67, with a few examples from Tel Miqne and Ashdod). These schematic depictions of horses usually have cylindrical heads, no facial details except two vertical schematic ears, high legs, and flat bodies, with or without riders, and are very common during the Iron II and the Persian periods, especially abundant at Judean sites (see Holland, 1995). Interestingly, at Ashkelon, of the 150 Iron IIB figurines from the 7th century BCE levels, over 70 are horse figurines, including horse and riders (Press, 2007:112-139, 252-260, figs. 11-12, 13:1-3, cat. nos. 76-157, 2012:183-186, cat. nos. 79-159). A similar picture arises from the Tell Jemmeh figurines, a site that may be linked with the Iron II material culture of Ashkelon because of its proximity.

## Camel Figurines

One or two examples are possibly camel figurines (Figure 17.6e,f). Figure 17.6 e is the front half of a figurine with a cylindrical body with a thick, cylindrical vertical neck $(2 \mathrm{~cm}$ long). The head is missing, and the front legs are broken close to the body. A small $(1.5 \times 1 \mathrm{~cm})$ but prominently pointed hump is applied just behind the neck. Although figurines with humped backs are often identified as zebu-type bovines, this case is different, and an identification as a camel seems more likely. This is due to the long, cylindrical, vertical neck and the shape, size, and location of the hump (toward the center of the body). Other figurines that can be similarly identified as camels were published by Petrie (1928: pl. XXXVII:10-18,24,26; no. 24 is particularly similar to Figure 17.6e), and camel figurines were identified elsewhere in the Iron II at Busayra, Jordan (‘Amr, 1980:217, fig. 176) and in later periods at Medinet Habu (Teeter, 2010:130, cat. no. 138). Another figurine (Figure 17.6f) is more fragmentary, and only the body part (probably cylindrical) with the applied pointed hump is preserved (possibly remains of the vertical neck could also be identified); this could also be a camel figurine.

Apparently, camels were important at Tell Jemmeh during the late Iron Age and probably later because of its role as an important stop on the trade route to Arabia. On camel bones at Tell Jemmeh and their significance; see chapter 33 and Hesse and Wapnish (1984a).

## Other Zoomorphic Figurines

Only a few nonquadruped figurines were found. A small figurine, probably depicting a bird (Figure 17.8c), was found in Field IV, Phase 10; the figurine is red slipped. Only the body is preserved, but the rising neck, two broken wings on the sides, and downward wide tail can be identified. On the lower part a broken
stem may be evidence of a pillar on which the figurine stood or was applied to another vessel, maybe a tree. A very similar "bird on pillar" figurine, also red slipped, was found in Stratum VIB at Tell Miqne, dated to the Iron I (Ben-Shlomo, 2010:140, fig. 3.78:3). Small bird figurines were published by Petrie (1928: pl. XXXIX:11) and from Ashdod, Stratum XB (Iron IIA; Dothan and Porath, 1982: fig. 6:4), Lachish Fosse Temple (Tufnell et al., 1940: pl. XXVIII:3), and Lachish, Level III (Tufnell, 1953: pl. 28:12). Similar bird figurines were also found in the Ramesses II temple at Beth Shean (Rowe, 1940: pls. 20:7-9, 64A:1), and several other examples come from Nahariyah (MBII; Ben-Dor, 1950: pls. 11:21,22,25,26, 12:10-12), Megiddo, Stratum X (LB; Loud, 1948, pl. 245:18,19), Tell Beit Mirsim (Iron Age; Albright, 1943: fig. 32.3), and Jerusalem (Iron II; Holland, 1995:186, fig. 8:8-12; Gilbert-Peretz, 1996: fig. 15:4-10).

A nearly complete bird figurine was found in Field II topsoil (Figure 17.8b). The body is ovoid and solid (thus, this is not a rattle), flattening into a small, fan-shaped tail; the head is missing. The wings (broken) loop away from the sides of the body, although the wingtips reattach to the rear of the body just in front of the tail. The three attached legs are arranged with a single leg in the front, with the two rear legs placed far back, just in front of the tail. The third leg is, obviously, simply so that the bird could stand. The arrangement of three legs is typical of bird figurines and various in various periods (see, e.g., Ben-Shlomo, 2010:139, fig. 3.78:1, for a bird-shaped vessel and also, from Tell Jemmeh, Petrie, 1928: pl. XV:4). Similar bird-shaped terracottas from Iron Age Philistia and elsewhere are usually hollow and were sometimes used as rattles (see Ben-Shlomo, 2010:136, fig. 3.77:1-3, and references therein); thus, the solid example from Jemmeh is somewhat unusual. Registration No. 641 from Field IV (unillustrated) is possibly a wing fragment, perhaps also from a bird figurine. A handmade votive vessel from Field IV, Phase 1 (see Figure 19.5e) might also depict a bird; however, this item may be from a later date (Middle Ages?).

A flat piece of clay from Field III, Phase $7 / 6$ (Figure 17.8d) may also be a zoomorphic figurine, possibly depicting a cobra snake. One side is rather smooth, whereas the front side is covered by punctured holes, and in the center is a raised ridge possibly continuing as a neck (broken). The grayish clay is covered by soot marks. This fragment could be interpreted as the body of a cobra snake, with the puncturing aiming to depict its skin surface or color. Cobra snake figurines were identified at the Beth Shean Temple dated to the LBII-Iron I, Levels VIIIVI (James and McGovern, 1993:171-172, figs. 83-85; David, 2009:556-559, fig. 9.20, photo 9.17), Kamid el-Loz (Echt, 1982: pls. 9.3,10, 12.1), and elsewhere only in New Kingdom Egypt (David, 2009:558-559, and references therein). If, indeed, the item from Jemmeh is a cobra figurine, this could be evidence of Egyptian cultic tradition in LBII Tell Jemmeh.

## LIBATION VESSELS

A relatively small group of figurative libation vessels were identified at Tell Jemmeh (Figure 17.9, Table 17.4); most are


FIGURE 17.8. Various zoomorphic terra-cottas.
clearly zoomorphic. Basically, zoomorphic libations vessels are composed of a hollow body and two spouts, one for filling (a "filling spout," usually on the body) and one for pouring (usually shaped as the animal's head, a "head spout"; see Ben-Shlomo, 2008b, 2010:105-107). No complete examples were found. However, the MBIIB-C Tell el-Yahudiyeh style bovine-shaped cup is nearly complete; it is discussed in chapter 3 (Figure 3.63).

Four zoomorphic head spouts are illustrated (some may also belong to kernoi) as well as several body or leg and hollow body fragments (Figure 17.9e-k). A horn-shaped rhyton was also found (Figure 17.9a) and will be discussed below. All animal depictions seem to be quadrupeds. At least two of the four head spouts are horned; of these, Figure 17.9b clearly depicts a bovine with high pointed horns (one broken), applied pellet eyes, pinched ears, and a snout serving as the outlet. In addition a thickly applied dewlap can be seen on lower neck. This could be the head spout of a bovine libation vessel or a kernos
(for similar Iron Age head spouts, see, e.g., Ashdod, various Iron Age strata [Dothan, 1971: figs. 70:4,5, 75:4,5; Dothan and Porath, 1982: figs. 18:1, 34:5], and Tel Miqne, Stratum IC [BenShlomo, 2010:111-114, fig. 3.60:3]). The other horned head spout (Figure 17.9d) comes from Field I, Phase 1; the object is white slipped. The head is thrust forward on a long neck, the snout is cylindrical, with the mouth indicated by a deep puncture, and the eyes are indicated by shallow punctures. The horns lie against the face, curving forward below the eyes. An applied clay lump below the chin represents a dewlap. The shape of the horns and dewlap indicates this is a depiction of a ram; a somewhat similar head spout comes from Ashdod (Dothan and Porath, 1982: fig. 34:4, pl. 28:4).

Another head spout (Figure 17.9c) has breakage marks on the top of the head, either of horns and/or ears; two applied pellet eyes have dented pupils. The spout was clearly part of a small libation vessel, yet the animal depicted cannot be ascertained


FIGURE 17.9. Zoomorphic libation vessels.
(probably either a bull or a horse). In addition, at least two fragments of Cypriot Base Ring II bovine vessels were found in Field I (Figure 17.9j, a horn, and Figure 17.9k, a leg or horn fragment; see also chapter 11); both are decorated by dark brown slip and white stripes along the piece.

The fourth head spout belongs to an equine libation vessel (Figure 17.9a) and is more elaborately detailed and decorated. The head spout with part of the neck is from a zoomorphic vessel; a pouring hole of 1 cm diameter extends through the neck and head, which are otherwise all solid, to the mouth. The

TABLE 17.4. Zoomorphic libation vessels. us = unstratified.

| Reg. No. | Cat. No. | Provenance | Description | Phase | Architecture | Dimensions (cm) | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $1003{ }^{\text {a }}$ | GMIII C1 (81) | Tell el-Yahudiyeh style cup in the shape of a horned head | III-16 |  |  | 3.63 |
| 622 | 918 | GM (+) | Zoomorphic (equine) vessel, harness, black and white decoration | us |  | $3.7 \times 5.8$ | 17.9a |
| 632 | 635 | GM 00B P8 | Large head of large bovine vessel, dewlap | IV-1? |  | $8.5 \times 5.5 \times 8$ | 17.9b |
| 638 | 3025 | GM 2D TT2 (2) | Front of zoomorphic vessel, thick (spout) red slip | IV-3? |  | $4.8 \times 6$ | 17.9 f |
| 1252 | 855 | GMIII B (64) 5 | Horn of Cypriot <br> Base Ring II bovine vessel, brown slip, white decoration | III-12 | Unit 8? | $2.8 \times 1.2$ | 17.9j |
| 1259 | 641 | GMI 2F (1) | Ram neck, nozzle hole, white slip | I-1 |  | $3.5 \times 3 \times 2.3$ | 17.9d |
| 1265 | 748 | GM 1C F3 (F7?) | Head with flat nozzle, possibly horned | Unknown |  | $5.5 \times 3.2 \times 5.5$ | 17.9c |
| 2253 |  | GM 1A 1(7) | Fragment of zoomorphic vessel? | Unknown |  | $5 \times 4.7 \times 2$ |  |
| 2259 |  | GMI TTD (1) | Front of zoomorphic (bovine?) vessel, dewlap, red decoration | I-us/3? |  | $3.4 \times 3.6 \times 5.1$ | 17.9 g |
| 2998 |  | GM 2C WBR W/5 | Leg of zoomorphic vessel | Unknown |  | $3.8 \times 2.4$ |  |
| 3262 |  | GM 2A (13) | Hind of zoomorphic vessel, red slip, black decoration | IV-3? |  | $2.5 \times 5$ | 17.9h |
| 3427 |  | GMIII A3 (14) 1 | Leg and body of zoomorphic vessel, white clay | III-9 | Unit 1 | $2 \times 1.5 \times 2.2$ |  |
| 4076 |  | GMI 5E (2) | Leg/horn of Cypriot Base Ring II bovine vessel, brown slip, white decoration | Unknown |  | $3.6 \times 2.5$ | 17.9k |
| RV283 |  | GMI 4E/ 4F (2) | Beast with jars vessel fragment | Unknown |  |  | 17.9e |
| Bag 3409/1 |  | GM 1D (19B) | Zoomorphic vessel leg | IV-5? |  |  | 8.1751 |
| Bag 3925/4 |  | GMI 5G (2) 5 | Leg and body fragment of zoomorphic vessel | I-3 | Room D3 |  |  |
| 2414 | 419 | GM 3B F3 | Base of zoomorphic rhyton, horn shaped; serrated horns, three broken stumps of handles(?); red slip | Unknown | Pit | $10 \times 5.5$ | 17.8a |

[^5]muzzle is wide and flat, with bulging eyes that are pierced. The nostrils are two slits pierced through to the mouth. Only the stubs of backward-pointing ears remain. A harness is represented by a thin applied coil that circles the forehead at the base of the ears, extending down each side of the face, encircling the muzzle just above the nostrils. The face is painted with four horizontal black lines with traces of white lines in between, creating a frame around the eyes as part of the harness. There are further black lines along the harness. The clay is fine and high fired. For similar head detail, see Hazor, Stratum IXb (Yadin et al., 1961: pl. CLXXVI:24) and possibly Cyprus (Gjerstad, 1948: pl. XXXIX:20.2, Black-on-Red II (VI), Cypro-Archaic, an animalhead spout, although not a horse, on an askos). This decoration may also recall Philistine Bichrome style and Iron II decorated head spouts (see, e.g., Dothan, 1971: fig. 69:1-4).

A vessel fragment from Field I (Figure 17.9e) depicts a jar and is the spout of a zoomorphic vessel depicting an animal burdened with two jars on its sides. This is a well-known zoomorphic libation vessel type ("the beast of burden") during the Bronze and Iron Ages in the southern Levant (see, e.g., Beit Mirsim [Albright, 1943: pl. 27e], Beth Shemesh [Grant, 1929:167, fig. 196:503], Gezer [Macalister, 1912: pls. 125:18, 126:7,20], Hazor [Yadin et al., 1961: pl. 277:3,4], Lachish [Tufnell, 1953: pl. 30:23,27,29,30], and Tel Miqne, Stratum V [Ben-Shlomo, 2008b:36, fig. 9:2]; see Ben-Shlomo, 2010:121-122, for more references).

Other fragments of zoomorphic libation vessels are body fragments (usually wheel made). These include a thick redslipped body fragment (Figure 17.9f), probably from the front part, with breakage marks of legs and spout. The front leg with a wheel-made body fragment (Figure 17.9 g ) has a pinched dewlap, probably a depiction of a bovine; there are traces of red decoration. Another fragment is of the rear part (Figure 17.9h); the wheel-made body is thick and is decorated by red slip and black decoration, and there are breakage marks of two legs and a tail. Several other fragments are noted in Table 17.4.

## Horn-Shaped Zoomorphic Rhyton/Drinking Vessel

A rare object is the red-slipped horn-shaped vessel in the shape of an animal (Figure 17.8a). This could also be considered a libation vessel or, more specifically, a rhyton, i.e., a ceremonial horn-shaped libation vessel.

The object was found in an unclear context, a pit in Field IV, Square 3B, and its iconography is not very clear either, as it is fragmentary. It is interpreted here as an ibex head-shaped drinking vessel. The depiction of the animal head seems to be located on the lower part of the vessel, with two long coiled applications depicting the ibex horns; near the lower breakage two applied pellet eyes were preserved. The mouth, which was the lower spout of the rhyton, was not preserved (or it was closed, thus serving as a cup). On the upper part are three breakage marks; one in the front and one behind create a triangle. These are probably the remains of some sort of handles and are not part of the animal depiction. The
identification of the depiction as an ibex (or an Oryx antelope), which is an important Canaanite motif, relies mainly on the long coiled horns.

Parallels are few, although one or two similar objects from Tell Jemmeh were published by Petrie (see Petrie, 1928: pl. XV:5, possibly also 3). Other parallels, although not exact, may come from the Persian period (Stern, 1982:131-132; Hizmi, 1998: pl. 1:3 [Khirbet Nimra]). Palace ware ram's head ceramic rhyta from Nimrud (Mallowan, 1966:191, fig. 124) and Khirbet Khattuniyah (Curtis and Green, 1997:15-17, fig. 18; Anastasio, 2010: pl. 40:7) should also be mentioned as a possible prototype (for other examples of ram-shaped vessels made of metal from the Neo-Assyrian and Persian periods, see, e.g., Wilkinson, 1956, 1967; note the somewhat similar depiction of the horns in Wilkinson, 1956:10, 11). The red slip and the ware of this vessel may indicate an Iron II date, but as noted, horn rhyta are well known from the Persian period (mostly in metal). The modeling of the vessel does carry certain similarities to horse-shaped rhyta (e.g., Maresha, dated to the Hellenistic period, Erlich and Kloner, 2008:73-75, pl. 44, no. 232), but horse rhyta carry a single coiled application, not two.

## Legs and Horns of Zoomorphic Figurines or Vessels

Figure 17.8 e is a thick, heavy cylindrical leg with five deep incisions representing the paw; the base is flattened. This leg belonged to a large zoomorphic figure (maybe of a lion?) or libation vessel (see similar legs from Hazor, MBII-LBII [Yadin et al., 1961: pls. CCXLIV:8, CCLXXVII:5] and Beth Shean, Stratum S-1a [Mazar, 2009b:540, fig. 9.7]; see also possibly similar legs from the 7th century BCE shrine at Qitmit interpreted as human legs [Beck, 1995:97, fig. 3.64]). Otherwise, some 23 items are listed in Table 17.5 (unillustrated) and are legs or horns belonging to zoomorphic vessels or figurines. Of these, 14 are legs, 4 are horns, and 5 are indefinite. Several items are decorated by paint, either white or red (Reg. Nos. 1269, 2252). The curving horn of a ram from Field III, Phase 15 (Bag 5318/3, Figure 3.79 s) should be noted. A thick white-slipped fragment (Reg. No. 2384) may belong to a zoomorphic vessel or hollow figurine as well (depicting a leg and body fragment), but this is unclear.

## Other Figurative Terra-cottas

In this section various figurative terra-cottas that do not fall in the main categories mentioned above will be described.

## Anthropomorphic Vessel?

A fragment from Field IV may be identified as an anthropomorphic vessel (Reg. No. 1249, unillustrated); this is a vessel fragment with a small application, punctured in the middle, possibly depicting the breast from an anthropomorphic female-shaped vessel or hollow figure (see, e.g., Qasile [Mazar, 1980:78-80, fig. 18] and Ashdod [Dothan, 1971: fig. 7:16]).

TABLE 17.5. Fragments from zoomorphic figurines or vessels. Bld = Building; us = unstratified.

| Reg. No. | Cat. No. | Provenance | Description | Phase | Architecture | Dimensions (cm) | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 639 | 3023 | GM 2C (6) | Horn of figurine/vessel | IV-Post 3 |  | $1.8 \times 1.3$ |  |
| 1269 | 994 | GMI 3G (1A) 1 | Leg/horn of figurine(?); red paint | IV-3A | Unit L | $2.2 \times 1.2$ |  |
| 1271 | 995 | GMIII A2 (20) | Leg of zoomorphic figurine/vessel | III-5-6 |  | $3.9 \times 1.5$ |  |
| 2252 |  | GM 1A (0C) | Leg of figurine/vessel; white slip, red decoration | IV-us |  | $2.3 \times 1$ |  |
| 2255 |  | GM 1A TT2 (3) | Horn of zoomorphic vessel/figurine | IV-3 |  | $3.5 \times 1.5$ |  |
| 2385 |  | GM 2B TT2 (17A) | Large curved leg? | IV-3/4? |  | $3.5 \times 2.7$ |  |
| 2413 |  | GM 3B P4 | Horn of figurine | IV-2? |  | $4 \times 1$ |  |
| 2461 |  | GM 1C (18) 3 | Leg of zoomorphic vessel/figurine | IV-5? |  | $3 \times 1.8$ |  |
| 2919 |  | GM 2B SBR (33) | Leg of zoomorphic vessel/figurine | IV-5 ? |  | $3 \times 2.3$ |  |
| 2970 |  | GM 2B SBR W4 | Horn/leg of zoomorphic vessel/figurine | IV-4? |  | $4 \times 1.5$ |  |
| 3169 |  | GM 1A (7-8) 6 | Leg of zoomorphic vessel/figurine | IV-4? |  | $2.5 \times 2.2 \times 3.6$ |  |
| 3184 |  | GM 00A (1) 3 | Leg of zoomorphic vessel/figurine | IV-5 | Bld I, Room F | $3 \times 2.4$ |  |
| 3278 |  | GM 1A F1 (1) 7 | Leg of figurine? | Unknown |  | $1.7 \times 1 \times 1.4$ |  |
| 3283 |  | GM 2A (12) | Leg of zoomorphic vessel/figurine | IV-3? |  | $2.5 \times 1.9$ |  |
| 3298 |  | GM 2A (20) | Leg of zoomorphic vessel/figurine? | IV-4/5? |  | $3.7 \times 2.4$ |  |
| 3406 |  | GM 2B (36) 3 | Leg of zoomorphic vessel/figurine | IV-6/7 | Bld II, Room A | $2.5 \times 1.7$ |  |
| 3435 |  | GM 2A (30) 2A? | Leg of zoomorphic vessel/figurine | IV-7? | Outside Bld III? | $4.2 \times 2.8$ |  |
| 3481 |  | GM 2B W7 | Leg of zoomorphic figurine/vessel | IV-4? |  | 3.22 |  |
| 3803 |  | GM 1B (10) 1 | Leg of zoomorphic figurine/vessel | IV-4/5? | Bld I, Room A? | $1.7 \times 3$ |  |
| 3805 |  | GMII A6 (0) | Leg of zoomorphic figurine/vessel | II-us |  | $2.8 \times 2$ |  |
| 3936 |  | GMIII J1 (15) | Leg/horn of zoomorphic figurine/vessel | III-16? |  | $2.5 \times 1.4$ |  |
| Bag 5318/3 |  | GMIII J1 P3 | Curved horn of figurine/ vessel | III-15 |  |  |  |
| Bag 5792/1 |  | GMI FUR (0) 2 | Leg/horn of figurine or vessel |  |  |  | 7.59k |

## Masks

Two or three fragments of clay masks were found (Figure 17.10a,b and Reg. No. 2973), albeit in poor contexts. One fragment was found in Field III topsoil (Figure 17.10a). This fragment includes the complete nose and the upper lip. The nose is almost life-size and hooked, with two small punctured holes representing
the nostrils. A curving ridge extends from either side of the nostrils at the base of the cheeks. The upper lip is a thin, raised rim; the underside is flat, with rough parallel incisions across it that probably depict the teeth. The mouth was obviously an opening cut through the mask. Another fragment from Field IV (Figure 17.10b) comprises only the nose, which is again life-size, and the lower part is naturalistically modeled with deep perforated


FIGURE 17.10. Various figurative terra-cottas.
nostrils. A fragment with part of two curved openings with raised rims (Reg. No. 2973) is possibly the upper curve of eye openings from an anthropomorphic mask. These masks may be similar to various items found in LBII contexts at Hazor (Yadin et al., 1958:138, pl. CLXIII, 1960: pl. CLXXXIII) and Tel Burna (L. Uziel and R. Shai, Bar Ilan University, personal communication; see also, for example, Iron I Qasile [Mazar, 1980:84-86, fig. 21] and Persian period Dor [Stern, 2010: figs. 29, 30, 32] and Tell Keisan [Briend and Humbert, 1980: pl. 103:25]).

## Vessels with Figurative Elements

A fragment of a red-slipped and burnished vessel (Figure 17.10c, Table 17.6), probably a flask, has a human head applied
to its neck. The flask has a short, vertical, cylindrical neck, flaring slightly to a plain rounded rim and lentoid body. The vessel's shoulders slope at $45^{\circ}$ : one is broken, and the other has a pierced vertical lug handle at the outer end, with the hole following the slope of the shoulder. A solid human head ( 2.2 cm high) projects from one side of the neck, with the neck stretched, looking upward. The face was probably made by mold and resembles some of the late Iron Age/Persian period female plaque and composite figurines (see above). It carries well-defined features: eyes, nose, and mouth, but no ears; also, hair braids are depicted on the forehead. Vessels with human depictions on their necks are known mostly from the Iron Age, with several examples in Philistia (a ring flask with face on the neck from Tel Miqne, Stratum VI, Dothan and Ben-Shlomo, In press, object 5011) and

TABLE 17.6. Various figurative terra-cottas. Bld = Building; us = unstratified.

| Reg. No. | Cat. No. | Provenance | Description | Phase | Architecture | Dimensions (cm) | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1249 | 664 | GM 2C (8) 1 | Possibly part of an anthropomorphic vessel, breast | Unknown |  | $2.5 \times 3 \times 1.2$ |  |
| Bag 2373 |  | GM 2B (40) 3 | A red-slipped bowl with a figure (two legs seen) attached to it from the outside | IV-7? |  | $6.5 \times 2.7 \times 0.6$ | 17.10d |
| 1266 | 917 | GM (+) | Flask with applied head on the neck; red slipped | us |  | $7 \times 4.5 \times 6$ | 17.10c |
| 2148 | 449 | GMII C2 (7) 5 | Unclear solid object decorated with vegetative motifs | II-4 | Unit 4 | $5.5 \times 3 \times 2.5$ | 17.10 g |
| 2853 |  | GM 2A WBR P12 | Lower figurine part? (female?), flat, smoothed back, applied to a vessel/ stand?; red slipped | IV-4 |  | $5.2 \times 2.4 \times 5$ | 17.10f |
| 2416 |  | GM 3B (0) | Flat object (tile?/ house model?) made in mold, column/ tree motif? | IV-us |  | $5.5 \times 4.2 \times 0.9$ | 17.10h |
| 2672 |  | GM 00A (3) 1 | Hollow, pointed fragment, red slipped, part of figurative vessel? | IV-5 | Bld I, Room F | $2.1 \times 2.3$ |  |
| 4078 |  | GM 1B (15) 1 | Vessel rim with applied figure? | IV-5 | Bld I, Room A | $6.7 \times 5.5$ | 17.10 e |
| 617 | 922 | GMIII A2 (+) | Mask, incised teeth, nostrils | III-us |  | $5.5 \times 5 \times 4$ | 17.10a |
| 2290 |  | GM 2A F1 | Nose fragment of mask, with perforated nostrils | Unknown |  | $3.4 \times 3 \times 5$ | 17.10b |
| 2973 |  | GM 2B NBR W7 | Mask fragment? (eye?) | IV-4? |  | $4.3 \times 0.9 \times 2.6$ |  |

several examples from late Iron II levels at Ashdod (Dothan, 1971: fig. 65:6-9), LBII Lachish (Tufnell, 1958: pl. 48:7-9), and Iron I Tell Qasile (Mazar, 1980: fig. 19). Although the vessel was found in the topsoil, a probable date would be in the late Iron Age or Persian period because of the known parallels, surface treatment, and modeling of the face.

A red-slipped and burnished pottery vessel from Field IV, Phase 7, probably a bowl or a krater (Figure 17.10d), has an application of two human legs on its outer surface; the legs are two clay coils with feet schematically modeled by pinching. This is the lower part of a human figure, perhaps "seated" on the vessel's rim. Applied human figures appear, for example, on an MBII bowl from Megiddo, Strata XIII-XII (Loud, 1948: pls. 22:9, 119:4,10; pl. 22:11 there shows a bovine head and a snake applied on an open vessel) and an Iron II jarlet from Stratum V (Loud, 1948: pl. 90:10). Registration No. 2672 is a red-slipped conical perforated piece that was possibly a figurative application of some sort (a nipple?); it was found in Field IV, Building I, Room F. From Room A of the same building, Figure 17.10e is a vessel rim fragment with two vertical parallel applications, possibly also of some figurative nature.

A red-slipped terra-cotta (Figure 17.10f) is clearly a figurative element but might have been part of a stand rather than a figurine. The items comprises two curving legs(?) and a body fragment above them with at least one dented perforation; this is possibly a depiction of a female (human?). The back side is completely flat and thus was applied to some wall.

A roughly cylindrical clay object decorated with incisions was found in Field II, Phase 4, Unit 4 (Figure 17.10g); this is an unusual, unique object that may depict a phallic or vegetative motif. The solid object is complete and modeled three-quarters in the round with one flat, roughly finished side. At the head end is a large, oval, rough depression, with a central pierced hole with two smaller holes both above and below within the depression. There are three more drilled holes on one side of the head. There is another drilled centrally in the base end. These holes are only $2-3 \mathrm{~mm}$ deep, and none are linked. The whole rounded surface down to 1 cm from the flattish base end is covered with crudely incised patterns, some of which resemble long leaves or wheat with veins, with the rest being cross-hatching and chevron patterns. No parallels are known for this object.

A flat thin item made of well-levigated and fired clay (Figure 17.10 h ) is seemingly made by mold, with the frontal side depicting a column capital and some other architectural motif above it. This could be either a modeled tile or part of an architectural model. The fabric and appearance of this object might indicate it dates to a late period (Islamic?).

## DISCUSSION

The relatively large figurative assemblage from Tell Jemmeh is composed mostly of Canaanite-style figurines from the LBII (and possibly earlier) and Iron IIB-C to Persian period objects. It is quite diversified, with human and zoomorphic depiction in mostly local styles. The few female figurines from the LBII are fine examples of Canaanite material culture. Egyptian influences are not common at Tell Jemmeh. A possible exception is the fragment possibly identified as a cobra figurine. As at other sites in the southern Levant human figurines are rare during the MBII and become much more common during the LBII, probably as part of mostly domestic popular cultic practices. It was suggested that the scarcity of figurines in domestic MBII contexts in the Levant is related to a more centralized, controlled, and uniform cultic (and general cultural) atmosphere during this period in contrast to a more diversified and pluralistic one during the LBII (Uziel, 2008:260-266).

Notably, there are no Aegean-style figurines at Tell Jemmeh (those appear in the main Philistine cities during the Iron I; see Ben-Shlomo and Press, 2009), neither female nor bovine. One exception is a very schematic "mourning" figurine published by Petrie (1928: pl. XXXVI:2; Dothan, 1982:237, fig. 12:1). Generally, the first millennium BCE female figurines resemble those of late Iron Age Ashkelon (Press, 2012:221-223). Certain late Philistine influences can be identified in the decoration of the figurative items, especially zoomorphic items; Phoenician influences can be identified in some of the female figurines. There are many more zoomorphic figurines than libation vessels, and depictions of bovines and horses appear possibly in roughly the same quantities. This ratio generally appears at other southern Levantine sites (see Holland, 1975, 1995:167) and is in contrast to the late Iron Age assemblage of Tel Miqne (Ben-Shlomo, 2008a, 2010:169-170, table 2), where zoomorphic vessels are much more numerous and the main theme is the bovine. In contrast to some Philistine cities, at Tell Jemmeh, similar to Ashkelon, horse/ horse and rider figurines are quite common during the Iron IIB-C.

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## Worked Sherds

# David Ben-Shlomo and Ron Gardiner 

## INTRODUCTION

A large assemblage of about 1,700 items from Tell Jemmeh includes sherds of pottery vessels that were subsequently worked, especially on their edges, by various tools to create various shapes. Various perforated sherds (after firing) are also included in this group. Usually, these items are not treated in detail in archaeological reports and sometimes are not even separated from the other body sherds, which are often discarded. Only a few comprehensive studies on these worked sherds were published (e.g., Arbino, 2004; Brandl, 2010a). As all these items were retrieved and recorded from the Smithsonian Institution's Tell Jemmeh excavations, this is a good chance to examine this category of material culture in more detail; thus, we dedicate a complete chapter to this category.

The main types of worked sherds are disks (rounded sherds), other worked shapes, worked bases, sherds with one or two perforations, and "burnishers," or potter's tools. Sherds were worked to various shapes: rounded (Figure 18.1), rectangular (Figure 18.7a), lozenge (Figure $18.7 \mathrm{~b}, \mathrm{c}$ ), and triangular. In addition, some worked sherds were probably potter's tools (Figure 18.7 d ) or used as lids or stoppers, weights, or spindle whorls or had other functions (Figures $18.7 \mathrm{e}-\mathrm{g}, 18.8,18.9$ ). These will be discussed separately according to shape and proposed function below.

## ROUNDED WORKED SHERDS (DISKS)

The most common item in the assemblage of worked pottery sherds is sherds worked to a roughly rounded shape; these can be called disks. Altogether, at least 1,515 items of this type were retrieved from the excavation. Only 40 of these were perforated. Although only a small set of items of this type is illustrated (Figure 18.1), the basic contextual and metric data on all these items were recorded and are presented (Figures 18.2-18.6). However, these objects are treated as a group rather than as individual objects (a more individual presentation of some of these from better contexts is given in the various field chapters, chapters $3-8$ ). The vast majority of the disks comes from Field IV (1,113 items); 122 items come from Field I (the majority from the trench in Square 3G; of these, 25 are from Field I FUR, and 44 are from Field I KB), 51 come from Field II, and 223 come from Field III (most are from Squares J1-J2; of these, 15 were found in Room G of Phase 15, dated to the MBII).

A number ( 904 of the 1,515 ; nearly $60 \%$ ) come from contexts with various degrees of stratigraphic certainty. However, only 198 come from well-defined architectural contexts (only $13 \%$ ). A relatively large number were retrieved from the late Iron Age and the Persian period; 55 items come from Field IV, Phase 5, Building I ( 24 from Room A, 16 from Room B, 5 from Room C, 3 from Room E, and 8 from Room F), 46 come from Building II, Phase 6 ( 9 from Room A and 9 from Room B) and Phase 5 ( 10 from Room A, 16 from Room B, and 1 from Room C), and 13 come from Building III, Unit 2. Also, 14 items were found in Locus 4, 10 were found outside Building I in Phase 5, and 7 were found outside Building III in Phase 7; a large number come from Square 0B (74 items). In Phase 9 of the Iron Age IIA, 14 were found in the space denoted as Room D*.

According to the phased material (Table 18.1), one can see that a large quantity, about a third, is well dated to the Iron IIB-C (301 items); most come from Phase 5 in Field IV. Of the items found in Field IV, Phases 4-1, many also likely date to the Iron IIB-C. There is a remarkably small number from the LBII levels, only 26 items (this is partially due to a lower degree of retrieval and documentation of Field I).

Sixty of the items have ground rims with varying degrees of smoothing. Most of these are of small dimensions, in the $1.2-2 \mathrm{~cm}$ diameter range. The rest have been classified as fairly well rounded, roughly rounded, or very roughly rounded. Some are very crudely


FIGURE 18.1. Rounded worked sherds (disks): (a) Reg. No. 3891, (b) Reg. No. 3892, GMIII J1 (17) 1, (c, d) Reg. Nos. 3909-3910, GMIII C1 (81), (e) Reg. No. 1757, GMI 4D (4) 4, (f) Reg. No. 1888, GMIII J1 (14), (g) Reg. No. 3607, GMIII C2 F22, (h) Reg. No. 3738, GMI 3G P7, (i, j) Reg. No. 3743a,c, GMI 3G (19), (k) Reg. No. 1741, GM 3B (9), (l) Reg. No. 1784, GM 2B (30) 2A, (m) Reg. No. 1784a, GM 2B (41), (n, o) Reg. Nos. 1865-1866, GM 0B (2) 2, (p, q) Reg. Nos. 3155-3156, GM 1A (2) 8, (r) Reg. No. 3173, GM 1A (3) 8, (s) Reg. No. 3172, GM 2B Room A.
rounded or even oval; nevertheless, they stand out among other sherds as having undergone some modification.

Two metric parameters of the rounded worked sherds were examined: thickness of sherds and their diameter (Table 18.2, Figures 18.2-18.6). Averaging all disks and only those with phasing resulted in the same thickness of 0.8 cm and a diameter of about 2.8 cm . The standard deviation is about one-third of the average. Comparing the metrics according to periods, it seems that although the thickness of the sherds does not change and its average is between 0.7 and 0.8 cm , the diameter of the second millennium BCE disks (of the MBII, LBII, and Iron I) is somewhat larger at $3.5-4 \mathrm{~cm}$, whereas Iron II disks are only 2.5 cm on average (Figures 18.2-18.5). The latter also are much more
uniform, with a lower standard deviation of the diameter (decreasing to a quarter of the average value). Distribution graphs using 0.5 cm intervals of diameter also show the same picture (Figure 18.2). During the MBII (Figure 18.3) there seem to be two popular sizes of disks, $\sim 2.5-3$ and $\sim 4.5 \mathrm{~cm}$; the data from the LBII and Iron I are too small to draw any conclusions (Figure 18.4). During the Iron II and Persian periods (Figures 18.5-18.6) the distribution of diameters is quite low, and hardly any items are larger than 3.5 cm .

Although the thickness of the worked sherds is dictated by the thickness of the original pottery vessel and is thus constant, the shape and diameter were chosen by those creating the worked sherd. Thus, the dominance of rounded sherds

TABLE 18.1. Rounded worked sherds (disks) according to phases and periods (numbers in parentheses are with uncertain phasing).

| Phase | Period Chalcolithic | MBII | LBII | Iron I | Iron IIA | Iron IIB-C | Persian ${ }^{\text {a }}$ | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| GMIII 19 | 2 |  |  |  |  |  |  |  |
| GMIII 18 |  | 12 |  |  |  |  |  |  |
| GMIII 17 |  | 41 |  |  |  |  |  |  |
| GMIII 16 |  | 61 (+11) |  |  |  |  |  |  |
| GMIII 15 |  | 23 |  |  |  |  |  |  |
| GMIII 14 |  | 1 |  |  |  |  |  |  |
| GMIII 13 |  |  | 1 |  |  |  |  |  |
| GMIII 12 |  |  | 3 |  |  |  |  |  |
| GMIII 11 |  |  | 2 |  |  |  |  |  |
| GMIII 10 |  |  | 1 |  |  |  |  |  |
| GMIII 9 |  |  | 1 |  |  |  |  |  |
| GMIII 6 |  |  |  | 10 |  |  |  |  |
| GMIII 5 |  |  |  | 6 |  |  |  |  |
| GMIII 4 |  |  |  |  | 6 |  |  |  |
| GMIII 2 |  |  |  |  |  |  | 4 |  |
| GMII 6 |  |  | 2 |  |  |  |  |  |
| GMII 4 |  |  |  |  |  | 1 |  |  |
| GMII 2 |  |  |  |  |  | 5 |  |  |
| GMII 1 |  |  |  |  |  | 7 |  |  |
| GMI 8 |  | 4 |  |  |  |  |  |  |
| GMI 7 |  | 22 |  |  |  |  |  |  |
| GMI 6 |  |  | 1 |  |  |  |  |  |
| GMI 4 |  |  | 1 |  |  |  |  |  |
| GMI 3 |  |  | 9 |  |  |  |  |  |
| GMI 1 |  |  | 5 |  |  |  |  |  |
| GM FUR 3 |  |  |  | 8 |  |  |  |  |
| GM FUR 2 |  |  |  | 5 |  |  |  |  |
| GMI KB2 |  |  |  |  |  | 9 |  |  |
| GMI KB1 |  |  |  |  |  | 15 |  |  |
| GM IV 10 |  |  |  |  | 2 |  |  |  |
| GM IV 9 |  |  |  |  | 14 |  |  |  |
| GM IV 8 |  |  |  |  |  | 4 |  |  |
| GM IV 7 |  |  |  |  |  | 10 (+20) |  |  |
| GM IV 6 |  |  |  |  |  | 22 |  |  |
| GM IV 5 |  |  |  |  |  | 228 (+61) |  |  |
| GM IV 4 |  |  |  |  |  |  | 24 (+60) |  |
| GM IV 3 |  |  |  |  |  |  | 34 (+119) |  |
| GM IV 2 |  |  |  |  |  |  | 1 (+17) |  |
| Total | 2 | 164 (+11) | 26 | 29 | 22 | 301 (+81) | 63 (+196) | $607(+288)=895$ |

${ }^{a}$ Many of the items dated to Persian or late phases may be residual.
with a specific diameter reflects a conscious act with certain functional and/or cultural reasons. These reasons are unknown to us and may change in various contexts and periods, but it seems that at least during the Iron II it was important for these items to be somewhat more uniform. Therefore, their interpretation as some kind of token may be strengthened (see discussion below).

## OTHER SHAPES OF WORKED SHERDS

Fourteen sherds are cut into rectangular or nearly square shapes (Figure 18.7a), and eight more are rather oblong (Figure $18.7 \mathrm{~b}, \mathrm{c})$. Two of the square ones have round edges. One roughly square thick bowl rim sherd is pierced with a nearly central hole (Figure 18.7c). A further six sherds are cut into diamond shapes

TABLE 18.2. Basic metrics of disks according to periods.

| Period | Average <br> thickness $(\mathrm{cm})$ | Thickness standard deviation <br> (Percentage of average) | Average <br> diameter $(\mathrm{cm})$ | Diameter standard deviation <br> (Percentage of average) |
| :--- | :---: | :---: | :---: | :---: |
| All items | 0.79 | $0.24(30 \%)$ | 2.82 | $0.94(33 \%)$ |
| All phased items | 0.78 | $0.26(33 \%)$ | 2.82 | $0.92(33 \%)$ |
| MBII $(n=175)$ | 0.83 | 3.59 | $1.19(33 \%)$ |  |
| LBII $(n=26)$ | $0.29(36 \%)$ | 4.06 | $1.3(32 \%)$ |  |
| Iron I $(n=29)$ | $0.23(29 \%)$ | 3.45 | $0.7(20 \%)$ |  |
| Iron II $(n=519)$ | 0.81 | $2.53(19 \%)$ | $0.6(24 \%)$ |  |

All periods


FIGURE 18.2. Diameter distribution of disks from all periods (measured in cm ).


FIGURE 18.3. Diameter distribution of MBII disks (measured in cm ).


FIGURE 18.4. Comparison of diameter distributions of MBII, LBII, and Iron I disks (measured in cm ).

## Iron II



FIGURE 18.5. Diameter distribution of Iron II disks (measured in cm ).
(Figure 18.7b). One of them is pierced at one end, and was perhaps an amulet (Figure 18.7c). Another had a rounded rim and points and may have been a tool. Of the three triangular sherds, one is pierced near the center. Triangular worked sherds come, for example, from Tel Miqne (Ben-Shlomo, 2006a:107). Sherds with triangular or hexagonal shapes may have been used as potter's tools, or burnishers (see Ben-Shlomo, 2006a:107). Five other sherds are of various square forms, including a hexagon (see Tel Miqne, Ben-Shlomo, 2006a:107, fig. 2.12, right) and an octagon. One large, roughly keystone-shaped sherd is pierced at the narrow end. In general, the function (or functions) of these worked sherds is unclear.

Persian (or earlier)


FIGURE 18.6. Diameter distribution of Persian period disks (measured in cm ).

## OTHER TYPES OF WORKED SHERDS

## Worked Bases

Worked bases of pottery vessels are usually larger, thicker, and heavier. About 15 large worked sherds or worked bases of pottery vessels (Figure $18.7 \mathrm{e}-\mathrm{g}$ ) were mostly from bowls, kraters, or jugs; these were disk or low ring bases. One example is an Iron IIA red-slipped and burnished base (Figure 18.7 g ). Several items are worked bases with perforations in their center (Figure $18.8 \mathrm{f}, \mathrm{g}$ ). These bases and several other larger worked sherds probably had a different function than the disks and other


FIGURE 18.7. Various shaped worked sherds and bases: (a) Reg. No. 3308, GM 2A (7) 2, (b) Reg. No. 2712, GM 0A (7), (c) Reg. No. 2890, GM 1B EBR (5), (d) Reg. No. 2415, GM 3B P7, (e) WB1, GM 2A (29), (f) WB2, GM 2B (60), (g) WB3, GM 2B (60).
worked body sherds. They may have served as lids or covers of vessels such as jars. Parallels for these items are from various periods (these are not rare but are rarely published) and come, for example, from Ashdod (Dothan and Ben-Shlomo, 2005:123, fig. 3.37:3), Lachish (Sass, 2004b: fig. 28.2:16-19), and Deir el-Balah (Brandl, 2010a:239-246, figs. 22.1, 22.2:1-9, denoted lids) but are usually discussed in pottery chapters, if at all.

## Perforated Sherds

Another group of worked sherds has a single drilled hole, made after firing (Figure 18.8). Forty-one sherds, mostly worked into disks of varying states of finish, which have a single drilled hole, were recovered. The hole was drilled with a sharp instrument and usually has a biconical section; its location is almost always roughly in the center. These objects may have been weights or spindle whorls. Twenty-eight of these sherds are balanced enough, with a central or nearly central hole, to be considered possible spindle whorls (see, e.g., Beth Shean, Yahalom-Mack, 2007a), although this identification should be treated with some reservation because of the nature of the hole. All but two of the disks (Figure $18.8 \mathrm{~b}, \mathrm{e}$ ) have been drilled from both sides, resulting in holes variously described as double splayed (Barber, 1991:52), chamfered or double cone (e.g., City of David, Shamir, 1996:150), and double conical (Liu, 1978:97), which we have referred to as "beveled" in the registry list descriptions. ${ }^{1}$ This means that the contact between the spindle and whorl would be on only a virtual knife edge.

Liu (1978:97) argues that "since the spindle whorl has to be wedged or seated firmly in the perforation in order not to work loose during spinning, biconical perforations with too much
taper would not work well. The spindle may only wedge on the narrowest diameter of the hole, and be loose at top and bottom." Barber (1991), in contrast, suggests that "a double-splayed hole is not out the question, if well-centered, since with some padding it can still be jammed on the spindle," quoting Liu's (1978) observation that unspun fibers, wax, or resin are sometimes used to wedge the whorl tightly on the spindle.

Four items, all made from base sherds, are heavy enough to have served as loom weights. However, only the largest of these, Figure 18.8 c , has a central hole that exceeds the $3-10 \mathrm{~mm}$ range for spindle diameters suggested by Barber (1991). The remaining three are either drilled far enough off center that will cause them to wobble when spinning, or are drilled diagonally or are too fragmentary for identification. Five other disk sherds have unfinished holes started from both sides. One possible use is as weights for textile covers for bowls and jars to keep out dust, insects, etc. Similar perforated sherds, often interpreted as spindles or weights, were found at various Bronze and Iron Age sites, such as Tel Batash (Yahalom-Mack, 2006a:258-259, photos 117, 118), Beth Shean (Yahalom-Mack, 2007a:661-664, figs. 12.1, 12.2), and Tel 'Ira (Goldsmith et al., 1999:445, figs. 14.3, 14.4).

About 23 worked sherds have two holes in the center drilled after firing (Figures 18.9, 18.10, Table 18.3); all have a rounded shape. These items are in various sizes, $2.5-4.5 \mathrm{~cm}$ in diameter; the centers of the holes are usually $1-2 \mathrm{~cm}$ apart. Although most come from Field IV from Persian and unstratified contexts, several examples come from LBII and Iron I contexts in Fields III and I (as Figure 18.9); none come from good Iron IIB-C contexts. Van Beek (1989b) interpreted this object as a toy, called "buzz" in modern times and appearing in many cultures. The toy was


FIGURE 18.8. Perforated worked sherds (one or two perforations): (a) Reg. No. 1929, GMIII J2 (17) 1, (b) Reg. No. 2426, GMIII A2 (20), (c) Reg. No. 3428, (d) Reg. 6002, GMI 3G (4) 1, (e) Reg. No. 6003, GMI 5H (2) 6, (f) Reg. No. 1698, GMI 5D (6A) 1, (g) Reg. No. 2356, GM 2B TT1 (3), (h) Reg. No. 1687, GM 1B EBR (10) 1, (i) Reg. No. 1690, GMI 3F F4, (j) Reg. No. 1692, GMI TTA1 (1).
used by inserting two strings into the holes (Figure 18.10) and moving the disk back and forth by separating the two strings, creating a buzzing sound. These items, which are usually larger than average rounded worked sherds (see above), could also have been buttons of some sort, weights, or covers or had other uses.

For such perforated sherds during the Bronze and Iron Age, see, e.g., Tell Jemmeh (Petrie, 1928: pl. XXXIX:24,25), Megiddo (Lamon and Shipton, 1939: pl. 102:14,16-18), Tell Farah (N), Stratum VIIIc-d (Chambon, 1984: pl. 77:1,2), Ashdod, Stratum XII (Dothan and Ben-Shlomo, 2005:123, fig. 3.37:5), and Miqne, Stratum VIII, LBII (Ben-Shlomo, 2006c:191, fig. 5.1:7); for other parallels, see Van Beek (1989b).

## Potter's Tools

Only a few items may be defined as potter's tools, scrapers or burnishers. Such items are oblong or semicircular worked
sherds usually having one side rounded and the other pointed. One complete example from Field IV, Square 3B, Pit 7 (Figure $18.7 \mathrm{~d} ; 10 \times 5 \mathrm{~cm}$ in size) has four sides and one pointed corner. This could have been a potter's tool used for burnishing or scraping of leather-hard pottery. Similar tools were found in the potter's workshop at Lachish, Cave 4034 (Tufnell, 1958: pl. 49:15; Magrill and Middleton, 1997: fig. 1; these include pointed tools, polished pebbles and shells, worked sherds for burnishing and scraping, and a polished sherd with remains of red paint), Tel Miqne, Stratum IB (Ben-Shlomo, 2006a: fig. 2.12, left, center, one with a hole for a finger), and Deir el-Balah ("scrapers," Brandl, 2010a:248-252, fig. 22.3:1-5).

Notably, although a complete potter's kiln was found in Field I FUR (chapter 7), hardly any potter's items were found (one pivot from a stone tournette came from the topsoil, Figure 23.7). Maybe the potter's workshop was located somewhere near the kiln but was not excavated.

TABLE 18.3. Rounded sherds with two perforations.

| Reg. No. | SI Cat. No. | Provenance | Phase | Period | Thickness (cm) | Diameter (cm) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1680 | 764 | GMI 1F (4) 1 | Unknown |  | 0.7 | $\sim 3.8$ |
| 1684 | 766 | GMI 2E (4) | 1/3? | LBII | 0.6 | ~3.2 |
| 1681 | 769 | GMI 2E F3 | Unknown |  | 0.5 | 3.3 |
| 1690 | 765 | GMI 3F F4 | Unknown |  | 1 | $\sim 5.5$ |
| 1692 | 337 | GMI TTA (1) | 3 | LBII (courtyard A) | 0.6 | $\sim 3.2$ |
| 1697 |  | GMI 5E (2) | Unknown |  | 0.5 | $\sim 3.6$ |
| 1695 | 644 | GMI FUR (1) 2 | FUR 2 | Iron I | 0.5 | 0.35 |
| 1696 | 643 | GMI FUR (2) 2 | FUR 2 | Iron I | 0.6 | 4.3 |
| 1718 |  | GMIII A2 (19) | 6 | Iron I | 0.7 |  |
| 1694 | 974 | GMIII A3 (2) 2 | 2 ? | Persian? | 0.5 | 3 |
| 1693 | 975 | GMIII A3 (2) 3 | 8 | LB II (Unit 2) | 0.55 | 5.05 |
| 1685 | 976 | GMIII A3 F1 | $2 ?$ | Persian? | 0.5 | $\sim 3.2$ |
| 1706 |  | GMIII A3 W4 | 8 | LB II (Unit 2) | 0.55 | 3.2 |
| 2258 |  | GM 1A P2 (5) | 1 | Crusader-Mamluk | 0.7 | 2.9 |
| 1682 | 302C | GM 1A TT1 (9) | 2 | Persian? | 0.55 | 3.1 |
| 2254 |  | GM 1A TT2 (3) | 3 | Persian | 1 | 4.5 |
| 1691 | 71 | GM 1B (9) 1 | 3? | Persian? | 0.7 | $\sim 3.2$ |
| 1687 | 770 | GM 1B EBR (10) 1 | 3? | Persian? | 0.6 | $\sim 2.8$ |
| 2340 |  | GM 1B TT1 (1) | Unstratified |  | 0.45 | $\sim 4.5$ |
| 1689 | 58 | GM 1B TT1 (5) | 3? | Persian? | 0.6 |  |
| 1683 | 37 | GM 2A (1) | Unstratified |  | 0.6 | 3.2 |
| 1688 | 60 | GM 2C (4) | Post 3 |  | 0.9 | ~3 |
| 1686 | 455 | GM 3B (1) | Unstratified |  | 0.8 | 4.6 |

## DISCUSSION

Worked pottery sherds of various kinds but with reoccurring features appear in the southern Levant in many periods and at many sites. Thus, they are not particularly indicative from the chronological or cultural aspects. However, their function can be examined according to their appearance, anthropological parallels, and recent reconstructions. This function may shed light on the contexts in which they were found in large quantities. The most dominant group within this assemblage is the rounded worked sherds or disks. Rounded worked sherds are not always published in excavation reports yet were probably a common find in the Bronze and Iron Age Levant. Although they stand out in pottery sorting, they are often not separated or recorded by excavators. Rarely, these objects are discussed in detail; occasionally, they are interpreted as stoppers or lids for vessels (see, e.g., Arbino, 2004; Sass, 2004a:1450, fig. 23.2:1-20; Sass and Cinamon, 2006:371, fig. 18.14). At Ashdod about 50 items were published from Phase XI (Dothan and Ben-Shlomo, 2005:164, figs. 3.64, 3.65). These rounded worked sherds are often identified as stoppers (see, e.g., Dothan and Porath, 1993:79, fig. 29:6, pl. 44:8,10-13; Arbino, 2004), although we have no confidence they were used as such. Reworked vessel bases are better candidates for stoppers, as they fit vessel mouths and are heavier (see this distinction between lids
and disks also in LBII-Iron I Deir el-Balah, Brandl, 2010a:239248). Twenty-five of the Ashdod sherds are Philistine Bichrome sherds, whereas the others are undecorated sherds. Most of the sherds have a diameter of $1.5-3 \mathrm{~cm}$, and some are almost perfectly rounded. Of these, 11 were found in Pit 5303 (mostly undecorated), and 9 were found in Locus 5305, an ash layer. A large group of several thousand rounded worked sherds from Tel Miqne-Ekron were studied by Arbino (2004); see also Iron Age I in Fields I (Ben-Shlomo, 2006c:191-192, fig. 5.1:8) and IV Lower (Dothan and Ben-Shlomo, In press).

Although often term stoppers, the rounded worked sherds might have had other uses, such as tokens, weights, gaming pieces, etc. Thus, at Ashdod one may ponder that undecorated and decorated sherds and sherds with images (as birds) had different token values or meanings. Similar sherds are often found in excavations, although they are rarely treated in detail. Examples may be brought from MBIIB Manahat (Edelstein et al., 1998:57, fig. 4:13), and similar worked sherds from Iron Age Sarepta were also interpreted as gaming pieces (Pritchard, 1988:121, fig. 36:7,8); see also Megiddo, Strata V-III (Lamon and Shipton, 1939: pl. 103).

The evidence from Tell Jemmeh indicates a continuity of the use in these objects during the MBII, LBII, and Iron Ages at least. The shape and size did not vary considerably, although


FIGURE 18.9. Worked sherds with two perforations (Van Beek, 1989): (a) SI Cat. No. 71, GM 1B (9) 1, (b) SI Cat. No. 455, GM 3B (1), (c) SI Cat. No. 765, GMI 3F F4, (d) SI Cat. No. 643, GMI FUR (2) 2, (e) SI Cat. No. 975, GM A3 (2) 3, (f) SI Cat. No. 38, GM 2A (1), (g) SI Cat. No. 60, GM 2C (4), (h) SI Cat. No. 302.3, GM 1A TT11 (9), (i) SI Cat. No. 337, GMI TTA1 (1), (j) SI Cat. No. 764, GMI 1F (1) 1, (k) SI Cat. No. 766, GMI 2E (4), (l) SI Cat. No. 770, GM 1B EBR (10) 1, (m) SI Cat. No. 976, GMIII A3 F1, (n) SI Cat. No. 974, GMIII A3 (2), (o) SI Cat. No. 969, GMI 2E F3, (p) unknown, (q) SI Cat. No. 58, GM 1B (5). (opposite)


FIGURE 18.10. Reconstruction of possible use of double-perforated sherd as buzz toy (Van Beek, 1989b).
during the Iron IIB-C these disks seem to be more uniform in diameter and smaller. Possibly, the concentrations of these rather uniform disks in various rooms in Building I, Phase 5 and Building II, Phases 6-5 in Field IV may have some significance. If these were tokens, their appearance may reflect some administrative
functions within these public buildings. They could have been used as tokens in daily life as well. Otherwise, if these are some sort of weights or game pieces, their appearance has a more domestic interpretation. The usage of the disks (or some of them) as gaming pieces may also explain their concentrations in several room in numbers of around $10-15$ at a time (as in Buildings I and II in Field IV as well as in Room G in Field III dated to the MBII) as game sets kept together.

Other types of worked sherds, appearing in smaller quantities in various periods, probably had other functions. Perforated disks may have been weights, spindles, buttons, or toys; worked bases may have been lids. A few worked sherds of a more specific shape may have been potter's tools, such as burnishers, among other functions.

## AUTHOR NOTE

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## NOTE

1. All the small finds from Tell Jemmeh are itemized and described in the registry lists. These lists are available for the public on demand in the IAA archives.

# Ceramic Objects: Marked Pottery, Mud Objects, and Various Ceramic Artifacts 

 David Ben-Shlomo
## INTRODUCTION

This chapter incorporates various classes of finds all made from fired or unfired clay. These include marked pottery items (mostly by incised marks on vessels or sherds) and various ceramic objects or terra-cottas that do not fit other categories that were discussed separately in Chapter 17. Another category is various clay objects that are either unfired, sun dried, or partly baked ("mud" objects) such as loom weights, spindles, wheels, jar stoppers, and gaming pieces. Another category of finds mentioned here (although discussed in other chapters as well) is metallurgic artifacts made of clay, including crucible and tuyère fragments.

Many of the objects discussed in this chapter are not chronologically or culturally indicative as they appear without changes in various periods, regions, and cultures. Thus, they are discussed in a more general and descriptive way. Items that could have chronological or cultural significance are, for example, some marked pottery fragments, several types of loom weights, and possibly jar stoppers of a certain type (see below).

## MARKED POTTERY

A relatively large group of marked pottery fragments was found in Tell Jemmeh (Figures 19.1-19.4, Tables 19.1, 19.2); these include marked handles (mostly jars, Table 19.1, Figures 19.1-19.2) and other marked pottery sherds (Table 19.2, Figures 19.3-19.4). The markings are, in most cases, incisions made before or after firing and may represent various meaningful signs or even fragmentary script.

## Marked Handles


#### Abstract

Altogether, 18 handles with marks on them are presented here (Table 19.1, Figures 19.1-19.2); 17 are jar handles, and 1 is a cooking pot handle (Figure 19.2h). These marks are mostly incisions made after firing (three were made before firing); finger impressions also appear (Figure 19.2 g ). Handles or other sherds stamped before firing by stamp seals are discussed elsewhere (chapter 20). This group has been separated from the other marked pottery as the custom of marking storage or commercial jar handles has a long tradition in the eastern Mediterranean, and thus, this phenomenon is discussed independently. Several of these were also analyzed by petrography (see chapter 15 , which shows that practically all are local to the region of Tell Jemmeh). Of these, seven or eight come from LBII contexts, one is Iron I, three are Iron IIA, two are Iron IIB, one is Iron IIC, and one is from a Persian context. The relatively large quantity of items coming from LBII contexts is remarkable, especially because most other marked pottery items come from Iron II-Persian contexts (see below). Notably, these other marked sherds are incised before firing in most cases, in contrast to the jar handles, almost all of which are incised after firing. This early appearance of marked jar handles may also strengthen the special nature of this phenomenon of marked jar handles (see below).

The most common marks are plus signs (+; orientation is according to handle orientation) and crosses ( $\times$; Figure 19.1a-h,) made after firing. The plus sign is the most common one incised on second millennium BCE jar handles at other sites of the southern Levant


TABLE 19.1. Marked handles. Abbreviations are as follows: Bld = building; af = after firing; bf = before firing.

| Reg. No. | SI Cat. No. | Provenance | Description | Sample, figure | Phase | Architecture | Context date |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1968 | 354 | GM 2A F7 TT7 (1A) | Cooking pot handle, incised bf, $\times$ sign | 19.2h | Unknown |  |  |
| 1969 |  | GM 2A F14 (2) | Jar handle, incised after firing, + sign | 19.1d | IV-5 | Bld I, Room C | Iron IIC |
| 1978 | 344 | GMI TTD (1) | Jar handle, incised af,+ sign and I | 19.1c | I-3? |  | LBII? |
| 1979 |  | GMI FUR F2 | Jar handle, incised af, + sign | 19.1b | I FUR 2 |  | Iron I |
| 1981 |  | GMIII B F1B | Jar handle, incised af, $\times$ sign | 19.1a | III-9 | Unit 2 | LBII |
| 1989 |  | GM 1B (+) | Jar handle, incised bf, three horizontal lines | 19.1j | Topsoil |  |  |
| 2007 |  | GMI 1F (12) | Jar handle with incised + and line (trident-like sign?), af | Jemmeh 25, 19.1g | I-3 | Room E | LBII |
| 2181 |  | GM 2B (60) | Jar handle, incised af, horizontal V | 19.11 | IV-10 |  | Iron IIA |
| 2200 |  | GMI 4D (3) | Jar handle, incised af, complex sign | Jemmeh 24, 19.2c | I-3 | Room F | LBII |
| 2706 |  | GM 0A (6A) | Jar handle, incised bf, two deep diagonal lines in a V | 19.2e | IV-3/4 | Unit 3 | Persian |
| 2910 |  | GM 2B (37) 2 | Jar handle, incised af, square(?) sign | 19.2b | IV-6 | Bld II | Iron IIB |
| 2911 |  | GM 2B (37) 2 | Jar handle, incised af, + sign | 19.1e | IV-6 | Bld II | Iron IIB |
| 3413 |  | GMIII A2 (8) | Jar handle with two finger impressions | 19.2 g | III-4 |  | Iron IIA |
| 3414 |  | GMIII A2 (6) | Jar handle, incised af, two horizontal lines on lower handle | 19.1k | III-4 |  | Iron IIA |
| 3798 |  | GMII A5 (4) | Jar handle, incised cross and diagonal af; after that a drilled 3 mm hole was made in the top of the cross | 19.2 f | II-7? |  | LBII |
| 3799 |  | GMIII B F4 | Jar handle, incised af, + sign | 19.1 f | III-11 |  | LBII |
| 3816 |  | GMI 5G (2) 4 | Jar handle, incised af, + sign and horizontal line above it | Jemmeh 27, 19.2d | I-3 | Unit M1/M2 | LBII |
| 3817 |  | GM 1F (0) | Jar handle, incised af, + sign inside a circle | 19.2a | Topsoil |  |  |
| 3819 |  | GMI 4D (3) | Jar handle, incised af, horizontal line | Jemmeh 26, 19.1i | I-3 | Room F | LBII |



FIGURE 19.1. Marked jar handles.
as well, especially in Philistia. Some examples include Ashdod, Area B, Stratum XIV (Dothan, 1971: pl. 33:7) and Batash, Stratum IX (Panitz-Cohen and Mazar, 2006: pl. 18:10) in the LBII; Ashdod, Strata XIV-XIII (Dothan and Freedman, 1967: fig. 25:7), Stratum XII (Dothan and Porath, 1993: fig. 35:9,12), Stratum XI (Dothan and Ben-Shlomo, 2005: fig. 3.60:5,6), and Stratum VIIIB (Dothan, 1971: fig. 48:7), Tel Miqne, Iron I strata (Field IV Lower, Dothan and Ben-Shlomo, In press), and Qasile,

Stratum X (Mazar, 1985a: figs. 48:9, 50:14) in the Iron I; and Batash, Strata IVB-III (Mazar and Panitz-Cohen, 2001: pls. 1:22, $93: 18,95: 3$ ) and Tel Mor (Hirschfeld, 2007: fig. 6.1:6-12) in the Iron II.

The cross is also common, appearing, for example, at LBII Batash, Stratum VIII (Panitz-Cohen and Mazar, 2006: pl. 36:1,2), Iron I Ashdod, Stratum XI (Dothan and Ben-Shlomo, 2005: fig. 3.60:4, with a cross and a finger impression; also Dothan and


h


FIGURE 19.2. Marked pottery.

Freedman, 1967: fig. 35:7), and Tel Mor (Hirschfeld, 2007: fig. 6.1:3-5).

Variations of these signs include a plus sign with a drilled hole above it (Figure 19.2f) and a plus sign within a circle (Figure 19.2a from the topsoil); such a symbol from Tell Jemmeh was also published by Petrie (1928: pl. XLIII:12). Also appearing is a plus sign and a horizontal line (Figure 19.2d). Other signs appearing are horizontal lines: one line (Figure 19.1i), two lines (Figure 19.1k), and three lines (Figure 19.j). For parallels see, e.g., Ashdod, Strata XIII-XI (Dothan and Ben-Shlomo, 2005: figs. 3.6:17, 3.31:17, 3.60:1, also with finger impression) and Tel Mor (Hirschfeld, 2007: fig. 6.1:8). The V sign appears in a horizontal
orientation (Figure 19.11) with parallels from Megiddo, Stratum V (Lamon and Shipton, 1939: pl. 42:55,59), Kadesh Barnea, Strata 2-4 (Bernick-Greenberg, 2007: pl. 11.144:1-9), and Tel Miqne, Stratum VIIB (Ben-Shlomo, In press, object 6486). Another similar sign was made before firing (Figure 19.2e, possibly a jug handle), showing two diagonal lines.

More complex signs include a possible square (Figure 19.2b, possibly similar is Figure 19.2c) and a combination of vertical and short horizontal lines (Figure 19.1g), possibly a "trident" sign. See parallels from Ashkelon (Cross and Stager, 2006:136, figs. 6, 22) and also possibly Kition (Karageorghis and Demas, 1985: pl. CCX:5314). For the square or hatched
square, see Kadesh Barnea, Stratum 2 (Bernick-Greenberg, 2007: pl. 11.142:12,15-17) and Kition (Karageorghis and Demas, 1985: pl. CCXIV:5452).

One example (Figure 19.2g) has two small finger impressions on the upper handle; it is dated to the Iron IIA. Jar handles with finger impression appear in Late Bronze, Iron I, and II levels (such as at Tel Miqne-Ekron, Ben-Shlomo, 2006c:190, cat. no. 4, In press). Especially note the large assemblage from Khirbet Qeiyafa, Iron IIA, with more than 70 examples up to the 2008 season (Kang and Garfinkel, 2009a:137, figs. 6.24:16-20, 6.366.39). Several of the examples have two or three impressions on the handle; see, for example, Ashdod, Stratum XI (Dothan and Ben-Shlomo, 2005: fig. 3.60:2, double finger impressed) and Megiddo, Strata III-V, Iron II (Lamon and Shipton, 1939, two or three impressions: pls. 41:26,27, 42:31-34,36-41,44-48).

This artifact group of incised and impressed marks on pottery vessels, especially on storage jar handles, has not received much attention in research but may shed light on the issue of administration in ancient times. During the second half of the second millennium BCE, jar handles and other pottery vessels with marks or various signs appear in several centers in the eastern Mediterranean (Hirschfeld, 1993, 2000, 2002). In particular, the marks on commercial storage jars or amphorae (the Canaanite jars or other jar types derived from this form) are quite common. These marks may relate to various aspects of administration, especially in connection to commodity distribution and redistribution. The marks themselves are often quite simple, but in certain cases they are more complex and may even be evidence of the use of more formal script. The marks may have indicated the quantity or nature of the vessel's contents or its origin, ownership, or destination or may have had other unknown meanings. In any case, these marks probably reflect a certain type of administration and/or recording system.

If, indeed, actual script was used, it may be possible also to asses ethnic aspects of the people marking and using the storage vessels. Indeed, a study of several marked jar handles from Philistine Ashkelon has suggested that they bear CyproMinoan script signs (Cross and Stager, 2006). A few early Iron Age handles with various types of incised marks found at Tel Miqne-Ekron, Ashdod, Qasile, Batash, and other sites in the southern Levant have also been published (see below). A large assemblage of handles with such incised marks (including 213 marked handles mostly dated to the LBII and Iron Age) come from Iron Age Philistine Tel Miqne-Ekron (Ben-Shlomo, 2006c: cat. nos. $2-4$, In press). These marks seem to be less common in LBII contexts and at sites outside Philistia than during the Iron I. However, this impression has to be substantiated by more comprehensive research. Hirschfeld $(1993,2002)$ has studied such incised marks (mostly made after firing) in several locations in the eastern Mediterranean and has suggested they relate in most cases to a system of tracking vessels and their contents.

The cooking pot handle with a cross incised before firing (Figure 19.2h) does not belong to this group; see, e.g., an Iron II cooking pot from Batash, Stratum II (Mazar and PanitzCohen, 2001: pl. 65:9). This probably represents a different phenomenon (for stamped handles of Iron IIB-C cooking pots,
see Maeir, 2010; Shai et al., 2012) or rims of Iron II cooking pots (such as at Ashdod, Stratum VIIIB, Dothan, 1971: fig. 46:8); for this practice of marking cooking pot handles, see, e.g., Sharon et al. (1987), Yoqneam, (Ben-Tor et al., 2005:283-293, figs. I.39:6, I.44:10, I.46:1-3,12,13, I.58:3, I.61:11, with detailed discussion). As these marks are not made on storage vessels, they probably reflect other functions than the ones on the marked storage jar handles do; moreover, they are not very common during the LBII and Iron I in Philistia.

Although the jar handle marks clearly seem to be some sort of administrative marking system, the connection between most of the signs and Cypro-Minoan (or other) script signs is far from clear (Hirschfeld, 2002). Practically all the signs appearing on the published handles from Ashkelon have been interpreted by Cross and Stager (2006) as representing CyproMinoan signs. Although five or six of the more complex signs come from Bronze Age levels, only one or two of these are from Iron I levels. Nevertheless, simple signs such as the plus, cross, V , or horizontal/vertical/diagonal lines appear in various sites and periods in the southern Levant and elsewhere (see above). Thus, it seems that the evidence from Ashkelon, so far, for the usage of Cypro-Minoan signs by the Philistines according to the marks incised on jar handles is still quite limited and indefinite. A similar conclusion was made by Hirschfeld (2007) for 12 marked handles found at Tel Mor (there, mostly from the Late Bronze Age).

Thus, the more complex signs, possibly relating to the Cypro-Minoan system, are more likely to represent marking practices used during the LBII period in Cyprus and possibly in the southern Levant, as was suggested for a marked handle from 13th century BCE Aphek (Yasur-Landau and Goren, 2004). Nevertheless, the very similar signs appearing in Philistia and other Levantine sites and Cyprus on the same type of vessels (the Canaanite commercial jars or linked types) are not likely to be completely incidental at every site. Moreover, so far, seemingly larger assemblages of such incised handles were found in Philistia than in other regions in Israel, especially during the Iron I (note also that the four examples analyzed here by thinsection petrographic analysis were locally made; see chapter 15). Therefore, the Cypriot connection for this marking system in Iron Age Philistia can be suggested at least on circumstantial grounds.

## Other Marked Sherds

About 50 pottery items with markings are also presented (Table 19.2, Figures 19.3-19.4), and notably, more than half (at least 26 items) are marks incised before firing. These are sometimes termed "potter's marks." While most marks are on small body sherds for which the vessel type cannot be identified, larger fragments apparently belong to storage jars (e.g., Figures 19.1h, $19.3 \mathrm{i}, 19.4 \mathrm{~d}, \mathrm{e}, \mathrm{p})$. Most signs seem to be incised on the shoulder of the jar or near it (as Figure $19.4 \mathrm{~m}, \mathrm{p}$ ); however, in one case the mark was incised in between the handle and the body (Figure 19.1h). One example has three stripes incised after firing on the rim (Figure 19.2j; see parallels from Kadesh Barnea,

TABLE 19.2. Sheds with marks. Abbreviations are as follows: $B l d=$ building; $a f=$ after firing; $b f=$ before firing.

| Reg. No. | SI Cat. No. | Provenance | Description, figure | Mark type | Phase | Architecture | Context date |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1966 |  | GM 2D (9) | Sherd incised before(?) |  | IV-3 | None | Persian |
| 1970 |  | GM 2A TT7 F7 2 | firing, worked(?), 19.4fj Body fragment, incised af, 19.3a | $\times$ | Unknown |  | Persian? |
| 1972 | 365 | GM 1A P3 TT11 (5) | Jar fragment with complex sign incised bf, 19.4p | Complex | IV-1 | Pit | Islamic |
| 1973 | 361 | GM 2C SBR (7) | Sherd (pithos?) with shallow incision bf, 19.4c |  | Unknown | None | Unknown |
| 1974 | 330 | GM 2C WBR (8) 2 | Sherd incised af, 19.3e | Trident | IV-3 | None | Persian |
| 1975 | 319 | GM 2A F7 TT7 2 | Sherd incised af, 19.3n | Letter, aleph | IV-4? | None | Persian |
| 1976 | 357 | GM 1C (14) 6 | Sherd incised bf | Letter, part of W/shin or sundial | IV-5 | None | Iron IIC |
| 1977 | 315 | GM 0B (0) | Jar sherd incised af, 19.4n | Sign, line with two triangles | Topsoil | Topsoil | Unknown |
| 1984 | 750 | GM 2A F18 1 | Sherd incised bf, 19.3j | Sign, trident | IV-5? | Unit 1 | Iron IIC? |
| 1985 | 109 | GM 1C (5A) | Sherd incised bf, 19.3k | Sign, trident | IV-3 | None | Persian |
| 1986 |  | GM 2C W1 1 | Sherd incised bf | Sign, trident? | IV-2? | None | Persian |
| 1987 | 735 | GM 1C (24) 4 | Sherd incised bf | Sign, W? | IV-5 | Unknown | Iron IIC |
| 1991 |  | GMIII B (+) | Sherd incised af , 19.3q | Letter? | Topsoil | Topsoil | Unknown |
| 1993 |  | GMII TT A6 (+) | Sherd, incised bf, 19.3h | Sign | Topsoil | Topsoil | Unknown |
| 1995 |  | GM 2B (42) | Jar sherd with sign, incised bf, 19.3i | Sign, trident | IV-8? | Lower <br> Room A* | Iron IIB |
| 1996 |  | GM 2A F18 | Jar fragment with sign incised bf, 19.4f | Sign/letter | IV-5? | Unit 1 | Iron IIC? |
| 1998 |  | GMII D4 (0) | Jar fragment incised bf, 19.41 |  | Topsoil | Topsoil | Unknown |
| 2000 |  | GM (+) | Jar sherd incised af, 19.4m | Two letters? | Topsoil | Topsoil | Unknown |
| 2002 |  | GM 2B F42 | Sherd incised with two columns of signs bf, 19.3 m | Letters/signs? | IV-8? | Lower <br> Room A* | Iron IIB |
| 2004 |  | GMIII A1 (+) | Worked sherd incised inside af, 19.4h | Sign? | Topsoil | Topsoil | Unknown |
| 2005 |  | GM 1C NBR P2 (12) | Sherd incised af, 19.4a | Letter? | IV-2/3? | None | Persian |
| 2008 |  | GMIII B (63) 5 | Sherd incised af, 19.3c | Sign/letter? | III-12? | None | LBII |
| 2009 |  | GM 2B P3 | Sherd incised with sign bf, 19.4i | Crown? | IV-1 | Pit | Islamic |
| 2012 |  | GM 2D P3 (1) | Sherd with sign incised after(?) firing, 19.4d | Complex (trident on circle?) | IV-1? | Burial | Islamic |
| 2010 |  | GMI 3G W1 | Incised rim af, 19.2i |  | I-3 | Unit L | LBII |
| 2016 | 374 | GM1D EBR (9A) | Sherd incised af, 19.3p | Triangle | IV-3 | None | Persian |
| 2017 | 383 | GM 0B (5) | Sherd incised af | Letter, aleph | IV-4 | Unit 2 | Persian |
| 2018 |  | GM 1D (31) 2 | Jar sherd incised bf, 19.3g | Sign, trident | IV-5 | None | Iron IIC |
| 2289 |  | GM 2A Pit 1 | Sherd incised af | Letter? | IV-1 |  | Islamic |
| 2308 |  | GM 1B (1) 1 | Sherd incised with sign bf, 19.31 | Letter? | Topsoil | Topsoil | Unknown |
| 2528 |  | GM 2C (8) 1 | Sherd with inked marks (ostracon?) | Letters? | IV-3? |  | Persian? |
| 2743 |  | GM 0B P8 (3) | Sherd with letters incised bf, 19.3o | Letters, aleph | Unknown | Pit | Unknown |
| 2792 |  | GM 0B W2 | Sherd incised bf?, 19.3 f | Sign, trident | IV-4 | Wall | Persian |
| 2830 |  | GM 1A NBR (5) 1 | Sherd incised bf | Sign | IV-3? | None | Persian |
| 2837 |  | GM 1A NBR (11) 2 | Closed vessel sherd incised af | Sign, zigzag | IV-3? | None | Persian |

TABLE 19.2. (continued)

| Reg. No. | SI Cat. No. | Provenance | Description, figure | Mark type | Phase | Architecture | Context date |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2926 |  | GM 2A NBR F7 2 | Sherd incised af | Letter? | IV-4? | None | Persian |
| 3026 |  | GM 2C WBR (2) | Jar sherd with signs incised af, 19.4b | Complex, | Topsoil | Topsoil | Unknown |
| 3028 |  | GM 2B NBR (32) 2A | Jar with sign under handle made bf, 19.1h | $\times$ | IV-5 | Bld II, Room B | Iron IIC |
| 3029 |  | GM 2B NBR (32) 2A | Sherd incised af | Letter? | IV-5 | Bld II, <br> Room B | Iron IIC |
| 3109 |  | GM 3B (9) | Jar sherd incised bf, 19.4k | Letter, W/shin | IV-5 | Bld III, Unit 2 | Iron IIC |
| 3111 |  | GMII C2 (3) 2 | Sherd incised bf | letter, aleph? | II-3? | None | Iron IIB-C |
| 3168 |  | GM 1A TT10 (1) | Jar rim, incised af, 19.2j | Three stripes | IV-5 | Bld I, Room B | Iron IIC |
| 3266 |  | GM 1A (1) 10 | Sherd incised af | Letter/sign? | IV-5 | Bld I, Room E | Iron IIC |
| 3266A |  | GM 2B (4-1) 5 | Jar sherd incised af | $\times$ | Unknown | Unknown | Unknown |
| 3282 |  | GM 2A (12) | Sherd incised bf | $x$ ?, ת? | IV-3? | None | Persian |
| 3439 |  | GM 2B (35) 1B | Jar sherd with incision bf, 19.4 g |  | IV-5 | Bld II, <br> Room A | Iron IIC |
| 3507 |  | GM 1B (5) 1 | Sherd incised af |  | IV-3? | None | Persian |
| 3802 |  | GM 2A F7 TT7 (1A) | Jar fragment with sign incised bf, 19.4e | Sundial | IV-4? | None | Persian |
| 4054 |  | GM 1C P2 EBR (5) | Jar fragment with sign incised af below handle, 19.3b | Letter, aleph | IV-1? | Pit | Islamic? |
| 4071 |  | GM (+) | Jar incised af, 19.4o | Two letters(?) | Topsoil | Topsoil | Unknown |
| 4085 |  | GMI 4D (1) | Sherd incised af?, 19.3d |  | I-1 | None | LBIIB |
| bag 4737 |  | GM 1C TT8 (1) | Sherd incised bf | Trident | Unknown | None | Unknown |

Bernick-Greenberg, 2007: pl. 11.140:5-12), and in Figure 19.4o two letters are incised near the neck.

This group can also be divided according to the nature of the marks; at least 12 items (Figure 19.3a-o) probably carry alphabetic signs, mostly the letter aleph or shin or one or more fragmentary letters. These come from Iron IIB-C, Persian, and unstratified contexts. Similar shin marks appear on many examples from Kadesh Barnea, Stratum 2 (Bernick-Greenberg, 2007:179-180, figs. 11.102-11.105, pl. 11.137:1-18). Tav signs also appear (e.g., Figure 19.3a; see, e.g., Jerusalem, Vainstub, 2012:8, fig. 7). Note, however, that fragmentary signs seen as alephs may also be part of star designs (five pointed as at Kadesh Barnea, Stratum 2, Bernick-Greenberg, 2007:180, pl. 11.138:1-8).

At least seven illustrated sherds have a similar sign marked on them, always before firing (Figure 19.3e-k): this is a vertical line ending with a fork of three (Figure 19.3j) or four (Figure 19.3 g ) stripes (such as a Y sign). Similar marks from Tell Jemmeh were also published by Petrie (1928: pl. XLII:17-20). This sign is similar to a trident or "quadrudent" and possibly represented a depiction symbolizing cereal or barley. Therefore, if these marks were incised on storage jars before firing, i.e., in the workshop, it is possible that the jars were intended for the storage of cereals and the marks reflect an administrative practice relating to these commodities. Similar signs on sherds including mostly jar fragments and rims of bowls and jars were found in

Kadesh Barnea, Strata 3-1 (Bernick-Greenberg, 2007:181, fig. 11.97, pl. 11.139:1-9), Tel 'Ira (on a complete jar, Freud, 1999: fig. 75:6), and Jerusalem (Vainstub, 2012:6, fig. 5, interpreted as an archaic Hebrew kaph). At 'Aroer, Thareani (2011:228, pls. IV, 231:1) interpreted similarly incised signs on sherds as southern Arabian signs.

Other marks appearing on body sherds of various sizes, probably storage jars, are crosses (Figures 19.1h, 19.4e) and "sundial" marks (Figure 19.4f, possibly 19.4g); see Kadesh Barnea, Stratum 2 (Bernick-Greenberg, 2007:180, figs. 11.106, 11.107, pl. 11.137:19-22, "hourglass designs") and Jerusalem, Iron IIB-C (Vainstub, 2012: fig. 8:18). More complex signs also appear; one sign is composed of two triangles abutting a straight line (Figure 19.4n); see possibly Kadesh Barnea, Stratum 3a (Bernick-Greenberg, 2007: pl. 11.146:5). A fragmentary sign on a body sherd resembles a crown (Figure 19.4i), yet the actual meaning of this symbol is not known to us. In Figure 19.4d a trident sign is incised on top of a circle; rotating the figure so that the circle is on top could result in a schematic figure.

The largest design (Figure 19.4p) found on the large body sherd of a jar (the five sherds that join were found in a MamlukCrusader pit in Field IV) is composed of two (probably originally three) parallel vertical lines; these attach on one side to a horizontal line. The line in the center continues through the horizontal line; on the other side the vertical lines end with a zigzag or triangular lines. The orientation of the design is not certain; if the


FIGURE 19.3. Marked sherds with possible letters.
triangular lines are on top, possibly the design resembles a very stylized shin or a structure (see possibly an example from Kadesh Barnea, Bernick-Greenberg, 2007:179, fig. 11.104, made on a bowl after firing). This could have been a symbolic or script sign; its shape bears some resemblance to the sign from an ostracon (see chapter 32, Figure 32.4f, and Figure 8.259a) interpreted as a southern Arabian script monogram; however, its meaning is unknown to us.

As noted, a large group of marked pottery sherds from various vessel types (on jars and other vessels), with marks made both before and after firing and dating mostly to the Iron IIC, was published from Kadesh Barnea (Bernick-Greenberg,

2007:179-185, pls. 11.135-11.145). The marked pottery from Kadesh Barnea is very similar to that of Tell Jemmeh in terms of technique and signs appearing, especially the shin, trident, and other signs (see also Beer-Sheba, Stratum VII, Herzog, 1984: fig. 25:15). This similarity corresponds to the similarity between the Field IV, Phase 5 pottery and that of Kadesh Barnea, Stratum 2 (see chapter 8). This practice may have been more typical in the northern Negev region during the 8th-5th centuries BCE than in other regions of the southern Levant.

Apparently, the two main groups of marked pottery items, the marked jar handles and the storage jars with marks on their body, constitute two distinct chronocultural groups. The marked
jar handles are mostly dated to the second millennium BCE and are usually made after firing. As noted, these objects reflect commodity redistribution or control in a secondary usage of the storage jars. The body sherds of jars marked with various signs or letters mostly before firing all date to the first millennium BCE , probably mostly to the 8 th -5 th centuries BCE. These marks may have represented an allocation of specific jars to accommodate
specific commodities relating to a central administration. The sign may represent cereals in image (the trident/barley sign) or in script (the letter shin [ש] for barley, דרועש). Those from the Persian period were probably related to the many granaries found at the site and may reflect certain redistribution or storage documentation practices (see also evidence from the ostraca in chapter 32).

d

e

$0 \quad 5 \mathrm{~cm}$

m


FIGURE 19.4. Marked sherds with various signs.

## VARIOUS CLAY OBJECTS AND TERRA-COTTAS

Votive Vessels, Stands, and Various Terra-cottas

Several miniature or votive vessels were found (Figure $19.5 \mathrm{a}-\mathrm{e})$. These objects, which are usually handmade, include two miniature jars or juglets (Figure 19.5b,c) from Field III, Phase 15; they have a flat base worked by finger. MBII and LBII parallels come from Megiddo, Strata XIII and X (Loud, 1948: pl. 256:8,11) and Beth Shean, Level VII (James and McGovern, 1993: fig. 102:7). A miniature jar from Field IV, Square 2B,

Layer 33, Phase 5 (Figure 19.5a) is almost complete and has soot marks. It has two perforated handles and a flattened, pointed base. Parallels come from Akhziv, Tomb ZR IX (DayagiMendels, 2002: fig. 4.7:23) and Beit Mirsim, Tomb 500 (Iron IIB, somewhat larger; Ben-Arieh, 2004: fig. 2.55). A cylindrical, coarsely made, miniature vessel body (Figure 19.5d) is the lower part of an elongated vessel; the bottom is rounded. This vessel comes from an LBII phase in Field II (yet it somewhat recalls coarse Negebite pottery; e.g., Bernick-Greenberg, 2007:188196, pls. 11.49:9, 12.4:30-33). Parallels come possibly from Deir el-Balah, Stratum VI (Dothan and Brandl, 2010: pl. 25:19). A miniature open vessel, coarsely handmade (Figure 19.5e),


FIGURE 19.5. Various ceramic objects.
comes from a Phase 1 pit in Field IV. It includes a hemispherical bowl-like body and four applications; these could depict the head, two wings, and tail of a bird, although they are very schematic. However, this could be a nonfigurative vessel as well, possibly belonging to Negebite pottery ware (see, e.g., BernickGreenberg, 2007: pls. 11.61-11.63, 12.4:25).

A fragment of a circular slab (Figure 19.5i) may be the base of a rounded stand or hollow footed goblet, chalice, or stand, as found in the Iron Age at Tell es-Safi (Shai and Maeir, 2012:327, pl. 14.18:6) and Nahal Patish (P. Nahshoni, Israel Antiquities Authority, personal communication). Another thick fragment (Figure 19.5 g ) may be a stand fragment application. Figure 19.5 f may be the neck on a votive vessel. A perforated cylindrical object (Figure 19.5h) may be a fragment of a kernos or a miniature vessel. A pointed solid item (Figure 19.5 m ) may be a Chalcolithic cornet base. Two clay balls (Figure 19.5k,l) were found together in Field III, Square B, Layer 50; a rounded item (Figure 19.5j) may also be of similar nature. Parallels come from Lachish, Level VI (denoted "globules," Sass, 2004: fig. 23.23:20-22, table 23.42).

A complete clay wheel, maybe from a chariot, was also found (Figure 19.5o); it has a perforation through the center, and one side protrudes while the other is relatively flat. Wheel models were found at Petrie's excavations (Petrie, 1928: pls. XXXIX:190, LXI:99F,99h,99k,99p), Ashdod, Strata XIII-XI (Dothan and Porath, 1993: fig. 18:4; Dothan and Ben-Shlomo, 2005: figs. 3.37:1,2, 3.63:2; also Dothan and Freedman, 1967:83, fig. 26:9), and other LB-Iron Age sites (e.g., Lachish, Level VI [Tufnell et al., 1940: pl. XXVIII:1], Beth Shean [Yahalom-Mack and Mazar, 2007:672, fig. 13.1:1-4], Kamid el-Loz [Hachmann, 1989: pl. 18], and Cyprus [Crouwel, 1985: pl. XXXI:6]). At these sites the objects are interpreted as parts of model carts or chariots used as toys or in cult (see chariot models from Tell Jemmeh, Petrie, 1928: pl. XXXIX:12-14). On chariot wheels during the Iron Age, see also Im (2006:215-221, with more parallels therein).

A complete terra-cotta object (Figure 19.5n) was found in Field II topsoil. The object is composed of a thick, rectangular, well-smoothed slab ( 1.5 cm thick) and a large, somewhat trapezoid handle attached to it, which has two perforated holes at its ends; its dimensions are $5.5 \times 3.8$ (base) $\times 2.5$ (height) cm . This seems to be either a stamp (with a blank impression) or a lid of some sort (in that case the holes could have been used to tie it to a box). Parallels come from Megiddo, Stratum VII (Loud, 1948: pl. 255:10,11; Sass and Cinamon, 2006: fig. 18.13:242,244), although with a more rounded base.

## Unbaked Clay/Mud Objects

Mud objects are objects made of coarse unlevigated and untreated clay and are either unfired, sun dried, or fired at a low temperature. This group includes mostly various types of weights (many interpreted also as loom weights), jar stoppers, various plugs, and spindles (Table 19.3). Notably, these items are very fragile and brittle and are often not preserved in excavations. At Tell Jemmeh many of these (especially more
complete items) were treated with resin: mud items were often covered by two layers of dilute PVA emulsion, then coated with several layers of rubber latex solution and gauze; therefore, most of these unbaked objects are rather stable in their mechanical preservation, which hardened the surface of the object and enabled its intact preservation but changed the original texture of the object. On the technological aspects of the production of these loom weights, especially during the Iron Age II in the Levant (clay selection, clay preparation, forming, perforating, and drying), see a recent study by Boertien (2009).

## Weights

A large group of mud objects are probably weights. They are classified by shape: cylindrical (spools, Figure 19.6a-e), conical/pyramid shaped (Figures $19.6 \mathrm{~g}-\mathrm{m}, 19.7 \mathrm{a}-\mathrm{g}$ ), spherical (or doughnut-shaped Figure 19.7h), and biconical (Figure 19.8). Several have rather irregular shapes. The first three groups are often interpreted as loom weights (see, e.g., Boertien, 2009).

A small group of mud objects dating to the Iron I may be defined as cylindrical weights or spools (Figure 19.6a-e). These objects are rather stumpy cylinders with flat bases, typically $6.5-7 \mathrm{~cm}$ high and $6-6.5 \mathrm{~cm}$ wide. In some cases the middle part is slightly narrow (Figure 19.6c,e), as if squeezed or pinched; one example has a deep finger impression in the center of one of the bases (Figure 19.6e); these items weigh 280-400 g. They are not perforated, in contrast to other loom weights. If they were indeed used as such, the string was probably tied to the middle narrower part (see Rahmstorf, 2005:155, pl. 22:2). Three objects (Figure 19.6a, c,e) were found in Field I FUR, probably dating to the Iron I. Another similar, although smaller object (Figure 19.6d), comes from a Phase $15 / 16$ (MBIIB-C) context in Field III. A complete small spool (Figure 19.6b, 3.1 cm in diameter and 4 cm in height, only 49 g in weight) was found in Building I, Room A in Field IV. A nearly cylindrical weight that is perforated on top (Figure 19.61) probably should not be included in this group but rather in the conical/pyramid-shaped weights (see below), which are almost always perforated.

The cylindrical loom weights or spools are usually considered a component of the Philistine material culture of the Iron I (see, e.g., Yasur-Landau, 2003; Ben-Shlomo, 2011b; Mazow, 2005) and are regarded as a representation of new types of weaving techniques brought by the immigrants from the west. This class of artifacts in the Mediterranean, dated to the late second millennium BCE, was studied in detail by Rahmstorf (2003, 2005). Their size varies from 5 to 10 cm in length and 3 to 6 cm in width. They are either perfectly cylindrical or cylindrical with a pinched-in center and are either unfired or poorly fired. At Tel Miqne-Ekron and Ashkelon they appear in large quantities (Shamir, 1991, 2007; Stager, 1995:346; Bierling, 1998: pl. 7:b); during the early Iron Age spools appear, for example, at Ashdod in Stratum XIIIa (Dothan and Porath, 1993:64, fig. 24:3-5, pl. 39:4), Ashkelon (Stager, 1995:346; 2006:11), and Tell es-Safi (Cassuto, 2012: pl. 19.3:10). Note also the recent publication of these objects from the Philistine village near Tell Jemmeh at Qubur el Walaydeh (Lehmann, 2011:294, figs. 14-15).

TABLE 19.3. Selected clay and mud items.

| Reg. No. | SI Cat. No. | Provenance | Description, figure | Phase | Architecture | Context date |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 643 |  | GM 2B (28) 1 | Stand/chalice?, 19.5i | IV-5? |  | Iron IIC? |
| 644 | 30 | GM 1B (8) 1 | Clay wheel, 19.50 | IV-3? |  | Persian? |
| 827 |  | GMIII C1 (+) | Clay spindle/wheel, 19.8i | Topsoil |  |  |
| 1114 | 831 | GMI 4D (3) | Biconical spindle/weight, 19.8c | I-3 | Room F | LBII |
| 1479 | 242 | GM 1B F_XIX | Mud plug, complete, 19.9g | IV-5? | Bld I, Room A? | Iron IIC? |
| 1485 |  | GM 2B (36) | Spherical clay perforated loom weight, 19.8b | IV-5 |  | Iron IIC |
| 1486 |  | GM 2B (38-39) | Spherical clay perforated loom weight, $19.8 \mathrm{a}$ | IV-6/7? |  | Iron IIB-C |
| 1487 | 21 | GM 2B (9) | Spherical shaped weight, 19.81 | IV-3? |  | Persian? |
| 1497 |  | GM 2C NBR (4) | Complete mud spindle/weight, 19.8d | Post IV-3 |  | Persian |
| 1509 |  | GM 2C NBR (3) | Biconical spindle/weight, 19.8h | Post IV-3 |  | Persian |
| 1511 | 184 | GM 1D (2B) 1 | Conical loom weight, perforated, complete, 19.7e | Unknown |  |  |
| 1514 |  | GM 0B (14) Room F | Conical loom weight, complete, 19.7c | IV-5 | Bld. I, Room F | Iron IIC |
| 1521 |  | GM 3B (9) | Small conical loom weight, 19.7i | IV-5 | Bld III, Unit 2 | Iron IIC |
| 1522 |  | GM 3B (9) | Conical loom weight, complete, 19.7 f | IV-5 | Bld III, Unit 2 | Iron IIC |
| 1523 |  | GM 3B (9) | Conical loom weight, perforated, complete, 19.7d | IV-5 | Bld III, Unit 2 | Iron IIC |
| 1536 | 123 | GM 2C (3) 2 | Clay spindle/weight, 19.8j | Post IV-3 |  | Persian |
| 1555 | 42 | GM 1C P2 | Clay bead/weight, perforated cylindrical disk, 19.8 m | IV-1? |  | CrusaderMamluk? |
| 1559 | 333 | GM 2C NBR (8) | Conical gaming piece/weight, complete, 19.10c | IV-3? |  | Persian? |
| 1562 |  | GM 2A (30) 4 | Spherical clay loom weight, complete, 19.7j | IV-7 | Locus 4 | Iron IIB-C |
| 1563 |  | GM 2A (30) 4 | Spherical clay loom weight, complete, 19.7h | IV-7 | Locus 4 | Iron IIB-C |
| 1569 |  | GM 2A (30) | Large conical loom weight, 19.7a | IV-7(B?) | Outside Bld III | Iron IIB-C |
| 1572 |  | GM 0B (14) Room F | Conical perforated loom weight, complete, 19.7b | IV-5 | Bld I, Room F | Iron IIC |
| 1578 |  | GM 3B (9) | Conical loom weight, 19.6 f | IV-5 | Bld III, Unit 2 | Iron IIC |
| 1579 |  | GM 3B (9) | Conical loom weight, perforated, 19.6 m | IV-5 | Bld III, Unit 2 | Iron IIC |
| 1583 |  | GM 00A (1) 3 | Perforated weight, 19.7g | IV-5 | Bld I, Room F | Iron IIC |
| 1596 |  | GMIII C2 (84) 1 | Mud weight, perforation, 19.6j | III-16 |  | MBII |
| 1597 |  | GMIII C2 (84) 1 | Mud weight, perforation, 19.7k | III-16 |  | MBII |
| 1599 |  | GM 00A (1) 3 | Small conical loom weight, 19.6 g | IV-5 | Bld I, Room F | Iron IIC |
| 1639 |  | GM 0A (5) | Biconical spindle/weight, 19.8e | IV-3/4 | Unit 3 | Persian |
| 1640 |  | GM 0A (5) | Biconical spindle/weight, 19.8f | IV-3/4 | Unit 3 | Persian |
| 1650 |  | GM 1B (11) 2 | Complete small cylindrical weight/ loom, 19.6b | IV-5 | Bld I, Room A | Iron IIC |
| 1655 |  | GMIII B (50) | Clay ball, 19.5 k | III-9 | Room A | LBII |
| 1656 |  | GMIII B (50) | Clay ball, 19.51 | III-9 | Room A | LBII |
| 1659 |  | GM 1C SBR (10) 4 | Long conical gaming piece/token, 19.10e | IV-4/5 | Unit 4 | Iron IIC? |
| 1660 |  | GM 1D W8 (2) | Cornet(?), 19.5 m | Unknown |  |  |
| 1661 |  | GM 1A (1) 10 | Perforated cylindrical object, kernos/ vessel?, 19.5h | IV-5 | Bld. I, Room E | Iron IIC |
| 1667 |  | GMIII C3 P1 | Clay plug, 19.9f | III-18 |  | MBII- <br> Chalcolithic <br> (continued) |

TABLE 19.3. (continued)

| Reg. No. | SI Cat. No. | Provenance | Description, figure | Phase | Architecture | Context date |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1668 |  | GMIII A2 (20) | Mud jar stopper/sealer, 19.9e | III-6 |  | Iron I |
| 1669 |  | GM 2B (36A) 2 | Disk-shaped unbaked stopper, 19.9a | IV-6 | Bld II (Room B?) | Iron IIB-C |
| 1670 |  | GM 2B (36A) 2 | Large conical stopper, unbaked, 19.9b | IV-6 | Bld II (Room B?) | Iron IIB-C |
| 1671 | 502? | GM 3B (11) | Large conical stopper, unbaked, 19.9c | IV-6 | Bld III, Unit 2? | Iron IIB-C |
| 1674 |  | GM 00A (1) 3 | Small conical loom weight, 19.6h | IV-5 | Bld I, Room F | Iron IIC |
| 1675 |  | GM 00A (1) 3 | Small conical loom weight, 19.6 i | IV-5 | Bld I, Room F | Iron IIC |
| 1676 |  | GMI FUR between Wall A and W2 | Mud spool, 19.6c | I FUR 1? |  | Iron I? |
| 1677 |  | GMI FUR between Wall A and W2 | Mud spool, squeezed in middle, finger impression on top, height 6.5 cm , 19.6e | I FUR 1? |  | Iron I? |
| 1942 |  | GM 0A (9) | Large conical stopper, unbaked, 19.9d | IV-5 | Room E | Iron IIC |
| 1943 |  | GM 1B (11) 2 | Cylindrical perforated loom weight, $19.61$ | IV-5 | Bld I, Room A | Iron IIC |
| 2057 |  | GMIII C1 81 | Cylindrical clay gaming piece(?), <br> 4.4 cm height, 19.10 f | III-16 |  | MBII |
| 2143 |  | GM 1B (15) 1 | Clay plug/sealing with textile impression, 19.10j | IV-5 | Bld I, Room A | Iron IIC |
| 2178 |  | GM 2B (60) | Clay object/sealing with textile impression, 19.10h | IV-10 |  | Iron IIA |
| 2184 |  | GM 2B (64) | Object/sealing/bulla with textile impression, 19.10i | IV-11 |  | Iron IIA |
| 2186 |  | GM 2B (62) 3 | Miniature wheel(?), 19.8 g | IV-10 | Firebox room | Iron IIA |
| 2193 |  | GM 3B F1 | Crude votive vessel, 19.5e | IV-1 |  |  |
| 2194 | 370 | GM 1E (2) | Small complete plug, 19.9h | IV-5? |  | Iron IIC? |
| 2196 | 339 | GMII A5 (0) | Ceramic rectangular seal (blank)/lid with handle, 19.5n | Topsoil |  |  |
| 2384 |  | GM 2B (18) | Ceramic object, 19.5 g | IV-3? |  | Persian? |
| 2789 |  | GM 0B P8 | Ceramic object, 19.5 f | Unknown |  |  |
| 3019 |  | GMII D4 (2A) | Miniature vessel, 19.5d | II-6? |  | LBII? |
| 3060 |  | GM 2B NBR (31) 2A | Conical loom weight, perforated? complete, 19.6k | IV-5 | Bld II, Room B | Iron IIC |
| 3063 |  | GMI FUR (2) | Complete ceramic spool, height 6.5 cm , diameter $6.5 \mathrm{~cm}, 19.6 \mathrm{a}$ | I FUR 2 |  | Iron I |
| 3920 |  | GMI 5D (7C) | Baked clay object, 19.10g | I-3 | Street J/Area K | LBII |
| 3951 |  | GMIII F1 (5) 4 | Ceramic spool(?) (height 6 cm , diameter 7.5 cm ), 19.5 d | III-15/16 | Unit 15 | MBII |
| 3964 |  | GMIII B F1B | Conical gaming piece, 2.8 cm high, burnt clay, 19.10d | III-9 | Unit 2 | LBII |
| 4057 |  | GM 2B (33) 2A | Votive vessel, 19.5a | IV-5? |  | Iron IIC? |
| 4058 |  | GM 2A TT7 F7 (2) | Perforated disk (weight), 19.71 | IV-4?/5? |  | Iron IIC? |
| 4080 |  | GMIII F1 (4) | Miniature vessel, 19.5b | III-15 |  | MBIIB-C |
| 4081 |  | GMIII F1 (5) | Miniature vessel, 19.5c | III-15 |  | MBIIB-C |
| 4082 | 332 | GMIII A3 (3) | Rounded object, 19.5j | III-6 |  | Iron I |
|  |  | GM 1C W2A | Clay spindle/weight, 19.8k | IV-3? |  | Persian? |
|  |  | GM 2C (7) 2 | Conical object, gaming piece?, 19.10b | Unknown |  |  |
|  |  | GM 2D SBR (8) | Conical object, gaming piece?, 19.10a | Unknown |  |  |



FIGURE 19.6. Mud weights.


FIGURE 19.7. Mud weights.

The function of these objects is not entirely clear, but it seems that according to their find spots (in large concentrated groups, sometimes in straight lines), their Cypro-Geometric iconographic representations, and their general shape and size, they were used as loom weights (Rahmstorf, 2005:155, pl. 22:2). However, in certain contexts they could also have had other uses such as kiln spacers. At the Iron Age IIB site of Kfar Menahem these appear in large quantities in a possible kiln site (see BenShlomo, 2006a:105-106, fig. 2.11; Dagan, 2011). The examples from Tell Jemmeh are few, and although three of five cluster in the Iron I, there is one example each from good MBIIB and Iron IIC contexts as well. Apparently, the use of this object, either as
a loom weight or for other uses, may not have been limited to the Philistine culture in this area of the southern Levant. Possibly, their appearance near the Tell Jemmeh kiln may be related to their function as kiln spacers.

Another type of mud weight or object is roughly spherical and is widely perforated in the center (as Figures 19.7h,j, $19.8 \mathrm{a}, \mathrm{b}, \mathrm{l})$. Their radius is about $7-9 \mathrm{~cm}$ and is usually slightly narrower on the axial dimension and thus not perfectly spherical. The perforation is wide at $1.3-1.7 \mathrm{~cm}$ but does not go through in some examples (Figure 19.7h,j; it goes through in Figure 19.8a,b), and their weight varies between 400 and 700 g. These objects could have been used as loom weights, with
the suspending string tied through the hole; the interpretation of the examples where the hole does not go through is more problematic. Their shape and the large width of the hole may suggest other functions as well. At Rosh Zayit (Gal and Alexandre, 2000:125, figs. III.81:13-18, III.99) similar objects were suggested to be jar stoppers, deliberately perforated to use for fermenting liquids, especially beer (Homan, 2010:51,54). These weights are found sometimes in large quantities in many Iron II sites in the southern Levant (Motza [Shamir, 2009:158, fig. 7.1, and references therein], Tel Miqne, Stratum IB-C [Shamir, 1991; Ben-Shlomo, 2006c; S. Gitin, Albright Institute, personal communication], Batash, Stratum II [Mazar and Panitz-Cohen, 2001:248-258, photo 186, pl. 39:11-15, Type DON, doughnut shaped], and Tell es-Safi [Cassuto, 2012: pls. 19.4,19.6]).

The largest group of mud weights can be defined as conical or pyramidical weights (Figures 19.6f-m, 19.7a-k), but they are rather irregular in their shape and size. Their base is usually rounded, and thus, the term conical would be more appropriate. The upper part is pointed and rounded (as Figure 19.6g,h) in some cases, but in others it is rather wide (Figure 19.6i,l), making the shape either almost cylindrical or rather irregular. They thus vary in shape, and in size, the height ranges between 6 and 10 cm , and the base diameter ranges between 5 and 8 cm (Figure 19.6h is a typical small example, and Figure 19.6j is a typical large example); however, the proportions of the height and diameter are roughly maintained at a 1.2-1.3 ratio. Their weight also varies considerably and ranges between 140 and 825 g . In most cases the upper narrower or pointed part is perforated, usually the whole way through; the width of the holes varies, and the hole is sometimes clogged. If interpreted as a weight, specifically a loom weight, then this hole was used to attach the suspending string. At least 15 items of this type are presented here (Figures 19.6, 19.7). All conical weights come from Iron IIB-C contexts; most come from Phase 5 in Field IV. Several of these objects were found together, such as three items in Building I, Room F (Figures $19.6 \mathrm{~h}, \mathrm{i}, 19.7 \mathrm{c}$ ) and three items in Building III, Unit 2 (Figure $19.7 \mathrm{~d}, \mathrm{f}$, ). Parallels for this type of weight during the Iron IIB-C come, for example, from Batash, Stratum II (Browning, 2001: Type CNC, conical; Mazar and Panitz-Cohen, 2001: pls. 39:16,

51:4) and Tell es-Safi (Cassuto, 2012: pl. 19.5:4); note, however, that roughly similar loom weights appear also during the Iron I and Bronze Age (e.g., Yahalom-Mack, 2007:666-669, fig. 12.5; Cassuto, 2012:469, pl. 19.3).

The sample of mud objects that may be considered loom weights from Tel Jemmeh, although small, may indicate a chronological trend, at least for this site. Although spherical weights are known during the Iron I, these weights were more common during the Iron IIB, whereas during the Iron IIC conical weights were predominant. Possibly, under Assyrian influence a more extensive wool production at the site was initiated (see also possible faunal evidence, chapter 33; Wapnish, 1981a), resulting in a larger number of loom weights and a higher standardization of this object. It should be noted that no loom weights were retrieved from the LBII phases at Jemmeh; the lack of mud loom weights from the LBII was also noted at Beth Shean and other sites in the Levant (see Panitz-Cohen and Yahalom-Mack, 2009:737).

Other types of mud weights also appear. A small, perforated, disk-shaped object (Figure 19.71) could have been a weight. It is 6 cm in diameter and 2 cm high, weighing 86 g , and it is more smoothly finished than other weights (this could have been a loom weight of the "wheel" type; see Boertien, 2009: fig. 7). A similar smaller item may be a bead or a spindle (Figure 19.8m). Two perforated mud weights from an MBIIB-C context in Field III, Phase 16 (Figure 19.7j,k) are close to the conical or pyramid shape. Figure 19.7 g , from Room F in Building I, is also an irregularly shaped mud weight.

Mud or clay objects with a biconical shape and a perforation through the center (Figure 19.8c-l) are either small weights or spindle whorls. They are made from finer clay and are more smoothly finished than the loom weights; their firing varies, and they are smaller, with a diameter between 2 and 4.5 cm and a height between 1.5 and 3.5 cm , weighing mostly between 22 and 35 g (Figure 19.8 d is larger at 113 g ). Smaller examples weigh $4-6 \mathrm{~g}$ and are $1.2 \times 2 \mathrm{~cm}$ in dimension (Figure $19.8 \mathrm{~d}, \mathrm{~g}$ ). This weight range could fit a use as spindle whorls. The larger example (as Figure 19.81) may have been a weight. Figure 19.8 i is more crudely finished and may also have been a wheel (see


FIGURE 19.8. Mud weights, spindle whorls.

Figure 19.5o). Most items appear in Persian period or unstratified contexts, yet this class is not chronologically indicative. For similar spindles during the Late Bronze and Iron Ages, see, e.g., Tell Keisan (Briend and Humbert, 1980: pl. 97).

## Stoppers

Another class of mud object with an evident function is large jar stoppers (Figure 19.9c-e). These are complete enough to be seen as perfectly fitting the mouths of typical Iron Age storage jars at Tell Jemmeh, with the rim impression clearly seen. The shape of these objects (none found complete) was conical or mushroom shaped: the upper part was domed or conical, about $14-16 \mathrm{~cm}$ in diameter, and the lower part, which was applied when wet to the jar rim, is narrower. On the lower part the rounded impression on the rim can be clearly seen (Figure $19.9 \mathrm{~d}, \mathrm{e}$ ), with a diameter of 10 cm (a typical jar mouth diameter) and a thickness of about 1 cm . The three examples were found in Iron I-IIB-C contexts, and this type of jar stopper is probably not chronologically indicative. Another fragmentary unbaked object (Figure 19.9b) may be the upper part of a similar jar stopper. Similar jar stoppers were found, for example, at Batash, Strata IX-VII (Yahalom-Mack, 2006a:255-256, pl. 46:5, photos 109-113) in the LBII Building 315 (Panitz-Cohen, 2006a: photo 84) as well as at LBII Beth Shean, Strata S-4-S-2 (Panitz-Cohen et al., 2009:742-744, fig. 16.1:4,7, photo 16.1) and Iron IIA Horbat Rosh Zayit, Stratum IIA (Gal and Alexandre, 2000:125126, figs. III.81:12, III.85:1, III.100, III.101), Lachish, Level III (Tufnell, 1953: pl. 52:2; Zimhoni, 1997b:215-216, figs. 5.2:17, 5.3), and Ashkelon, late 7th century BCE destruction level (Stager et al., 2011:494, fig. 18.3).

A complete object probably from an Iron IIC context (Figure 19.9 g ) is probably also a stopper but is much smaller $(4.9 \times 6.2 \mathrm{~cm})$; it may have been used to seal a small jar or a jug. The upper part is smoothly domed, and the thick lower part is conical, similar to a plug. Possible parallels come from Batash, Stratum IX (Panitz-Cohen and Mazar, 2006: pl. 20:2; also Iron II,

Stratum II, Mazar and Panitz-Cohen, 2001: pl. 95:16), Lachish, Level VII (Sass, 2004a: fig. 23.1:7; also Iron II, Aharoni, 1975: pl. 34:11,12), and Beth Shean, Stratum S-3b? (Panitz-Cohen et al., 2009:742, fig. 16.1:2). Two smaller stoppers or plugs (Figure $19.9 \mathrm{f}, \mathrm{h})$ are crudely made and may have been used to seal the mouth of small juglets (see also Batash, Stratum II [Mazar and Panitz-Cohen, 2001: pl. 75:10] and Beth Shean, Stratum S-3-2 [Panitz-Cohen et al., 2009:742, fig. 16.1:5]). One example from Phase 18 in Field III (Figure 19.9f, MBII or Chalcolithic date) has a roughly domed top and pointed conical lower part. Another example (Figure 19.9h) is complete and is symmetrical, with the upper and lower parts being conical; the vessel rim impression on the lower part is about 2 cm in diameter.

A roughly cylindrical fragmentary object (Figure 19.9a) found together with Figure 19.9b in Field IV, Building II, Phase 6 is more likely a stopper than a weight (see above). The object is unbaked and has where to attach a string. A mud object of unclear purpose (Figure 19.10 g ), possibly a sealing, should also be mentioned. Three other clay items bear textile impressions (Figure 19.10h-j) and could have been some sort of sealings or stoppers.

## Other Mud Objects

Several small conical objects, usually made of unbaked or sundried clay, were also found (Figure 19.10a-f). These objects differ from the conical loom weights mentioned above: they are smaller, about $4-4.5 \mathrm{~cm}$ in height, with a base diameter of $2-3.3 \mathrm{~cm}$; they are made of finer clay, and their surface is smoothed. Furthermore, they are unperforated. These objects come from contexts of various dates. The objects could be interpreted as gaming pieces or tokens according to the appearance, but there is no proof for this function; they appear in various periods in the Levant and other regions of the Near East (dating back to the Neolithic period, e.g., Schmandt-Besserat, 1992, 1994). Another fragmentary example with a more cylindrical shape comes from an MBIIB context (Figure $19.10 f$ ) and may also be similarly interpreted.


FIGURE 19.9. Mud stoppers.


FIGURE 19.10. Various mud and clay objects.

This type of ceramic object is rarely published or discussed in excavation reports. Conical objects made of bone, ivory, faience, or terra-cotta that are interpreted as gaming pieces have been published, for example, from Megiddo, Stratum V (Loud, 1948: pls. 191:9-15 [faience], 288:9 [ceramic]), Lachish, Level III (Tufnell, 1953: pl. 56:2 [faience], 1958: pl. 54:6 [ceramic], the latter from an LBII context), Kadesh Barnea, Stratum 3 (Gera, 2007: pl. 13.2:18,19, ceramic), and Ashdod, Stratum XII (Dothan and Porath, 1993: fig. 38:3, bone). In some cases, such as at Ziyaret Tepe in eastern Turkey (ancient Tušhan), similar objects were related to the Neo-Assyrian administration (Matney et al., 2003:188-189, fig. 12, found together with cuneiform tablets; see also, e.g., Matney and Rainville, 2005:34, fig. 13d; MacGinnes and Matney, 2009). At Tell Jemmeh, however, no such items were found in Field IV, Phase 5 contexts.

## Metallurgical Objects

A small group of clay items used in metallurgic activities was also found (Figure 19.11, Table 19.4). Of the nine items,
seven come from Field I and date to the LBII. These include four rather small crucible fragments with some remains of copper inside (Figure 19.11a-d). These are probably from lamp-shaped or bowl crucibles (see Yahalom-Mack, 2009:78, fig. II.32:1-5), as they are rather thin walled. Four examples of tuyère or furnace bellows nozzles were also found (Figure 19.11f-i). The tuyères have a thick conical body with a narrow passage; one example (Figure 19.11h, the only post-LBII example) shows slag remains on the tip (a slag beard); another example (Figure 19.11g) has straw imprints on the lower part. It seems that most of the tuyères are of the bent type with a continuous hole near the end. These tuyères are common in the LBI-II and early Iron Age (Yahalom-Mack, 2009:90, fig. II.40:7-16). Three have an inner rounded section (Figure 19.11h) that is more common for bronze production tuyères (see Yahalom-Mack, 2009:88-92, fig. II.40), and the fourth has a triangular inner section (Figure 19.11f); all have exterior rounded sections. Tuyères used for iron production often have a square or rectangular exterior section and sometimes have square interior sections (Behar et al., 2012:265, fig. 6:1-5; see also an iron smithy with such tuyères from Tel Sera',

TABLE 19.4. Crucibles and tuyères.

| Reg. No. | Provenance | Description, figure | Phase | Architecture | Period |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 199 | GMI 5D (7A) 2 | Crucible fragment, copper remains, 19.11a | I-3 | Street J | LBII |
| 2024 | GMI 5F (3) 2 | Crucible fragment, copper remains, 19.11b | ? |  |  |
| 2039 | GMI 5D (6) 1 | Crucible fragment, copper remains, 19.11c | I-3 | Room G | LBII |
| 2055 | GMI 5E (1) 2 | Crucible fragment, copper remains, 19.11d | $?$ |  | LBII |
| 2035 | GMI 3D (6) | Tuyère, inner section quite round, straw imprint, 19.11g | I-3? |  | LBII |
| 2020 | GMI 4D (4) 4 | Tuyère, inner section triangular, 19.11f | I-3 | Street J | Persian |
| 2937 | GM 3B (1) | Large tuyère fragment, 19.11i | topsoil | outside granary | P-3 |
| 2019 | GM 2D F1 (5) | Tuyère, slag on tip, rounded section, 19.11h | ? |  |  |
| 2025 | GMI 5F (3) 2 | Jar (?) rim with slag, 19.11e |  |  |  |



FIGURE 19.11. Metallurgic clay objects.
associated with the Assyrian citadel, Rothenberg and Tylecote, 1991: fig. 4), but tuyères of this type were not found at Tell Jemmeh, although iron slag was (see Figure 21.6h-j). A small rim fragment of a vessel (jar?) rim with copper slag on it (Figure 19.11e) was also included in this group.

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# Clay Sealings and Seal Impressions David Ben-Shlomo and Othmar Keel 

## INTRODUCTION

A group of up to 82 items may be defined as clay sealings and is discussed in this chapter. Sealings are defined as clay objects that were used to seal vessels or other items (this includes both sealings and bullae, see below). These objects are usually not deliberately or completely fired but are often hard dried or baked. Sealings can be identified by their shape, the finger marks indicating handling and pressing, and string, cord, papyrus, or vessel impressions on the underside (the underside is defined as the side attached to the sealed object) and impressions of stamp seals on the upper side. Usually, only one or two of these characteristics appear on a single item. Of the 82 items, 72 are almost clearly identified as clay sealings, whereas an additional 10 items are possibly sealings or could have been clay lumps of some other function (Table 20.1).

It seems that these objects are quite common at the site, and several impressed sealings from Tell Jemmeh were also published by Petrie (1928: pls. XIX:4,5,36, XX:2,14-16). It should be noted, however, that identification of these artifacts during the excavation is not easy, especially when they do not carry any impression. Forty-five examples show evidence of an impression on the upper side, mostly of a scarab seal; of these, 15 have a very fragmentary or worn impression, whereas 30 have a more complete impression; of those, 28 can be dated stylistically according to the iconographic elements of the impression (see catalog below and Table 20.1). Twenty-seven sealing fragments (and an additional 10 possible items) have no impressions, but as they are fragmentary we do not know if the sealing was impressed or not. Five jar handles with seal impressions are also described in this chapter.

In this report the terminology of Krzyszkowska (2005; see also Ben-Shlomo, 2006b) is followed as we discuss several types of sealings (often termed bullae). The distinction between "real bullae" and other types of clay sealings is not always made in publications, and therefore, sometimes bulla is used as a general term for sealings. Clay sealings may be a better general term describing a clay object sealing a sack, vessel, box, papyrus, parcel, or other container. In this case a string or rope was used to close the object, but possibly, the clay itself was also used as a sealant. The latter can be also defined as "direct sealings" (Krzyszkowska, 2005:99-101), as opposed to "clay nodules" or "roundels," which were hung independently on a string (Krzyszkowska, 2005:21, 55-161, 280-282). On the other hand, real bullae, or hanging clay sealings, were used to seal papyri (or other small parcels), and were tied by a string, and usually have a small, rounded button shape (see Krzyszkowska, 2005:n26). However, larger sealings were also used to seal rolled papyri more directly (see, e.g., Arie et al., 2011).

Most of the hanging clay bullae appear in large quantities in the southern Levant only during the Iron II (especially during the Iron IIB-C, with epigraphic inscriptions; e.g., Avigad, 1997), whereas in the Aegean, for example, these hanging stamped sealings appear considerably earlier (from the Late Bronze Age to the Late Minoan I at least; Krzyszkowska, 2005:155-161, 280-282). A recent study shows how real bullae were formed and attached to the rolled and tied papyri (Arie et al., 2011: fig. 2). Apparently, they were made of two separately prepared pieces of clay, one attached to the papyrus and one above the string; only the top one was stamped. Only two or three items from our assemblage can be clearly defined as bullae in this sense (Figure 20.3g and possibly Figures 20.2d, 20.7f and Reg. No. 2167), but other objects both from the MBIIB and Iron II may also have been used similarly (see below).

## CONTEXT

A relatively large number of the sealings come from contexts that can be dated, 52 of the 72 clear examples ( 60 of the 82 total items; see Table 20.1); 20 items come from the topsoil or from unclear contexts. The distribution of the sealings is clearly uneven between the

TABLE 20.1. List of clay sealings from Tell Jemmeh. Measurements are in centimeters: $L=$ length; $W=$ width; $T=$ thickness. $N A=$ not available; us = unstratified.

| Reg. No. | SI Cat. No. | Provenance | Description | Phase | Date and Architecture | Impression style date | Figure | L | W | T |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sealings |  |  |  |  |  |  |  |  |  |  |
| 1182 | 966 | GM (+) | Sealing fragment, worn | us |  | MBII |  | 1.6 | 1.2 | 0.8 |
| 1183 | 959 | GM (+) | Sealing, raised impressing area, string impression | us |  | Unclear | 20.4a | 2.5 | 2.2 | 1.2 |
| 1184 | 961 | GM (+) | Sealing fragment, raised impressing area | us |  | Unclear | 20.4b | 2.4 | 2 | 1.5 |
| 1185 | 710 | GM (+) | Sealing fragment, string impression | us |  | 14th c | 20.4c | 2.3 | 2 | 0.9 |
| 1186 | 909 | GM (+) | Sealing, string impression, finger prints | us |  | MBIIB | 20.4d | 2.6 | 3.1 | 1.3 |
| 1187 | 960 | GM (+) | Sealing fragment, thick string impression | us |  | MBIIB | 20.4e | 4.3 | 2.9 | 1.2 |
| 1188 | 964 | GM (+) | Broken sealing fragment | us |  | None | 20.4 f | 1.7 | 1 | 0.7 |
| 1189 | 965 | GM (+) | Sealing fragment, very deep impression, string impression | us |  | Unclear | 20.4 g | 2.6 | 1.5 | 0.8 |
| 1190 | 963 | GM (+) | Sealing fragment, string impression | us |  | Iron IIA | 20.4h | 1.5 | 1.5 | 0.5 |
| 1191 | 958 | GM (+) | Sealing fragment, string, seal impression | us |  | Iron IIB-C | 20.3d | 1.8 | 2.2 | 1.2 |
| 1192 | 962 | GM (+) | Hanging sealing/ bulla fragment? | us |  | None | 20.7 f | 1 | 1.5 | 0.4 |
| 1196 | 761 | GM (+) | Large lump/ sealing, rope impression | us |  | Bead | 20.5a | 3.5 | 3 | 1.8 |
| 1197 | 379 | GM 1A <br> NBR (1) | Lump with seal impression, worn | us |  | Unclear |  | 2 | 2 | 1.8 |
| 1198 |  | $\begin{aligned} & \text { GM 1B } \\ & \text { (11) } 3 \end{aligned}$ | Sealing fragment, one side straightened, string impression | Unknown | Unknown | None | $\begin{aligned} & 20.2 \mathrm{~g}, \\ & 20.5 \mathrm{~b} \end{aligned}$ | 2.3 | 1.5 | 1.7 |
| 1200 |  | GM 2B F1 3 | Sealing fragment | 2/3? | Persian? | None |  | 2.5 | 2.5 | 1.6 |
| 1202 | 432 | GMI 5E (2) | Edge of large sealing | Unknown |  | MBIIB? | 20.2d | 4.3 | 2.8 | 1.7 |
| 1203 | 953 | GMIII C1 (81) | Part of rounded sealing, two impressions, edge folded after impression | 16 | MBIIB-C | MBIIB | 20.1d | 3.3 | 2 | 1.2 |
| 1204 | 1009 | GMIII C1 (81) | Sealing fragment | 16 | MBIIB-C | MBIIB | 20.5c | 1.9 | 1.2 | 0.9 |

TABLE 20.1. (continued)

| Reg. No. | SI <br> Cat. No. | Provenance | Description | Phase | Date and Architecture | Impression style date | Figure | L | W | T |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1205 | 1112 | GMI KB F10 | Sealing fragment, string impression | KB2? | Iron IIA? | Iron IIA | 20.5 d | 2.1 | 2 | 0.8 |
| 1206 | 1114 | GMI KB <br> (26) 5 | Sealing fragment, impression | KB2? | Iron IIA? | Unclear | 20.3 f | 2 | 1.5 | 0.9 |
| 1207 | 1111 | GMI KB P2 | Sealing fragment, raised impressing area, string impression | KB2? | Iron IIA? | LBII-Iron I | 20.5 e | 2 | 1.7 | 1 |
| 1208 | 1017 | GMIII C1 (81) | Sealing fragment, raised impressing area | 16 | MBIIB-C | MBIIB |  | 2.2 | 1.4 | 0.7 |
| 1209 | 1119 | GM 2B (64) | Sealing fragment, string impression | 11 | LBII | MBIIB? | 20.5 f | 2.8 | 0.9 | 1.1 |
| 1210 | 1019 | GMIII F2 <br> (13) | Relatively oval sealing fragment, textile impression on bottom | 17 | MBIIB-C | Unclear | 20.1h, 20.5g | 2.4 | 2.8 | 1 |
| 1211 | 1010 | GMIII C1 <br> (81) | Sealing fragment, on back string impression and rounded surface | 16 | MBIIB-C | Unclear | 20.5h | 2.2 | 1.9 | 0.7 |
| 1212 | 1024 | GMIII C1 (81) | Sealing fragment, string impression | 16 | MBIIB-C | MBIIB | 20.6a | 1.7 | 1.6 | 0.9 |
| 1213 | 1108 | GMI KB F8 | Sealing fragment, string impression | KB2? | Iron IIA? | Iron IIA | 20.6b | 1.7 | 1.5 | 0.6 |
| 1214a,b,c | 1020 | $\begin{aligned} & \text { GMIII C1 } \\ & (81) \end{aligned}$ | Cube-like sealing with three impressions | 16 | MBIIB-C | MBIIB | 20.1a-c | 2.2 | 2 | 1.8 |
| 1215 | 1118 | GM 2B (63) | Broken sealing fragment | 10 | Iron IIA, firebox | Unclear | 20.3 e | 1.6 | 1.4 | 0.9 |
| 1216 | 1123 | GM 2B TT10 | Sealing/lump | 11 | Iron IIA | None |  | 2.5 | 2.5 | 1.2 |
| 1217 | 1121 | GM 2B (64) | Sealing fragment, string impression | 11 | Iron IIA | None | 20.6c | 1.7 | 1.3 | 0.8 |
| 1218 | 1113 | $\begin{aligned} & \text { GMI KB) } \\ & \text { F9 }(2 \end{aligned}$ | Sealing fragment, rounded surface on back | KB2? | Iron IIA? | LBII | 20.6d | 1.7 | 0.9 | 0.8 |
| 1219 | 1110 | GM 2B (59) | Sealing fragment | 9 | Iron IIA, <br> Room D* | Iron IIA | 20.3c | 1.5 | 1.4 | 1 |
| 1220 | 1122 | GMI KB <br> (33) 7 | Sealing fragment, string impression | KB3 | Iron IIA? | Iron I-IIA | 20.6e | 2.2 | 1.2 | 0.9 |
| 1221 | 1015 | GMIII C1 (81) | Sealing fragment, textile impression? | 16 | MBIIB-C | MBIIB? | 20.1i | 2.5 | 2.1 | 0.7 |
| 1222 | 1104 | GM 2A (29) | Sealing fragment, raised impressing area, very clear string impression | 7 | Iron IIB, outside Building III | Iron IIA | 20.3a | 2.6 | 1.9 | 0.9 |
| 1223 |  | GMI 4D (4) 3 | Sealing fragment, string impression | 3 | LBII, Room F | MBIIB | 20.2a | 2.6 | 1.5 | 0.5 |

TABLE 20.1. (continued)

| Reg. No. | SI <br> Cat. No. | Provenance | Description | Phase | Date and Architecture | Impression style date | Figure | L | W | T |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1224 | 717 | GM 1B <br> WBR (9) 1 | Hanging sealing/ bulla? | 3? | Persian? | Persian- <br> Hellenistic | 20.3g | 2.7 | 1.3 | 1 |
| 1225 | 1016 | GMIII C1 (81) | Rounded sealing, string impression | 16 | MBIIB-C | Unclear | 20.1f, 20.6 f | 2.4 | 2.2 | 1.2 |
| 1226 | 1008 | GMIII C1 <br> (81) | Rounded sealing, string impression, textile impression, pinkish clay | 16 | MBIIB-C | MBIIB | 20.1e | 4.2 | 3 | 1.7 |
| 1227 |  | GMI 2E (4) | Sealing fragment | 1/3? | LBII | LB | 20.6 g | 2 | 1.5 | 1 |
| 1228 |  | $\begin{aligned} & \text { GMII C1 } \\ & \text { P2 (2) } \end{aligned}$ | Sealing fragment, fingerprint, string impression | $2 / 3$ ? | Iron IIB-C? | Unclear | 20.6h | 2.2 | 1.3 | 0.8 |
| 1229 |  | GMII C1 <br> (4) 2 | Sealing fragment, string impression, possible edge of seal impression | 2 | Iron IIB-C, Unit | 1Unclear |  |  |  |  |
| 1230 |  | $\begin{aligned} & \text { GMI 4D } \\ & \text { (3) }\{77\} \end{aligned}$ | Sealing fragment, raised impressing area, string and textile impression | 3 | LBII, Room F | MBIIB | 20.2b | 2 | 1.8 | 1.4 |
| 1225A |  | GMIII C1 (81) | Sealing fragment, thick string impression | 16 | MBIIB-C | None | 20.1g |  |  |  |
| 2037 |  | GMI 2F (2) | Sealing fragment | $1 / 3$ ? | LBII | LB | 20.7a | 2.2 | 1.7 |  |
| 2056 |  | GMII D4 (3) | Sealing fragment, rounded surface impression on back (rod?) | 6? | LBII? | None |  |  |  |  |
| 2078 |  | GMI 5E (1) | Sealing, no impression, possibly hanging or of small vessel | Unclear | Unknown | None |  |  |  |  |
| 2150 |  | GMI KB F9 2 | Sealing fragment | KB2? | Iron IIA? | None |  |  |  |  |
| 2152 |  | GMI KB Pit 5 | Small sealing fragment | KB2 | Iron IIA? | None |  |  |  |  |
| 2153 |  | GMI KB Pit 5 | Sealing broken around thick string | KB2 | Iron IIA? | None |  |  |  |  |
| 2154 |  | GMI KB <br> (26) 5 | Sealing fragment | KB2? | Iron IIA? | None |  |  |  |  |
| 2162 |  | GM 2B TT10 | Sealing fragment? | 11 | Iron IIA | None |  |  |  |  |
| 2163 |  | GM 2B TT10 | Sealing fragment | 11 | Iron IIA | None |  |  |  |  |
| 2164 |  | $\begin{aligned} & \text { GM 2B } \\ & (62) 3 \end{aligned}$ | Sealing, complete long lump of clay with string going through it | 10 | Iron IIA, firebox | None | 20.2h |  |  |  |
| 2165 |  | GM 2B (58) | Vessel sealing? | 9 | Iron IIA, <br> Room D* | None |  |  |  |  |
| 2166 |  | GM 2B (58) | Sealing fragment of small vessel? | 9 | Iron IIA, Room D* | None |  |  |  |  |

TABLE 20.1. (continued)

| Reg. No. | SI Cat. No. | Provenance | Description | Phase | Date and Architecture | Impression style date | Figure | L | W | T |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2167 |  | GM 2A (30) | Hanging sealing? | 7 | Iron IIB, outside Building III | None |  |  |  |  |
| 2168 |  | GM 2B (58A) | Small rounded sealing, string impression on top, textile impression on bottom | 9 | Iron IIA, Room D* | Iron I-II? | 20.3b |  |  |  |
| 2169 |  | GM 2B (64) | Sealing fragment? | 11 | Iron IIA | None |  |  |  |  |
| 2170 |  | GM 2B (58) | Sealing fragment, raised impressing area, string impression | 9 | Iron IIA, Room D* | Unclear | 20.7b | 3 | 2 | 1.3 |
| 2171 |  | GM 2B (58A) | Sealing fragment | 9 | Iron IIA, <br> Room D* | None |  | 2.5 | 2 | 0.8 |
| 2172 |  | GM 2B (58A) | Sealing fragment? | 9 | Iron IIA, <br> Room D* | None |  | 2.5 | 2 | 1.2 |
| 2173 |  | GM 2B (58A) | Sealing fragment with possibly seal impression remains | 9 | Iron IIA, Room D* | Unclear |  | 2 | 1.5 | 1 |
| 2174 |  | GM 2B (64) | Sealing fragment, fingerprint, surface impression | 11 | Iron IIA | Unclear | 20.7c | 2.5 | 1.5 | 1 |
| 2182 |  | GMI 5D (2) | Rounded sealing fragment, string impression | 3?/us | LBII? | None | 20.7 d | 3 | 1.3 | 1.3 |
| 2183 |  | GM 2B (63) | Sealing fragment? | 10 | Iron IIA, firebox | None |  |  |  |  |
| 2198 |  | GM (+) | Sealing fragment | us |  | Iron I | 20.7e | 2 | 2.7 | 0.8 |
| 2235 |  | GM (+) | Sealing fragment, string impression, crude seal impression | us |  | None | 20.2 f |  |  |  |
| 2446 |  | GM 2C (8) 1 | Sealing fragment, string impression | Unclear | Unknown | None |  |  |  |  |
| 2595 |  | GM 1D (1) 1 | Sealing fragment with string and papyrus impression | us |  | None |  | 1.8 | 1.5 | 0.8 |
| 3118 |  | GMII C2 (+) | Sealing fragment? | us |  | None |  |  |  |  |
| 3952 |  | GMIII C1 <br> (81) | Several sealing fragments | 16 | MBIIB-C | None |  |  |  |  |
| Bag 5038 |  | GMIII A3 <br> (2) 3 | Sealing/lump of clay? | 8 | LBII, Unit 2 | None |  |  |  |  |
| Bag 5262 |  | $\begin{aligned} & \text { GMIII J1 } \\ & \text { (11) } 3 \end{aligned}$ | Sealing, edge of seal impression | 16 | MBIIB-C | Unclear | 20.2c |  |  |  |

TABLE 20.1. (continued)

| Reg. No. | $\begin{aligned} & \text { SI } \\ & \text { Cat. No. } \end{aligned}$ | Provenance | Description | Phase | Date and Architecture | Impression style date | Figure | L | W | T |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Bag 5296 |  | GMIII J1 <br> (5) 1 | Sealing fragment, square object impression | 14 | MBIIB-C /LB | Unclear | 20.2e |  |  |  |
| NA |  | GM 2B (8) | Clay with textile impression | 3 ? | Persian | None |  |  |  |  |
| NA |  | GMIII A3 (14) | Sealing fragment, textile impression | 9 | LBII, Unit 1 | None |  |  |  |  |
| NA |  | $\begin{aligned} & \text { GMIII C1 } \\ & (80) \end{aligned}$ | Sealing/lump of clay? | 16 | MBIIB-C | None |  |  |  |  |
| NA |  | GMIII F2 (0) | Sealing fragment, flat back | us |  | None |  |  |  |  |
| NA |  | $\begin{aligned} & \text { GMIII J2 } \\ & \text { (17) } 1 \end{aligned}$ | Rounded sealing?, flat | $17$ | MBIIB-C | None |  |  |  |  |
| Jar handles |  |  |  |  |  |  |  |  |  |  |
| 1193 | 113 | GM (0) | Jar handle with double-scarab impression | us |  | Unclear | 5.5 | 4 |  |  |
| 1201 |  | $\begin{aligned} & \text { GM 1C P2 } \\ & \text { EBR (6) } \end{aligned}$ | Persian amphora with small impression on handle | $1 ?$ | Unknown | Unclear |  | 10 | 7.5 | 6.6 |
| 1231 | 1021 | $\begin{aligned} & \text { GMIII F2 } \\ & \text { F12 } \end{aligned}$ | Jar handle with impression | 17 | MBIIB-C | MBIIB |  |  | 6.5 | 6.5 |
| 1232 | 312 | GM 2C <br> WBR (2) | Persian amphora with impression | Unclear | Unknown | Unclear |  | 10 | 5.1 | 3.5 |
| 2855 |  | $\begin{aligned} & \text { GM 2A } \\ & \text { WBR P12 (5) } \end{aligned}$ | Impression on amphora | 4 | Persian | Unclear |  |  |  |  |

different fields and different periods attested in the site. Nineteen come from Field III, 7 come from Field I, 9 from Field I KB, 4 from Field II, and 28 from Field IV (15 are general surface finds). Those from Field III are dated mostly to the MBIIB-C; 14 are from this period (and two possible sealings as well), and of these, 11 come from GMIII C1 (81), Phase 16. Only seven or eight date to the LBII, and none date to the Iron I (although two impressions are possibly dated to this period). Then another cluster comes during the Iron IIA, with at least 14 examples from Field IV, Phases 11-9 (with an additional five unclear fragments; note, however, that more than half do not have impressions preserved). An additional nine sealings come from Field I, Square KB, Phase 2, which may be dated to the Iron IIA or may reflect a mixed Iron IIA-B phase. Only three examples come from good Iron IIB-C contexts, and five examples may be dated to the Persian period or later.

Nevertheless, not many examples come from well-defined architectural contexts or complexes. This is not surprising because most sealings come from Field III, Phase 16 and Field IV, Phases 11-9 (six to eight examples come from a unit denoted as Room D* in Phase 9, but the nature of the space is not clear
because of the small exposure in Square 2B). Interestingly, during the LBII, of the few examples from Field I, two come from Room F in Building II. It is clear that the MBIIB is well represented in this assemblage, probably in relation to the many jars and other closed vessels found in Field III, Phases 17-16. There is a decrease in the appearance of sealings during the LBII, especially in light of the large exposure and many phases of occupation. Thence, the most numerous examples come from the Iron IIA in two locations: Square KB in Field I and a trench Square 2B in Field IV. This number is especially striking in light of the small exposure of this period (although appearing in three phases at the site). Possibly similarly striking is the lack of clay sealings from the Iron IIB-C levels in Field IV (Phases 8-5), including the vaulted Building I and other buildings adjacent to it. The possible implications of this phenomenon will be discussed below.

Clay sealings are a rather fragmentary item; for that reason it is more likely that most items found within a certain phase were used or discarded during the period of the phase rather than redeposited in mud brick, for example (although this cannot be ruled out). On the other hand, the stamp seal used to make the
impressions could have been much older. Indeed, this is evidenced by some of the stylistic dating of the seal impressions. This phenomenon is well known, especially the use of MBIIB scarab seals during the Iron Age (e.g., Brandl, 1993a:130-131, no. 2; Avigad, 1997:31-40). At Tell Jemmeh, for example, of the 15 impressions dated to the MBIIB-C, 8 come from MBIIB-C contexts, 2 from LBII, and 1 from an Iron IIA context; of the LBII dated impressions, 2 come from LBII contexts and 2 from Iron IIA contexts. Nevertheless, it seems that during both the MBIIB and the Iron IIA most impressions were not made by very old seals.

## CHARACTERISTICS OF THE SEALINGS AND THEIR SUGGESTED FUNCTIONS

Sealings are made of clay, usually of a type that seems similar to that of pottery vessels. In most cases the clay is rather
hard and seems to have encountered some heat, baking or at least sun drying. Some examples have a dark soot color (Figures 20.1f, 20.2b). Several examples seem to be actually fired (as in Figures 20.1e, 20.2a, reddish in color, and Figure 20.4f, brown) and are very hard. It is difficult to imagine how these objects were fired when attached to the vessels or objects they sealed, unless the firing was after discard because of a fire at the site or as a postdepositional effect.

Generally, the description of the morphological characteristics of the sealings, their mode of application to the vessels, and the nature of other bonding materials such as strings, thread, and textiles should be attempted according to the more complete examples (actually, no entirely complete examples were found at Tell Jemmeh). It is, however, difficult to reconstruct the way these items were sealing the sealants even if they are complete as they are found detached from the sealant and the additional organic sealing materials (see various suggestions in Brandl, 1993a,


FIGURE 20.1. Sealings from MBII contexts (GMIII C1 (81)).


FIGURE 20.2. A selection of sealings with and without impressions.

2006, 2009, 2010b; Arie et al., 2011; see also Marcus, 1996:1216). It is not yet clear whether the morphological characteristics of these objects are chronologically or culturally indicative during the Bronze and Iron Ages in the Levant.

According to the shape of the sealing fragments, several sealing types can be suggested. The rounded sealing is possibly the most common (e.g., Figures 20.1d-f, 20.2c and Reg. Nos. 1191, $2170,2172,2174,2182)$. Complete, they would measure at least 5 cm in diameter and have a lower rounded side, which was attached to the sealed object (see, e.g., Tel Miqne, Ben-Shlomo, 2006b:137). This side often shows impressions of string, textile, or other materials (see Figure 20.1d). As the clay enveloped the string on some fragments, one can see string imprints going from the sides (Figure 20.1e) and in several directions (see, e.g., Figures $20.2 \mathrm{~g}, 20.3 \mathrm{~b}$ ). The upper part, worked with the fingertips (see fingerprints, e.g., in Figure $20.1 \mathrm{~d}, \mathrm{~g}, \mathrm{i}$ ), was stamped when wet, often several times. In some cases the center of the clay lump was pushed upward to facilitate the impression on the seal on top (Figure 20.3a). This seems to be a common type of sealing at Tel Miqne as well (Ben-Shlomo, 2006b). A somewhat similar sealing was published from Batash, Stratum IXA (Brandl, 2006:216217, fig. 20), dated to the LBI. This type of sealing may have been used to seal boxes, chests, or sacks (see, e.g., Beth Shean, Brandl, 2009: figs. $12.25,12.26,12.29$ ).

Another type of sealing is a flatter one (Figures 20.1h,i, 20.2a,e, possibly Figure 20.3b), showing also the clay enveloping the string and some textile imprints on the underside (see Figure 20.1i); most examples are from the MBIIB-C. Possibly, these were fragments of larger sealing type, or they sealed flat objects such as boxes (as the section of Figure 20.1i seems to imply); a direct imprint of a box is seen possibly on Reg. No. 2183 on the edge only. Some fragments are flattened on their perimeter (as Figure 20.6a), but it is not clear what vessel they were attached to.

An object from Field III, Square C1, Layer 81 (Figure 20.1a-c) has straighter sides, and its shape is more like a box; about half of it preserved. The three sides (two side faces and the upper face) are impressed by the same scarab seal and in the same orientation (see below). Another sealing fragment from the same context (Figure 20.1d) has an impression of the same seal, and although the objects do not combine, they could be still part of the same box-shaped sealing, which may have been impressed on all of its faces (in fact, the box may have been created to facilitate the impressing). Another sealing (Figure 20.6a) has a similar shape and an impression of a different seal, but one carrying a similar motif. Figure 20.3 g (from a Persian context impression style date) also has a box shape; possibly, this was a hanging sealing or a bulla.


FIGURE 20.3. Sealings with impressions from various periods.

Other types of objects are more freestanding. These are lumps of clay with a string going through them (Figure 20.2h, with a cord thickness of 5 mm ; the object is unstamped) or other lumps either impressed or not with some cord impressions on the sides (Figure 20.2e-g). Figure 20.2d is a complete lump that might have been slightly attached to a vessel or was a free-hanging sealing (like a bulla). Other items are of a plano-convex (or domed) shape, without an impression, but with some cord remains (Figure 20.3b and Reg. No. 1200). These may be similar to stoppertype sealings (possibly also Figure 20.1h) that were probably used for plugging a vessel's mouth (see, e.g., Tel Miqne, Ben-Shlomo, 2006b:136, 141, figs. 8, 9). As noted, the hanging sealings or bullae, which are small, rounded, flattened clay lumps attached on a hanging cord, may be represented by a few examples (e.g., Figure 20.2h); it is difficult to state whether these appear only in later contexts, but the examples from Iron II Field I, Square KB, seem to represent rather small sealings, maybe bullae.

As noted, the undersides of the sealings show various imprints of organic material, most commonly string (e.g., Figure 20.1f,h; a wide cord in Figure 20.1g), textiles (e.g., Figures $20.1 \mathrm{e}, \mathrm{h}, 20.2 \mathrm{~b}$ ), or possibly wood. At least in one case, a papyrus imprint is evident (Figure 20.2i) and comes from an unclear late context. (For such imprints, see, e.g., Stein, 1997a; Ben-Shlomo, 2006b:140 [Miqne]; Brandl, 2010b:209-210, fig. 18.1:1, photo 18.1:1 [Deir el-Balah, the Amarna period].) In other cases the imprint of a vessel, made of clay or stone, can be
seen, at least partly (e.g., Figure 20.1i). It seems that larger clay items, crudely shaped with the fingertips, similar to most of the sealings described above, could have sealed tied papyri as well, as indicated by an example from Tell es-Sa'idiyeh, Stratum XII (Tubb, 1990:28, fig. 11). Also, as the upper part of the sealing, which was impressed, may have not touched the papyrus (see Arie et al., 2011: fig. 2), some impressed fragments of sealings could have, in fact, sealed papyri (see also the so-called combination sealings from Knossos and other sites, attesting both hanging bulla and direct sealing characteristics; Krzyszkowska, 2005:220, ills. 430-435).

The use of clay sealings for direct sealing of sacks by string was introduced already in Syria, Anatolia, and Mesopotamia during the Neolithic period (e.g., Collon, 1990:11-30; Krzyszkowska, 2005:24-28). The earliest important assemblage probably comes from sixth millennium BCE Tell Sabi Abyad (Duistermaat, 1996:339-401). The function of the sealings can be generally reconstructed according to some of these earlier finds (Stein, 1997a: fig. 108; Brandl, 2001:268-269, fig. 17; see also Powell, 2002:237). For sealing of regular pottery vessels (not pithoi) one would probably use finer string and smaller sealings (Stein, 1997a:107; see a reconstruction on a Base Ring juglet, Brandl, 2006: fig. 21). The sealing of a wooden box could be made with a string (Stein, 1997a:107, fig. 110) or directly with the clay itself. Ceramic or other vessels could also be sealed by a clay lid or stopper, formed specifically for
this function. The shape of such stoppers would be rounded, fitting the mouth of the vessel (applied to the vessel when wet or after drying/firing), or like a plug (when applied to the vessel when wet). Such objects were also found in Tell Jemmeh and are discussed in chapter 19 (see Figure 19.9; see also in situ examples of sealed stirrup jars from the oil merchant's house at Mycenae, Krzyszkowska, 2005:282-284, 288, ills. 564568). Sealings could also be used to seal doors, a very ancient tradition in the Near East (see, e.g., Marcus, 1996:12-13, figs. 5, 6; Stein, 1997a:112-114, fig. 118); the clay could be attached to the door knob/lock, the door itself, or a string attached to the door (Stein, 1997a: fig. 111).

Generally, the sealings and the seal impressions on them were meant to identify, authenticate, and/or protect the contents on the sealed objects; in the case of door sealings, the impressions could also indicate the occasion on which the door was previously sealed (i.e., delivery or distribution of goods and by whom). Thus, the functions of the sealings were basically to seal containers with various contents or objects (such as letters) either for technical reasons (e.g., better preservation) or for administrative reasons (i.e., to achieve a certain control over their use and distribution). The recording representing the administrative aspect of these items is evidenced by the seal impressions on the sealings (see below). In many cases two or three (or more) identical impressions can be seen on the sealing (Figures 20.1a-d, 20.2b). For this practice, see also Tel Miqne, Ashdod, and Gath (Ben-Shlomo, 2006b:144-145, figs. 1-4, 8) and Tell Fakhariyah during the Late Bronze Age (Kantor, 1958b:74, 84-85, pl. 74:I, 1958c:46). Possibly, this practice, which occurs quite often in other periods and sites as well, indicates a specific administrative procedure or tradition or, alternatively, is an attempt to cover more area of the sealing with impressions (see Krzyszkowska, 2005:49). The iconographic aspect of the seal impressions will be elaborated below.

## ICONOGRAPHY: CATALOG OF SEALINGS AND OTHER ITEMS WITH SCARAB SEAL IMPRESSIONS

In this catalog 48 items with seal impressions are described focusing on the iconographic elements appearing in them; 44 are sealings or bullae and four are impressed jar handles. Of these, in at least 35 examples the impression has recognizable motifs, and in most of these cases, the seal impressing the object can be dated stylistically. Note that in many cases the date of the seals is several hundred years before the date of the context of the sealing and its probable usage. The items are ordered according to registration numbers.

These items are also listed in the Corpus der StempelsiegelAmulette aus Palästina/Israel von den Anfängen bis zur Perserzeit (Keel, 2013:70-91, Gamma 161-Gamma 206). The system of references is as follows: The description of the features of the scarab, head, back, and side, for example, B2/0/e9, follows the classification system of Tufnell (1984:31-38), Keel (1995:74-114), and Eggler and Keel (2006: XVI). The symbol $\mathbb{S}+$ number, for example, $\mathbb{\$ 1 2 8}$, refers to the relevant paragraph in Keel (1995).

Place-name + number, for example, Afek (Aphek) no. 45, refers to the corresponding entry in $\operatorname{Keel}(1997)$ for sites beginning with A, Keel (2010a) for sites from B to E, or Keel (2010b) for sites beginning with F. The place-names are written in German since these are quotations. Letter + number, for example, M16, refers to the "List of Hieroglyphic Signs" in Gardiner (1957:438-548).

## Sealings

Reg. No. 1183 (SI Cat. No. 959, Figure 20.4a). Context: GM (+). Sealing with an almost complete impression (\$292-298) of a scarab, the two small sides are missing, linear engraving, baked light brown clay, $25 \times 22 \times 12 \mathrm{~mm}$, the impression is $19 \times 12 \mathrm{~mm}$ (Keel corpus: Gamma 161). Impression: Three double lines form two registers; each one contains a row of schematic $z 3$ "protection" signs $(\$ 445.465)$ in mirror arrangement; at the top and the bottom one more zs in mirror arrangement, each framed by two double right angels $q n b t(\$ 460)$; the design is very typical of the late Middle Kingdom; see Kahun (Petrie, 1891: pl. 10,185) and Kerma (Reisner, 1955: figs. 9:220, 10:224f; cf. Ben-Tor, 2007: pl. 13:25,30,34f,51, Egyptian import). Date: End of the 12th-13th Dynasties (ca. 1820-1630 BCE).

Reg. No. 1184 (SI Cat. No. 961, Figure 20.4b). Context: GM $(+)$. Fragmentary stopper of a vessel with impression ( $\$ 317 \mathrm{f}$ ) of an oval seal, most likely a scarab, the design is heavily disturbed by fingerprints, hollowed-out engraving, clay, the stopper is 24 $\times 20 \times 15 \mathrm{~mm}$, the impression is $14 \times 11^{*} \mathrm{~mm}$ (Keel corpus: Gamma 162). Impression: Above and below a $n b(\mathbb{S} 45)$ in mirror arrangement(?). Date: 1291-1070 BCE.

Reg. No. 1185 (SI Cat. No. 710, Figure 20.4c). Context: GM $(+)$. Fragmentary stopper of a vessel with impression ( $\$ 317 \mathrm{f}$ ) of a probably rectangular seal $(\mathbb{\$} 218,220-224)$, the engraving is hollowed out, clay, stopper $23 \times 20 \times 9 \mathrm{~mm}$, the impression 12 $\times 12 \mathrm{~mm}$ (Keel corpus: Gamma 163). Impression: Horizontally arranged design; to the left (on the original to the right) is a cartouche ( $\$ 462$ ) with $N b-m)^{c} t-r^{c}$, the throne name of Amenhotep III $(\$ 634,663)$; to the right (on the original to the left) is $m r y$ Jmn- $r^{c}$, "beloved by Amun-Re"; for a rectangular plaque with the throne name of Amenhotep III and mry Jmn, see Hall (1913: no. 1803); for the same but with mry Pth instead of mry Jmn-r', see Keel (1995:90, fig. 153). Date: Time of Amenhotep III (1390-1353 BCE) or a little later.

Reg. No. 1186 (SI Cat. No. 909, Figure 20.4d). Context: GM (+). Fragmentary sealing (\$292-298), an oval seal, most likely a scarab, about two-thirds of the impression are preserved, the engraving is linear with hatching, gray clay, the sealing is $35 \times 26$ $\times 13 \mathrm{~mm}$, the impression is $18^{*} \times 16 \mathrm{~mm}$ (Keel corpus: Gamma 164). Impression: Human figure striding to the left on a $n b(\$ 458)$; the figure has a short apron; the arm in front holds a branch; the figure is flanked by trees or large branches; for striding figures holding a branch, see Keel (1995: $\$ 561$ ) and Eggler and Keel (2006: Tall al-'Umeiri no. 48); for a branch behind the figure, see Nahal Tavor (Keel, 1995:204 fig. 390); there is no exact parallel

g
h

FIGURE 20.4. Seal impressions on sealings.
for all the elements of the design; local production; twisted strand (Tufnell, 1984: pl. 34). Date: MBIIB (ca. 1650-1500 BCE).

Reg. No. 1187 (SI Cat. No. 960, Figure 20.4e). Context: GM (+). Fragmentary sealing ( $\$ 292$-298) with an impression of an oval seal, most likely a scarab, about one-half of the impression is preserved, linear engraving with hatching, gray clay, the sealing is $42 \times 31 \times 13 \mathrm{~mm}$, the impression is $11 \times 11 \mathrm{~mm}$ (Keel corpus: Gamma 165). Impression: Horizontally arranged design; a nbw, "gold," sign $(\$ 458)$ and a bee $(\$ 450)$ above it; to the left of the bee was probably a $s w t$, "plant" ( $\$ 462$ ), forming with the bee the title nswt-byty, "king of Upper and Lower Egypt" (\$468); to the right ' $n \mathrm{~h}$, "life" $(\$ 449)$; to the left was probably a second $n$; if the proposed complements are correct, the design has an exact parallel in Tell el-‘Ağul ('Ajjul) no. 753, Tell el-Far'ah-South no. 63, Gezer (Giveon, 1985:112, no. 6), and Lachish (Tufnell, 1958: pls. 30:65, 32:79); see, however, Afek (Aphek) no. 20 with a $n f r$ instead of a second ' $n$ b; local production. Date: MBIIB (ca. 1650-1500 BCE).

Reg. No. 1188 (SI Cat. No. 964, Figure 20.4f). Context: GM (+). Almost complete sealing ( $\$ 292-298$ ) with a complete impression of an oval seal, linear engraving, gray clay, impression $18 \times 14$ mm (Keel corpus: Gamma 166). Impression: The legibility of the
design is extremely difficult to decipher and as a result is open to interpretation. The drawing is not entirely convincing; in the center probably a uraeus $(\$ 511,529)$ directed to the left; its tail frames a circle; behind the uraeus is an $w d 3 t$, "eye" ( $\$ 464$ ), beneath it a small bar and a second circle; in front of the uraeus rectangular elements and beneath them an inverted $z 3(\$ 465)$; at its left an ' $n b(\$ 449)$; some of these elements are found on scarabs of the so-called Neo-hyksos group described by Keel (2003); for the uraeus, see, for example, Tell el-Far'a (S) no. 313, Gaza no. 6, Geser no. 17, Tyrus (Gamer-Wallert, 2004:406f, fig. 268); for the $w d s t$, "eye," see Tell el-Far'a-(S) no. 315. Date: Probably Iron IIB (830-700 BCE).

Reg. No. 1189 (SI Cat. No. 965, Figure 20.4g). Context: GM $(+)$. Fragmentary sealing ( $\$ 292-298)$ with an impression of an oval seal, about half of the impression is preserved, linear engraving as far as it is visible, gray clay, sealing $26 \times 15 \times 8 \mathrm{~mm}$, the preserved impression is $10 \times 5 \mathrm{~mm}$ (Keel corpus: Gamma 167). Impression: The only clearly visible elements of the design are three parallel lines.

Reg. No. 1190 (SI Cat. No. 963, Figure 20.4h). Context: GM $(+)$. Fragmentary sealing ( $\$ 292-298)$ with an impression of an
oval seal, the impression is almost complete, to the right is missing part of the small side, hollowed-out engraving with hatching, gray clay, sealing $15 \times 15 \times 5$, impression $13 \times 12 \mathrm{~mm}$ (Keel corpus: Gamma 168). Impression: The impression was most likely made with a bone seal ( $\$ 139$-142); a figure directed to the left is in a worshipping posture: one hand raised in adoration, one hanging down behind the body. In front of the figure is a vertical line; the figure is worshipping a cartouche; for the meaning of the signs within the cartouche, see Dan no. 30 (for the figure worshipping a cartouche, see Beth Shemesh no. 215 with parallels from Gezer and Kinneret; Tell el-Far`a-South nos. 231, 347; two cartouches, one beside the other, are on Akko no. 164; Tell el-Far'a-South no. 884; Jerusalem: Keel, 2007:343f, fig. 241). A worshipping figure between two cartouches as on the present seal is unusual; for the political significance of this group, see Keel (2007:341-344); Avigad and Sass (1997: no. 256) show a worshipper in bone seal style in front of a private name (mtn). Date: Iron IIA (ca. 920-830 BCE).

Reg. No. 1191 (SI Cat. No. 958, Figure 20.3d). Context: GM $(+)$. Fragmentary sealing ( $\$ 292-298$ ) with an impression of an oval seal, the impression is almost complete, just a small part on right is missing, hollowed-out engraving, brown clay, sealing 22 $\times 18 \times 12 \mathrm{~mm}$, impression $13 \times 10 \mathrm{~mm}$ (Keel corpus: Gamma 169). Impression: To the left a striding schematic human figure, the right arm hangs down along the body, the left arm in front is bent and holds a staff with an oval ending. To the right is a coitus à tergo group: the woman is bending down, one hand placed on the earth, the other raised. The figure behind with his phallus penetrating seems to be an animal standing on its hind legs; the front paws rest on the woman. A similar scene with a donkey on a woman is from Jerusalem, Israel Museum inventory no. 76.31.4382. Texts noting the obscene curse "may the donkey copulate with him" are well known in the Third Intermediate period or even the New Kingdom (cf. Te-Velde, 1967:56; Janssen, 1968:167, 171). For two human beings in the same position, see Dor no. 28 with parallels therein; on Naukratis, see Gardner and Griffith (1888: pl. 18:47), the female partner seems to be an animal; the coitus à tergo group is found already in the MBIIB; see Keel (1995: $\$ 601$ ). Date: Probably Iron IIB-C (830-600 BCE).

Reg. No. 1192 (SI Cat. No. 836, Figure 20.7f). Context: GM (+). Fragmentary bulla with an impression ( $\$ 292-298$ ) of a most likely oval seal, about one-third of the impression seems to be preserved, hollowed-out engraving, clay, dimensions of the bulla $15 \times 10 \times 4 \mathrm{~mm}$ (Keel corpus: Gamma 212). Impression: A disk $(\$ 461)$, a kind of flower $(\$ 429)$, and a straight line. Date: Uncertain.

Reg. No. 1196 (SI Cat. No. 761, Figure 20.5a). Context: GM (+). Fragmentary sealing ( $\$ 292-298$ ) with an impression; gray clay; sealing $35 \times 30 \times 18$, impression $15 \times 10 \mathrm{~mm}$ (Keel corpus: Gamma 171). Impression: Impression of a barrel-shaped bead with a segmented "pineapple" decoration; see bead in Figure 22.4 u (Reg. No. 817), which fits the impression.

Reg. No. 1198 (Figures 20.2g, 20.5b). Context: GM 1B (11) 3, unclear. Fragmentary sealing with an impression (\$292-298) of an oval seal, one-third of the impression is preserved, gray clay, sealing $23 \times 15 \times 17 \mathrm{~mm}$, impression $6 \times 9 \mathrm{~mm}$ (Keel corpus: Gamma 172). Impression: Two parallel slightly bent lines, an oval, remains of a further sign; there is a slight possibility that it was the composition of $h \mathrm{prr}$, "scarab" $(\$ 428.454 .516)$, flanked by two uraei ( $\$ 524$ ); compare to Bet-Shean no. 178, Tell el-Far`aSouth no. 693, and Gezer no. 4. Date: If the scarab-uraei motif is assumed, probably 19th-20th Dynasties (1292-1070 BCE).

Reg. No. 1202 (SI Cat. No. 432, Figure 20.2d). Context: GMI 5E (2), unclear. Almost complete sealing with complete impression ( $\$ 292-298$ ) of an oval seal, most likely a scarab, the design is very faintly impressed, the engraving looks linear, gray, partly reddish clay, sealing $43 \times 28 \times 17 \mathrm{~mm}$, impression $16 \times 11 \mathrm{~mm}$ (Keel corpus: Gamma 173). Impression: The only clearly recognizable element is a loop that could be a schematic $z$, "protection," sign (\$445, 465). Date: Probably MBIIB (ca. 1650-1500 BCE).

Reg. No. 1203 (SI Cat. No. 953, Figure 20.1d). Context: GMIII C1 (81), Phase 16, MBIIB-C. Fragmentary sealing with almost complete impression ( $\$ 292-298$ ) of an oval seal, most likely a scarab, at the top right a smear, hollowed-out engraving, gray-greenish clay, sealing $19 \times 12 \times 9 \mathrm{~mm}$, impression $15 \times$ 11 mm (Keel corpus: Gamma 174). Impression: Striding anthropomorphic figure with falcon head facing left, wearing a knee-length apron, the arm behind hangs down along the body; the arm in front is bent and holds a lotus flower with a long stem/ stalk with some leaves. The figure stands on a $n b$ sign $(\$ 458)$.

The three impressions (Figure 20.1a-c, Reg. Nos. 1214a-c) are most likely made with the same seal; for parallels, see $\$ 587$ and, particularly, Aphek no. 52, Tell el-‘'Aǧul ('Ajjul) nos. 278, 1058, Bet-Shean no. 220 (with additional nfr), Tell el-Far‘aSouth no. 440, Lachish (Tufnell, 1958: pl. 32/33:130; with additional $n f r$ ), and Shechem (Rowe, 1936: no. 293; without $n b$ ). Date: MBIIB (ca. 1700-1500 BCE).

Reg. No. 1204 (SI Cat. No. 1009, Figure 20.5c). Context: GMIII C1 (81), Phase 16, MBIIB-C. Fragmentary sealing with impression of an oval seal ( $\$ 292$-298), most likely a scarab, about half of the impression is preserved, hollowed-out engraving, clay, sealing $19 \times 12 \times 9 \mathrm{~mm}$, impression $15 \times 9 \mathrm{~mm}$ (Keel corpus: Gamma 175). Impression: Probably kneeling anthropomorphic figure with falcon head facing left; the arm behind the body seems to be bent at hip height; the arm in front is bent and holds a lotus flower; behind the falcon head is a cobra ( $\$ 522$ ). According to the parallels (Tell el-‘Aǧul ['Ajjul] nos. 48, 512, 953 and Megiddo [Loud, 1948: pls. 152, $206=$ Keel, 1995:228, fig. 523]), the falcon head was flanked by two cobras ( $\$ 619$; see also \$525). Date: MBIIB (ca. 1700-1500 BCE).

Reg. No. 1205 (SI Cat. No. 1112, Figure 20.5d). Context: GMI KB F10, Phase KB2, Iron IIB-C. Fragmentary sealing with fragmentary impression ( $\$ 292-298$ ) of an oval seal, the impression


FIGURE 20.5. Seal impressions on sealings.
is faint, the clay is dark gray; sealing $21 \times 20 \times 8 \mathrm{~mm}$, impression $12 \times 10 \mathrm{~mm}$ (Keel corpus: Gamma 176). Impression: The only clearly recognizable element is an almost square rectangle; a similarly rudimentary design is found at Tel Halif (Borowski, 1991:91f = Borowski, 1994:50); see also Beth-Shean nos. 60, 171, Tell el-Far'a-South no. 402, Eggler and Keel (2006: Wadi al-Feidan no. 2 = Münger, 2005:470, fig. 37A). Date: Probably Iron IIA (980-830 BCE).

Reg. No. 1206 (SI Cat. No. 1114, Figure 20.3f). Context: GMI KB (26) 5, Phase KB2, Iron IIB ( $830-700$ BCE). Fragmentary bulla with an impression ( $\$ 292$-298) of a seal of indistinct shape, engraving linear, clay, dimensions of the bulla $20 \times 15 \times 9$ mm (Keel corpus: Gamma 213). Impression: One is tempted to interpret the lower part as an anthropomorphic figure with calflength cloth striding to the left; in front of the figure the lower part of a staff. However, this is not a preferred interpretation: see, for example, the straight line parallel to the left foot. Date: Uncertain.

Reg. No. 1207 (SI Cat. No. 1111, Figure 20.5e). Context: GMI KB P2, Phase KB2?, Iron IIB-C? (800-600 BCE). A truncated
cone-shaped sealing with impression ( $\$ 292-298$ ) of an oval seal, about two-thirds of the impression preserved, hollowed-out engraving, unfired gray clay, sealing $20 \times 17 \times 10 \mathrm{~mm}$, impression $13 \times 8 \mathrm{~mm}$ (Keel corpus: Gamma 177). Impression: Lying sphinx facing left with sbity, "double crown" (\$461), and ceremonial beard; the face of the sphinx is somewhat unusual; in front of the sphinx a crouching, probably falcon-headed figure; behind the sphinx remains of a wing, belonging to a winged uraeus. For similar sphinxes, see Ashdod no. 34, Beth Shemesh no. 115, Tell el-Far`a-South nos. 492, 494f, 571f, Megiddo (Loud, 1948: pl. 152:175); for a similar sphinx without other elements except a $n b$, see Ekron no. 58. Date: 19th-20th Dynasties (1292-1070 BCE).

Reg. No. 1209 (SI Cat. No. 1119, Figure 20.5f). Context: GM 2B (64), Phase 11, Iron IIA. Fragmentary sealing with fragmentary impression ( $\$ 292$-298) of an oval seal, most likely a scarab, about one-third of the impression is preserved, linear engraving, dark gray clay, sealing $28 \times 9 \times 11 \mathrm{~mm}$, impression $20 \times 6 \mathrm{~mm}$ (Keel corpus: Gamma 178). Impression: Scroll border of oblong, hooked scrolls ( $\$ 508$ ). For the way the scrolls are joined at the top and the bottom, see Jericho (Kirkbride, 1965:616, fig. 290:13), Lachish (Tufnell, 1958: pl. 34:143); the
only recognizable element beside the scroll border is a $b(\$ 453)$ at the bottom; see Jericho (Kirkbride, 1965:626, 650, figs. 294:8, 302:14). Date: MBII (1700-1500 BCE).

Reg. No. 1210 (SI Cat. No. 1019, Figures 20.1h, 20.5g). Context: GMIII F2 (13), Phase 17, MBIIB. Fragmentary sealing with fragmentary impression ( $\$ 292-298$ ) of an unusual seal that left traces of two ovals, hollowed out engraving, gray-greenish clay, sealing $28 \times 24 \times 10 \mathrm{~mm}$, impression $9 \times 7 \mathrm{~mm}$ (Keel corpus: Gamma 179). Impression: Clearly recognizable is a $n b$ ( $\mathbb{\$ 4 5 8}$ ) at the bottom of one of the ovals and above it a fish-like design. Date: Unclear.

Reg. No. 1211 (SI Cat. No. 1010, Figure 20.5h). Context: GMIII C1 (81), Phase 16, MBIIB-C. Fragmentary stopper of a vessel with impression ( $\$ 317 \mathrm{f}$ ) of a seal of unclear shape, just part of the impression is preserved, gray clay, stopper $22 \times 19 \times 7 \mathrm{~mm}$, impression $11 \times 10 \mathrm{~mm}$ (Keel corpus: Gamma 180). Impression: Between two parallel double lines the legs of a striding figure. Date: MBIIB (1650-1500 BCE).

Reg. No. 1212 (SI Cat. No. 1024, Figure 20.6a). Context: GMIII C1 (81), Phase 16, MBIIB-C. Sealing from a box with fragmentary impression ( $\$ 317 \mathrm{f}$ ) of an oval seal, most likely of a scarab, about half of the impression is preserved, hollowed-out engraving with hatching, gray clay, sealing $17 \times 16 \times 9 \mathrm{~mm}$, impression
$12 \times 10 \mathrm{~mm}$ (Keel corpus: Gamma 181). Impression: Falconheaded figure facing left, wearing a knee-length apron, the left arm hangs along behind the body, the right arm in front is bent and holds a branch; the figure may have been striding ( $\$ 586$ ) or more probably kneeling ( $\$ 618$ ). For the striding version, see Tell el-‘Aǧul (‘Ajjul) no. 1050; for the kneeling version, see Tell el-'Aǧul no. 156, Megiddo (Loud, 1948: pl. 164:6). Date: MBIIB (1650-1500 BCE).

Reg. No. 1213 (SI Cat. No. 1108, Figure 20.6b). Context: GMI KB F8, Phase KB2?, Iron IIB-C? Sealing with impression (\$292298) of a nearly circular seal, probably a scaraboid, the impression is nearly complete, hollowed-out engraving with hatching, light gray clay, sealing $17 \times 15 \times 6 \mathrm{~mm}$, impression $9 \times 8 \mathrm{~mm}$ (Keel corpus: Gamma 182). Impression: Two schematic human figures; the figure to the right has one arm hanging down along the body, the "inner" arms join each other, the figure to the right has one arm raised. Two similar figures are found on Beth Shemesh no. 31, Ekron nos. 59 and 65, Tell el-Far a-South no. 119 and at Gezer (Macalister, 1912: pl. 206:5) and Lachish (Tufnell, 1953: pl. 44:68-69). Mazar (2003:126-132) interprets this and similar groups with three persons as representing ritual dancing. Date: Iron IIA (980-830 BCE). Bibliography: Van Beek (1986:55).

Reg. Nos. 1214a,b,c (SI Cat. No. 1020, Figure 20.1a-c). Context: GMIII C1 (81), Phase 16, MBIIB-C. A roughly square


FIGURE 20.6. Seal impressions on sealings.
clay lump, like part of a hollow cube broken diagonally, with a scarab impression (of the same scarab) on each of the three preserved faces, each partially missing, hollowed-out engraving with hatching, sealing $22 \times 20 \times 18 \mathrm{~mm}$, complete impression 15 $\times 11 \mathrm{~mm}$ (Keel corpus: Gamma 183-185). Impression: Striding anthropomorphic figure with falcon head facing left, wearing a knee-length apron, the left arm behind hangs down along the body, the arm in front is bent and holds a lotus flower with a long stem/stalk with some leaves (compare Tell el-‘Aǧul no. 278); the figure stands on a $n b \operatorname{sign}(\$ 458)$; the impression in Reg. No. 1203 was most likely made with the same seal, although as the stamp seal impressed the clay at different angles and different pressure was applied for each impression, the three impressions do not look identical; for parallels, see Reg. 1203 (Figure 20.1d). Date: MBIIB (1650-1500 BCE).

Reg. No. 1215 (SI Cat. No. 1118, Figure 20.3e). Context: GM 2B (63), Phase 10, Iron Age IIA. Sealing with impression (\$292298) of an oval seal, about one-third of the impression is preserved, dark gray clay, sealing $16 \times 14 \times 9 \mathrm{~mm}$, impression $8 \times 5$ mm (Keel corpus: Gamma 186). Impression: Five parallel vertical lines meet in a right angle, a horizontal line with a bend on the right; compare Reg. No. 1196 (Figure 20.5a) with parallels therein. Date: Uncertain; probably late Early Iron IIA to beginning of Iron IIB (900-800 BCE).

Reg. No. 1217 (SI Cat. No. 1121, Figure 20.6c). Context: GM 2B (64), Phase 11, Iron Age IIA. Fragmentary sealing with fragmentary impression ( $\$ 292-298$ ) of a seal whose shape remains unclear and whose impression is very poorly preserved, clay, sealing $17 \times 13 \times 8 \mathrm{~mm}$, impression $12 \times 11 \mathrm{~mm}$ (Keel corpus: Gamma 187). Impression: Besides three circles, one with a line, and a snakelike line, nothing is recognizable; approximately similar are Tell el-Far'a-South nos. 367, 629 and Jerusalem, Gihon excavations directed by R. Reich und E. Shukron, registration numbers 18706, 26095, 26099. Date: Uncertain, probably between the end of the LBIIB and the Iron IIA (1200-830 BCE).

Reg. No. 1218 (SI Cat. No. 1113, Figure 20.6d). Context: GMI KB F9 (2), Phase KB2; Iron Age IIB-C. Fragmentary sealing with fragmentary impression ( $\$ 292$-298) of an oval seal, probably a scarab (Keel corpus: Gamma 188). Impression: Recognizable is an arm and below it a $b \mathrm{pr}(\$ 454,516)$; to the right of both a straight vertical line; an arm with a scarab below are found in the throne name of Haremhab, Dsr-hprw $r^{c}(\$ 634,663)$; see Lachish (Hall, 1913: nos. 1975-1977, 1981-1985; Tufnell, 1958: pls. 39, 357). Date: Time of Haremhab (1319-1292 BCE).

Reg. No. 1219 (SI Cat. No. 1110, Figure 20.3c). Context: GM 2B (59), Phase 9, Iron IIA. Fragmentary sealing with fragmentary impression ( $\$ 292-298$ ) of a nearly round seal, probably a conoid or scaraboid, hollowed-out engraving with drill holes, light gray clay, sealing $15 \times 14 \times 10 \mathrm{~mm}$, impression $11 \times 9^{*}$ mm (Keel corpus: Gamma 189). Impression: Standing quadruped facing left with short, straight horns and short tail, possibly
a goatlike animal (\$518-521); to its left a disk, maybe a sun disk ( $\$ 461$ ); above the back of the animal an unclear motif, possibly a scorpion. A caprid with a disk in front appears in Beth Shemesh no. 51; all three elements (goatlike animal, disk, and scorpion) are found on Beth Shemesh no. 161, although in a different arrangement; for a different interpretation of the element above the back of the animal, see Dor No. 2; for the style of the engraving, see Lachish (Tufnell, 1953: pl. 43A/44:96). The impression indicates an engraving technique with a drill typical of "rock crystal" or hard stone stamp seals such as a crystal quartz seal from Tell Jemmeh (see Figure 27.7d, Gamma No. 210, Reg. No. 1237). Date: Iron IIA (980-800 BCE). Bibliography: Van Beek (1986:55, fig. 24, to the right).

Reg. No. 1220 (SI Cat. No. 1122, Figure 20.6e). Context: GMI KB (33) 7, Phase KB3, Iron IIA. Fragmentary sealing with fragmentary impression ( $\$ 292-298$ ) of a probably oval seal, hollowed-out engraving, sealing $22 \times 12 \times 9 \mathrm{~mm}$, impression $15 \times 12 \mathrm{~mm}$ (Keel corpus: Gamma 190). Impression: Schematic human figure with arms and legs spread downward; a very close parallel is Eggler and Keel (2006: Umm al-Bayyara no. 2); a figure in this position flanking a tree was found at Tel Rehov (Keel and Mazar, 2009: figs. 1, 2, 19). Date: Late Iron IB-IIA (1100-830 BCE).

Reg. No. 1221 (SI Cat. No. 1015, Figure 20.1i). Context: GMIII C1 (81), Phase 16, MBIIB-C. Fragmentary sealing with fragmentary impression ( $\$ 292-298$ ) of a probably oval seal, the impression is faintly impressed and only about one-third preserved(?), smeared on one side, engraving linear, gray-greenish clay, sealing $25 \times 21 \times 7 \mathrm{~mm}$, impression $12 \times 5 \mathrm{~mm}$ (Keel corpus: Gamma 191). Impression: The impression seems to have some similarity to the lower part of the "convoluted coils" design ( $\$ 495-499$; Tufnell, 1984: pls. 24, 25:2055-2132) with an almond-shaped element at the upper and lower ends; inside the almond-shaped element there are four double curves/arcs/bows based on the contour line of the almond-shaped element; compare Tell el-'Aǧul ('Ajjul) nos. 116, 693, 1179 (Ben-Tor, 2007; pl. 89:11,13,14); local. Date: MBIIB (1700-1500 BCE).

Reg. No. 1222 (SI Cat. No. 1004, Figure 20.3a). Context: GM 2A (29), Phase 7, Iron IIB, outside Building III. Sealing with impression ( $\$ 292$-298) of a nearly circular although somewhat square seal, partly hollowed-out, partly linear engraving, graygreenish clay, sealing $26 \times 19 \times 9$, impression $13 \times 12 \mathrm{~mm}$ (Keel corpus: Gamma 192). Impression: Cross pattern ( $\$ 494$ ); the "cross" is formed by two ladders flanked by simple lines; for these, see Akko no. 164 with parallels and Jerusalem, Gihon excavations directed by R. Reich and E. Shukron, registration nos. 18673 and 18692. The actual impression shows one ladder put on the other; compare to the backs of the private name bone seals in Avigad and Sass (1997: nos. 283 and 322); in the four gussets formed by the cross are four leaflike elements; an example from Lachish (Tufnell, 1953: pl. 44:116) has a "ladder cross" without the flanking lines and with spirals in the gussets; the present composition is rather unusual. Date: Iron IIA (920-760 BCE).

Reg. No. 1223 (Figure 20.2a). Context: GMI 4D (4) 3, Phase 3, Room F, LBII. Fragmentary sealing with fragmentary impression ( $\$ 292$-298) of an oval seal, the impression is almost complete, but faint, part of it made "unreadable" by a crust, on one side slightly damaged by a "piecrust" border, engraving hollowed out, gray-greenish clay, sealing $26 \times 15 \times 5 \mathrm{~mm}$, impression 19 $\times 12 \mathrm{~mm}$ (Keel corpus: Gamma 193). Impression: Convoluted knot-like pattern with central vertical bar (\$499); a particularly close parallel is Tell el-‘Ağul (‘Ajjul) no. 1176; see also Reg. No. 1230 (Figure 20.2b). Date: MBIIB (1650-1500 BCE).

Reg. No. 1224 (SI Cat. No. 717, Figure 20.3g). Context: GMI B WBR (9) 1, Phase 3?, Persian? Bulla or sealing with impression ( $\$ 292$-298) of an oblong oval seal, the impression is faint and blurred at the right end, hollowed-out engraving, light brown clay, sealing $27 \times 13 \times 10 \mathrm{~mm}$, impression $21 \times 9 \mathrm{~mm}$ (Keel corpus: Gamma 194). Impression: Within a rope border in the form of a barred strand $(\$ 513)$ the following elements are recognizable: a striding male figure facing left with a short apron, the arms hanging down along the body, $p(\mathrm{Q} 3)$, forearm with hand holding conical loaf (D37 with X8), meaning $r d y$, "give," or $d y$, "given." The two signs are typical as an element of late period personal names, "the one who is given by" (Ranke, 1935:121126). The two following signs are most likely ' $n h$, "life" ( $\mathbb{\$} 449$; S34), and the column with a tenon at the top (O28), meaning $y w n$, "column," or $y w n w$,"On, Heliopolis"; since $p 3 d y$ is usually followed by the designation of a deity, ${ }^{'} n b<y>y w n w$ has to be understood as such, a known name is $p 3 d y n t$, "given by the living one" (Ranke, 1935:122, no. 20); "the living one" means Hathor-Isis (Erman and Grapow, 1971:201); the name of the deity is often combined with a place-name (Ranke, 1935:122, no. $16 ; 123$, no. $3 ; 125$, nos. $7-9$ ). Re of Heliopolis has the epithet ' $n b<y>$ (Erman and Grapow, 1971:201); $p$ ' $d y^{\text {' } n b<y>y w n w ~}$ possibly means "given by the living one from On, Heliopolis." Date: Late period (664-30 BCE).

Reg. No. 1225 (SI Cat. No. 1016, Figures 20.1f, 20.6f). Context: GMIII C1 (81), Phase 16, MBIIB-C. A hollow domed fragmentary sealing with fragmentary impression ( $\$ 292-298$ ), it remains unclear what kind of seal was used; gray clay, sealing $24 \times 22$ $\times 12 \mathrm{~mm}$, impression $12 \times 12 \mathrm{~mm}$ (Keel corpus: Gamma 195). Impression: A $b p r r$, "scarab" $(\$ 428,454,516)$, flanked by the long tails of two uraei directed inward $(\$ 522,527)$; compare Tell el-‘Aǧul nos. 102, 322, Tell el-Far'a-South no. 609, Lachish (Tufnell, 1958: pl. 32:73), Megiddo (Loud, 1948: pl. 151:114), Koptos (Petrie, 1896: pl. 25:82); for the kneeling falcon-headed deity between the same kind of uraei, see Dotan no. 18 with parallels; local. Date: MBIIB (1650-1500 BCE).

Reg. No. 1226 (SI Cat. No. 1008, Figure 20.1e). Context: GMIII C1 (81), Phase 16, MBIIB-C. Fragmentary sealing with fragmentary impression ( $\$ 292-298$ ) of an oval seal, probably a scarab, broken into four pieces, about half of the impression is preserved, hollowed-out engraving, brown-reddish clay (fired?), sealing $42 \times 30 \times 17 \mathrm{~mm}$, impression $17 \times 13 \mathrm{~mm}$ (Keel corpus: Gamma 196). Impression: Back part of a striding lion facing left;
its tail is raised and bent forward above its back; above the back a uraeus facing left ( $\$ 522$ ); compare Tell el-‘Aǧul no. 1017, Dan no. 3, although the lion is crouching, Lachish (Tufnell, 1958: pl. 35:216). Date: MBIIB (1650-1500 BCE).

Reg. No. 1227 (Figure 20.6g). Context: GMI 2E (4), Phase 3?, LBII. Fragmentary sealing with fragmentary impression ( $\mathbb{2 9 2}$ 298) of an oval seal, probably a scarab, about half of the diagonally broken impression is preserved, hollowed-out engraving, gray clay, sealing $20 \times 15 \times 10 \mathrm{~mm}$, impression $9 \times 7 \mathrm{~mm}$ (Keel corpus: Gamma 197). Impression: Visible elements are a $m n$ ( $(\mathbb{S} 457$ ) and below it a complementary $n(\$ 458)$ as part of the name of the god $<J>m n$, "Amun." Just $J m n$ is exceedingly rare; usually the name is combined with $R^{c}$, "Re," but Re is often written in a very rudimentary way; see, for example, Tell el-'Aǧul (‘Ajjul) no. 233, Tell el-Far‘a-(S) no. 528, and, particularly, Lachish (Tufnell, 1958: pl. 36:248); since on the impression the $m n+n$ are to the left, on the original they had to be on the right, which occurs, although rarely; see Tell el-Far${ }^{〔} a-(S)$ no. 701 and Lachish (Tufnell, 1958: pl. 39:348). Date: 18th-19th Dynasties (ca. 1400-1190 BCE).

Reg. No. 1228 (Figure 20.6h). Context: GMII C1 P2 (2), Phases 2-3, Iron IIB-C. Fragmentary stopper of a vessel with impression ( $\$ 317 \mathrm{f}$ ) of an oval seal, most likely a scarab, approximately one-half of the impression is preserved, the engraving is partly linear, partly hollowed out, gray clay, stopper $22 \times 13 \times 8 \mathrm{~mm}$, impression $11 \times 8 \mathrm{~mm}$ (Keel corpus: Gamma 198). Impression: Remains of a standing figure facing left with a turned up collar typical of the god Ptah; compare Beth Shean no. 83, Tell el-Far ${ }^{\text {a }}$ South no. 456 ; behind the god $n f r(\$ 459)$ and four small horizontal signs below it, possibly nbt3wy, "Lord of the Two Lands," a title usually attributed to the king but sometimes also to gods, for example, to Amun (Tel Eton no. 10, Tell el-Far`a-South no. 228) or to the falcon-headed god, possibly Re-Harachte (Tell el-Far'a-South no. 133 with parallels). For the combination of Ptah and $n f r$, see Tell el-'Aǧul no. 847, Der el-Balah no. 29. Date: 19th Dynasty (1292-1190 BCE).

Reg. No. 1230 (Figure 20.2b). Context: GMI 4D (3) \{77\}, Phase 3, Room F, LBII. Fragmentary stopper of a vessel with impression ( $\$ 317 \mathrm{f}$ ) of an oval seal, most likely a scarab, approximately three-quarters of the impression are preserved, linear engraving, dark gray clay, stopper $20 \times 18 \times 14 \mathrm{~mm}$, impression $14 \times 12 \mathrm{~mm}$ (Keel corpus: Gamma 199). Impression: Convoluted knot-like pattern with central vertical bar ( $\$ 499$ ); the present piece has comparisons in early series items from Megiddo (Loud, 1948: pl. 149:40) and Rishon Leziyyon (Ben-Tor, 2007: pl. 60:21,22) and also a late series item from Tell el-‘'Aǧul ('Ajjul) no. 705; local. Date: MBIIB (1700-1500 BCE).

Reg. No. 2037 (Figure 20.7a). Context: GMI 2F (2), Phase $1 \mathrm{~B} / 3$ ?, LBII. Fragmentary sealing with fragmentary impression ( $\$ 292-298$ ) of an oblong oval seal, probably a cowroid ( $\$ 184$-195), both small ends of the impression are broken, engraving hollowed out, light gray clay, sealing $22 \times 20 \mathrm{~mm}$,


FIGURE 20.7. Seal impressions on sealings and impressions of seals on jar and amphora handles.
impression $13 \times 10 \mathrm{~mm}$ (Keel corpus: Gamma 201). Impression: Hathor fetish ( $\$ 577-579$ ); the neck is flanked by uraei turned outward ( $\$ 523$ ); each has a sun disk above its head; compare Tell el-Far'a-South no. 709, Gezer no. 289 (Macalister, 1912: III, pl. 206:2); see also Tell Abu Hawam no. 24, Akko nos. 146, 212, Ashkelon no. 65, Dan no. 23, Gezer no. 229 (Macalister, 1912: pl. 204a:12), Gezer no. 272 (Macalister, 1912: pl. 205a:10), Hornung and Staehelin (1976: no. 675). For the
design in general, see Keel et al. (1989:139-197). Date: Probably 18th Dynasty from Thutmose III onward until the 19th dynasty (1479-1190 BCE).

Reg. No. 2168 (Figure 20.3b). Context: GM 2B (58A), Phase 9, Iron IIA. Fragmentary domed sealing with fragmentary impression ( $\$ 292$-298) of a nearly circular seal, most likely a conoid, approximately two-thirds of the design are preserved,
hollowed-out engraving, gray clay, sealing $20 \times 12 \mathrm{~mm}$, impression $12 \times 10 \mathrm{~mm}$ (Keel corpus: Gamma 202). Impression: Schematic human figure facing right and holding a branch or a tree with the hand that remains; see Ekron no. 51 with parallels, although the worshipper of Ekron no. 51 is much more detailed; for MBIIB forerunners of the motif, see $\mathbb{\$} 561$. Date: Iron IIB (830-700 BCE)?

Reg. No. 2170 (Figure 20.7b). Context: GM 2B (58), Phase 9, Iron IIA. Fragmentary sealing with fragmentary impression ( $\$ 292$-298) of a seal, which was probably mounted in metal, about half the impression is preserved, fire-blackened clay, sealing $30 \times 20 \times 13$, impression $16 \times 10 \mathrm{~mm}$ (Keel corpus: Gamma 203). Impression: The design is illegible; it may have consisted just of drill holes; see Avigad and Sass, 1997, no. 1144 with parallels). Date: Iron IIB (830-700 BCE)?

Reg. No. 2174 (Figure 20.7c). Context: GM 2B (64), Phase 11, Iron IIA. Very fragmentary sealing with a very fragmentary impression ( $\$ 292-298$ ) of an oval seal, brown-reddish baked clay, sealing $25 \times 15 \times 10 \mathrm{~mm}$, impression $10 \times 4 \mathrm{~mm}$ (Keel corpus: Gamma 204). Impression: The only thing clearly visible is part of the framing line. Date: Unclear.

Reg. No. 2182 (Figure 20.7d). Context: GMI 5D (2), Phase 3, LBII. Fragmentary stopper of a vessel with impression (\$317f) of an oval seal, more than half of it is preserved, but the impression is very faint, gray, fire-blackened clay, stopper $30 \times 13 \times 13 \mathrm{~mm}$, impression $19 \times 9 \mathrm{~mm}$ (Keel corpus: Gamma 205). Impression: Illegible. Date: Unclear.

Reg. No. 2198 (Figure 20.7e). Context: GM (+). Fragmentary sealing with a nearly complete impression ( $\$ 292$-298) of an oval seal, most likely a scarab, just one small end of the impression is missing, hollowed-out engraving, light gray clay, sealing $27 \times$ $20 \times 8 \mathrm{~mm}$, impression $11 \times 8 \mathrm{~mm}$ (Keel corpus: Gamma 206). Impression: In a horizontal arrangement the name of the god <J>mn-ri, "Amun-Re" (\$642f), flanked by two vertical lines; the outer lines form together with the framing line a $n b(\$ 458)$. A comparable design is from Tell el-Fara-South no. 617; a similar design is found on Akko no. 228, Deir el-Balah no. 40, Tell elFar ${ }^{〔}$-South no. 594, although these parallels have two $j$ instead of $n b$. Date: 19th-20th Dynasties (1292-1070 BCE) or somewhat later.

## Stamped Jar Handles

Reg. No. 1231 (SI Cat. No. 1021, Figure 20.7g). Context: GMIII F2 F12, Phase 17, MBIIB. Jar handle with impression (\$299301) of an oval seal, probably a scarab, the impression is complete but faint, light brown clay, handle $65 \times 65 \mathrm{~mm}$, impression $18 \times 12 \mathrm{~mm}$ (Keel corpus: Gamma 200). Impression: Numerous closely spaced signs; the surface seems to be structured by a panel shrine design $(\$ 487)$ flanked at the bottom by two uraei
facing outward; for these elements, see the green jasper scarab group such as En-Naschav no. 1 (Keel, 2010a:572). Date: MBIIB (1700-1500 BCE).

Reg. No. 1193 (SI Cat. No. 113, Figure 20.7h). Context: GM (+). Fragmentary jar handle with two impressions, one beside the other, at the top of the handle, 10 mm from the body (\$299-312), of an oval seal or two seals, respectively; the design is very faintly impressed, gray-greenish clay, handle $55 \times 40 \mathrm{~mm}$, impressions $9 \times 5 \mathrm{~mm}$ (Keel corpus: Gamma 170). Impression: Unclear.

Reg. No. 1232 (SI Cat. No. 312, Figure 20.7i). Context: GM 2C WBR (2), unclear. A large amphora handle with a square seal impression. This handle belongs to an East Greek amphora from Knidos, dated to the mid-4th century BCE (e.g., Whitbread, 1995:68). These amphorae were used for wine. The seal impression shows a monogram that includes three Greek letters (the reading is $\Pi A \Theta$ ) and is typical of Knidian amphorae (see, e.g., Monakhov, 1999) and possibly marks the identity of the wine producer. ${ }^{1}$

Reg. No. 1201. Context: GM 1C EBR P2 (6), Phase 1?, Islamic? A large amphora handle with a fragmentary square seal impression. This is a Persian period amphora, possibly of an East Greek type.

## DISCUSSION

The assemblage of clay sealings and seal impressions from Tell Jemmeh raises several interesting questions. One of them is the uneven appearance of these objects in different periods. Although during the MBII and Iron IIA there are many examples, there is a certain gap during the LBII. Possibly, this phenomenon, partly related to the low documentation at Field I, may also relate to the relatively low level of literacy in the southern Levant during the Late Bronze Age (see Shai and Uziel, 2010:74-78, for a mechanism of "resistance to foreign culture," which, according to them, explains this lack of literacy). This situation changes during the Iron IIA when many sealings appear. As seen at other sits in southern Israel, during the Iron Age there seems to be a rise in the usage of seals for stamping clay sealings and later clay bullae (see discussion in Ben-Shlomo, 2006b). Thus, scarabs were used in this period as stamping objects and not primarily as amuletic objects as in the Late Bronze Age (and therefore the latter were found often in graves). From the examples preserved at the site it seems that the sealing types used in the MBIIB, LBII, and Iron II were similar, and fragments indicate both direct sealings of various types and sealings not attached directly to vessels, possibly bullae.

In relation to the material culture of Philistia, to which Tell Jemmeh belongs, it is noteworthy that on the stamped sealings uncovered so far from Iron Age Philistia, no Aegean-affiliated motifs appear, only Canaanite or Egyptian ones. Because the sealings reflect some sort of administration, either on a small
or large scale, this may indicate that the persons dealing with the administration and responsible for impressing sealings in Philistia were of a non-Philistine origin, maybe of Canaanite origin, or that the Philistines themselves abided the Canaanite traditions regarding the motifs used for impressions of sealings (Ben-Shlomo, 2008c). In any case, this phenomenon indicates commercial and other contacts between the Philistine and Ca naanite populations in Philistia, as this local iconographic syntax was understood by both groups.

The iconographic representations of several of the sealings can be sorted into stylistic groups, as an earlier style is MBII Hyksos-style scarabs (e.g., Figures 20.2a,b, 20.4a, 20.5f), which were also used on later LB-Iron Age sealings. A later style of the later second and early first millennium BCE may be defined as the Canaanite style (e.g., Figures 20.3b, 20.6b,e, Reg. Nos. 1213, 1220, 2168; possibly related to the mass-produced scarab group; see Keel, 1994b:1-54, 1995b:128-129; Münger, 2003, 2005). In this style schematic figures, animals, and daily scenes often appear. Otherwise, the motifs are usually of an Egyptian nature (e.g., Figures 20.1a-d, 20.3g, 20.4b-f, 20.5c-e, 20.6a,d,f-h) or are influenced by such motifs (e.g., Figure 20.4f,h) and are depicted in a way imitating Egyptian motifs. Nevertheless, on only two occasions do pharaoh names appear (Figures 20.4c, 20.6d). Other interesting and unusual motifs that appear are, for example, a scene showing an animal (possibly a donkey) copulating with a woman (Figure 20.3d), dated probably to the Iron IIB-C and maybe indicating a more humorous approach to the issues of impressions on clay sealings. It is difficult to know how the local population treated these images appearing on the sealings, whether they were understood as conveying a certain language or
belief system or were used merely as technical symbols for identifying, for example, different household or officials.

Another noteworthy phenomenon at Tell Jemmeh is the lack of sealings and impressions in the Iron IIB-C administrative buildings built in the Assyrian technique and style. Although the buildings and their surroundings contained many storage vessels and several large clay jar stoppers, no sealings were found. Possibly, this indicates that a different recording system was used in this case. However, one may ask what the different, possibly Neo-Assyrian, sealing and marking methods evidenced at the site are. A few scale weights may represent such an administration (see chapter 23, Figure 23.5). Another possibility is that all seals and sealings related to recording and redistribution were carefully concentrated in another area that was not excavated.

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## NOTE

[^6]
# Nonjewelry Metal Objects David Ben-Shlomo and Ron Gardiner 

## INTRODUCTION

This chapter deals with a selection of metal artifacts such as weapons (spears and arrowheads), tools (points, spatulas, adzes, axes, hoes), blades, and other items (such as pins, nails, hooks, vessels, weights), whereas items that can be worn are discussed in chapter 22 (these include rings, earrings, bracelets, fibulae, and other jewelry).

Altogether, 721 pieces of metal were recovered from the excavation: 438 of bronze or copper alloy (henceforth, the term "bronze" is used for any copper alloy), 276 of iron, 4 of lead, 2 of gold, and several beads and earrings made of silver (discussed in chapter 22). Of these, 444 were recognizable artifacts or fragments of artifacts. The rest were lumps and fragments for the most part too heavily corroded to ascertain if any were also from artifacts. Laboratory tests on various pieces revealed that in most cases, little or no metal survived beneath the corrosion. Thus, it should be noted that this report is somewhat lacking, as most of the objects were not cleaned or treated over the years. In particular, iron items are heavily corroded and often can be classified only in their general morphology, as more detail is unavailable. Therefore, most metal artifacts that came from questionable stratigraphic contexts are not discussed in the report as they are usually not indicative chronologically and culturally.

A selection of 101 items is illustrated and discussed in this chapter (Table 21.1). This material can be divided according to metal or according to type. A combination of these classifications is used here. All items are either copper alloy/bronze or iron except for one gold item and one lead item. In addition, several clay artifacts related to a metal industry were found, including crucible fragments and tuyères, which are discussed with the ceramic finds (Figure 19.11), and a limestone jeweler's mold, which is discussed with the stone objects (Figure 23.8e). Large quantities of slag were found throughout the site, yet only some of it relates to metal industry; several iron slags are illustrated as well.

## TYPOLOGY

Weapons

## Bronze Spears

Three or four bronze spearheads were found, all from Field I, thus probably dating to the LBII; only one of these is complete (Figure 21.1a). This weapon is 12.5 cm long and has a long, narrow, leaf-shaped blade, with a $6-\mathrm{cm}$-wide flat rib, from which the blade thins slightly concavely to very sharp edges. The tip is bent as if from impact or from deliberate bending or "killing" of the spear, after it went out of use. The tang is straight, tapered, and square in section and is 3.5 cm long. LBII parallels come from Batash, Strata VII-VI (Yahalom-Mack, 2006b:199, photo 87) and Deir el-Balah (Dothan and Nahmias-Lotan, 2010c:186, fig. 15.2:1-3). Other large arrowheads or small spears measuring $8-9 \mathrm{~cm}$ long include Figure $21.1 \mathrm{~b}-\mathrm{d}$. Figure 21.1 b is almost complete, with a leaf-shaped blade that is mostly only 1 mm thick and tapers symmetrically to a fine, sharp point and to the base. The blade thickens to a faint central ridge on both sides and into a slight bulge at the base, beyond which is a diamond-sectioned, straight, tapered tang ( 2.5 cm long). The other two (Figure 21.1c,d) are quite similar in their type but less preserved; Figure 21.1c has also a bent blade. Parallels come, for example, from Batash, Strata VI-V (Yahalom-Mack, 2006b: photo 85e,f) and the Dan Mycenaean Tomb (Ben-Dov, 2002:124, fig. 2.91:143).

TABLE 21.1. Selected metal items (sorted according to registry number). Bld = building.

| Reg. No. | SI Cat. No. | Provenance | Description | Phase | Architecture | Period | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 25 |  | GM 1A (10) 7 | Bronze sheet | IV-4 |  | Persian | 21.4 m |
| 30 |  | GM 1A (10) 7 | Bronze sheet | IV-4 |  | Persian | 21.4 n |
| 84 |  | GM 2B (42) 2 | Bronze piece | IV-8 | Room A*? | Iron IIB | 21.40 |
| 97 |  | GM 3B (9) | Bronze piece/nail? | IV-5 | Bld III, Unit 2 | Iron IIC | 21.4h |
| 159 |  | GMIII B F7 9 | Bronze point | III-12B | Unit 8 | LBII | 21.3a |
| 174 |  | GMI 5D (7C) 2 | Bronze point | I-3 | Street J | LBII | 21.3 b |
| 187 |  | GMI 5D (7B) 2 | Bronze point | I-3 | Street J | LBII | 21.3c |
| 195 |  | GMI 4D (4) 4 | Bronze tool | I-3 | Street J | LBII | 21.3 o |
| 196 |  | GMI 4D (4) | Bronze point | I-3 | Room F? | LBII | 21.3 d |
| 202 |  | GMI 4D (3) | Folded bronze sheet | I-3 | Room F | LBII | 21.4j |
| 249 |  | GM 1A (1) 10 | Iron hook | IV-5 | Bld I, Room E | Iron IIC | 21.6d |
| 268 |  | GM 00A (1) 3 | Iron nail(?) | IV-5 | Bld I, Room F | Iron IIC | 21.5n |
| 274 |  | GM 1A (3) 8 | Iron nail, 8 cm | IV-5 | Bld I, Room B | Iron IIC | 21.5 m |
| 315 |  | GM 2B (32) 1A | Iron ball | IV-5 | Bld II, Room A | Iron IIC | 21.6 g |
| 317 |  | GM 2B (35) 1A | Iron piece/tool | IV-5 | Bld II, Room A | Iron IIC | 21.5 i |
| 321 |  | GM 2B (35) 1A | Iron nail | IV-5 | Bld II, Room B | Iron IIC | 21.5j |
| 344 |  | GM 3B (5) | Iron slag | IV-5 |  | Iron IIC | 21.6 i |
| 427 |  | GMII A3 (5) | Large iron nail(?) rod? | II-6 |  | LBII | 21.51 |
| 451 | 943 | GMIII A1 W1 | Large complete iron arrowhead | III-3 |  | Iron IIB-C | 21.2b |
| 459 | 183 | GM 2B (12) | Iron thick point | IV-3? |  | Persian? | 21.5 g |
| 466 | 505 | GM 00B TT1 (1A) | Iron blade fragment | Unknown |  |  | 21.5 d |
| 467 | 83 | GM 2C TT1 (1) 2 | Iron hook | IV-1? |  | Crusader-Mamluk? | 21.6 e |
| 468 | 715 | GM 2C SBR P1 | Iron sheet/point | IV-1? |  | Crusader-Mamluk? | 21.6 f |
| 469 | 3016? | GM 2D (5) | Iron tool/hoe, handle area | IV-3 | Granary | Persian | 21.5 f |
| 472 | 3015? | GM 2D (9) | Iron chisel | IV-3 | Granary | Persian | 21.5h |
| 479 | 81 | GM 2A (3) | Iron sickle blade | IV-2? |  | Persian? | 21.5a |
| 481 | 18 | GM 2B TT1 (2) | Iron forked object | IV-1 |  | Mamluk | 21.6b |
| 482 | 178 | GM 2B (7) | Iron nail, complete, 3.7 cm , head 1.7 cm | IV-1 |  | Mamluk | 21.5 k |
| 493 | 45 | GM 1C P2 (6) | Iron ring/fitting | Unknown |  |  | 21.6c |
| 498 | 223 | GM 2D TT3 (4) | Bronze, small stand/ buckle, cleaned, complete | IV-3 | Granary | Persian | 21.7 d |
| 500 | 327 | GM 2A TT4 | Bronze scale weight, complete, cleaned, 9.289 g | IV-3? |  | Persian? | 21.7 e |
| 502 | 40 | GM 2B TT1 (10) | Bronze rivet with two holes | IV-3? |  | Persian | 21.41 |
| 515 | 17? | GM 1B (1) 1 | Bronze narrow spatula, complete | Topsoil |  |  | 21.3s |
| 517 | 91 | GM 2C TT1 (4) 2 | Bronze spatula, complete | Post IV-3 |  | Persian | 21.3 t |
| 521 | 648 | GM 1B NBR (8) | Bronze spatula | IV-3? |  | Persian? | 21.3 q |
| 522 | 84 | GM 2C TT1 (4) 2 | Bronze thick nail, complete, 8.2 cm | IV-Post 3 |  | Persian? |  |
| 528 | 65 | GM 2B (13) | Bronze pin with hook, complete, cleaned | IV-3? |  | Persian? | 21.4a |

TABLE 21.1. (continued)

| Reg. No. | SI Cat. No. | Provenance | Description | Phase | Architecture | Period | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 547 | 39 | GM 2C P3 (0) | Bronze nail | Topsoil |  |  | 21.4e |
| 548 | 116 | GM 1D P1 (1) | Bronze thick nail, complete, crooked, 13.5 cm | IV-1 |  | Crusader-Mamluk | 21.4c |
| 549 | 41 | GM 1C P2 | Bronze nail | Unknown |  |  | 21.4 g |
| 550 | 230A | GM 2D (4) | Bronze nail | IV-3 | Granary | Persian | 21.4d |
| 551 | 945 | GMIII A1 P1 | Bronze nail | III-1 |  | Persian? | 21.3 v |
| 553 | 330 | GM 2D TT3 (3) | Bronze small nail, complete, cleaned, 3.7 cm | IV-3 | Granary | Persian | 21.4f |
| 555 | 44 | GM 1C P2 (4) | Bronze nail | IV-1? |  | Crusader-Mamluk | 21.4i |
| 597 | 120 | GM 1B (10) 1 | Bronze three-bladed arrowhead, complete, 3.6 cm | IV-4?/5? |  | Persian? | 21.1f |
| 601 | 206 | GM 1B TT2 | Bronze three-bladed arrowhead, complete, 4.3 cm | Unknown |  |  | 21.1 g |
| 602 | 206A | GM 2B (26) | Bronze three-bladed arrowhead, complete, 3.9 cm | IV-4/5? |  | Persian? | 21.11 |
| 603 | 102 | GM 1C (3) | Bronze three-bladed arrowhead, complete, 4.5 cm | IV-2? |  | Persian? | 21.1h |
| 605 | 46 | GM 1B F3 | Bronze three-bladed arrowhead, complete, 3.4 cm , cleaned | IV-1 |  | Mamluk | 21.1i |
| 607 | 16 | GM 2C (3) | Bronze three-bladed arrowhead, complete, 4.1 cm | Unknown |  | Unknown | 21.1 k |
| 608 | 206B | GM 0B (1) 1 | Bronze three-bladed arrowhead, complete, 3.2 cm | IV-3 | Unit 1 | Persian | 21.1 m |
| 610 | 944 | GMIII A1 P1 | Bronze arrowhead, triangle section | III-1? |  | Persian? | 21.1j |
| 610 | 944 | GMIII A1 P1 | Bronze three-bladed arrowhead, complete | III-1 |  | Persian? |  |
| 616 | 19 | GM 1C (2) | Lead vessel/lamp, complete (inscribed?) | IV-2? |  | Persian? | 21.7 i |
| 1010 | 169 | GM 2A F14 1 | Bronze three-bladed arrowhead, complete, 3.5 cm , cleaned, back points | IV-5 | Bld I, Room C | Iron IIC | 21.1 n |
| 1276 | 636 | GM 2B NBR (31) 2A | Iron elongated arrowhead, complete | IV-5 | Bld II, Room B | Iron IIC | 21.2 k |
| 1278 |  | GMII C1 (3) 2 | Iron arrowhead, square pointed section | II-3? |  | Iron IIB? | 21.2 d |
| 1281 | 465 | GM 0A (9) | Iron elongated arrowhead | IV-5 | Bld I, Room E | Iron IIC | 21.2e |
| 1282 | 468 | GM 1A (1) 10 | Iron long point | IV-5 | Bld I, Room E | Iron IIC | 21.2 f |
| 1283 | 466 | GM 0B (14) Room F | Iron arrow/spearhead | IV-5 | Bld I, Room F | Iron IIC | 21.2 g |

TABLE 21.1. (continued)

| Reg. No. | SI Cat. No. | Provenance | Description | Phase | Architecture | Period | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1286 | 508 | GM 3B (9) | Iron spear point | IV-5 | Bld III, Unit 2 | Iron IIC | 21.2h |
| 1287/1284 | 660 | GM 1B NBR (15a) | Iron spear butt, complete | IV-5 | Bld I, Room A? | Iron IIC | 21.2c |
| 1288 | 731 | GM 2A (30) | Iron knife, rivets | IV-7(B? ) | Outside Bld III | Iron IIB | 21.5b |
| 1289 | 358 | GM 1A TT11 (4) | Iron fragment blade, rivets | IV-3? |  | Persian? | 21.5c |
| 1292 | 440 | GM 0A (9) | Iron arrowhead, complete | IV-5 | Bld I, Room E | Iron IIC | 21.2i |
| 1293 | 440 | GM 0A (9) | Iron blade fragment | IV-5 | Bld I, Room E | Iron IIC | 21.5e |
| 1296? | 469? | GM 1A (1) 10 | Bronze object | IV-5 | Bld I, Room E | Iron IIC | 21.7 c |
| 1303 | 661 | GMI FIR (1) | Gold foil, $1.3 \times 0.3 \times 00.3$ | FUR 3 | Kiln | Iron IB | 21.7h |
| 1306 | 819 | GM I 4D W5 | Bronze spearhead/ arrowhead with bent/ killed point | I-1/3? |  | LBII | 21.1a |
| 1307 | 1001 | GMIII C2 P1 | Bronze, complete spear/spear butt | III-18 |  | MBII | 21.1e |
| 1308 | 901 | GMI 4D (4) 4 | Complete bronze arrowhead | I-3 | Street J | LBII | 21.1b |
| 1309 | 981 | GMI FUR (8) 3 | Bronze arrowhead/ spearhead, bent shaft | FUR 3-4 |  | Iron I | 21.1c |
| 1310 | 654 | GMI 6E (2) | Bronze tool | I-3/4? |  | LBII | 21.3 e |
| 1311 | 1106 | GMI KB (22) 2 | Bronze tool/spatula | KB1 |  | Iron IIB-C | 21.3 u |
| 1312 | 651 | GMI 6F (3) | Bronze spatula/tool | I-3/4? |  | LBII | 21.3r |
| 1313 | 721 | GM 2A F7 (4) | Bronze pin with hook, complete, 4.6 cm | IV-4?/5? |  | Persian? | 21.4b |
| 1316 | 653 | GMI 6F (3) | Complete bronze adze, rectangular section, $90^{\circ}$ edge | I-3/4? |  | LBII | 21.3 k |
| 1317 |  | GMI 6E (1) | Bronze adze edge, square section | I-3 | Area K? | LBII | 21.31 |
| 1318 | 991 | GMI 3G (16) 2 | Bronze axe | I-6-7 |  | LBII | 21.3 m |
| 1320 | 652 | GMI 6F (2) | Bronze arrowhead | I-3 | Area K? | LBII | 21.1d |
| 1322 | 751 | GMI 5D (5) 1 | Bronze point | Topsoil |  |  |  |
| 1323 | 852 | GMIII B (57) 4 | Bronze point | III-10 | Room C | LBII | 21.3 f |
| 1324 |  | GMI 4D (4) 3 | Bronze point | I-3 | Room F | LBII | 21.3 g |
| 1326 |  | GMIII A2 (18) | Bronze point | III-6 |  | Iron I | 21.3h |
| 1327 |  | GMI 5F (1) | Bronze point | Unknown |  |  | 21.3 i |
| 1329 | 850 | GMI 5H (1) 6 | Bronze tool | I-3 | Room N | LBII | $21.3 n$ |
| 1330 | 637 | GM 2B NBR (31) 2A | Bronze three-bladed arrowhead, complete | IV-5 | Bld II, Room B | Iron IIC | 21.1o |
| 1331 | 204 | GMI 4F (1) | Complete bronze arrowhead (intrusive?) | I-1? |  | LBII? | 21.1p |
| 1332 | 429 | GMI 5F (3) | Bronze lump, possibly corroded figurine | Unknown |  |  | 21.7 g |
| 1355 | 463 | GM 0A (9) | Bronze spoon/small shallow bowl | IV-5 | Bld I, Room E | Iron IIC | 21.7 b |
| 1944 | 709 | GMII A2-C2 BR (3) | Bronze bull's-head weight | II-3? |  | Iron IIB? | 21.7 f |

TABLE 21.1. (continued)

| Reg. No. | SI Cat. No. | Provenance | Description | Phase | Architecture | Period |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |



FIGURE 21.1. Bronze spearheads and arrowheads.

## Spear Butt(?)

One complete blade with a socket (Figure 21.1e) was also found: it is either a single-point spear butt (the lower part of the spear pointed to be stuck on the ground) or a different type of spearhead. The object was found in Field III in the lowest MBII phase, Phase 18 (in Pit 1 of Square C2; there might have been some mixture with later phases). It is 8.8 cm long and has a $4.1-\mathrm{cm}$-long flat triangular blade, with a central rib and rounded point, extending from a long, tapered, tubular socket, open for about half its length on one side. Near the base end are small holes for nailing the object to a shaft. A somewhat similar bronze spear butt was found in Tel Miqne, Stratum VB (Ben-Shlomo, 2006c:193, fig. 5.2:4) and possibly from Petrie's excavations (Petrie, 1928: pl. XXXIII:14). Similar spear butts made of iron were found in Iron II contexts at Tell Jemmeh (see Figure 21.2c; Petrie, 1928: pl. XXXII:25) and Tell el-Far'ah (N), Stratum VIIb (Chambon, 1984: pl. 69:1). Such single-pointed conical spear butts fit the biblical description of Abner killing 'Asael by striking him with the back of a spear in 2 Samuel 2:23 (see also Dothan, 1976, on forked spear butts). Ben-Dov (2011b: fig. 8:10,11) defines somewhat similar points from LBII-Iron I Dan as plough points.

## Three-Bladed Bronze Arrowheads

A large group of bronze arrowheads, many complete (Figure $21.1 \mathrm{f}-\mathrm{p}$ ), were found in the late phases of the Iron II and Persian period: 20 complete or nearly complete bronze arrowheads and 3 fragments were recovered. Of these, 17 complete arrowheads and 1 fragment are of the three-bladed type, consisting of three leaf or triangular-shaped blades around a tapering, tubular socket, into which the wooden arrow shaft would fit (Figure $21.1 \mathrm{f}-\mathrm{p})$. These arrowheads are identified by their three blades, which are at about $120^{\circ}$ angles. Their size and proportions vary slightly; generally, they are $3.2-4.5 \mathrm{~cm}$ long altogether. Almost all items come from the Iron IIC, Persian period, or unstratified contexts (Field III, Phases 3-1 and Field IV, Phases 2-5); two come from Field IV, Phase 5 (the Iron IIC): one from Room C in Building I (Figure 21.1n) and one (Figure 21.1o) from Room B in Building II. Another item (Figure 21.1p), which comes from Field I with a possible Phase 1 context, is probably an intrusive object.

As noted, the proportions vary, and possibly, two main subtypes can be defined: (1) short, with broad blades and the socket terminating at the base of the blades, and (2) longer, usually more slender, with the socket extending beyond the base of the blades. There are variations within these types as to size and blade shape and, in type 2, the length of the socket. There is a single example (Figure 21.1n) that has curving blades ending in barbs, i.e., backward-projecting points, with the socket extending beyond the blades.

The design of these arrowheads, common during the final Iron IIB-C and the Persian period, is generally identified as being of Scythian origin (Tufnell, 1953:386) and is also described as trilobate (Stronach, 1978:180, from Pasargadae), trefoil (Talbot

Rice, 1957:75; Tel Michal, Muhly and Muhly, 1989:269), or three-winged I ratio Scythian (e.g., Stern, 1982:154, Types 1B1 and II). Many examples come from Petrie's excavations (Petrie, 1928: pl. XXIX:13-22). Other parallels come, for example, from Samaria (Crowfoot et al., 1957: fig. 111:19, made of iron), 'Ajjul (Petrie, 1932: pl. XVI:111,112), Megiddo, Stratum III (Lamon and Shipton, 1939: pl. 80:27), Tell el-Hesi (Rose and Toombs, 1976: pl. V:Al, Persian period), Tel Michal (Muhly and Muhly, 1989: fig. 25.1:1-19), 'Ein Gedi (Stern, 2007:179, fig. 4.10.3.1, right), Kadesh Barnea, mixed contexts (Gera, 2007: fig. 13.6:25,26,30, pl. 16.6:25,36), and Batash topsoil (Mazar and Panitz-Cohen, 2001:223, photo 152, and reference therein). Muhly and Muhly (1989:269-271) discuss those from the Persian level at Tel Michal, with chemical analyses indicating they contain a high amount of lead, up to $50 \%$ or more, and Stronach (1978:180-183,218-219) relates their history in Iran, citing the earliest well-stratified examples as being from the late 7th century BCE and their continued use until the beginning of the 2 nd century BCE (and as late as Middle Ages in Iran). He mentions the finding of 3,500 arrowheads of this type at Persepolis. The abundance of these arrowheads, probably most coming from the Persian period phases, may reflect the presence or influence of Persian troops at Tell Jemmeh, as Petrie (1928:89) suggested that the site was a garrison on the road to Egypt.

## Iron Spears and Arrowheads

## Arrowheads

Quite a few examples of iron arrowheads/spearheads come from the Iron IIC buildings in Field IV. Possibly, this may indicate further the administrative nature of these buildings. A complete very large iron spearhead comes from the topsoil (Figure 21.2a). It is 26.5 cm long and 5.5 cm wide, with a sharp point, a central rib, and an 8 -cm-long socket with an approximately 3 cm maximum diameter. One side of the socket is missing; otherwise, the spearhead is complete (see similar LBII socketed spearheads made of bronze from Batash, Stratum VII, Yahalom-Mack, 2006b:199, photo 86). A very similar example from the Iron Age comes from late Iron Age Kabri (Shalev, 2002: fig. 8.5:9; see also Tell Jemmeh, Petrie, 1928: pl. XXVIII, lower left).

In addition, several large arrowhead or spearheads from iron are illustrated (Figure 21.2b,d-k). Altogether, 23 whole or partial iron arrowheads were recovered. Several items come from good Iron IIC contexts in Field IV, Buildings I and II (e.g., Figure 21.2g from Building I, Room F and Figure 21.2e, i from Room E). These are mostly of elongated forms, $7.1-8.7 \mathrm{~cm}$ in length (Figure 21.2 k is especially elongated; Figure 21.2 b is almost complete and is 10.8 cm long), with leaf-shaped blades and solid and square-sectioned blades and tangs; this was a spear or javelin head, although light in weight. Several smaller examples (Figure 21.2d,j) are also illustrated. A nearly complete arrowhead (Figure 21.2h) is 7.1 cm long and has a small leaf-shaped blade with a sharp point; at the base end it thickens into a round-sectioned tapering tang that is 3 cm long, with traces of wood attached. Similar leaf-shaped arrowheads were published by Petrie (1928: pls. XXVIII [spears with


FIGURE 21.2. Iron spear and arrowheads.
square-sectioned blade], XXIX:24-41 [smaller arrowheads]) and were also found at Batash (Mazar and Panitz-Cohen, 2001:221), Rosh Zayit (Gal and Alexandre, 2000:129, fig. III.108), and Ashdod, Strata IX-VIII (Dothan and Ben-Shlomo, 2005:215, fig. 3.97:5,6). Figure 21.2i might have been of a different type, a hollow two-bladed arrowhead (see, e.g., Petrie, 1928: pl. XXIX:1$10)$, but is too corroded to be certain.

## Spear Butts

One complete iron spear butt (Figure 21.2c) comes from the fill above Room A in Building I (Iron IIC). It is quite long, 13.8 cm , and parts of the wooden shaft were preserved in the socket. See above for this type of object made of bronze. Iron spear butts, or "spikes," come also, for example, from Hazor, Stratum IV (Yadin et al., 1960: pl. CVI:3) and Tel Michal, Strata IX-VII (Muhly and Muhly, 1989:272, fig. 25.2:42-44). Otherwise, there are at least four complete objects of iron from poor contexts (Reg. Nos. 460, 461, 462, 463, not illustrated), which
consist of a pointed folded sheet of clay and may be spear butts or points of tools or weapons; they are conical but appear in different sizes, from 5.3 to 11 cm in length.

## Tools

Bronze Tools
The general category of tools includes nonweaponry objects such as points, working tools, blades, spatulas, nails, pins, needles, and other objects.

## Bronze Points

Ten bronze points are illustrated (Figure 21.3a-j,n); about six come from LBII contexts (Fields I, III), and two are from Street J (Figure 21.3b,c), where other metallurgical artifacts were found. Generally, these items are $2-6 \mathrm{~cm}$ long (Figure 21.3h is somewhat larger; Figure 21.3 v is possibly a nail) and are thinner


FIGURE 21.3. Various bronze tools.
than arrowheads. Thus, they are defined as points, probably attached to a small wooden shaft or handle, and were used as tools for various purposes (for bronze drill points, see, e.g., YahalomMack and Shalev, 2009:431, fig. 13.9).

## Adzes

Two bronze adzes are illustrated (Figure 21.3k,l), both from LBII contexts in Field I. The more complete example (Figure 21.3 k ), which is 8.8 cm long, has a rectangular section and an edge tilted $90^{\circ}$; one square end is slightly bent and battered from use and is possibly wider than the other end. The sides curve in gently to a point. For similar adzes or chisels, see Tell Jemmeh (Petrie, 1928: pl. XXIII:3-5; see also Petrie, 1917:19, "bare chisels," and pl. XXI:15), Tel Michal, Stratum VI (Muhly and Muhly, 1989: fig. 25.4:79), Deir el-Balah (Dothan and Nahmias-Lotan, 2010c:188, fig. 15.2:9-13), Batash, Stratum VII (Yahalom-Mack, 2006b:200, photo 88), and Tel Miqne, Stratum VIII (Ben-Shlomo, 2006c:194, fig. 5.3:2). Figure 21.3o is possibly also a fragment of a similar tool as it has a similar rectangular cross section.

## Axe

A corroded axe fragment was also found in the LBII Field I, Square 3 G probe (Figure 21.3 m , a $3.5 \times 5 \mathrm{~cm}$ fragment); it is thickest at the wider end, tapering to a slightly curved, blunt blade. On one side, at the wider end, another piece of bronze that is 3.4 cm wide and 2.8 cm long, lying obliquely across the wedge, was joined to it by corrosion. This was probably a small axe (see, e.g., Megiddo, Stratum VIIA, Loud, 1948: pl. 182:12).

## Spatulas

Six spatulas are illustrated (Figure 21.3p-t, possibly Figure $21.3 \mathrm{u})$. These are thin bronze rods with a rounded section and
a small spoon or flat piece attached to one end; they could have been used to mix up or measure small quantities of powders or liquids. These could be defined also as cosmetic sticks for application of makeup to the face. Most are from Persian period contexts or are unstratified. Two examples are more complete (Figure $21.3 \mathrm{~s}, \mathrm{t}$; $13.2-14.8 \mathrm{~cm}$ long) and only remains of the spoon were preserved. For similar bronze spatulas or cosmetic sticks, see, e.g., Tell Jemmeh (Petrie, 1928: pl. XXIX:4-6), Tel 'Ira (Goldsmith et al., 1999: fig. 14.16:1-4), Megiddo, Strata I-III (Lamon and Shipton, 1939: pl. 85:14-18), and Tel Michal, Persian period levels (Muhly and Muhly, 1989:290, fig. 25.14:283-299). Another wider item (Figure 21.3u; 7.5 cm long and 2.1 cm wide) is possibly a long spoon (the object is highly corroded), perhaps from a spatula, or a small blade.

## Bronze Pins and Needles

Several bronze pins or needles are illustrated (Figure 21.2a,b), most of which are short. A complete example (Figure 21.2a, Persian period context?) has a length of 5.2 cm , one crooked end (the end is bent to a small hook shape but not a closed loop like typical sewing needles), and one pointed end; another complete, yet corroded, example (Figure 21.5b) has a length of 4.6 cm . Similar pin or needles, with one side partly crooked, were published by Petrie (1928: pl. XXIV:1136) as well as from Aphek (Yahalom-Mack and Shalev, 2009: fig. 13.8). These needles appear at Tell Jemmeh mostly in Persian period contexts but generally are not chronologically indicative.

## Bronze Nails

Several bronze nails are illustrated (Figure 21.4c-i) and are of various shapes and sizes. Several examples are rather short, $3.4-4.3 \mathrm{~cm}$, and have a relatively wide cap head (Figure 21.4c-f;


FIGURE 21.4. Bronze pins, needles, nails, and sheets.
especially, Figure 21.4 f has a wide domed head). Any items from stratified contexts are from the Persian period or later. A large complete example (Figure 21.4c) is 13.5 cm long and was bent $90^{\circ}$ in its lower part; the top cap part was well preserved. Possibly, this nail dates to the Crusader-Mamluk period (it was found in a Field IV, Phase 1 pit; see Persian period parallels for bronze nails at Tel Michal, Muhly and Muhly, 1989: figs. 25.5, 25.6). Another nearly complete nail from the topsoil (Figure 21.4e) is curved and quite long at 9 cm .

## Bronze Sheets

Several flat pieces of bronze were defined as bronze sheets (Figure $21.4 \mathrm{j}-\mathrm{p}$ ), but their shape is often difficult to ascertain because of corrosion and fragmentary preservation, and thus their function usually remains unclear. One fragmentary item from Field I (LBII, Figure 21.4j) has a triangular shape, which was created by folding the sheet, maybe like a tail of a bird; two other examples (dated to Field IV, Phase 4, Persian period) are more square (Figure $21.4 \mathrm{~m}, \mathrm{n}$ ), whereas three others (Figure $21.4 \mathrm{k}, \mathrm{o}, \mathrm{p}$; Figure 21.4k from Building I, Room F, Iron IIC, has remains of textile on it) are rather amorphous. Figure 21.41 (Persian period context) is possibly of a different nature; this roughly rectangular sheet is 3.5 cm long, flattened, and has two holes in the middle of each side. This could have been a rivet or armor scale attached to a garment through the holes. See, possibly, Petrie (1928: pl. XXIX:69) and other sites such as Hazor, Stratum VI (Yadin et al., 1961: pl. CLXXXVIII:23) and Aphek (Yahalom-Mack and Shalev, 2009: fig. 13.4).

## Iron Tools

The iron tools found are somewhat different from the bronze ones as different types predominate. There are no pins, spatulas, or delicate points and few nails but knife blades and hooks appear; adzes also appear.

## Iron Blades

At least four iron knife blades are of the slightly curved type (Figure 21.5b-e).<FIG21.5> One nearly complete knife (in several fragments, however) comes from the Iron IIB-C, Field IV, Building III, Phase 7 (Figure 21.5b), would have been at least 20 cm long, and is slightly curved, with the tip of the blade truncated (straightening). The other examples are fragmentary but are probably of the same type. This is a typical Iron Age knife type, appearing sometimes with bronze rivets ("bimetallic"), and during the Iron I some examples have pommel-shaped ivory handles (see Ben-Shlomo and Dothan, 2006); several examples from Tell Jemmeh were published by Petrie (1928: pls. XXX:18, XXXI:45,56). Other parallels come, e.g., from Tell Far'ah (S) (Petrie, 1930: pls. XXI:96, XXIV:T.562) and Hazor (Yadin et al., 1961: pl. CLXXIV:28). A similar bimetallic knife comes from a burial at Ashdod, Area H, Stratum X (Dothan and Ben-Shlomo, 2005:187, fig. 3.81:1) as well as from an Iron IIA burial at Azor (Ben-Shlomo, 2008a:47, fig. 21:2, 2012a: Tomb D79). This type of knife was connected to the Philistines during the Iron I (e.g., Dothan, 1989), whereas during the Iron II it becomes a generally common knife type in the Levant.


FIGURE 21.5. Iron blades and tools.

A different type of blade (Figure 21.5a) is more curved, crescent shaped, and 14.2 cm long; this is probably a sickle blade, and it comes from possibly a Persian period context. Similar iron sickles were found at Ashdod, Stratum VI (Dothan and Ben-Shlomo, 2005:224, fig. 3.105:1), Tel Michal, Stratum XIII (Muhly and Muhly, 1989:274, fig. 25.4:64), Batash, Stratum I (Mazar and Panitz-Cohen, 2001:214, 219, photo 147, and more discussion and references therein), Lachish (Aharoni, 1975:82, pl. 38:1, 2), Rosh Zayit (Gal and Alexandre, 2000: fig. III.118:1-5), Beer-Sheba, Stratum VI (Herzog, 1984: fig. 31:1,2) and Megiddo (Lamon and Shipton, 1939: pl. 82).

Another thicker example of a thick curved tang and the beginning of a blade (Figure 21.5f, found in Field IV, Phase 3, granary) may also belong to a large sickle blade or another type agricultural tool (see Batash, Stratum II, Mazar and PanitzCohen, 2001:216, photo 150; possibly Jemmeh, Byzantine period, Schaefer, 1989: fig. 12:2).

## Adzes

Two adzes or chisels made of iron are illustrated (Figure $21.5 \mathrm{~h}, \mathrm{i}$ ). The more complete one (Figure 21.5h, Persian period?) is 9 cm long, with a rectangular section, flattened at one end into a wider, square-ended blade. The shaft tapers slightly near the upper end, which is bent and flattened by use (maybe from striking by hammer or mallet). See Tell Jemmeh (Petrie, 1928: pl. XXXII:34) and Batash, Stratum III (Mazar and Panitz-Cohen, 2001:213, 220, photo 145) for iron chisels.

## Thick Point

A thick heavy point (Figure 21.5 g , Persian period?) that is 8.3 cm long with a rounded point and large tang is also illustrated. This item seems too heavy for an arrowhead and thus was possibly a point of an agricultural tool such as a hoe.

## Iron Nails

Several iron nails are illustrated (Figure $21.5 \mathrm{j}-\mathrm{n}$ ); they are of various shapes and sizes, but most are heavily corroded. One example (Figure 21.5 k , from a Crusader-Mamluk pit context) is nearly complete, 3.6 cm long, with a square section, short shaft, tapering to a point (missing), and a large, round, flat head (see similar bronze nails above and also Byzantine Jemmeh, Schaefer, 1989: fig. 12:8); other similar iron nails and points from the Byzantine-Islamic period were also found near Tell Jemmeh (Schaefer, 1989: fig. 12:3-17).

## Other Iron Objects

A group of large iron objects (denoted as CAL4805, Figure 21.6a) from an unclear context is probably agricultural tools from a late period. A large iron object in two parts (Figure 21.6b) has a solid round to oval shaft ( 1.9 cm wide, 1.3 cm thick) that tapers slightly and is broken at the upper end and forks at the lower end. The other part ( 6 cm long, 2.5 cm wide, and 0.5 cm thick) is twisted. This item, found in a Crusader-Mamluk context, may have been an "elbow key" (see, e.g., Tal Anafa, dated to


FIGURE 21.6. Various iron items and iron bloom.
the Roman period, Merker, 2012:237, pl. 16:M82,M82a, with more parallels therein) or may have possibly been used for branding camels. Other selected iron objects illustrated include a ball (Figure 21.6 g ), a fragment of a hook (Figure 21.6e), a thick ring (Figure 21.6c), a fragmentary thinner ring (Figure 21.6d), and a sheet (Figure 21.6f), which was possibly modeled to a point.

Several iron slags or blooms are illustrated (Figure 21.6h-j). In fact, these are chunks of iron ore after they were heated until the siliceous materials were melted out, and only the iron is left. However, these were not found in large quantities or in relation to other metallurgic elements, and thus, their significance is limited, but they indicate certain iron metallurgy took place at the site. One comes from Phase 5 and two are from unclear (Persian?) contexts in Field IV.

## Various Bronze Objects

## Bowls

Bronze bowls include two fragmentary examples (Figure $21.7 \mathrm{~b}-\mathrm{c}$ ) of rather small ( $5-7 \mathrm{~cm}$ in diameter), open, thin-walled bowls with simple rims and probably with a flat or slightly rounded base. The smaller one (Figure 21.7c) may be a balance pan/bowl. In Square 3B topsoil (Figure 21.7a) several fragments of a larger bronze bowl were found. Its shape was probably narrower on the bottom and wide in the upper part ( 14 cm maximum diameter), maybe similar to that of strainer bowls; a hooked handle found together with the bowl could have been a ladle handle of the bowl. Possible parallels come from LBIron I Megiddo, Stratum VI (a strainer bowl with a high handle; Loud, 1948: pl. 190:15) and 'Ein Gedi (Stern, 2007:264-265,
fig. 5.10.1.1, 7th century BCE, with more references for Persian Period metals bowls therein; see also Tel Michal, Stratum XI/VI, Muhly and Muhly, 1989:282, fig. 25.9:162, handle in no. 163).

> Miniature Stand/Buckle(?)

A complete bronze object (Figure 21.7 d , Persian period context) is a miniature four-legged stand measuring 2.9 cm in diameter and 1.3 cm high; the object was cleaned. Three of the pointed legs were preserved, and the upper part is a round, narrow, flat ring (inner diameter 1.9 cm ). Maybe it supported a very small vessel or tool. Somewhat similar items from Tel Anafa (PersianHellenistic, Merker, 2012:262-263, pl. 42:M205) and Tel Michal (unstratified, Muhly and Muhly, 1989:294, fig. 25.16:327) were identified as fragments of a horse buckle or cheekpiece.

## Scale Weight(?)

A complete object made of bronze (Figure 21.7e; weight [cleaned] of 9.29 g ; Persian period?) seems to be a scale weight; it was found in a possible Phase 3 context. The lower part is completely flat and the upper part is domed. There are visible signs on the surface, but their meaning is not clear. Similar scale weights made of stone or hematite were used in the Iron Age Levant (see chapter 23, Figure 23.5), but such bronze weights are not common.

## Bull-Head Bronze Weight

Of the few exceptional metal items from Tell Jemmeh, the finest is probably the bronze bull weight from Field II (Figure


FIGURE 21.7. Various metal items.
21.7f; Van Beek, 1993a:670). The weight found in a Field II, Iron II context is a whole solid bull's head, with well-preserved molded features and details. The horns curl up and forward, then curl back to the tips. The ears and eyes are prominent. The facial details are naturalistically and carefully depicted. The horns are high, pointed and slightly curved, and there is a ridge on the forehead between the horns. The eyes and outstretched ears are rather detailed, with incisions marking the eye lids and inner ear. The snout shows the nostrils and mouth. A tine bundle of fiber that was attached under the left horn was examined (CAL Nos. 1981, 3424, National Museum of Natural History conservation report) and may have been flax. As part of a flax string survived, positioned around the forehead and below the horns, the head could have been worn or carried with a string. The underside is flat and well polished. Cleaned and conserved, its weight is 14.60 g .

This is a well-executed naturalistic depiction of a bull head that was clearly used as a scale weight. This weight probably weighs a "Philistine shekel" (weighing 14.32 grams on average; see Tal, 2007:24, table 1) or a "Phoenician shekel" (see, e.g., Kletter, 1994). Weights in the shape of bull's heads are known mostly from collections (see, e.g., Hendin, 2007: no. 155 [17.78 gr], no. 161 [ 9.4 gr ], no. 163 [ 8.6 gr ], no. 168 [ 8.04 gr$]$, no. 180 [3.36]gr; Deutsch, 2004:16, no. 42) and are dated usually to the 14th-12th centuries BCE in Egypt, the Aegean, and the Levant (e.g., Petrie, 1926:6, pl. IX, fourth row, right; Meshorer, 1998:23, no. 13, weighing 17.85 g , or two shekels). Some of these are Egyptian qedet weights weighing about 9.2-9.3g (see also Levine et al., 2011:154-156). However, these objects are very rarely found in archaeological excavations. Somewhat differently styled bull's-head weights come from Kalavassos AyiosDimitrios (Todd, 1985:42, top left figure, bottom left; South,

2012:38, fig. 5.2); see also Tell el-Amarna (Petrie, 1894: pl. XIII:6) and Hala Sultan Tekke (Fischer, 2011: fig 16). These weights are dated to the late second millennium BCE.

Bronze weights in the shape of full-bodied bulls are known in the LBII at Megiddo, depicting a standing or crouching bull (May, 1935: pl. XXXIV:M3070,M2326,M3032; possibly Strata VII and VI, Loud, 1948: pl. 240:3,5, a bull or a lion crouching), Akko, the Persian Garden (Eran and Edelstein, 1977:57-58, fig. 25:24, pl. XX:38), Kalavassos Ayios-Dimitrios (Todd, 1985:42), and the Uluburun shipwreck (together with other zoomorphic bronze weights, Pulak, 1988:30-31, fig. 37); see also Petrie (1926: pl. IX: fourth row). Recently, an example of a bronze weight in the shape of a crouching zebu bull was published from Beth Shemesh (Levine et al., 2011; see pp. 152-154 for parallels); it was dated there to the LBII or Iron Age I. It is a hollow weight weighing 48.45 g . Later examples from Ashkelon are dated to the 7th century BCE (Stager, 1996:69*) and the Persian-Hellenistic period (Iliffe, 1936:68, pl. 34:4-14; Kletter, 1994; Tal, 2007:21).

The weight in the shape of a bull's head possibly represents a later Iron II version of the same concept of the bull-shaped weight, also fitting its weight according to the Philistia shekel during the Late Iron Age and Persian period (see Tal, 2007). The depiction of a bull and a bull's head on scale or balance weights is probably also related to the cultural, economic, and religious value of bulls in the ancient Near East; possibly, the bull's head symbolically represented the value of a bull (in silver?).

Another piece (Figure 21.7 g ) is possibly the head of a bronze figurine but is very corroded and difficult to identify.

## Lead and Gold Items

A complete object made of lead (Figure 21.7i, Persian period?) is a sheet with its outer part pinched and raised, similar to the shape of a lamp. There might be incised marks on the inside of the object (possibly these are Hebrew letters, possibly a 1 and then a $n$ or a' and possibly a third letter). The nature of this object, possibly from Field IV, Phase 2, is not clear. Generally,
lead objects are rare in the periods attested at the site (another lead item is a lead earring; see chapter 22, Figure 22.1b).

Other than that, only a few gold foils from the Field I FUR Iron I kiln were found (Figure 21.7h, a tiny irregular folded gold strip that would be approximately 3.4 cm long if unfolded); also, Reg. No. 615 from Field IV, Square 1A, Layer 10, Locus 7 is a slightly curved fragment of fold wire, tapering to a point at one end.

## DISCUSSION

The metal assemblage from Tell Jemmeh is predominantly bronze and iron, roughly of similar quantities. Nonjewelry items include many weapons, especially arrowheads and a few spears appearing mostly during the late Iron Age and Persian periods. This could be related to the administrative nature of the Phase 5 structures in Field IV or, more likely, to the Persian period activities. Only a few items date to the MBII. Otherwise, bronze and iron tools are common finds in Bronze and Iron Age Levantine sites, with iron appearing mostly during the Iron IIA and onward. Bronze continued to be used during the Iron Age and the Persian period for certain objects such as spatulas and bowls. Several classes of objects are more typical of specific periods such as the bronze spears and cutting tools from the LBII (points, adzes, axes) and the bronze three-bladed arrowheads and spatulas from the Persian period. Some special items, mostly Iron Age or later, include a bowl, a scale weight, and a bull's-head weight.

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# Metallic and Nonmetallic Jewelry Objects Amir Golani 

A total of 322 jewelry objects were recovered from during the 1970-1990 excavation seasons. The jewelry objects include earrings (22), small and large rings (22), pendants (11), and beads (267). In addition, 12 fibulae and fibulae fragments are also included in this report. Previous excavations of the site conducted by Petrie (1928) have also uncovered a large number of jewelry objects. Where relevant, those are also referred to in this report.

## METHODOLOGY

Table 22.1 presents the basic information for all the objects and is arranged according to their type. The typological framework employed in this report is based on that developed by the author (Golani, 1996a, 2009) and has been used in jewelry studies of the same periods found at Tell Jemmeh (see Golani, 2004; Golani and Ben-Shlomo, 2005). As this scheme is being continuously refined and updated (cf. Golani, 2009), the present report includes some typological designations not found in previous publications. Although referred to in this report, Beck's (1928) commonly used apparatus for the classification of beads and pendants has not been employed here as it is based entirely on form. The present typology distinguishes beads and pendants initially by material and subsequently by form. Figures 22.1-22.5 illustrate at least one exemplar of each type.

Identification of the materials used in the manufacture of the jewelry was based on the naked eye alone. Measurements are presented as height $\times$ length $\times$ width; the first measurement in beads is that of the stringing axis; in pendants it is that of the suspension length. If more than one object of the same type was recorded as originating in the same basket during excavation, the number of such items (usually beads) is given in parentheses after the designation of condition. In such cases, the measurements given represent the size of an average item from the group of that type.

## CONTEXT

In the archaeological record, jewelry will always be represented in an incomplete manner as its survival is dependent on the materials from which it was made and the degree to which these materials deteriorate within their depositional environment. In addition, its representation in the archaeological record is also dependent on the excavation methods themselves (i.e., sieving) and the context in which it was found, i.e., closed contexts versus open contexts that are chance finds. Closed contexts such as tombs, hoards, and foundation deposits are one of the richest sources, whereas jewelry items from open contexts within occupational strata of settlements are more sporadic.

Jewelry items are small and mobile and may be found in a wide variety of archaeological contexts. At an archaeological mound such as Tell Jemmeh, jewelry may originate from topsoil, fills, debris buildup, destruction debris, pits, foundation trenches, robber trenches, walls, and floors. The reasons why small objects find their way into such contexts are because they were either accidentally lost in the past or were detached from their original context by postdepositional processes. In contrast to closed-context assemblages that reflect a purposeful selection of items, the random variety of isolated finds may be the best, although rather vague, reflection of the kinds of jewelry worn on a day-to-day basis in the past.

The precise stratigraphic attribution of small objects such as jewelry is often difficult, as small objects tend to be more "mobile" than larger artifacts and therefore are more likely to be displaced from their original context by natural phenomena or man-made
TABLE 22.1. Jewelry and beads from Tell Jemmeh.

| Reg. <br> No. | Object | Type | Subtype definition | Fig. | Material | Condition | Dimensions (cm) | Provenance | Architectural context/ locus type | Area Phase | Period | Comments |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1361 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Partial | $1.0 \times 2.0 \times 0.5$ | GM (+) | Topsoil |  |  | Corroded |
| 1360 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Partial | $1.1 \times 1.9 \times 0.4$ | GM (+) | Topsoil |  |  | Corroded |
| 1344 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Whole | $2.4 \times 2.1 \times 0.3$ | GMIII B (+) | Topsoil |  |  | SI Cat. No. 848 |
| 1363 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Partial | $2.1 \times 1.6 \times 0.2$ | GMIII A2 (12) | Fill | III-4-5 | Mixed | SI Cat. No. 988 |
| 1340 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Partial | $0.9 \times 1.7 \times 0.4$ | GM 0A 10 (+) | Unclear | Unknown | Unclear | SI Cat. No. 527 |
| 582 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Whole | $1.6 \times 1.4 \times 0.3$ | $\begin{aligned} & \text { GM 2C) } \\ & \text { NBR (6 } \end{aligned}$ | Unclear | Unknown | Unclear | Corroded |
| 1337 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Partial | $0.8 \times 1.7 \times 0.4$ | GMII C TT1 | Unclear | Unknown | Unclear | SI Cat. No. 378 |
| 106 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Partial | $0.9 \times 1.4 \times 0.4$ | GM 0B P2 (2) | Pit | IV-4? | Persian? | Corroded |
| 15 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Partial | $0.7 \times 1.6 \times 0.5$ | GM 1A TT7 (1) | Unclear | IV-4? | Persian? | Corroded |
| 578 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Partial | $1.6 \times 1.3 \times 0.5$ | GM 1D TT2(4) | Unclear | IV-2? | Persian? | Corroded |
| 577 | Earring, solid lunate | I. 1 | Small, plain | 22.1a | Copper alloy | Partial | $1.3 \times 1.3 \times 0.5$ | GM 1C (8) 4 | Fill | IV-3 | Persian | SI Cat. No. 126, corroded |
| 1338 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Partial | $0.8 \times 1.1 \times 0.3$ | GM 2A F12 (4) | Wall | IV-4 | Persian | SI Cat. No. 410, corroded |
| 1343 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Partial | $0.8 \times 1.4 \times 0.4$ | GM 1A (1) 10 | Possibly <br> Building I, <br> Room A | IV-5 | Iron IIC? | Corroded |
| 1342 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Partial | $1.1 \times 1.5 \times 0.4$ | GM 1A (2) 10 | Building I, Room E | IV-5 | Iron IIC | SI Cat. No. 464, corroded |
| 1339 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Whole | $1.3 \times 1.1 \times 0.4$ | $\begin{aligned} & \text { GM 2B } \\ & \text { TT3 (5) } 2 \end{aligned}$ | Building II, <br> Room A | IV-5 | Iron IIC | SI Cat. No. 325, corroded |
| 169 | Earring, solid lunate | I. 1 | Small, plain |  | Copper alloy | Partial | $1.6 \times 1.4 \times 0.4$ | $\begin{aligned} & \text { GMIII A2 } \\ & \text { (16) } 1 \end{aligned}$ | Fill | III-6 | Iron IB | Corroded |
| 1946 | Earring, solid lunate | I. 1 | Small, plain | 22.1b | Silver? Lead? | Whole | $1.7 \times 1.3 \times 0.2$ | $\begin{aligned} & \text { GMI 4D } \\ & (3)\left({ }^{7} 76\right) \end{aligned}$ | Room 2 | I-1 | LBII | SI Cat. No. 744, corroded |
| 583 | Earring, solid lunate | I.1a | Small, plain with elongated hoop | 22.1c | Copper alloy | Whole | $2.5 \times 1.5 \times 0.4$ | GM 1B (8) 1 | Fill | IV-3? | Persian | SI Cat. No. 143, corroded |
| 1304 | Earring, solid lunate | I.3a | Small, plain with short hoop and decorated | 22.1d | Silver | Partial | $1.5 \times 1.2 \times 0.3$ | GM 2B (36) 3 | Building II | IV-6 | Iron IIB | SI Cat. No. 704, with wound wire on lunate and on both sides of hoop |
| 580 | Earring, solid lunate | I.6a | Multiple lobed sling | 22.1e | Copper alloy | Partial | $1.0 \times 1.5 \times 0.5$ | $\begin{aligned} & \text { GM 1A } \\ & \text { TT11 (0) } \end{aligned}$ | Topsoil |  |  | SI Cat. No. 40, corroded |

GM 1C TT1 (1) Unclear


| $\begin{aligned} & \stackrel{0}{0} \\ & \frac{\square}{B} \end{aligned}$ |  | $\begin{aligned} & \stackrel{\circ}{0} \\ & \text { B } \end{aligned}$ | $\begin{aligned} & \because 0 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \stackrel{0}{0} \\ & \text { E } \end{aligned}$ | $\begin{aligned} & \stackrel{0}{0} \\ & \text { B } \end{aligned}$ | $\begin{aligned} & \because \\ & \stackrel{0}{0} \\ & 0 \end{aligned}$ |  | $\begin{aligned} & \because \frac{\pi}{0} \\ & \text { B } \end{aligned}$ | $\begin{aligned} & \because ँ \\ & 0 \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \frac{0}{8} \\ & \text { B } \end{aligned}$ | $\begin{aligned} & \because \\ & 0 \\ & 0 \end{aligned}$ |  | $\begin{aligned} & \stackrel{0}{0} \\ & \text { E } \end{aligned}$ |  | \% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { ob } \\ & \stackrel{0}{0} \\ & \stackrel{0}{0} \\ & \stackrel{0}{0} \\ & 0 \end{aligned}$ | $\frac{\ddot{シ}}{\stackrel{3}{シ}}$ |  | $\begin{aligned} & \stackrel{\rightharpoonup}{0} \\ & \stackrel{\rightharpoonup}{\tilde{0}} \\ & \stackrel{\rightharpoonup}{0} \\ & \stackrel{0}{0} \\ & 0 \end{aligned}$ | $\begin{aligned} & \text { oे } \\ & \stackrel{\rightharpoonup}{\bar{N}} \\ & \stackrel{\rightharpoonup}{0} \\ & \stackrel{0}{0} \end{aligned}$ | $\begin{aligned} & 0.0 \\ & \stackrel{0}{5} \\ & \stackrel{\rightharpoonup}{0} \\ & 0.0 \\ & 0.0 \end{aligned}$ | $\begin{aligned} & \stackrel{0}{0} \\ & \stackrel{\rightharpoonup}{\tilde{0}} \\ & \stackrel{\rightharpoonup}{0} \\ & \stackrel{0}{0} \end{aligned}$ |  |  | $\begin{aligned} & \stackrel{0}{0} \\ & \stackrel{0}{\omega} \\ & \stackrel{0}{0} \\ & \stackrel{0}{0} \\ & 0 \end{aligned}$ | $\begin{aligned} & \text { oे } \\ & \stackrel{\rightharpoonup}{\overline{0}} \\ & \stackrel{\rightharpoonup}{0} \\ & \stackrel{0}{0} \end{aligned}$ |  | $\begin{aligned} & \overrightarrow{\mathrm{J}} \\ & \stackrel{\sim}{\omega} \end{aligned}$ |  |  | $\begin{aligned} & \stackrel{\rightharpoonup}{0} \\ & \stackrel{\rightharpoonup}{5} \\ & \stackrel{\rightharpoonup}{0} \\ & \stackrel{0}{2} \\ & 0.0 \end{aligned}$ |  |
| $\stackrel{\text { İ }}{\text { N }}$ | $\begin{aligned} & \stackrel{\infty}{\mathrm{N}} \end{aligned}$ | $\underset{\text { İ }}{\underset{\sim}{n}}$ |  |  | $\begin{aligned} & \vec{~} \\ & \text { ה̈ } \end{aligned}$ |  |  |  | $\begin{aligned} & \underset{\text { İ }}{2} \end{aligned}$ | $\begin{aligned} & \sharp \\ & \underset{\text { In }}{ } \end{aligned}$ | $\begin{aligned} & \underset{\text { İ }}{1} \end{aligned}$ | $\underset{\text { ה̀ }}{\substack{2}}$ |  | $\underset{\text { ה̀ }}{\underset{\sim}{n}}$ |  | $\stackrel{\text { İ }}{\text { ה }}$ |


| 579 | Earring, solid lunate with fixed attachment | II. 2 | With solid or hollow globular attachment |
| :---: | :---: | :---: | :---: |
| 1336 | Earring, solid lunate with fixed attachment | II. 2 | With solid or hollow globular attachment |
| 581 | Ring, small | I. 1 | Open-ended annular, plain |
| 592 | Ring, small | I. 1 | Open-ended annular, plain |
| 593 | Ring, small | I. 1 | Open-ended annular, plain |
| 596 | Ring, small | I. 1 | Open-ended annular, plain |
| 1334 | Ring, small | I. 1 | Open-ended annular, plain |
| 590 | Ring, small | II. 1 | Plain spiral |
| 591 | Ring, small | II. 1 | Plain spiral |
| 1335 | Ring, small | II. 1 | Plain spiral |
| 1333 | Ring, small | II. 1 | Plain spiral |
| 589 | Ring, small, finger ring | III.2a | Flattened, openended annular |
| 135 | Ring, small, finger-ring | III.8a | With flattened oval-shaped bezel |
| 594 | Ring, small, finger ring | III.9a | With rectangularshaped bezel |
| 1477 | Ring, small | III. 10 | Closed shell ring |
| 1350 | Ring, large, open | I. 1 | With tapered terminals and semicircular section |
| 584 | Ring, large, open | I. 1 | With tapered terminals and semicircular section |
| 12 | Ring, large, open | I. 2 | With tapered terminals and round section |
| 558 | Ring, large | I. 2 | With tapered |

TABLE 22.1. (continued)

| Reg. No. | Object | Type | Subtype definition | Fig. | Material | Condition | Dimensions (cm) | Provenance | Architectural context/ locus type | Area Phase | Period | Comments |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 557 | Ring, large, open | I. 2 | With tapered terminals and round section |  | Copper alloy | Partial | $5.5 \times 3.8 \times 0.5$ | GM 1A TT1 (3) | Fill | IV-2 | Persian | Corroded |
| 4065 | Ring, large, open | I. 2 | With tapered terminals and round section |  | Iron | Partial | $6.6 \times 6.2 \times 0.5$ | GM 1A (8) 2 | Fill | IV-2 | Persian | Corroded |
| 437 | Ring, large, open | I. 2 | With tapered terminals and round section |  | Iron | Partial | $6.5 \times 4.5 \times 0.7$ | GM 1A (3) 8 | Building I, <br> Room B | IV-5 | Iron IIC | Corroded |
| 562 | Ring, large | I. 7 | Open ring with flat section |  | Copper alloy | Partial | $5.3 \times 0.6 \times 0.3$ | GM 1D (3) | Unclear | Unknown | Unclear | SI Cat. No. 156, corroded |
| 560 | Ring, large | I. 8 | Open ring with round section and flattened, flaring terminals | 22.1r | Copper alloy | Partial | $6.1 \times 2.5 \times 0.8$ | GM 2A (0) | Topsoil |  |  | SI Cat. No. 124 |
| 2101 | Pendant | II. 1 | Elongated drop |  | Flint | Partial | $1.6 \times 1.2 \times 0.4$ | GM 1B (11) | Building I, Room A? | IV-5 | Iron IIC |  |
| 792 | Pendant | II. 1 | Elongated drop | 22.2a | Rock crystal | Whole | $0.9 \times 0.6 \times 0.5$ | GMI 2E (2) | Unclear | Unclear | LBII |  |
| 2134 | Pendant | II. 1 | Elongated drop | 22.2b | Limestone | Whole | $1.9 \times 1.4 \times 0.6$ | GMIII F2 (14) | Fill | III-17 | MBIIB-C |  |
| 808 | Pendant | II. 1 | Elongated drop | 22.2c | Unidentified dark stone | Whole | $1.7 \times 0.7 \times 0.7$ | GM 1A (1) 10 | Building I, <br> Room E | IV-5 | Iron IIC |  |
| 763 | Pendant | II. 4 | Lotus seed vessel | 22.2d | Carnelian | Partial | $1.2 \times 0.8 \times 0.3$ | GMI 1F P1 | Pit | I-1? | LBII | Flat backed, stem broken off |
| 746 | Pendant | II. 5 | Axe or celt shaped |  | Unidentified gray stone | Whole | $1.5 \times 0.6 \times 0.6$ | GM 1A 1B (6) | Unclear | Unknown | Unclear | SI Cat. No. 108 |
| 761 | Pendant | II. 5 | Axe or celt shaped | 22.2e | Carnelian | Whole | $2.1 \times 1.2 \times 0.7$ | GMI FUR (0) | Topsoil |  |  | SI Cat. No. 916 |
| 728 | Pendant | II. 6 | Rectangular | 22.2 f | Carnelian | Partial | $1.7 \times 1.5 \times 0.5$ | GM 1A P6 (5) | Pit | IV-4? | Persian? | SI Cat. No. 55 |
| 1115 | Pendant | III. 1 | Club | 22.2 g | Ivory | Whole | $4.4 \times 1.1 \times 0.9$ | GMIII A2 (8) | Fill | III-4 | Iron IIA | SI Cat. No. 978, undecorated |
| 1117 | Pendant | III. 1 | Club | 22.2h | Ivory | Partial | $3.0 \times 0.9 \times 0.7$ | GM 2B (58) | Room D* | IV-9 | Iron IIA | SI Cat. No. 1107, with incised circles, dots and lines |
| 715 | Pendant | IV. 8 | Bulbous sack | 22.21 | Glass (light beige) | Whole | $0.8 \times 0.7 \times 0.7$ | GM 2C P3 | Pit | IV-1 | Crusader- <br> Mamluk | SI Cat. No. 57 |
| 18 | Bead | I. 5 | Plain spherical or squat globular hollow | 22.3a | Silver | Whole | $0.5 \times 0.6 \times 0.6$ | GM 1A TT5 (1) | Fill | IV-4 | Persian | Corroded (corroded) |
| 585 | Bead | I. 10 | Cylindrical | 22.3b | Copper alloy | Whole (corroded) | $0.8 \times 0.3 \times 0.3$ | GM 1A P6 (7) | Pit | IV-4? | Persian? | Two beads stuck together, corroded, SI Cat. No. 152 |
| 586 | Bead | I. 10 | Cylindrical | 22.3c | Copper alloy | Whole (corroded) | $0.7 \times 0.4 \times 0.4$ | GM 2C (11) | Fill | IV-4 | Persian | Corroded, SI Cat No. 342. |





| $$ | $\begin{aligned} & \mp \\ & \text { I } \\ & \sum_{0}^{n} \end{aligned}$ |  |  | $\begin{aligned} & \stackrel{\rightharpoonup}{\mid} \\ & \stackrel{\bullet}{E} \end{aligned}$ |  | $\begin{aligned} & n \\ & \underset{\sim}{x} \\ & n \\ & \vdots \\ & x \\ & \end{aligned}$ | $\begin{aligned} & \frac{\infty}{\infty} \\ & \sum_{0}^{4} \\ & \hline \end{aligned}$ |  | $\begin{aligned} & n \\ & \vdots \\ & \vdots \\ & \sum_{i}^{n} \end{aligned}$ | $\begin{aligned} & \text { E } \\ & 0 \\ & E \\ & E \\ & E \end{aligned}$ | $\begin{aligned} & \frac{-}{6} \\ & \frac{1}{6} \\ & \sum_{i}^{5} \end{aligned}$ |  | $\begin{aligned} & \bar{\sigma} \\ & \underset{\circlearrowleft}{\aleph} \end{aligned}$ |  |  |  |  |  | $\frac{d}{3}$ | $\begin{aligned} & \widehat{N} \\ & \underset{\sim}{U} \\ & \underset{N}{N} \end{aligned}$ | $\mathbb{Z}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \infty \\ & \infty \\ & \dot{o} \\ & \times \\ & \infty \\ & \dot{-} \end{aligned}$ | $\begin{aligned} & \text { n } \\ & \dot{x} \\ & \dot{0} \\ & \dot{0} \\ & \times \\ & \dot{n} \\ & 0 \end{aligned}$ | $\bullet$ <br> 0 <br> $\times$ <br> $\times$ <br> 0 <br> 0 <br> $\times$ <br> $\times$ <br> + | $\begin{aligned} & \infty \\ & \dot{\infty} \\ & \times \\ & \times \\ & \infty \\ & \dot{0} \\ & \times \\ & \dot{0} \\ & 0 \end{aligned}$ | $\begin{aligned} & \mathfrak{o} \\ & \times \\ & \times \\ & \dot{o} \\ & \dot{x} \\ & \hat{0} \end{aligned}$ | $\begin{aligned} & 0 \\ & \underset{r}{x} \\ & \dot{x} \\ & \dot{\sim} \\ & x \\ & n \end{aligned}$ | $\begin{aligned} & \frac{2}{0} \\ & \frac{4}{8} \end{aligned}$ | $\begin{aligned} & \hat{0} \\ & \dot{O} \\ & \times \\ & \hat{O} \\ & \times \\ & \dot{O} \end{aligned}$ | $\begin{aligned} & \hat{0} \\ & \times \\ & \times \\ & \hat{o} \\ & \times \\ & \hat{o} \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & \times \\ & \times \\ & \infty \\ & \infty \\ & \times \\ & \times \\ & \infty \\ & \infty \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & \times \\ & \times \\ & 0 \\ & 0 \\ & \times \\ & \times \\ & \dot{0} \end{aligned}$ |  |  | $\begin{aligned} & \hat{o} \\ & \dot{o} \\ & \times \\ & \hat{o} \\ & \dot{o} \\ & \dot{\infty} \\ & \dot{o} \end{aligned}$ | $\begin{aligned} & 0 \\ & \underset{\sim}{x} \\ & \underset{\sim}{x} \\ & \underset{r}{x} \\ & \underset{\sim}{r} \end{aligned}$ | $\stackrel{+}{+}$ |  | $\infty$ 0 0 $\times$ $\infty$ 0 $\times$ $\times$ $n$ $\sim$ | - |  | $n$ $n$ $\times$ $\times$ $n$ 0 $\times$ $n$ | $\pm$. |




Short oblate
circular
Short oblate
circular
Short oblate
circular
Short oblate
circular
Short oblate
circular
Short convex
bicone
Short truncated
Cat. No. 713
Short truncated
bicone
Short truncated
bicone
Short truncated
bicone
Short truncated
bicone
Short truncated
bicone
Long barrel
Long barrel
Long truncated
convex bicone
Long truncated
convex bicone
Long truncated
convex bicone
Long truncated
convex bicone,
flattened
Long truncated
convex bicone,
flattened and
faceted
Long truncated
bicone
Long truncated
bicone
Long truncated
bicone
Short (disk)
cylinder
Short (disk)
cylinder



TABLE 22.1. (continued)

| Reg. <br> No. | Object | Type | Subtype definition | Fig. | Material | Condition | Dimensions (cm) | Provenance | Architectural context/ locus type | Area Phase | Period | Comments |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 708 | Bead | II. 9 | Short (disk) cylinder |  | Hematite? | Whole | $0.5 \times 0.7 \times 0.7$ | GM 2A F1 | Brick | IV-2? | Persian | SI Cat. No. 51 |
| 705 | Bead | II. 10 | Cylindrical |  | White quartz | Whole | $1.8 \times 1.1 \times 0.8$ | GM 2C (+) | Topsoil |  |  | SI Cat. No. 413, slightly flattened, possibly gypsum or alabaster |
| 719 | Bead | II. 10 | Cylindrical |  | Carnelian | Partial | $0.6 \times 0.5 \times 0.3$ | GM + | Topsoil |  |  |  |
| 814 | Bead | II. 10 | Cylindrical |  | Unidentified dark gray stone | Whole | $1.7 \times 0.6 \times 0.6$ | GMI 3G (0) | Topsoil |  |  | SI Cat. No. 904 |
| 758 | Bead | II. 10 | Cylindrical | 22.30 | Bright red stone | Whole | $0.7 \times 0.3 \times 0.3$ | GMI 3G (0) | Topsoil |  |  | Modern? |
| 781 | Bead | II. 10 | Cylindrical | 22.3p | Carnelian? <br> Sard? | Whole | $2.0 \times 1.6 \times 1.6$ | $\begin{aligned} & \text { GMI 4F } \\ & \text { TT1 (2) } 2 \end{aligned}$ | Unclear | Unknown | Unclear | Modern? |
| 724 | Bead | II. 10 | Cylindrical |  | Carnelian | Whole | $0.7 \times 0.8 \times 0.8$ | GM 2C P1 (3) | Pit | IV-1 | Crusader- <br> Mamluk |  |
| 790 | Bead | II. 10 | Cylindrical |  | Unidentified dark gray stone | Whole | $0.9 \times 0.5 \times 0.5$ | GM 1A (1) 10 | Building I, <br> Room E | IV-5 | Iron IIC |  |
| 810 | Bead | II. 10 | Cylindrical |  | Unidentified light brown stone | Whole | $1.4 \times 0.6 \times 0.6$ | GM 0A (9) | Building I, <br> Room E | IV-5 | Iron IIC |  |
| 801 | Bead | II. 12 | Scaraboid | 22.3q | Amethyst | Whole | $1.2 \times 0.9 \times 0.6$ | GMIII C1 (+) | Topsoil |  |  | Well worked, blank. |
| 1181 | Bead | II. 12 | Scaraboid | 22.3 r | Limestone | Whole | $2.0 \times 1.7 \times 1.0$ | GMI 3F (3) | Topsoil |  |  | SI Cat. No. 821 |
| 707 | Bead | II. 12 | Scaraboid |  | Amethyst | Whole | $1.2 \times 0.8 \times 0.6$ | GM 1A (6a) 7 | Fill | IV-4 | Persian | SI Cat. No. 205 |
| 711 | Bead | II. 12 | Scaraboid | 22.3 s | Diorite? | Whole | $2.0 \times 1.6 \times 1.0$ | GM 0A F4 | Unit 3 | IV-3/4 | Persian |  |
| 706 | Bead | II. 15 | Flattened multitubular spacer | 22.3 t | Agate? | Whole | $2.0 \times 1.5 \times 0.6$ | GM 1C (0)+ | Topsoil |  |  | Well worked |
| 721 | Bead | II. 15 | Flattened multitubular spacer | 22.3 u | Carnelian? | Whole | $0.4 \times 0.9 \times 0.2$ | GM 2C P1A (6) | Pit | IV-1 | Crusader- <br> Mamluk | SI Cat. No. 97 |
| 2135 | Bead | II. 22 | Doughnut shaped |  | Gypsum? | Whole | $0.5 \times 0.9 \times 0.9$ | GMIII F1 (5) | Fill | III-15 | MBIIB-C |  |
| 2137 | Bead | II. 22 | Doughnut shaped |  | Rock crystal | Partial | $0.4 \times 0.8 \times 0.8$ | GMIII C1 (81) | Fill | III-16 | MBIIB-C |  |
| 759 | Bead | II. 22 | Doughnut shaped | 22.3 v | Carnelian | Whole | $0.3 \times 0.7 \times 0.7$ | GMI 4D (2) |  | I-1 | LBII | SI Cat. No. 422 |
| 727 | Bead | II. 24 | Flattened lozenge or diamond shaped | 22.3w | Carnelian | Whole | $1.2 \times 1.3 \times 0.3$ | GM 2A (5) 3 | Fill | IV-2? | Persian? | SI Cat. No. 89 |
| 777 | Bead | III. 1 | Small flat disk |  | Faience (gray blue) | Whole | $0.1 \times 0.5 \times 0.5$ | GMI TTD (+) | Topsoil |  |  | SI Cat. No. 346 |






TABLE 22.1. (continued)

| Reg. <br> No. | Object | Type | Subtype definition | Fig. | Material | Condition | Dimensions (cm) | Provenance | Architectural context/ locus type | Area Phase | Period | Comments |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Unclear | Bead | III. 2 | Short oblate globular |  | Faience (light grey green) | Whole | $0.6 \times 0.6 \times 0.6$ | GM 1A P6 | Pit | IV-4? | Persian? |  |
| 2067 | Bead | III. 2 | Short oblate globular |  | Glass (off white) | Whole | $0.3 \times 0.4 \times 0.4$ | GM 1A (9) 5 | Fill | IV-3/4 | Persian |  |
| 734 | Bead | III. 2 | Short oblate globular |  | Glass (light blue green) | Whole | $0.4 \times 0.5 \times 0.5$ | GM 2A (30) 4 | Fill | IV-7 | Iron IIB |  |
| 755 | Bead | III. 2 | Short oblate globular | 22.4j | Glass <br> (dark brown) | Whole | $0.5 \times 0.5 \times 0.5$ | GMI KB F9 | Unclear | KB2? | Iron IIB | SI Cat. No. 1115 |
| 774 | Bead | III. 2 | Short oblate globular |  | Glass (dull light yellow) | Partial | $0.6 \times 0.7 \times 0.5$ | GMI KB (26) 5 | Fill | KB2 | Iron IIB |  |
| 789 | Bead | III. 2 | Short oblate circular |  | Glass <br> (dark blue) | Whole | $0.5 \times 0.7 \times 0.7$ | GM 2B (43) | Fill | IV-6-7? | Iron IIB | SI Cat. No. 925 |
| 795 | Bead | III. 2 | Short oblate globular |  | Glass (off white) | Partial | $1.0 \times 1.0 \times 0.8$ | GMII A3 P1 | Pit | II-4? | Iron IIA? | With white trails |
| 782 | Bead | III. 2 | Short oblate globular |  | Glass (off white) | Whole | $0.5 \times 0.5 \times 0.5$ | GMIII A2 (18) | Fill | III-6 | Iron IB |  |
| 793 | Bead | III. 2 | Short oblate globular | 22.4k | Glass (off white) | Whole | $1.2 \times 1.9 \times 1.9$ | GMIII A2 (13) | Fill | III-5 | Iron IB | SI Cat. No. 954 |
| 787 | Bead | III. 2 | Short oblate globular |  | Glass (off white) | Whole | $0.6 \times 0.9 \times 0.9$ | GMI 4D (4) 4 | Street J | I-3 | LBII | SI Cat. No. 906 |
| 788 | Bead | III. 2 | Short oblate globular |  | Glass (off white) | Partial | $0.7 \times 1.0 \times 1.0$ | GMIII B (55) | Fill | 10 | LBII |  |
| 731 | Bead | III.3a | Short truncated bicone |  | Faience (light gray) | Whole | $0.3 \times 0.4 \times 0.4$ | GM 1C (0) | Topsoil |  |  | SI Cat. No. 79 |
| 735 | Bead | III.3a | Short truncated bicone | 22.41 | Faience (light green gray) | Whole | $0.6 \times 0.7 \times 0.7$ | GM 1B TT2 | Unclear | Unknown | Unclear |  |
| 743 | Bead | III.3a | Short truncated bicone | 22.4m | Glass <br> (dark blue) | Partial | $0.6 \times 0.6 \times 0.6$ | $\begin{aligned} & \text { GM 2A } \\ & \text { TT1 (0) } \end{aligned}$ | Topsoil |  |  |  |
| 714 | Bead | III. 4 | Long truncated convex bicone |  | Faience (off white) | Partial | $2.3 \times 0.8 \times 0.8$ | GM 2C (5) 2 | Fill | Post 3 | Unclear |  |
| 732 | Bead | III. 4 | Long truncated convex bicone | $22.4 n$ | Faience (light brown yellow) | Whole | $1.1 \times 0.5 \times 0.5$ | $\begin{aligned} & \text { GM 2A } \\ & \text { TT4 (5) } \end{aligned}$ | Fill | Unknown | Unclear |  |
| 2116 | Bead | III. 4 | Long truncated convex bicone | 22.40 | Glass <br> (dark green) | Partial | $3.4 \times 1.4 \times 1.4$ | $\begin{aligned} & \text { GM 2B } \\ & \text { TT1 (10) } \end{aligned}$ | Fill | IV-3? | Persian | With negatives of trails and scalloped decoration |
| 747 | Bead | III. 4 | Long truncated convex bicone | 22.4p | Glass (off white) | Whole | $2.9 \times 1.1 \times 0.7$ | GM 1B (10) 1 | Fill | IV-4/5 | Iron II? | Slightly flattened |
| 786 | Bead | III. 4 | Long truncated convex bicone | 22.4 q | Glass (off white) | Whole | $1.5 \times 0.8 \times 0.8$ | GMI 3D (6) | Fill | I-3? | LBII | SI Cat. No. 426, made with trail technique |
| 780 | Bead | III. 5 | Long thin cylinder |  | Faience? <br> (light green) | Partial | $0.8 \times 0.4 \times 0.4$ | GM 1B (11) 1 | Building I, <br> Room A? | IV-5 | Iron IIC |  |
| 775 | Bead | III. 5 | Long thin cylinder | 22.4 r | Egyptian blue | Whole | $1.4 \times 0.4 \times 0.4$ | GM 2B (37) 3 | Building II | IV-6 | Iron IIB | SI Cat. No. 846 |


TABLE 22.1. (continued)

| Reg. <br> No. | Object | Type | Subtype definition | Fig. | Material | Condition | Dimensions (cm) | Provenance | Architectural context/ locus type | Area <br> Phase | Period | Comments |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 740 | Bead | IV. 8 | Pear shaped |  | Terra-cotta | Partial | $1.6 \times 1.2 \times 1.2$ | GM 0A (7) 4 | Fill | IV-4/5 | Iron II? |  |
| 823 | Bead | IV. 8 | Pear shaped |  | Terra-cotta | Whole | $2.1 \times 1.2 \times 1.2$ | GM 2B F9 | Oven? | IV-5 ? | Iron IIC? | SI Cat. No. 712 |
| 824 | Bead | IV. 8 | Pear shaped |  | Terra-cotta | Whole | $1.8 \times 1.2 \times 1.3$ | GM 00A (3) 1 | Building I, <br> Room F | IV-5 | Iron IIC |  |
| 825 | Bead | IV. 8 | Pear shaped | $\begin{aligned} & 22.5 \mathrm{f}, \\ & 22.7 \mathrm{c} \end{aligned}$ | Terra-cotta | Whole | $1.4 \times 1.2 \times 1.1$ | GM 3B (10) | Building III, Unit 2 | IV-5 | Iron IIC | SI Cat. No. 20 |
| 826 | Bead | IV. 8 | Pear shaped |  | Terra-cotta | Whole | $1.8 \times 1.0 \times 1.0$ | GM 3B (10) | Building III, Unit 2 | IV-5 | Iron IIC |  |
| 821 | Bead | IV. 8 | Pear shaped |  | Terra-cotta | Whole | $2.1 \times 1.3 \times 1.3$ | GM 1B (11) 1 | Building I, <br> Room A? | IV-5 | Iron IIC |  |
| 822 | Bead | IV. 8 | Pear shaped | 22.5d | Terra-cotta | Whole | $2.1 \times 1.4 \times 1.4$ | $\begin{aligned} & \text { GMI 4D (3) } \\ & (‘ 77) \end{aligned}$ | Room F | I-3 | LBII |  |
| 712 | Bead | V. 3 | Cylindrical |  | Bone | Partial | $0.4 \times 0.4 \times 0.2$ | $\begin{aligned} & \text { GM 1A } \\ & \text { TT6 (2) } \end{aligned}$ | Unclear | Unknown | Unclear |  |
| 748 | Bead | V. 3 | Cylindrical |  | Bone | Partial | $1.0 \times 0.8 \times 0.5$ | GM + | Topsoil |  |  | Burnt and worn |
| 751 | Bead | V. 3 | Cylindrical |  | Bone | Partial | $1.1 \times 1.0 \times 0.7$ | GMIII A1 P1 | Unclear | III-1? | Persian? | Worn and smoothed |
| 796 | Bead | V. 3 | Cylindrical |  | Bone | Whole | $1.3 \times 0.8 \times 0.7$ | GMIII B (56) 4 | Room C | III-10 | LBII | Worn and smoothed |
| 797 | Bead | V. 3 | Cylindrical | 22.5 g | Bone | Whole | $1.0 \times 0.4 \times 0.3$ | GMI 2E (4) | Unclear | I-1-3? | LBII | Worn and smoothed |
| 799 | Bead | V. 3 | Cylindrical | 22.5i | Bone | Whole | $1.8 \times 0.7 \times 0.6$ | GMI 5D (7) 2 | Street J | I-3 | LBII | Burnt, SI Cat. No. 736 |
| 800 | Bead | V. 3 | Cylindrical | 22.5h | Bone | Whole | $1.2 \times 0.7 \times 0.6$ | GMI 3G (3) 1 | Unit L | I-3-4? | LBII | Worn and smoothed, SI Cat. No. 926 |
| 815 | Bead | V. 3 | Cylindrical |  | Bone | Whole | $1.3 \times 0.5 \times 0.5$ | GMI 4D (4) 3 | Room F | I-3 | LBII | Burnt |
| 749 | Bead | V. 5 | Lentoid | 22.5j | Bone | Whole | $0.6 \times 2.1 \times 2.1$ | GM 1D (9) 1 | Fill | IV-3? | Persian? | Worn and smoothed |
| 750 | Bead | V. 6 | Flat disk |  | Bone | Whole | $0.2 \times 0.6 \times 0.6$ | GM + | Topsoil |  |  | Roughly worked |
| 806 | Bead | V. 6 | Flat disk | 22.5k | Bone | Whole | $0.2 \times 0.9 \times 0.9$ | GMI KB (28) | Fill | KB3? | Iron IIA? | Possibly ivory |
| 1180 | Bead | V. 13 | Scaraboid | 22.51 | Bone | Whole | $1.5 \times 1.3 \times 0.7$ | GMI TTB (5) | Unclear | Unknown | Unclear | Possibly ivory, SI Cat. No. 307 |
| 1475 | Bead | VI. 1 | Flat disk |  | Shell | Whole | $0.1 \times 1.3 \times 1.3$ | GM 1B (10) | Fill | IV-4/5 | Iron II? | Actually a blank, no perforation, mother of pearl |
| 1476 | Bead | VI. 2 | Circular Conus whorl | 22.5 m | Shell | Whole | $0.3 \times 1.4 \times 1.3$ | GM 1C (3) | Unclear | Unknown | Unclear | Circular |
| 811 | Bead | VI. 9 | Cylindrical | 22.5 n | Shell | Whole | $2.0 \times 1.3 \times 1.2$ | GMI 5G (0) | Topsoil |  |  | Made from very thick shell, polished. |
| 564 | Fibula | I. 1 | Arched bow |  | Copper alloy | Partial | $5.4 \times 2.6 \times 0.7$ | GM 1B <br> NBR (6) | Unclear | Unknown | Unclear | Pin missing, corroded |
| 574 | Fibula | I. 1 | Arched bow | 22.6a | Copper alloy | Partial | $8.6 \times 3.0 \times 0.5$ | GMIII A1 F2 | Unclear | III-2? | Persian | Partial pin |
| 1347 | Fibula | I. 1 | Arched bow |  | Copper alloy | Partial | $6.0 \times 2.5 \times 3.0$ | GM 0A (6) | Unit 3 | IV-3/4 | Persian | SI Cat. No. 436 |


| 563 | Fibula | I.2a | Triangular bow with ribbed and beaded moldings | 22.6b | Copper alloy | Partial | $4.0 \times 1.8 \times 0.5$ | GM 1A (3) 2 | Unclear | Unknown | Unclear | SI Cat. No. 167, pin missing |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 567 | Fibula | I.2a | Triangular bow with ribbed and beaded moldings | 22.6c | Copper alloy | Partial | $4.1 \times 1.6 \times 0.6$ | GM 1B (1) 1 | Topsoil |  |  | SI Cat. No. 20A |
| 569 | Fibula | I.2a | Triangular bow with ribbed and beaded moldings | 22.6d | Copper alloy | Partial | $7.9 \times 2.8 \times 0.7$ | $\begin{aligned} & \text { GM 2C } \\ & \text { SBR (4) } \end{aligned}$ | Unclear | Unknown | Unclear | SI Cat. No. 608 |
| 571 | Fibula | I.2a | Triangular bow with ribbed and beaded moldings |  | Copper alloy | Partial | $6.6 \times 2.5 \times 0.7$ | $\begin{aligned} & \text { GM 1A } \\ & \text { TT11 (+) } \end{aligned}$ | Topsoil |  |  | SI Cat. No. 322 |
| 566 | Fibula | I.2a | Triangular bow with ribbed and beaded moldings |  | Copper alloy | Partial | $2.6 \times 6.5 \times 0.8$ | GM 1B F3 (1) | Pebbles | IV-1 | Crusader- <br> Mamluk | Pin missing |
| 568 | Fibula | I.2a | Triangular bow with ribbed and beaded moldings |  | Copper alloy | Partial | $4.1 \times 1.6 \times 0.6$ | $\begin{aligned} & \text { GM 1B TT1 } \\ & (4 \mathrm{~A}) \end{aligned}$ | Fill | IV-3? | Persian | SI Cat. No. 20b |
| 570 | Fibula | I.2a | Triangular bow with ribbed and beaded moldings |  | Copper alloy | Partial | $5.5 \times 2.0 \times 0.7$ | GM 1C (5A) | Fill | IV-3 | Persian | SI Cat. No. 121, pin missing. |
| 573 | Fibula | I.2a | Triangular bow with ribbed and beaded moldings | 22.6e | Copper alloy | Whole | $6.7 \times 3.3 \times 0.7$ | GM 2A (3) | Fill | IV-2? | Persian | SI Cat. No. 53 |
| 1348 | Fibula | I.2b | Triangular bow with varied ribbed, indented, and plain moldings | $\begin{aligned} & 22.6 \mathrm{f}, \\ & 8.61 \mathrm{r} \end{aligned}$ | Copper alloy | Partial | $4.1 \times 2.0 \times 0.8$ | GM 2A (30) 4 | Fill | IV-7 | Iron IIB | SI Cat. No. 734, pin missing |

disturbances (Adkins and Perry, 1989). Therefore, a critical examination of the specific context of each item is necessary to determine its stratigraphical assignment and date. In most publications, the data are insufficient. This highlights the importance of sites from which the available documentation enables a rigorous examination of stratigraphic detail. In the present report, insufficient data or unclear documentation have often caused the stratigraphical context of many items to remain vague and unclear.

The objects discussed in the present report were recovered from a broad range of stratified occupational contexts that are often generally associated to the MBIIB-C, LBII, Iron IB, Iron II, Persian, and Crusader-Mamluk periods of settlement at the site. The lack of clear documentation has often precluded a definite stratigraphical association for many objects; in such cases, the attribution is listed as "unclear." Of special interest are the six objects associated to the Iron Age IB because the finding of a ceramic kiln possibly producing Philistine pottery during this period makes the association of this period with the Philistines themselves, as the geographic location of the site also suggests.

The following section presents a discussion of each jewelry type found among the objects recovered from the Iron Age II strata. As many of the more common jewelry objects such as beads are not culturally or chronologically instructive, parallels and the dating of each type are discussed only when relevant.

## EARRINGS

A total of 22 earrings were recovered. The vast majority of these (19) were made of copper alloy, two were made of silver, and one was made of lead. Seven of the earrings are probably attributable to the Persian period, three to the Iron IIC, one to the Iron IIB, one to the Iron IB, and 10 to unclear contexts.

Type I. 1: Small Plain

These earrings have a solid crescentic body and a tapered, bent-over hoop, with the ends usually meeting at one side (Figure $22.1 \mathrm{a}, \mathrm{b})$. A total of 17 earrings of this type were recovered, all of which were found in a very corroded state. The majority (16) are made of copper alloy, and one is made of lead. ${ }^{1}$ The lead earring is associated to the LBII, whereas all the rest are made of copper alloy. One is associated to the Iron Age IB, three to the Iron Age IIC, and six to the Persian period, and the rest are of unclear stratigraphical context.

Also described in the literature as boat, leech, lunate, or crescent shaped, these earrings occur in a wide range of sizes. The hoop is generally short and thinner than the body, which is usually wider and thicker. Most commonly found made of copper alloy, this type is also found in gold, silver, and electrum, and gold or silver foil may also occur over a copper alloy core. Such earrings may be manufactured by casting or also by hammering a thick wire into shape, then rolling the ends of a thick wire between two flat surfaces in order to taper the ends. Subsequently, the wire could be bent into the desired shape.

This form is very common throughout the ancient world. It is first attested in Sumer in the middle of the third millennium BCE (Woolley, 1934:241, pl. 138), from where it spread westward throughout the Levant, being locally introduced during the Middle Bronze Age, for example, at Tell el-‘Ajjul (Petrie, 1934: pl. 18:85) and in Assyria at the same time (Maxwell-Hyslop, 1971:240) and passing out of fashion by the Hellenistic period (Kraay and Moorey, 1968:196; see Gjerstad, 1948:385 for a broad survey of the development of this earring type). In Egypt, this earring style became fashionable during the New Kingdom and may have been an Asiatic form imported into Egypt (Aldred, 1971:198), although its appearance there is rare.

## Type I. 1a: Small Plain with Elongated Hoop

A variant of the Type I. 1 earring described above (Figure 22.1c), this form features an elongated hoop that closes at the side. The present singular example is made of copper alloy and is associated to the Persian period.

This form first appears during the Iron Age I, e.g., at Baq'ah Cave A4 (McGovern, 1986: fig. 85:21), and continues through the Iron Age II and into the Persian period, such as at Ashkelon (Golani, 1996b: fig. 4:2). Most examples are of copper alloy; a few are of silver and gold (cf. Golani, 2009:242-243). Several examples of this type have also been found in Petrie's former excavations at Tell Jemmeh (Petrie, 1928: pls. I:3; XXIX:276) and are probably to be dated to the 12 th -10 th centuries BCE .

## Type I.3a: Small Plain with Short Hoop and Decorated

This type is a variant of the Type I. 1 solid lunate earring, decorated by wire (Figure 22.1d). In the present case, this singular earring is made of silver and is decorated by wound silver wire on both sides of the crescent and upon the hoop.

Such decorated earrings are locally found during the Late Bronze to the Iron I and II periods (cf. Golani, 2009:244-246), although they are never very common among the repertoire of earring forms. As they are more elaborate variants on the simple lunate form (see above Type I.1), the present type is nearly always found made of more expensive metals such as silver or gold. The present example is associated to the Iron IIB and finds a close parallel in gold at Megiddo, Stratum VIIA, dated to the 12th century BCE (Loud, 1948: pl. 225:18).

## Type I.6a: Multiple-Lobed Sling

This earring is made of copper alloy and consists of two solid double wires, tapered at both ends as in a Type I. 1 solid lunate earring and arranged together side by side, producing a form reminiscent of a broad sling or hammock (Figure 22.1e).

The present example is of unclear context but is identical in form and distinctive technique to examples from the Persian period at Kamid el-Loz, Graves 2, 5, 12, 13 (Hachmann and Penner, 1999: fig. 16:6) and Strata XI-VI at Tel Michal (Muhly and Muhly, 1989: fig. 25.10:182).


FIGURE 22.1. Earrings and rings.

The general form of this type, although of slightly different technique, goes far north and far back in time (Golani, 2009:248249). Three- and even up to seven-lobed examples in gold and silver are commonly found in southwestern Anatolia during the Early Bronze Age III, such as at Troy, where they are identified as hair rings (Antonova et al., 1996:53-74, cat nos. 17-67; see pp. 203-206 for a comprehensive discussion). Such earrings reach Tarsus during the same period (Maxwell-Hyslop, 1971:61-62, fig. 42c) and the southern Levant by the Late Bronze Age and even earlier during the Middle Bronze Age (17th century BCE) as is apparent from four hollow examples from a burial at Tel Beth Shean (Yahalom-Mack, 2007b:618, pl. 9.6:1-4).

The examples from the Persian period feature a distinctive constructional technique that creates the same effect as a doublelobed sling earring but with less effort. A short section of a thick wire was added parallel to the bottom part of an earring; the ends of this addition are then wound around the hoop of the earring itself to fasten it on. The advantage of this technique is that no soldering is needed, the form being made by hand with only two pieces of tapering wire.

## Type II.2: With Solid, Globular Attachment

Figure 22.1 f depicts a solid lunate earring with the remains of an attachment soldered onto the bottom of the lunate. Figure 22.1 g depicts an earring bearing a plain solid hoop, with a solid globular attachment soldered onto the lower, outer side of the crescent. Although much of the exterior is covered with cuprous oxides, the inner core of this earring appears to indicate its manufacture in silver or a silver alloy.

This type is a local form, beginning during the Middle Bronze Age and continuing throughout the Late Bronze to the Persian periods, found made of gold, silver, and copper alloy (Golani, 2009:257-258). The present example is of unclear context and could have originated from any one of the periods mentioned above. Four silver examples of this form are known from previous excavations at Tell Jemmeh (Petrie, 1928:10, pl. I:4) and are probably dated to the 12 th -10 th centuries BCE.

## SMALL RINGS

A total of 13 small rings were recovered. Any ring up to 3 cm in diameter is here designated as small. The vast majority of these (12) were made of copper alloy, and one was made of shell. Stratigraphically, three of the small rings are probably attributable to the Crusader-Mamluk period, three to the Persian period, one to the Iron IB, one to the MBIIB-C, and five to unclear contexts. Most of these rings are plain simple forms that could have functioned as earrings, nose rings, hair rings, or finger rings.

## Type I. 1: Plain

Five small plain rings were made of copper alloy wire, usually round in section, with tapering or squared-off (cut)
terminals (Figure 22.1h,i). The stratigraphical attribution of three rings is uncertain.

Such rings are a very simple and basic form that begins to appear in the Early Bronze Age (Ben-Tor, 1975: fig. 12:12). They may have functioned as finger rings, earrings, nose rings, or hair rings and are most commonly found made of copper alloy, although gold, silver, and iron examples are also present. The use of iron in the production of small rings, although not common, is found during the beginning of the Iron I, such as at Tell el-Far'ah (S) (Petrie, 1930: pl. 30:11), and numerous examples have been found in Tomb 65 at Khirbet Nisya (Livingston, 2002: fig. 8), dated to the 12 th -10 th centuries BCE .

## Type II. 1: Plain Spiral

Four rings were made of copper alloy wire, rounded or plano-convex in section, with tapering ends, wound one and a half times around in a spiral (Figure 22.1j,k). Spiral rings were found in the excavation of graves at Ur on skulls with earrings and sometimes on the upper shoulder, suggesting their threading over a long lock of hair (Maxwell-Hyslop, 1971:5). A very common form, spiral wire rings first appear in the Early Dynastic period at Ur and at Mari (Maxwell-Hyslop, 1971:5, 12, 20, pls. $5,15 a)$. In the southern Levant, they begin to appear in the Early Bronze Age I in gold and silver at Azor, where they are identified as earrings (Ben-Tor, 1975:24, fig. 12:10-12, pl. 22:6). They are found throughout the Iron I-II as well, as in a copper alloy example from a dolmen in the Golan (Epstein, 1985: fig. 2:1) and silver examples from Tel Miqne-Ekron (Golani and Sass, 1998: fig. 13:3).

## Type III.2a: Flattened, Open-Ended, Annular Rings

This type is a ring made of a flattened, hammered copper alloy in the form of a ribbon with rounded, tapering ends that are found overlapping (Figure 22.11). The present example is associated to the Crusader-Mamluk period. Simple examples of copper alloy occur as early as the Early Bronze Age, such as at Qiryat Ata (Golani, 2003: fig. 7.6:6; see also Golani, 2009:309311). These rings probably functioned as finger rings, although their use as hair rings is also possible.

> Type III.8a: Rings with Flattened, Oval-Shaped Bezel—Metal

This type is a copper alloy finger-ring made of a simple metal hoop with an oval-shaped bezel. The ring is partial, and only the bezel remains (Figure 22.1m). This type begins during the end of the Late Bronze Age in silver, gold, and copper alloy but becomes more common in the Persian period (Golani, 2009:322-324). Iron examples are found during the Iron Age II but appear more often during the Late Iron Age II and into the Persian period, when some are made of iron with silver plating. The bezel of the ring may bear an incised decoration, although in most examples the metal is so corroded that after cleaning, most of the bezels appear blank.

The present example is of unclear stratigraphical association. A similar copper alloy example has also been discovered in the past at Tell Jemmeh, dated to the 9th century BCE (Petrie, 1928: pl. XX:58).

## Type III.9A: Ring with Rectangular-Shaped Bezel

This type is a finger ring of copper alloy with a round shank, upon which a flat bezel of rectangular form is soldered (Figure $22.1 \mathrm{n})$. The present ring is heavily corroded and was found in a pit associated to the Crusader-Mamluk period.

## Type III.10: Closed Shell Ring

This is a flat ring cut out of a shell. A wide variety of shells may be used to create such a ring, either those with enough flat expanses to cut out a ring or large Conus shells with a thick apex, which could have been cut out and polished to produce a ring (Figure 22.1o).

The use of shells for small rings is uncommon and dates from the Middle Bronze Age, as does the present example. Parallels for this form are known from Shiloh (Sass, 1993:268, fig. 10.1:7) and Tel el-‘Ajjul (Petrie, 1931:8, pl. 23:2). Larger shell rings are often found much earlier (Bar-Yosef et al., 1986).

## LARGE RINGS

A total of nine large rings were recovered. Large rings are differentiated from small rings on the basis of size and probable function. Although their use as earrings or hair rings is possible, most large rings were more likely bracelets, armlets, or anklets. Except in child burials, a diameter of over 7.5 cm has been suggested as the dividing point between anklets and bracelets, which are expected to be smaller (Moorey, 1980:74).

## Type I.1: Open Rings with Tapered Terminals and Semicircular or Square Section

Two examples of thickened wire rings were made of copper alloy with semicircular cross section and open, tapering ends (Figure 22.1p). None of the rings have a clear stratigraphical attribution. Such rings may have been cast or hammered into shape and are usually made of copper alloy. The semicircular section may have been a result of casting in an open or closed mold or hammering a thick wire into an open mold with a semicircular channel, then removing the flattened wire and bending into shape.

## Type I.2: Open Rings with Tapered <br> Terminals and Round Section

Five large rings have a round section and open tapering ends (Figure 22.1q). These rings were cast or hammered into shape. Three of the large rings were made of copper alloy and two of iron. One ring of iron is associated to the Iron IIC; the other is
associated to the Persian period. Of the other rings made of copper alloy, one is associated to the Persian period; the others are of unclear context.

Made of simple thick wire with tapering ends, this form is the simplest and most common of all the large rings. They are common in copper alloy and iron examples and begin to appear at the very end of the Late Bronze and beginning of the Iron Age I, such as at Tomb C1 at Tell 'Eitun (Edelstein and Aurant, 1992: fig. 13:18-22) and Tomb 219B at Beth Shean (Oren, 1973: fig. 49:2).

## Type I.7: Open, with Flat Section

One partial example of an open, ribbonlike large ring made of copper alloy, heavily corroded, was found. The ring is of unclear context.

## Type I.8: Open, with Round Section and Flattened, Flaring Terminals

One partial example of an open large ring of corroded copper alloy with round cross section and flattened, flaring terminals (Figure 22.1r) was found. The ring is of unclear context.

## PENDANTS

Eleven pendants of various materials were recovered in the excavations. Although pendants may have a function very similar to that of beads, they are here defined as any jewelry object in which the stringing hole is found near one of the ends, enabling their suspension from a cord or thong so that they may be worn around the neck, arm, or hand. A pendant should be light enough to be worn comfortably, although our judgment on comfort may be different from that used in the past.

Pendants can take on almost any shape and can be made of metal, stone, bone/ivory, shell, siliceous materials, or terra-cotta, not to mention perishable items such as wood that are obviously invisible in the archaeological record. Pendants can also be used with beads as a part of an elaborate necklace.

## Type II. 1: Elongated Drop

Four roughly oval or drop-shaped stone pendants were made of flint, rock crystal, limestone, and an unidentified dark stone. The limestone pendant (Figure 22.2b) is associated to the MBIIB-C, the rock crystal pendant (Figure 22.2a) to the LBII, and the pendant of unidentified dark stone (Figure 22.2c) to the Iron IIC.

Elongated drop pendants are a very common form that may appear in many varieties differing in material, workmanship, and stylistic features. Such pendants may be crudely made, exhibiting no more than a perforation on a naturally occurring drop-shaped object, or a naturally occurring stone may be reshaped and smoothed into an elongated drop shape (McGovern, 1985:73, Type VI.F.2). These pendants have a time span and


FIGURE 22.2. Pendants.
distribution from prehistoric to modern times (see McGovern, 1985:74, n. 43) and may be made from almost any kind of stone.

## Type II.4: Lotus Bud

A carnelian pendant was sculpted in the form of a lotus seed bud (Figure 22.2 d ). The upper portion of the pendant that represents the stem of the bud and that bore the stringing hole is broken off. The back of this pendant is flat. The pendant is associated to the LBII period.

These pendants are usually made of carnelian stone, although the use of other kinds of stone in addition to faience, glass, gold, bone, ivory, and terra-cotta is also known (see McGovern, 1985:47-48; Herrmann, 2006:231-233, cat. nos. 452-464). This pendant type is found in variety of forms, ranging from naturalistic depictions of lotus buds to schematic representations.

These pendants may be categorized into two main varieties: flat backed (McGovern, 1985: Type IV.F.5.a) and a more common, fully rounded type (McGovern, 1985: Type IV.F.5.b; Beck, 1928:29, Type XXVI.B.3.d). Both types are contemporary from the Late Bronze Age to the Iron II periods.

Lotus bud pendants are of Egyptian inspiration and are very common during the LBII period at the time of increased Egyptian involvement in Canaan (McGovern, 1985:47-48). McGovern (1985:47-48) sees this type as a Late Bronze Age phenomenon, yet use of this pendant continues through the Iron I and II periods as well (Golani, 2009:375-376).

## Type II.5: Axe or Celt Shaped

Two axe- or celt-shaped pendants are made of carnelian stone (Figure 22.2e) and an unidentified gray stone. These
pendants have one broad and tapering end; the other end is tapered and bears a perforation for stringing. The stratigraphic association of both these examples is unclear.

Such pendants are common throughout the Late Bronze and Iron Ages, continuing to be found through the Persian and Hellenistic periods as well (Golani, 2009:377). Most examples are usually made of semiprecious stone, such as carnelian or hematite, and are well fashioned and smoothed, suggesting that the form was highly valued.

## Type II.6: Rectangular

A fragment of a flat, rectangular-shaped carnelian pendant was found (Figure 22.2f). The end bearing the stringing hole is missing. Made of carnelian, this pendant is possibly associated to the Persian period. Such pendants are common from the Late Bronze to the Persian periods and are made from a wide variety of stones (Golani, 2009:377-378).

## Type III. 1: Club

Two ivory pendants are in the form of an elongated club or stick, perforated at one end. One of the pendants is plain (Figure 22.2 g ); the other is decorated with incised lines, rings, and dots and is missing its lower half (Figure 22.2h). Both pendants are associated to the Iron IIA.

This type of pendant, usually made of bone or ivory, is typical of the Iron II in the southern Levant, with a distribution from Byblos in the north to Tell el-Far'ah (S) and Tell Jemmeh in the south (see Platt, 1972:158-206, 1978), although most examples appear within the region of Iron Age Israel and Judah (Golani, 2009:381-386). Although some Type III. 1 club pendants are plain, most are decorated with incised bands or transverse rings below the eyelet and/or near the lower end in addition to cross-hatching or "lattice work" incisions in the middle portion. Many decorated examples feature a succession of ring-and-dot incisions, usually arranged in columns along the sides. The ring-and-dot motif was widely used in decoration of bone/ivory and small stone objects already during the Middle Bronze Age and may represent a schematic depiction of an "eye" (Platt, 1978).

This pendant form appears to have been typical of the 10th-7th/6th centuries BCE. At Samaria, Crowfoot et al. noted that this pendant is found during the 10th-9th centuries BCE (1957:462). At Tell Beit Mirsim, Albright (1943:80) dated them to the 9 th -7 th centuries BCE, although a more recent dating for Tel Beit Mirsim, Stratum A, from where numerous examples have been recovered, posits an 8th century BCE date (Zimhoni, 1997b). Examples from 12th-11th century BCE contexts such as from Tel Masos (Fritz and Kempinski, 1983: pl. 105:5,6) and Tel Batash (Yahalom-Mack, 2006a:262-263, photo 129, pl. $57: 14)$ may push the range of this pendant type further back into the Iron I.

The distinctive design and decorative modes of this pendant, alongside its restricted geographical and chronological range in the southern Levant, have led some to define this type
as "Israelite jewelry" (Platt, 1972:158-206, 1978) as the bulk of these pendants appear to have been centered in the region of ancient Israel and Judah during the Iron Age II, suggesting this region as the source for this type.

The ubiquity of these distinctive pendants during the Iron II has been long been noted (Macalister, 1912:452-453; MacKenzie, 1913:62-63; McCown, 1947:272; Tufnell, 1953:382-383). The fact that they were found in tombs as well as in habitational contexts shows that they were also worn in everyday life. Platt (1972:198) suggested that the fact they are not found in pairs or groups in habitational contexts suggests that each was the possession of one individual or family, possibly indicating the number of individuals or families within one tomb. She also noted that at sites where quantities of fine gold and silver jewelry were found, such as at Tell el-Far'ah (S), there are relatively few such pendants, the latter being more common at sites in Judah, where the number of such luxury items is far less. This may reflect a less ostentatious, possibly "poorer" reality of the local Judean and Israelite population, leading Platt to suggest that that these pendants should be seen as "poor people's" jewelry (Platt, 1972:89, 1978). At Beit Mirsim, where at least 10 such pendants have been recovered, Albright (1943:80-81) noted the general lack of jewelry, which he interpreted as evidence of the poverty or simplicity of life in an Iron II provincial town. More examples of such pendants have been found in previous excavations at Tell Jemmeh, Levels 186, 190-195 (Petrie, 1928: pl. XXXIII:2,7,8,11,12,18,22), where they are generally dated throughout the Iron II.

## IV.8: Bulbous Sack

A small sack-shaped pendant is made of light beige-colored glass (Figure 22.2i). This item is associated to the CrusaderMamluk period. Simple sack- or drop-shaped pendants are common from the LB period, continuing into the much later Islamic periods as well.

## BEADS

A total of 267 beads were recovered in the excavations. Three beads were made of metal such as copper alloy or silver. Forty-seven beads were made of stone. Of these, the majority were of carnelian (25), whereas the others were made of a variety of stones that included limestone (3), hematite (3), amethyst, chalcedony, agate, rock crystal, diorite, gypsum, and various unidentified stones of different colors. A total of 183 beads were made of siliceous materials that included faience (154) and glass (28) beads of different colors. One bead was made of Egyptian blue. Fifteen beads were made of terra-cotta, 12 beads were made of bone, and 3 beads were made of shell.

Beads are one of the simplest and most ancient forms of jewelry. A bead is defined as any object used for adornment that has a stringing hole pierced through a central axis. Necklaces are usually made of beads, but they can also be used as singular items for adornment and as items of cultic or symbolic significance.

Beads are common among jewelry because they may repeatedly occur as parts of an existing creation such as a necklace, girdle, headdress or armlet or be sewn on the fringes of garments. Most beads certainly were used on necklaces and bracelets, although they may also function in a similar manner to pendants, seals, amulets, spindle whorls, tools, net weights, burnishers, and touchstones (Francis, 1988; Hughes-Brock, 1999:279-280).

The classification of beads in a logical scheme is a complicated task. Beck's (1928) research provides a classification system and a helpful nomenclature. In the present study, Beck's classification has been noted where possible. However, in Beck's system, form is the only consideration, so that his typology includes a very large number of types, but many of the same forms may be unrelated. As beads may be made of a wide range of materials, they have a great diversity in form, but the use of different materials usually dictates different types of form and decoration, e.g., what may be achieved in metal is often not possible in stone. Thus, beads of different materials by their nature lend themselves to certain forms, and some forms occur only in a specific type of material.

## Metal Beads

Metal beads (Type I) are not as common as those of stone (Type II) and siliceous materials (Type III). As Type I beads are usually made of precious metal, they are small and often hollow, thus using a smaller amount of material. Whereas fabrication in metal enabled the use of forms and decorative techniques that were not possible in other materials, it involved several intricate manufacturing stages and was thus labor intensive. Most of the metal beads identified at Tell Jemmeh have a long pedigree and were made of other materials as well.

## Type I.5: Plain Spherical or Squat Globular Hollow

A hollow metal bead of spherical or squat globular form (Beck Type I.B.1.a) was found. The bead bears much cuprous corrosion on its exterior, but the inner core appears to have been silver (Figure 22.3a). The present example is associated to the Persian period.

These beads are usually made in two halves formed in a doming block with a perforation punched through their apex and are then soldered together. Filing and polishing are often used to conceal the seam between the two halves.

Hollow beads of precious metal are known already during the Early Dynastic period in Mesopotamia and from Troy in the middle of the third millennium BCE (Maxwell-Hyslop, 1971:7-10, 53, pl. 6c). The technique of forming such beads in two halves on a doming block and then soldering the two together also appears locally during the Early Bronze Age, as found in the form of three drop-shaped, hollow gold pendant beads from 'Ein Ha-Me'ara in the western Negev of Israel (Haiman, 1989:180). However, rounded hollow beads appear primarily during the end of the Middle Bronze Age, such as at Tell el-'Ajjul (Maxwell-Hyslop, 1971:126), and continue to the end of the Iron II (Golani, 2009:418-419).

Type 1.10: Cylindrical
Three cylindrical beads (Beck Type I.D.2.b) are made of copper alloy sheet metal rolled into a tube, with the two ends then soldered or fused together by heat and pressure. Two of the beads (Figure 22.3b) are fused together, indicating that these beads were strung together. Although most such beads are plain, some are equipped with wire collars at their ends or otherwise decorated with granular decoration. The present examples are associated to the Persian period. This is a simple form that begins during the Chalcolithic-Early Bronze Age in copper alloy, silver, and gold (Golani, 2009:425).

## Stone Beads

Stone beads are generally simple geometric shapes with little or no decoration. Although the types of stone included nonprecious limestone and gypsum, most stone beads are made of a variety of colorful semiprecious stones such as carnelian, agate, and rock crystal. As they have a limited range of geometrical forms, each form is classified as a separate subtype of stone beads. Although many variations occur, this general scheme simplifies their classification.

Stone beads are relatively common in most jewelry assemblages. Before the widespread use of faience and glass in the latter half of the second millennium BCE, semiprecious stone was usually the most common raw material used to manufacture beads. The pleasing colors make them attractive, and the ancients imparted them with symbolic qualities and prophylactic powers. Typologically, stone beads are very poor chronological indicators.

## Type II.2: Short Oblate Globular

Five examples are of globular beads, all made of carnelian and slightly oblate in general form (Beck Type I.B.1.a; Figure $22.3 \mathrm{~d}, \mathrm{e})$. This generalized form is rounded; the stringing axis is usually slightly less than the diameter.

Commonly made of semiprecious stone such as carnelian, such beads are very common throughout most of the archaeological periods. Two of the present examples are associated to the Iron II, one is associated to the MBII, and the other two are of unclear stratigraphical association.

Type II.3: Short Convex Bicone (Lentoid Shaped)
One example is of a short carnelian bead with rounded shoulders and a sharp carination (Beck Type I.B.1.e; Figure 22.3f). The bead is associated to the Iron II period.

## Type II.4: Short Truncated Bicone

Six short biconical beads have carinated sides and truncated ends (Beck Type I.B.2.f; Figure 22.3g). Three of the beads are made of carnelian, two of limestone, and another of light brownish-pink stone. Three of these beads are associated to the


Persian period, one is associated to the LBII, and the remainder are of unclear stratigraphical association.

## Type II.5: Long Barrel

Two elongated beads are made of hematite with slightly bulging rounded sides (Beck Type I.D.1.b; Figure 22.3h). Both beads are associated to the Iron Age IIC period.

## Type II.6: Long Truncated Convex Bicone

Three elongated beads have a bulging rounded carination (Beck Type I.D.1.f; Figure 22.3i). Two of the beads are made of carnelian; one is made of chalcedony. The beads are associated to the LBII, the Iron IIC, and the Persian periods.

## Type II.6a: Long Truncated Convex Bicone <br> (Flattened or Faceted)

Of similar shape to Type II.6, this bead bears two opposing sides that were ground down, producing a flattened form (Beck Type XVI.D.1.f). Two beads of this type were recovered, one of which, made of carnelian (Figure 22.3j), is associated to the LBII; the other (Figure 22.3k), of unidentified dark stone, is of unclear stratigraphical association.

## Type II.7: Long Truncated Bicone

Three elongated beads have a pronounced carination (Beck TypeI.D.2.f). Two of the beads are made of carnelian (Figure 22.31 ) and one of an unidentified black stone (Figure 22.3 m ). One of the beads is associated to the Iron IB, one is associated to the Crusader-Mamluk period, and the third is of unclear stratigraphical association.

## Type II.9: Short (Disk) Cylinder

Three short beads have straight sides and a wide doublecone perforation executed from both sides (Beck Type I.A.2.b). One of the beads (Figure 22.3n) is made of gray stone and is associated to the Crusader-Mamluk period; the others are made of hematite and carnelian and are associated to the Persian period or are of unclear stratigraphical association.

Although these beads have an extended chronological range, they appear to have been more common during the EB-MB periods, probably because of their short length, which facilitated the drilling of the perforation from both sides. All these beads bear a wide double-cone perforation.

## Type II.10: Cylindrical

Eight are elongated straight-sided beads of cylindrical shape (Beck, 1928: type I.D.2.b; Figure 23.3o,p). Two of these beads are made of unidentified dark gray and light brown stone and are associated to the Iron IIC, one bead is made of carnelian
and is associated to the Crusader-Mamluk period, and the other five are made of unidentified dark gray stone and reddish stones, probably carnelian or sard, and are of unclear stratigraphical association. This is a common form that begins already during the prehistoric periods.

## Type II.12: Scaraboid

Four beads have a scaraboid shape; all are blank on their flat bottom (Beck Type XVI.C.4.f.b; Figure 22.3q,r). Two of the beads, made of amethyst and diorite, are associated to the Persian period; the other two, made of limestone and amethyst, are of unclear stratigraphical association.

Scaraboid-shaped beads come into use along with the appearance of the scarab, which was usually used as an official seal beginning in the Middle Bronze Age. This indicates that the form of the scarab itself was held in esteem, probably because of the Egyptian belief that the scarab, or sacred dung beetle, moved the sun through the sky (Watterson, 1996:51-53).

## Type II. 15: Flattened Multitubular Spacer

Two flat spacer beads were formed by drilling two or more parallel perforations through the thin side of a flattened rectangular stone piece, then carving deep or shallow parallel grooves between these perforations in order to produce a multitubular form (Beck Type XVII.A.2.a). This type is also often made of siliceous materials. One of these beads, made of carnelian, is associated to the Crusader-Mamluk period (Figure 22.3t), whereas the other, made of agate (Figure 22.3u), is of unclear stratigraphical association.

Type II. 15 beads usually bear between two and four perforations. Macalister (1912:108-109) saw these as being beads of Egyptian inspiration that were locally introduced during the "Second Semitic Period" (Middle Bronze Age), although none of the dated examples of this bead type predate the 13th century BCE (Golani, 2009:433-434). This bead type is also not found in the Persian period or later, so the present examples, retrieved from the Crusader-Mamluk strata and from an unclear context, probably originated from the Late Bronze or Iron Age occupations at the site.

Although spacers are commonly considered to have functioned as beads, they could also have been used as pendants incorporated in a necklace. A reconstruction of a rich necklace of beads and pendants from Grave 45 at Assur, dated to the Iron II, shows spacers used in this fashion (Wartke, 1999: figs. 2, 10).

## Type II.22: Doughnut Shaped

Three small disk-shaped beads have rounded sides (Beck, 1928: Type I.A.4.f.b), producing a "doughnut" shape (Figure $22.3 \mathrm{v})$. Two of the beads, made of gypsum and rock crystal, are associated to the MBII occupation, whereas the third, made of carnelian, is associated to the LBII. Such beads are common from the Early Bronze Age onward.

## Type II.24: Flattened Lozenge or Diamond Shaped

A flat and square-shaped carnelian bead was found; the perforation was executed between two corners on a diagonal axis (Beck Type XVI.C.2.e; Figure 22.3w). This bead is associated to the Persian period.

Beginning in the 12th century BCE, this type is relatively rare. Examples from the Persian period, such as at Tel Shor (Golani, In press), are generally smaller and more finely crafted than earlier specimens from the Iron I and II periods, such as at Tombs 532 and 201 at Tell el-Farah (S) (Starkey, 1930: pl. H:40).

## Siliceous Beads

Siliceous beads made of glass, faience, and Egyptian blue are grouped together because the basic raw ingredient for all these materials is silica, whose plastic nature enabled a larger variety of forms and decorations than metal, stone, bone, or shell. Beads of faience and Egyptian blue are unichrome and were often made in a mold, enabling mass production of standard forms. Glass beads, on the other hand, are less common as they were individually made and varied in form and decoration, although for the most part they continued the same forms found in faience.

Siliceous beads were the most common type found throughout all the occupational levels at Tel Jemmeh. The majority of the types reflect common local traditions that began during the Middle Bronze Age (primarily in faience) and continued into the Late Bronze Age, Iron I-II, and Persian periods. Like stone beads, most siliceous beads have simple forms that are not culturally or chronologically instructive.

## Type III. 1: Small Flat Disk

One hundred and forty small flat disk beads (Beck Type I.A.2.b) were made by cutting slices off of a tubular bead of faience formed around a thin wire or stick when still in a plastic state and then firing them (Figures 22.4a-d, 22.7e). Such beads are often mass produced and may be strung in the hundreds to form a necklace or a more complex beadwork decoration (BosseGriffiths, 1975). They are common in faience of all colors and are usually unglazed. Some 126 such beads were found together in Room A of Building I and appear to have made up a necklace.

One such bead is associated to the MBII, 1 to the MB-LB transition, 2 to the Iron IIB, and 132 to the Iron IIC; 1 is generally assigned to the Iron II, and the remaining 3 are of unclear stratigraphical association. These beads occur from the Early Bronze Age onward and are very common.

## Type III.2: Short Oblate Globular

Twenty-three beads have a round, slightly oblate form and are made of faience or glass (Figure 22.4e-k). Although many of these beads are somewhat asymmetrical or squat, the general tendency is toward a globular shape (Beck Type I.B.1.a). The faience examples were made by shaping the bead in a plastic
state around a stick or wire and then firing or by impressing the material within a mold. Most of the glass beads were made using a "trail" technique of winding a molten glass trail around a stick or wire.

Two glass beads were found associated to the LBII, two glass beads to the Iron Age IB, five glass beads to the Iron II, one glass bead and one faience bead to the Persian period, and one faience bead to the Crusader-Mamluk period, and eight glass and three faience examples originate from unclear stratigraphical contexts. This form is very common from the Middle Bronze Age onward.

## Type III.3a: Short Truncated Bicone

Three short biconical beads of faience and glass have carinated sides and are truncated at both ends (Beck Type I.C.1.f; Figure $22.41, \mathrm{~m}$ ). The faience beads were made by molding faience around a stick or wire or by impressing within a mold. The glass examples were made by impressing into a mold or by handtooling a lump of viscous glass while it was on a stick or wire. All three beads originated from unclear stratigraphical contexts. This type is common from the Middle Bronze Age onward, although in glass this form is found primarily from the LB period onward.

## Type III.4: Long Truncated Convex Bicone

Five elongated beads with pronounced rounded sides (Beck Type I.D.1.f) were made by molding faience around a stick or wire or by impressing within a mold. Examples in glass (Figure $22.4 \mathrm{o}-\mathrm{q}$ ) are free-formed on a rod and frequently feature trail decoration, wherein a molten glass strand of contrasting color is wound around the bead when it is still in a viscous state; the strand is then impressed into the bead. The bead in Figure 24.4o was further decorated by scalloping, whereby the molten glass strands were partially drawn across the surface of the bead. As the strands are often of slightly different material than the underlying bead, weathering of these objects often causes the decorative strands to disintegrate, leaving the bead with a "ribbed" effect.

One of these beads originates from the LBII occupation, one from the Iron Age II, and one from the Persian, and the remainder are of unclear stratigraphical context. This type is extremely common, found in use from the Early Bronze Age onward.

## Type III.5: Long Thin Cylinder

Two thin, tubular beads (Beck Type I.D.2.b) were found, one made of faience and the other of Egyptian blue (Figure 22.4r). The beads were made by molding faience paste around a stick or wire and then firing. Both these beads are associated to the Iron II. This form is common from the Middle Bronze Age onward.

## Type III.6a: Long Thick Cylinder with Spiral Decoration—Glass

Two cylindrical glass beads were made by molding molten glass around a wire core, then impressing drawn glass strands in


FIGURE 22.4. Faience and glass beads.
a spiral fashion into the body of the bead (Beck Type XLVII.A.7; Figure $22.4 \mathrm{~s}, \mathrm{t})$. One of these beads is associated to the Iron I, the other is associated to the Persian period. Such beads become common with the major onset of glass production during the Late Bronze Age, continuing into the Persian period as well.

## Type III.8: Granulated Bead

Two beads feature a geometric grid decoration in relief around the circumference of the bead. Also termed "grape cluster" or "pineapple" beads (Beck, 1928:27, Type XXV.A.5), these beads may have been made in a mold or may have been handtooled while still in a plastic state (Figure $22.4 \mathrm{u}, \mathrm{v}$ ). One of the beads is associated to the Iron Age II; the other is of unclear stratigraphical association.

Commonly made in faience or Egyptian blue, this distinctive form appears at the end of the Late Bronze Age such as at Tell es-Sa'idiyeh (Pritchard, 1980: figs. 19:26, 42, 56:1), continuing into the Iron I and the Iron II, such as at Lachish Burial Cave 1002 and Tombs 107, 116, 120, 218, and 224 (Tufnell, 1953: pls. 38:2, 66:41-43), but it apparently passed out of fashion during the late Iron II (Golani, 2009:442). No examples are known after the 8 th -7 th centuries BCE.

## Type III. 10: Scaraboid

A blank scaraboid bead (Beck Type XXXVI.D.4.f.b) was made of faience (Figure 22.4w). The bead is associated to the Iron II. Scaraboids are probably the most numerous and longlived of all the Egyptian-style amulets, and in simplified blank form, they were often used as beads (see Petrie, 1914:23-25; Andrews, 1994:50). Pierced blank scarabs have been employed as beads ever since the common appearance of scarabs in the second millennium BCE, suggesting that the form itself was of symbolic importance even when no seal inscription is found on the underside. Although the scarab depicts the lowly dung beetle, it was interpreted as representing life, creation, and resurrection (Watterson, 1996:51-53). Most often made in steatite and faience, scaraboids are also made from other types of stone as well as glass (see above stone bead Type II.12). In a study of 97 scaraboids of various materials originating from selected sites of the 8th-6th centuries BCE in the southern Levant, Limmer (2007:344) observed that $24 \%$ were made of siliceous materials, such as faience or glass.

## Type III. 12: Eye Beads

Glass beads with various circular designs symbolizing "eyes" are common throughout the Mediterranean from the latter half of the second millennium BCE, where they have been found in a variety of styles, colors, and techniques (see Eisen, 1916; Spaer, 1985; Figure $22.4 \mathrm{x}-\mathrm{z}$ ). Eye beads were common in Egypt during the Late Bronze Age and appear in Mesopotamia and the southern Levant at the same time, but the fashions adopted locally appear to be closer to those of Mesopotamia than to those of Egypt (Spaer, 1985).

During the second and well into the first millennium BCE, the eye decoration on glass beads is usually made by the "stratified" technique, whereby successively smaller and concentric globs, or "spots," are laid upon or impressed into a glass bead, with the "ring" around the spot of the eye being formed by the underlying matrix. These beads are generally flat or planoconvex in shape, bearing only one eye (see Figure 22.4z). In a later variation of this technique that first appears in the Iron Age II, the spot of the eye is outlined by contrasting glass trail rings impressed into the bead (Figure 22.4x,y). Glass beads with multiple eyes using both techniques occur primarily during the late Iron Age II and Persian period, when the technique of making ever-smaller eyes on one bead (crowding) became more and more developed (Spaer, 2001:81). The stratified eye technique was common throughout the eastern Mediterranean until it was replaced by the "cut-cane" technique in the 3rd century BCE. Although the bulk of the Mediterranean stratified eye beads appear during the Persian period, similar eye beads in other regions appear slightly later. New fashions and techniques appear to frequently have had their origins in the eastern Mediterranean, later reaching other regions, where they stayed in fashion longer than in the area of their inception (Spaer, 1985:3).

The symbol of the eye has always played a prominent role in superstitious belief and practice. The symbol, even if rendered in schematic form on a bead, is commonly regarded as protective, guarding against the "evil eye" (see Elsworthy, 1895; Eisen, 1916; Spaer, 2001:77).

The simplicity and expressiveness of the symbol, most often executed in glass, lends itself to many variations. Three varieties of eye beads were found. One is a barrel-shaped eye bead (Type III.12c, Beck, 1928: Type XLVII.C.4.f.b, fig. 4:24) associated to the Persian period; a short, oblate, circular eye bead (Type III.12d, Beck Type XLVII.C.1.a.; Figure 22.4y) is also associated to the Persian period, and the third is a planoconvex circular eye bead (Type III.12e, Beck Type XLVII.A.2.d; Figure 22.4 z ) associated to the Crusader-Mamluk period, although this latter item probably originated from earlier occupational strata.

## Type III. 16: Fluted Beads

Two faience beads of cylindrical form (Type III.16c, Beck Type XXIII.D.2.b) and two faience beads of round plano-convex shape (Type III.16d, Beck Type XXIII.B.1.d) all bear a fluted decoration (Figure 22.4aa,bb). Such beads are also found in metal and stone, although they are more commonly made of siliceous materials such as faience. One of the beads is associated to the Iron II, one is associated to the Persian period, and the remainder are of unclear stratigraphical context.

Fluted siliceous beads (Type III.16) are found in a variety of forms that first appear during the MBII period when the use of faience becomes common in the southern Levant. However, most varieties begin during the Late Bronze period, where they are common among bead assemblages. These forms often continue through the Iron Age I and into the Iron II, although in smaller amounts, and by the Persian period, most bead types
with fluted decoration cease to be found. Faience varieties of these beads were probably formed in a mold or may have been hand formed.

## Type III.20: Rectangular

A flat rectangular-shaped faience bead was found (Beck Type X.C.2.b; Figure 22.4cc). Two deep wedges are found cut into the opposing narrow sides. One of the broad sides is decorated by two gray blobs of siliceous material. The bead was retrieved from an unclear context.

Although generally uncommon, rectangular beads are so far known primarily from the end of the Iron Age I, such as at Azor, Stratum IV (Golani, 2012), and through the Persian periods, such as at Tel Shor (Golani, In press). The decoration of cut wedges and spots in relief is unique.

## Type III.26: Flat Lozenge or Diamond Shaped

A flat and square-shaped dark blue glass bead was found (Figure 22.4dd); the perforation was executed between two corners on a diagonal axis (Beck Type XVI.C.2.e). This bead is of unclear stratigraphical context. This is a relatively rare form (see above Type II.24).

## Terra-cotta Beads

Terra-cotta beads were fashioned around a stick or wire and then dried or fired. Beads of fired or sun-dried clay are made of an inexpensive, readily available material that can be easily formed into any desired shape. However, beads of this material were generally unpopular. A general disdain for terra-cotta beads may explain why so few are described in scholarly publications, wherein attractive, colorful, and decorated beads of stone, siliceous materials, or metal are much more prevalent. As terra-cotta beads were not necessarily fired, they are not as well preserved as other more durable materials such as siliceous materials, stone, and metal. Aside from the fact that clay ornaments were less aesthetically pleasing than those made of other materials, terra-cotta itself apparently did not possess the same significance for the wearer as the symbolic and colorful semiprecious stones, glass, and faience.

## Type IV.3: Cylindrical

A cylindrical-shaped bead (Beck Type I.D.2.b) is made of clay, slightly restricted at its middle (Figures 22.5a, 22.7a). The bead was retrieved from an unclear context. This is a very simple form that may appear throughout most archaeological periods.

## Type IV.5: Doughnut Shaped

Two short doughnut-shaped beads were found (Beck Type A.4.d.b; Figure 22.5b). One bead is associated to the Iron II, and the other is associated to the LBII period. This is a very simple form that may appear throughout most archaeological periods.

## Type IV.7: Truncated Biconical

A short truncated biconical bead (Beck Type I.B.2.f; Figure 22.5 c) was retrieved from an unclear context. This form is rare and may appear throughout most archaeological periods.

## Type IV.8: Pear Shaped

Eleven short or elongated pear-shaped beads were found (Beck Type I.D.1.g; Figures $22.5 \mathrm{~d}, \mathrm{e}, 22.7 \mathrm{~b}, \mathrm{c})$. The perforation was not produced through the central axis but was rather placed obliquely, made by a thin wire or stick that was punctured through the clay when it was still in a plastic state. The perforation is usually found in the center of the broad end, protruding out from the side on the curving shoulder.

One such bead is associated to the LBII, six to the Iron IIC, and one to the Persian period, and the remaining three are from unclear stratigraphical contexts.

Although these beads are simple and crudely made, their form and perforation are distinctive. All known examples originate from southern sites such as Stratum IIA at Tel 'Aroer, dated to the 7th century BCE (Thareani, 2011: figs. 125:17, 3.111). The sole example from an LBII context at Tell Jemmeh suggests that it may have been intrusive from the late Iron II occupation at the site.

## Bone Beads

Bone beads are not very common, although bone was a readily accessible and inexpensive material. Their lack of popularity was probably because bone does not possess the color range of semiprecious stones and siliceous materials.

## Type V.3: Cylindrical

Eight cylindrical beads were made of a cut and hollowedout bone segment (Beck Type I.D.2.b; Figure 22.5g-i). Five of the beads are associated to the LBII and one to the Persian period, and the remaining two are of unclear stratigraphical context.

Bird bones are especially suited to the production of such beads as they are hollow and may therefore be cut into segments. One of the beads indeed shows evidence of such cut marks that testify to its production method.

## Type V.5: Lentoid

A bone bead has a lentoid shape (Beck Type I.A.1.e; Figure $22.5 \mathrm{j})$. The bead is associated to the Persian period. Although these objects are often described as spindle whorls, the small size of the present object precludes its identification as anything other than a bead. Such objects are known from the Middle Bronze Age until modern times.

## Type V.6: Flat Disk

Two bone beads have flat disk shape (Beck Type I.A.1.b; Figure 22.5 k ). One bead is associated to the Iron II; the other is of


FIGURE 22.5. Clay, bone, and shell beads.
unclear stratigraphical context. The flat surfaces of scapulae and pelvic bones are well suited to the production of such beads. These beads are very common from the prehistoric to modern times.
Type V.13: Scaraboid

A bone bead of scaraboid shape is blank on its flat bottom (Beck Type XVI.C.4.f.b; Figure 22.51). The bead was recovered
from an unclear stratigraphical context. Scaraboid beads of bone are cheaper imitations of those made of stone or siliceous materials (see above Types II. 12 and III.10).

## Shell Beads

Although shells are an inexpensive and readily available material, their use as ornaments is always limited by the size
and structure of the raw material. The origin of the shells is an indicator of trade connections.

## Type VI.2: Circular Conus Whorl

A flat bead is made of the apical or body whorl of a large Conus shell, produced by sawing or abrading to produce a circular shape (Figure 22.5 m ). The perforation was drilled through the center of the broad side or may have been a natural opening in the shell (Beck Type IX.A.2.b). The bead is of unclear stratigraphical context.

Such beads, in square and rectangular form, often found polished, have been termed "Conus whorl beads" and are found throughout the ancient Near East as early as the Chalcolithic period (Reese, 1986:324-326). The size of the present object indicates that it could have been made of a Mediterranean species (Conus mediterraneus).

## Type VI.9: Cylindrical

A cylindrical-shaped bead (Beck Type I.D.2.b) is made of a thick portion of shell, sculpted in the form of a cylinder, then perforated (Figure 22.5n). The bead was retrieved from an unclear stratigraphical context.

## FIBULAE

Twelve fibulae that could be identified as to type were recovered from the excavations. All were made of copper alloy. Numerous more fragments of fibulae and fibulae pins were also found, but these were too fragmented or corroded to be identified as to type.

## Type I.1: With Arched Bow and Plain or Collared Bead on Each Arm

Three cast fibulae have a wide, curving bow and a decoration of plain or collared molded beads on each arm (Stronach Near Eastern Type II.4; Mazzoni Type 3; Figure 22.6a). The pin is missing in most of these examples. One of these fibulae was found in an unclear context; the other two are associated to the Persian period.

This is one of the most common and distinctive local fibula types that may be generally dated to the Iron II. The origin of the wide-arched form with a decorative bead on each arm may be found in mainland Greece during the Iron I period (Stronach, 1959:191-192). According to Stronach, this form is locally found from the beginning of the 9 th century BCE, where it underwent a local development toward an increasingly angular bow (see Type I. 2 below). Mazzoni (1992:236-238) has lowered the date of this form, concluding that in Syria it appears no earlier than the end of the 8th century BCE and is primarily to be regarded as a late Iron Age form, whereas all examples of this form found in Persian period context are seen as "out of fashion survivals" (p. 237). The present examples from Tel Jemmeh could have originated from the Iron Age II strata at the site.

## Type I.2: Fibulae with Triangular Bow

Usually refered to as "knee" or "elbow" fibulae, Stronach saw the triangular bow shape of fibulae as common throughout the Near East in various forms from the 8th century BCE to the 1st century CE (Figure 22.6b-f). Angular fibulae with a bead on each arm are locally found in tomb groups of the 8th century BCE and appear to be a local development of the arched form with a similar decoration (see above). By the end of the 8th century BCE, angular fibulae had already spread westward to Egypt and eastward to Mesopotamia, where they underwent a rapid evolution during the 7th century BCE and remained a standard form during the Achaemenian period until Roman times (Stronach, 1959:193-194). Mazzoni (1992:244-246) sees the local introduction of these forms as no earlier than the end of the 8th century BCE but, on the basis of the Syrian examples, pinpoints the height of their popularity to the Persian or late Iron periods. Two subtypes were identified.

## Type I.2.a: Triangular Bow with Ribbed and Beaded Moldings

This type includes cast angular fibulae with a molded bead and ribbed decoration (Stronach Type III.7; Mazzoni Type 5c; Moorey Type f). Eight examples of this type were recovered (Figure 22.6b-e); three are associated to the Persian period, one is associated to the Crusader-Mamluk period and is probably intrusive, and the remaining four are of unclear stratigraphical association.

This type may be compared with the vast majority of the triangular fibulae from the Near East. The present forms are typical local types commonly found in the Late Iron Age and Persian periods. Mazzoni sees this form as typical of the Persian period, to which she dates nearly all the Syrian examples (Mazzoni, 1992:244; Pedde, 2000).

## Type I.2.b: Triangular Bow with Varied Ribbed, Indented, and Plain Moldings

This type is a cast angular fibula with a more rounded angle and a decoration of ribbed, indented, and plain moldings (Stronach Type III.8). The singular example of this type (Figure $22.6 f$ ) is associated with the Iron IIB. Similar fibulae come from Tell Jemmeh (Petrie, 1928: pl. XVIII:1) and Byblos (Pedde, 2000:175-181, pl. 26:369, Type C1.2). A variant of Type I.2, this type also appears in the 8th-5th centuries BCE throughout most of the Near East, with a few examples appearing in the Greek isles to the west (cf. Stronach, 1959:200-201).

## SUMMARY AND DISCUSSION

The present assemblage of jewelry items from Tel Jemmeh represents 322 jewelry objects and 12 fibulae and fibulae fragments from a multiperiod site (Figure 22.7). Unfortunately, many of the objects originate from unclear or problematic contexts


FIGURE 22.6. Fibulae.
and are thus of limited chronological value. Small objects such as jewelry are especially prone to be more mobile and are thus easily displaced from their original stratigraphic context. This is not unusual; in a study of small objects from a multiperiod site such as the City of David excavations in Jerusalem, only $25 \%$ of the small finds were considered to have originated in a good stratigraphic context, whereas the remainder was of questionable context (Zuckerman, 1996:276-278). In addition, because of the conservative nature of many jewelry types, their chronological and cultural association may span many centuries and geographical regions.

The assemblage originates from several archaeological periods, yet 88 of the objects are of unclear stratigraphical association and may not be linked to any archaeological period at
the site. Jewelry associated to the MBIIB-C period includes six objects, yet only one type, an example of a Type III. 10 shell ring, although generally uncommon, may be seen as being indicative of this period.

The jewelry associated to the LBII period includes 17 objects; the majority are beads that are of little or no chronological or cultural significance. However, the presence of a Type II. 4 lotus bud pendant is very typical of this period, reflecting a period of increased contact with the Egyptian cultural sphere.

Jewelry associated to the Iron IB period includes six objects, none of which are exclusive to this period or may be associated specifically to a Philistine occupation at the site.

Some 177 objects are associated to the Iron II period, yet of these, the association of 10 objects is questionable. Of the


FIGURE 22.7. Photographs of beads and necklaces: (a) see Figure 22.5a, (b) see Figure 22.5e, (c) see Figure 22.5f, (d) Reg. No. 819, carnelian beads, part of a necklace, and (e) Reg. No. 819, faience beads, part of a necklace.
remaining 167 objects, 2 are associated with certainty to the Iron IIA, 12 to the Iron IIB, and 153 to the Iron IIC. The objects associated to the Iron IIA are two Type II. 1 bone/ivory club pendants that are typical and indicative of the Iron II period. The objects associated to the Iron IIB include primarily beads but also include a fragment of a Type I.3a decorated silver earring and a Type I.2b fibula, both typical of this period. The large number of objects associated to the Iron IIC include primarily beads; a collection of 5 Type II. 2 carnelian beads were found together with 130 Type III. 1 beads within Room A of Building I, associated to the end of the Iron II (Iron IIC) and may have made up part of a necklace. A collection of 11 distinctive Type IV. 8 terra-cotta pear-shaped beads found at Tell Jemmeh are probably exclusive to the late Iron II. Although only four such beads are associated to the Iron IIC at this site and seven more identical beads are associated to various other occupations or are of unclear context, the distinctiveness of this form and its manufacturing technique, along with the fact that other exact parallels are known from the Iron IIC at Tel 'Aroer, posit this particular type as indicative of this period.

A total of 39 objects are associated to the Persian period, yet of these, 15 are of questionable association. The Persian period objects compose a varied selection of earrings, small and large
rings, pendants, and beads, the majority of which are not necessarily indicative of this period. A notable exception is the finding of a Type I.6a earring of distinctive constructional technique that finds parallels only at Persian burial sites in the southern Levant. At Tell Jemmeh, this earring was not found in a stratified occupational context. The small size of a Type II. 24 bead found at Tell Jemmeh is typical of the Persian period, although the general form is known from earlier periods as well.

Eleven objects are associated to the Crusader-Mamluk period, although none are indicative of this period.

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## NOTE

1. The earring was made of $98 \%$ lead. This determination was given by S. Shalev of Haifa University (personal communication), who examined the object using an X-Ray fluorescence hand-held spectrometer.

# Stone Artifact Assemblage from Tell Jemmeh 

Yorke M. Rowan

## INTRODUCTION

In contrast to studies of other material culture assemblages, analyses of ground stone artifacts remain at an analytical disadvantage. The scarcity of published comparative material hinders ground stone studies despite their ubiquitous presence at ancient sites. Published reports from large tell excavations typically include what we must assume, for lack of quantification, are samples of the ground stone assemblage, typically represented by the finer forms (stone bowls and footed mortars) or distinctive and unusual artifacts. Yet most archaeologists are well aware that excavators probably excavated many more artifacts of a quotidian nature, such as handstones, grinding slabs, hammerstones, and other working implements. Although a few such artifacts may be selected for publication, there are few site reports that provide the complete, quantified ground stone assemblage. This seems to be equally true whether a site is primarily dated to prehistoric or historic periods. Admittedly, this pattern is beginning to change, with publications such as Ras Shamra (Elliott, 1991), Tell Michal (Singer-Avitz, 1989b), the renewed excavations at Megiddo (Sass, 2000), and a few others, but one may still visit large tell excavations where ground stone artifacts are collected in a large pile without provenience.

The term "ground stone" is something of a misnomer, as ground stone artifacts include a variety of tools, vessels, and decorative objects created through a variety of modification techniques, including flaking, pounding, abrasion, pecking, and grinding. These artifacts are both modified to create the initial tool and, in many cases, further modified through continual use.

The ground artifacts included in this discussion ( $N=579$; see Appendix 23.1) were recovered during excavations conducted from 1970-1984 and temporarily housed at the National Museum of Natural History, Washington, D.C. In addition, this chapter includes the description and brief discussion of other stone artifacts from the excavation such as weights, spindle whorls, stone vessels, incense burners, and other types. These artifacts are described, and comparisons are drawn on the basis of ground stone assemblages recovered from other prehistoric and historic sites in the southern Levant. The artifacts are discussed according to their morphology and not according to their period or dating. It should be noted that the majority of these objects are not chronologically indicative. For construction of a typology, functional attributes are considered crucial criteria, but classification is generally based on morphological attributes when functional indicators are ambiguous (Wright, 1992a, 1992b, 1993).

Despite the importance of understanding stone artifact functions (Kraybill, 1977), our limited understanding of tool function necessitates some classification scheme for comparative purposes between sites. In the absence of a comprehensive functional understanding, we are left with morphological criteria, in turn modified by other information where available, such as use-wear traces, lithographic groups (Table 23.1), and ethnographic analogies. For some artifact classes, such as spindle whorls, vessels, or decorative objects, the function is relatively clear. Other artifact classes remain functionally obscure, and thus, morphological and use-wear indicators are important criteria for classification and comparison, just as they are from prehistoric sites. Finally, some artifact types, whether historic or prehistoric, remain frustrating to classify with confidence. For instance, identification of the upper and lower grinding stones is sometimes indefinite because of the fragmentary nature of the artifacts, as well as the frequently ambiguous nature of the wear patterns. Typically, many fragments of coarse rock types (basalt, sandstones) are found ground exclusively on one face. Although the general shapes of handstones and the lower grinding slabs are sometimes similar, size and wear patterns typically allow distinctions between the functionally different tool types. Nevertheless, a typical assemblage includes artifacts that could belong to either grinding slabs or handstones, particularly when the artifact is a fragment. Although general morphology of fragmentary artifacts that might be the upper or lower grinding implement may not provide an indication to function, examination of the utilized surface (use face) may supply some clues. For instance, concave use-wear surfaces are apparent on grinding slabs, indicative of the repeated back and forth motion against

TABLE 23.1. Ground stone artifact lithology, excluding incense burners, weights, and tesserae. $\mathrm{CqS}=$ coquinoidal sandstone.

| Type | CqS | Limestone | Basalt | Flint | Gypsum/ calcite | Sandstone | Gabbro/ Diorite | Steatite | Others | Total | Percentage of total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Grinding slabs | 43 | 1 | 40 |  |  |  |  |  | 6 | 90 | 16.45 |
| Handstones | 55 | 6 | 24 | 2 | 1 | 1 |  |  | 1 | 90 | 16.45 |
| Handstone/grinders | 16 |  | 47 |  |  |  |  |  |  | 63 | 11.52 |
| Grooved stones | 1 |  |  |  |  | 1 |  |  |  | 2 | 0.37 |
| Mortars | 4 | 13 | 4 |  |  |  |  |  | 2 | 23 | 4.20 |
| Pebbles with concavities |  | 9 |  |  |  |  |  |  | 9 | 1.65 |  |
| Modified cobbles/pebbles |  | 14 |  | 5 |  | 2 | 1 |  |  | 22 | 4.02 |
| Spindle whorls |  | 8 |  |  | 2 |  |  | 10 | 2 | 22 | 4.02 |
| Perforated stones | 3 | 15 | 2 | 1 |  | 1 |  |  | 10 | 32 | 5.85 |
| Pivot/door sockets |  | 4 |  |  |  |  |  |  | 1 | 5 | 0.91 |
| Varia |  | 7 |  | 3 | 2 | 4 | 2 | 2 | 6 | 26 | 4.75 |
| Hammerstones |  | 1 |  | 47 |  |  |  |  | 1 | 49 | 8.96 |
| Ground stone fragments | 11 | 22 | 5 | 1 |  | 4 |  |  | 6 | 49 | 8.96 |
| Stone vessels | 1 | 5 | 18 |  | 30 | 3 |  | 3 | 5 | 65 | 11.88 |
| Total | 134 | 105 | 140 | 59 | 35 | 16 | 3 | 15 | 40 | 547 |  |
| Percentage of total | 24.50 | 19.20 | 25.59 | 10.79 | 6.40 | 2.93 | 0.55 | 2.74 | 7.31 |  | 99.99 |

the artifact known from ancient sources as well as by modern analogy. However, upper grinding stones may appear concave in profile because the central section of the implement endures the greatest pressure. Nevertheless, when looked at in cross section, the convexity of these use faces is manifest because the leading lateral margin endures the greatest wear, indicating their use as the upper stone in the pair of grinding implements.

The descriptive terms used for this analysis (Appendix 23.1) are generally direct and require little additional clarification. All artifacts are separated according to their state of preservation, that is, whether they are complete (little or no damage), incomplete (some small portion missing), or a fragment. Smaller artifacts were measured using a pair of Helios steel calipers; larger artifacts were measured using either a small metric ruler or a hand tape.

## ARTIFACT DESCRIPTIONS

## Grinding Stones

Upper and lower elements in a grinding pair are well known from ancient sites around the world. This combination is also well documented ethnographically (e.g., Roux, 1985) as well as historically, such as the depiction of a grinding slab and upper grinding stone known from Old Kingdom Egypt (Pritchard, 1954: fig. 149). Although infrequently illustrated and until recently rarely discussed, grinding slabs and querns are presumably
ubiquitous from prehistoric, protohistoric, and historic sites. Similar grinding slabs are illustrated from early prehistoric sites such as Beisamoun (Lechevellier, 1978: figs. 33:1-4, 106:3), Munhata (Gopher and Orelle, 1995:65-66, pls. VII-IX), and Jericho (Dorrell, 1983: fig. 227.1); protohistoric sites such as En Shadud (Braun, 1985: fig. 39:3; 40:1-9), Jawa (Helms, 1991: fig. 194.696-697), and Jericho (Dorrell, 1983: fig. 230.11); and historic sites such as Tel Beth Shean (Yahalom-Mack and Mazar, 2006: table 13.5, fig. 13.6:5,6), where some indicate heavy, intensive use such as examples from Megiddo (Sass, 2000: figs. 12.4:7, 12.7:1,2), Tel Qashish (Ben-Tor and Bonfil, 2003: fig. 128:8), and Tel Yoqne'am (Ben-Ami, 2005: fig. V.6:1-3).

Although using slightly different terminology, Hovers (1996:178-179, fig. 29) also distinguishes between upper grinding stones and manos, noting that the latter is by definition a subtype of the former.

## Grinding Slabs

Grinding slabs, sometimes also referred to as querns or meule dormante, are the lower grinding implement on the surface of which materials were placed and subsequently ground using an upper stone (for Tell Jemmeh, $N=90 ; 2$ complete, 6 incomplete, and 82 fragments). Only two complete grinding slabs were recovered from Jemmeh (Reg. Nos. 2206, 2215, both come from poorly stratified contexts), with an additional six incomplete examples, all of them manufactured from coquinoidal sandstone. The remaining examples are fragments. The preferred
material for grinding slabs was the locally available coquinoidal sandstone (commonly referred to as beach rock; $N=43,47.8 \%$; see Table 23.1) followed closely by basalt ( $N=40,44.4 \%$ ). The remaining approximately $8 \%$ are made of fossiliferous silicate calcarenite ( $N=3$ ), limestone ( $N=1$ ), and granite ( $N=1$ ), with two that may also be coquinoidal sandstone. Virtually all grinding slabs were used unifacially; only three exhibit clear evidence for bifacial use.

Although a large number of grinding slab fragments are typically found at habitation sites, the very low number of complete grinding slabs found at Tell Jemmeh is striking. During excavation, all cultural material was collected and saved, and thus, we know that the low number of grinding slabs does not reflect selective collection. Instead, the low number of complete grinding slabs probably reflects the nondomestic nature of many deposits excavated to date at Tell Jemmeh. However, the low number of complete grinding slabs may also reflect the elite character or specialized nature (e.g., granaries, Assyrian vaulted building) of the western side of the site and the limited excavation exposures on the eastern side of the site. In addition, the larger number of fragments that cannot be categorized between handstones and grinding slabs (see "Handstones or Grinding Slabs" section below) probably includes some grinding slab fragments.

Grinding slab fragments are infrequently illustrated in reports and are virtually never presented in any quantified form. Basalt grinding slabs with a typical plano-convex profile and cross section are illustrated from Jericho (Dorrell, 1983: figs. $232.15 ; 233.3$ ), as are the less common forms that are relatively flat in both cross section and profile (Dorrell, 1983: fig. 233.1). Basalt grinding slabs are also illustrated from Tell el-Far'ah (N) (Mallet, 1988: figs. 5:1, 28:2,5).

## Handstones

Probably one of the most poorly understood and confusing array of ground stone implements are those rocks with clearly ground faces, generally the size of an adult hand or smaller (Figures 23.1, $23.2 \mathrm{c}-\mathrm{j}$, n, Table 23.2). Known by a variety of terms (e.g., upper grinder, manos, meule active), handstones are distinguished from other large grinding implements by their general and surface morphology, wear traces, and size. Similar artifacts are referred to not only as handstones but also abraders, rubbers, manos, polishers, burnishers, rubbing stones, and pecking stones. This array of terms is symptomatic of the lack of consensus in the field and underscores the need for greater rigor in the attributes we select for creating types. In this collection ( $N=$ 91 ), roughly one-third $(N=27)$ are complete, 14 are incomplete, and the remainder are fragments. A separate category was created for the many artifacts, usually fragments, that are not easily distinguished from the lower grinding implements (discussed in the "Handstone or Grinding Slabs" section).

## Type A

A few examples of the Jemmeh handstones would probably be classed as the lower grinding slab by some researchers. These
are large, elongate or loaf-shaped stones utilized on only one side. In profile, the ends of these upper stones project upward significantly, creating the impression that the use face is concave when viewed from the side, in profile (see Figure 23.1d,e). Viewed in lateral cross section (from side to side), the use face is convex (as shown in Figure 23.1b,c). This convexity, typically very slight but unmistakable, apparently results from being used as the upper stone in a back-and-forth motion. In some examples, this also created an upward projection on the ends, in some cases almost at a $90^{\circ}$ angle, a result of either end of the upper stone overhanging the lateral sides of the lower grinding slab rather than engaging in the grinding motion (Figure 23.1d-e). This may have even been preferred or intentional to facilitate holding the upper stone in pace while pulling and pushing the upper stone. At least five examples of our handstones are of this type, with a "tail" on one end.

## Type B

Another type of handstone is smaller, typically rectangular to square, and frequently show signs of bifacial use (Figures 23.1a, 23.2c, $1, \mathrm{n})$. Whereas Type A is often large enough to necessitate two-handed use, Type B handstones are generally smaller, generally half the size or less. Various attributes suggest different functions may have resulted in the morphology of Types A and B. The smaller size, bifacial use patterns, and more regular shape all suggest that these probably did not serve in the same capacity as the larger, rough, and heavy two-handed examples of Type A.

## Type C

A third subtype of handstone is the cuboid abrader/rubber (Figure $23.2 \mathrm{~d}, \mathrm{~g}, \mathrm{~h}$ ). These are smaller and vary in shape from cuboid to multifaceted. Facets creating the cuboid or angular morphology are generally created through abrasion, which leaves smooth or polished faces. The distinction between these and hammerstones, the latter sometimes also including smoothed faces, is based on the predominant forms of wear rather than morphology.

The larger forms of handstones are only occasionally illustrated in archaeological reports. From Hazor, large basalt handstones were illustrated (Yadin et al., 1960: pl. CIV:14-18).

## Handstones or Grinding Slabs

Artifacts that could not be confidently classified as either the upper handstone or lower grinding slab implement were included in this separate category $(N=63)$. These are all clearly ground, but their fragmentary nature precludes determining the profile or cross section of the use face or the general implement with any degree of confidence. As discussed above, both upper and lower stones in the grinding pair may have plano-convex or flat cross sections and profiles, so this cannot be taken as categorically indicative of tool type. Without these attributes, some artifacts cannot be assigned to a type. All but one are fragmentary; the majority ( $N=47,75 \%$ ) are made of basalt, whereas


FIGURE 23.1. Handstones and pestles. Bld = building; us = unstratified.

| Part | Reg. No. | Description | Provenance | Phase | Architecture |
| :--- | :--- | :--- | :--- | :--- | :--- |
| a | 928 | Basalt, handstone, incomplete | GMI 4G F4 | 3 | Unit L |
| b | 3349 | Coquinoidal sandstone, handstone, complete | GMII A3 (+) | us |  |
| c | 873 | Coquinoidal sandstone, handstone, complete | GMIII A3 (6) | 7 ? |  |
| d | 895 | Coquinoidal sandstone, incomplete | GM 1B F10 | 5 | Bld I, Room A |
| e | 914 | Coquinoidal sandstone, fragment | GM 1A (12) 7 | 5 ? | Bld I, Room C? |

the remainder are manufactured from coquinoidal sandstone. Only six, including the complete basalt artifact, exhibit bifacial use wear. The single complete example of a basalt artifact was bifacially ground but appeared concave on one face and clearly convex on the other, suggesting that the artifact had served in both capacities.

## Grooved Stones

Two grooved stone fragments were found, one of coquinoidal sandstone and the other calcareous sandstone. The first (Reg. No. 2896) is a flat fragment with a longitudinal faint groove, possibly of natural origin. The second (Reg. No. 2285) is an ovoid "knob" created by pecking wear around an end section; a similar second groove may have created a second knob. Although the first may have served as a whetstone for chipped or ground stone implements, the function of the second is unclear.

## Mortars

Mortars are defined simply as those cobbles or pebbles with a concavity pounded or ground into the original blank ( $N=23$ for Tell Jemmeh). The earliest deep mortars are found during the Kebaran (ca. 20,000-15,000 years BP), typically made of limestone, basalt, or phosphorite, generally reflecting locally available rock (Wright, 1992a:292; Goring-Morris, 1995:146-156). By the Natufian (ca. 12,500-10,200 BP), mortars and pestles were first decorated or otherwise modified stylistically and began to dominate some assemblages (Wright, 1992a:299).

The depth of a mortar's concavity varies greatly relative to the overall blank size, but most found at Tell Jemmeh are shallow. Wright (1992b:626-627) also discovered great variability in the class of artifacts she termed mortars such that she recognized nine subtypes within the class of prehistoric mortars.

Six mortars are complete, one is incomplete (Figures 23.3g, 23.9 k ), and the remainder are fragments. Most are manufactured from limestone or chalk ( $N=10$, Figures 23.6a, 23.3g), followed by basalt ( $N=6$ ), coquinoidal sandstone ( $N=3$ ), one of sandstone, and one an unidentified lithology. Heights of the complete examples range from 33 to 64 mm , but by including fragments with a complete rim to base profile, heights range from 31 to 118 mm . Interior depths range from 8 to 65 mm , and well diameters range from approximately 60 to 110 mm .

A diverse range of artifacts, all with some form of hollowed interior or vessel feature, is included within this category. At least four subtypes of mortars are distinguished, with a fifth category for those of indeterminate type.

## Type A: Basin/Mortars

This is a shallow, basin-like artifact (Reg. No. 3083), somewhat similar to a grinding slab in the shallowness of the concavity. However, unlike a grinding slab, the interior concavity does not follow the contours of the opposite surface. Two additional
square artifacts exhibit shallow aspects and small intentionally cut channels or drains and thus are classified separately.

A complete sandstone shallow mortar found in the topsoil is also illustrated (Figure 23.9k).

## Type B: Cobbles with Pecked Depressions or Shallow Concavities

A variety of cobbles, ranging from unmodified in shape to those roughly shaped on the exterior, are found with depressions or concavities ( $N=12$; Figure 23.3b). Many of these appear to be relatively expedient tools, without a great deal of attention to final form. Although classed under mortars, some may have served in some other capacity, such as a hammer (creating a pounded depression area).

## Type C: Bowl/Mortars

A few vessels $(N=5)$ are similar to a bowl, but with thicker walls and less attention to the exterior finish of the vessel than typically associated with stone bowls. The thickness of wall and base fragments leaves their function open to interpretation.

## Type D: Deep Mortars

This is the "classic" form of a mortar, although not as common as other types, such as the small, shallow, "cupped" stones (Type B, Figure 23.6a). All examples $(N=3)$ are made of limestone, and two are fragments, whereas the third is incomplete. One example (Reg. No. 990) has a rounded base reflecting the original blank's exterior contour, with a convex wall profile. Another (Reg. No. 991) has a flat base, with upright walls and only a slight convex profile. Both interior and exteriors are well ground and finished. The third example (Reg. No. 3974) is missing a corner and was originally a roughly square shaped artifact with a deep concavity relative to the original blank.

## Type E: Indeterminate

Two fragments are unclear as to how they should be typed. One appears to be a roughly shaped blank.

Like the grinding slabs and handstones, mortars seem to be virtually ubiquitous at prehistoric domestic settlements (e.g., Mallaha, Perrot, 1968: fig. 838), some of which are deeply incised with elaborate, geometric patterns (Perrot, 1968: fig. 839). Mortars continue to be found in low numbers at historic sites, although relative frequencies remain difficult to estimate because of the lack of published, quantified results (for the prehistoric periods, see Wright, 1992a; Rowan, 1998).

Shallow mortars on irregular or otherwise unmodified pebbles (similar to our Type B) are documented from Jericho (Dorrell, 1983: figs. 232.1-3), Tel Michal (Singer-Avitz, 1989b: fig. 31.1:7), the City of David (Hovers, 1996:281-283, fig. 26.4), Shikmona (Elgavish, 1968: fig. 36:35,36), and Hazor (Yadin et al., 1960: pl. LXXVIII:1,2). Deeper mortars from Tel Michal are


FIGURE 23.2. Handstones, pestles, and hammerstones. Bld = building; us = unstratified. (opposite)
$\left.\begin{array}{llllll}\hline \text { Part } & \text { Reg. No. } & \text { Description } & \text { Provenance } & \text { Phase } & \text { Architecture } \\ \hline \text { a } & 1020 & \text { Steatite, carefully worked, token or weight? } & \text { GM 2A (30) } & 7 & \text { Outside Bld III } \\ \text { b } & 969 & \text { Vesicular basalt, pestle, found w/ shallow sandstone mortar } & \text { Cat 707 } & \text { GM (+) } & \text { us }\end{array}\right]$

TABLE 23.2. Descriptive statistics for complete and incomplete handstones.

| Statistic | Complete and incomplete ( $N=55$ ) |  |  | Complete only ( $N=40$ ) |  |  | Incomplete only ( $N=15$ ) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Length (mm) | Width (mm) | Thickness (mm) | Length (mm) | Width <br> (mm) | Thickness (mm) | Length (mm) | Width (mm) | Thickness (mm) |
| Mean | 143.27 | 85.67 | 49.89 | 122.63 | 77.05 | 46.15 | 198.33 | 108.67 | 59.87 |
| Standard error | 11.16 | 3.88 | 2.20 | 11.91 | 4.13 | 2.08 | 20.34 | 5.94 | 5.16 |
| Median | 105.00 | 75.00 | 47.00 | 89.50 | 72.50 | 45.00 | 198.000 | 110.00 | 57.00 |
| Standard deviation | 83.49 | 29.05 | 16.43 | 76.29 | 26.44 | 13.35 | 78.77 | 23.00 | 19.97 |
| Range | 337.00 | 148.00 | 91.00 | 337.00 | 145.00 | 87.00 | 271.00 | 80.00 | 66.00 |
| Minimum | 37.00 | 30.00 | 15.00 | 37.00 | 30.00 | 15.00 | 65.00 | 68.00 | 25.00 |
| Maximum | 337.00 | 148.00 | 91.00 | 337.00 | 145.00 | 87.00 | 336.00 | 148.00 | 91.00 |

primarily made of limestone (Singer-Avitz, 1989b: figs. 31.1:16), but basalt seems to have been preferred in general at most sites. Basalt mortars were recovered from MBII tombs and settlement at Tell el-Far'ah (N), Stratum II (Mallet, 1988: figs. 8:9, 28:1, pl. 28.9). In addition to the wide variety of tripod mortars, cruder forms of basalt mortars were also recovered from Hazor (Yadin et al., 1958: pl. LIX:1,3,12, 1960: pl. CXXVI:11,26), and mortars of limestone, trachyte, and basalt were found at Jericho (Dorrell, 1983: figs. 231.11,12, 232.1-3).

## Small Pebbles

Small pebbles $(N=22)$ are commonly recovered from prehistoric and historic sites, although they are often not reported or relegated to only passing mention. All but four of the pebbles are complete, and the range in size is relatively limited. A number of the pebbles from Tell Jemmeh are polished ( $N=5$ ), but even of these, a few may be natural polish. However, approximately seven pebbles have at least one flattened face, suggesting
intensive use that modified the pebble's side. Whether that was the intent or simply a by-product of use is unclear. There is a wide range of possible functions that many of these pebbles might have fulfilled, perhaps serving as game markers, tokens, burnishers for pottery vessels, or weights. The flattened aspect on a few (Reg. Nos. 986, 1044) that would prevent rolling once placed in a balance pan supports their possible use as weights. However, that evidence is not entirely convincing because such polished pebbles are clearly present in large numbers early during the Chalcolithic, such as at Gilat (Rowan et al., 2006), and the flattened aspect could simply reflect use wear (see Valado, 2008).

## Pebbles with Shallow Concavities

These are limestone or chalk pebbles of highly variable morphology with shallow hollows pecked on one face or both (Figures 23.3 b ). All examples $(N=9)$ are relatively small (the largest measuring $105 \times 45 \times 32 \mathrm{~mm}$ ), typically oval-shaped blanks


FIGURE 23.3. Various stone artifacts. us = unstratified.

| Part | Reg. No. | Description | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | 1116, SI Cat. No. 634 | Polished pendant (axe?), complete (jasper?) | GM 2C NBR (27) | 4? |  |
| b | 1002 | Limestone pebble, bifacial pecked concavities complete | GMIII C1 (81) | 16 |  |
| c | 653 | Alabaster vessel, rim fragment | GM 2C P1 (3) | 1 |  |
| d | 655 | Alabaster vessel, rim fragment | GM 1C P2 | 2 ? |  |
| e | 1005 | Limestone mace head fragment, bipolar drilling, perforation incomplete | GMIII B F9 | 13/14 | Unit 11 |
| f | 678, SI Cat. No. 2015 | Limestone, spindle whorl, incised decor, half fragment | GM (+) | us |  |
| g | 2442 | Chalk, shallow mortar | GMI FUR (10) 5 | FUR 4 |  |
| h | 999 | Limestone, pivot stone, door socket? | GMI 4G (3) 3 | 3 | Unit L |

varying from flat to slightly biconvex in profile. Most ( $N=6$ ) exhibit bifacial concavities, indicating that there may be some similarity in function. Two examples (Figure 23.3b and Reg. No. 1006) are only roughly pecked concavities on both sides of a limestone pebble, similar to the bifacially pecked examples of the galet percuteur found at Tell Keisan (Briend, 1980: pl. 83:1,2). Neither indicates the heavy drilling, concentric striae, or other attributes typical of stones that might have served as pivots or door sockets. Although rarely mentioned or illustrated, similar artifacts are probably frequently encountered at other sites. An additional example (Reg. No. 2149) is a drilled chalk nodule but is far too small $(\sim 35 \times 35 \mathrm{~mm})$ to serve as a pivot stone, tournette, or other heavy use item. A similar fragment of a flat, drilled disk was found in the Middle Bronze levels of Jericho (Dorrell, 1983: fig. 232.18), and a relatively flat pebble with a shallow, pecked indentation was found at Shikmona (Elgavish, 1968: figs. 36, 38).

## Pestles

Elongate stone artifacts that possibly served as pestles are rare at Tell Jemmeh $(N=2)$, but this is not an unusual observation compared to many other ground stone assemblages from prehistoric and historic sites (Figures 23.2b). Although pestles are frequently found at other prehistoric to historic sites, their frequency seems to be generally quite low relative to the overall assemblage. Here again, quantified reports are necessary to ascertain if this observation is accurate and to establish a basis to understand why low frequencies of pestles are a common trait of many ground stone assemblages. Both pestles from Jemmeh are complete, are made of basalt, and exhibit a concave, well-ground to polished working face. The small vesicular example (Figure 23.2b) was found with a shallow sandstone mortar. Smaller and narrowing to form a convenient handle, the other example (Figure 23.2 k ) was used in similar fashion as many other handstones, primarily for grinding and polishing.

## Worked Stones

Artifacts that reflect the original, unmodified shape of a natural cobble or smaller pebble with some evidence for use wear are distinguished from other artifact types primarily by their lack of clear function or morphological parallels to other stone artifact types ( $N=22$; Figures 23.41-o). Half are complete, whereas the others are fragments. Eight of the complete artifacts range from $113 \times 56 \times 30 \mathrm{~mm}$ to $46 \times 38 \times 39 \mathrm{~mm}$ in maximum dimensions, mostly cobbles of hard limestone. The majority are roughly oval to elliptical in shape, although one is elongate and another is a flat squarish slab. Evidence for wear on the complete artifacts is primarily limited to probable slight grinding wear, although three also exhibit pecking wear. A few are roughly disk shaped, with bifacial concavities (Figure 23.41,m,n), but their function is unknown. Whether or not these were unfinished perforations or were simply the by-products of some other tool is unclear. The majority of the fragments have grinding wear, typically limited in extent.

## Weights

Eight artifacts may represent scale weights, mostly of the late Iron Age (Figures 23.4k, 23.5). Two are certain; Reg. No. 1305 (Figure 23.5 c ) is a pym weight ( 7.98 g ) with an inscription on the convex top of the dome from a mixed context. The other, Reg. No. 1042 (Figure 23.5a), is a polished lenticular-shaped hematite nodule ( 12.05 g ), flattened on one long side and both ends, very similar in shape and size to one found at the City of David (Eran, 1996: fig. 32.10), only slightly heavier than standard inscribed weights thought to represent one shekel (Kletter, 1991: table 1; at 11.86 g ). Eran (1996:221) considers the parallel example from the City of David to be on the Phoenician standard, dating it to the 10th century BCE. Nevertheless, similar weights were recovered from LBII contexts, such as a tomb at Tell Jerishe (Ory, 1944:57, pl. XIII:2,3), Megiddo (Stratum IX or VIII, Loud, 1948: pl. 168:9), Ashdod (Stratum XIX, Dothan and Porath, 1993:31, fig. 6:17, pl. 31:16; Eran, 1993:125), Beth Shean (Yahalom-Mack and Mazar, 2007:676-677, photo $13.4 \mathrm{~b}-\mathrm{d}$ ), and Kalavassos in Cyprus (South, 2012:38, fig. 5.2, lower right).

Dome-shaped and flattened on one aspect, the pym weight (Figure 23.5c), is made of limestone, the typical material used for the standardized pym weights (Naveh, 1962b:32; Kletter, 1991:121, table 1). The inscription is found on the top of the dome, where it would be visible in the course of weighing. On the basis of a relatively small sample $(N=178)$ of weights of known origin, Kletter (1991:127, table 3, fig. 2) established that these types of weights are found predominantly in the central to southern areas of Palestine, specifically the Land of Benjamin, the Judean hills and desert, the Shephelah, and the Arad and Beer-Sheba valleys (see his appendix for a catalog of inscribed weights; his Table 7 catalogs the pym weights, including the earlier forms recovered during Petrie's excavations at Tell Jemmeh). He further suggests that the weights are part of a single system based on one standard with the shekel as the basic unit in Judah, contrary to the views of many other scholars (e.g., Ben-David, 1979; Eran, 1982, 1996; see Kletter, 1991:131 for others), who suggest that a number of different standards were in use at the same time. Noting that a lack of precision for the weights has a number of other possible causes (e.g., inexactness, cheating, wear), Kletter (1991:131) contends that rather than representing different standards, a deviation of at least $3 \%$, and more likely $5 \%$, should be expected. He further suggests that the inscribed weights came into use during the 8th century BCE, with a terminus ante quem of 587 BCE , disappearing when Judah lost its independence (Kletter, 1991:126). At about this time, coinage was introduced to the region, and the economy shifted to a monetary basis.

A third complete artifact made of limestone (Figure 23.4k) is also possibly a scale weight, despite its morphological similarity to a small pestle; it weighs 93.1 g . Like some smaller pestles, it is a truncated cone shape, with a flattened wide end and a convex narrower end. The flat end, which is smoother than the other surfaces, has an incised square. Although relatively smooth all over, there is no convincing evidence for use wear. Close parallels are

$0 \quad 5 \mathrm{~cm}$


FIGURE 23.4. Spindle whorls and perforated items. us = unstratified. (opposite)

| Part | Reg. No. | Description | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | 671 | Limestone spindle whorl, unfinished perforation | GM 1C (+) | us |  |
| b | 670 | Spindle whorl, unfinished perforation, quartzite | GM 1B (2B) 1 | 3? |  |
| c | 1113 | Limestone spindle whorl, dome shaped | GMI FUR (10) 5 Cat. 950 | FUR 4 |  |
| d | 1039 | Steatite spindle whorl, dome shaped | GMI 3G (9) | 6 |  |
| e | 1110 | Steatite spindle whorl, conical | GM 2A (1) Cat. No. 33 | us |  |
| f | 1046 | Hard limestone spindle whorl, dome shaped | GM 2A (31A) | 7 | Outside <br> Building III |
| g | 672, SI Cat. No. 10 | Chalk, unfinished perforation, fragment | GM 1B TT1 (5) | 3 ? |  |
| h | 1047 | Spindle whorl?, chalk, bifacially perforated | GM 1B NBR (16) 1 | 5 | Building II Room A |
| 1 | 1033, SI Cat. No. 453 | Limestone, bifacially perforated, weight? | GMI 5E (4) | Unknown |  |
| j | 2109 | Limestone, spindle whorl fragment, polished | GM 1B (10) 1 | 4-5? | Above Building I Room A |
| k | 2096 | Limestone, weight(?), incised rectangle, complete ( 93.1 g ) | GM 2C W1 2 | Unknown |  |
| 1 | 3921 | Flat limestone pebble, bifacially drilled, incomplete perforation | GMIII J2 (16) 1 | 17 |  |
| m | 2142 | Limestone pebble, slight bifacially pecked concavities | GMIII C1 (78) | 15 |  |
| n | 1031, SI Cat. No. 1014 | Basalt, bifacially perforated, complete | GMIII F1 (7) 5 | 15 | Room G |
| o | 1000 | Limestone, roughly chipped, bifacially drilled, incomplete perforation | GMIII B (56) 4 | 10 | Room C |



FIGURE 23.5. Scale weights. us = unstratified.

| Part | Reg. No. | Description | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | 1042 | Hematite scale weight (12.1 g) | GMI 1F (0) | Us |  |
| b | 1019 | Dark stone (limestone?) scale weight ( 38.1 g ) | GM 3B (11) 2 | 6 | Building III, Unit 2 |
| c | 1305, SI Cat. No. 1945 | Limestone scale weight, pym ( 7.98 g ) | GM 2B (14) | 3 ? |  |
| d | 3968 | Hematite scale weight ( 24.0 g ) | GM 2B TT3 (1) | 5? |  |
| e | 1043 | Jasper chert(?)/hematite scale weight/spindle (14.2 g) | GMI FUR (7) 3 | FUR 3/4 |  |
| f | 2030 | Hematite scale weight(?) ( 5.7 g ) | GM 1C EBR (9) | Unknown |  |
| g | 2068 | Hematite scale weight(?) ( 14.5 g ) | GM 2B (5) 4 | 6 | Building II <br> (Room C?) |
| h | 3553 | Hematite scale weight(?) | GMII A2-C2 (3) balk | Us |  |

illustrated from excavations at the City of David, where one in particular is the same size and similar morphology (Eran, 1996: fig. 35.6), although it weighs much less than the example from Jemmeh. The weight from Jemmeh (Figure 23.4k) was found in a late, mixed debris of Square 2C.

Four other stones are hematite nodules with at least one flat side. Two are spherical (Figure 23.5d,f), except for the flattened side, and otherwise show no evidence for use wear. At 5.7 g, Figure 23.5 f is close in weight to the bek'a weights (Kletter, 1991: table 8). The other hematite artifact (Figure 23.5 g ) is heavily worked and polished into a flat rectangular shape. A larger spherical worked stone (Figure 23.5b) made of dark stone (limestone) may also be a scale weight ( 38.1 g ). Another artifact of interest is a polished hemispherical piece of jasper or chert (Figure 23.5 e ) that has barely perceptible initial points of drilling, but with little depth. The similarity in shape and size to the steatite spindle whorls could indicate an intended function as a spindle whorl (see below), but more likely it served as a weight. In addition, there are several spherical or flattened nodules with iron oxides that we might tentatively call weights (Figure 23.5 h and Reg. No. 3009, not illustrated). The final possible examples are the least convincing example. Like other objects considered possible weights (Brandl, 1993b; Eran, 1996), the Jemmeh example (Figure 23.5 h ) is a spherical nodule with one intentionally modified and flattened side. There is no other clear evidence for use wear. However, as Eran points out, these types of artifacts are know from prehistoric contexts, where they are typically considered hammerstones, pounders, rubbers, or abraders, depending upon the individual scholar's preferred nomenclature. The fact that only one small area was faceted, preventing the sphere from rolling, lends credence to the idea that this was intended to serve as a weight. Nevertheless, stone spheroids from prehistoric
contexts with a faceted aspect are also common, and thus, the interpretation that this is a weight remains open for debate. From Tell Jemmeh, there are a number of other spheroids and rubbers that might have been classified by other scholars as weights (see below, hammerstones and handstones).

## Spindle Whorls

The majority of spindle whorls recovered from Tell Jemmeh are made of stone, but a few were made of bone (Figures 23.3f, $23.4 \mathrm{a}-\mathrm{j}, 23.6 \mathrm{c}-\mathrm{f})$. The corpus $(N=21)$ spans a range of periods, from simple flat disks with parallels as early as the Late Neolithic and Chalcolithic (but possibly much later) to later cylindrical forms with incised decorative motifs similar to Hellenistic examples. The spindle whorls are divided into seven basic types on the basis of morphology and size.

## Type 1

This type is circular, dome shaped to plano-convex in profile, with convex sides; it is also termed "hemispherical" in some reports (e.g., Tell Keisan, Nodet, 1980:315-316). These are represented by Figure 23.4c and Reg. Nos. 676 and 674. Others (Figure $23.4 \mathrm{~d}, \mathrm{f}$ ) are similar, but with a less pronounced dome and closer to plano-convex in profile. Similar forms are known from a variety of sites, including two of serpentine from the Megiddo tombs, one dated to the MBII (Guy and Engberg, 1938: fig. 175:7, pl. 84:15) and the other to the LBII (Guy and Engberg, 1938: fig. 175:22, pl. 166:14), where plano-convex forms made of bone (Guy and Engberg, 1938: fig. 175.8, pl. 84.4) and slate (Guy and Engberg, 1938: fig. 175.1, pl. 171.1) are also found. Other examples are known to be made of bone from


FIGURE 23.6. Mortar, pebble, and spindle whorls.

| Part | Reg. No. | Description | Provenance | Phase | Architecture |
| :--- | :--- | :--- | :--- | :--- | :--- |
| a | 680 | Limestone mortar | GM 00A (1) 3 | 5 | Building I, Room F |
| b | 668, SI Cat. No. 506 | Worked pebble (limestone) | GM 00B P2 (5) | 1 ? |  |
| c | 1112 | Steatite spindle whorl | GMI 4D (4) 3 | 3 | Room F |
| d | 1040 | Steatite spindle whorl | GMIII B (50) 4 | 10 | Room B |
| e | 1041 | Limestone(?) spindle whorl | GMIII B (56) 3 | 9 |  |
| f | 675 | Steatite spindle whorl | GM 1C (4) | 3 |  |

Shiloh (Brandl, 1993b: fig. 9.9:6; 9.14:3), Shikmona (Elgavish, 1968: fig. LXIII:168), Hazor (Yadin et al., 1958: pls. 82:9, 89:17), and Tel Keisan (Nodet, 1980: pl. 96:1,10,11,16-26), of serpentine at Tell el-Hesi (Bennett and Blakely, 1989: fig.220.2), and of basalt at City of David (Shamir, 1996: fig. 22:13, 14). Finally, there are those made of limestone from Iron Age levels at Tel 'Ira (Goldsmith et al., 1999: figs. 14.4:3-6) and late Iron Age contexts at Megiddo (Sass, 2000: fig. 12.17:17). Additional Iron Age examples are known from Beit Mirsim (Albright, 1938:56, pl. 38.21, 1943:84, pl. 63.3) and Samaria (Crowfoot, 1957: fig. 92a.1,2,5,6). An array of spindle whorls was illustrated from Beit Mirsim (Albright, 1938: pl. 38:1-36), but their morphology is unclear. Another example from Jemmeh (Figure 23.6f; Reg. No. 675) has incised lines radiating from the hole to the edge, virtually identical to one from Tell Abu Hawam (Hamilton, 1935: pl. 37.2:337).

One spindle whorl fragment (Reg. No. 677) from the granary is classified as subtype $\mathrm{I}(\mathrm{a})$. Dome-shaped, but with a flattened top, this is essentially an intermediary form between Type 1 and Type 7 (truncated, conical). Similar to other examples of Type 1 , this subtype is flat on one side and convex on the other. Unlike the profile of most Type 1 spindle whorls, however, the convex profile of Type $I(a)$ is truncated by a flat aspect around the drilling of the hole. Similar examples are known from Sa maria (Crowfoot, 1957: fig. 92a.6), Tell Abu Hawam (Hamilton, 1935: pl. 37.2:186), and Shikmona (Elgavish, 1968:169-171). On the basis of parallels at other sites and the range of dates, it seems this type dates from the Late Bronze to the Iron Age and probably continues later.

## Type 2: Circular, Conical in Profile

Conical forms may vary from a nearly equilateral triangular in profile to very low, wide triangles with a slightly flattened area at the top. Like Type 1, the conical shape is a very popular form found at a variety of sites (Figures 23.4e, 23.6c). Similar to other sites, our examples of Type 2 are made of steatite, like those from the Megiddo tombs and perhaps Sebaste, where an example is referred to as a "grayish green stone" (Crowfoot, 1957: fig. 92a.11) exhibiting the familiar concentric etched line following the outer circumference of the whorl and along the top of the perforation. Ivory, serpentine, and diorite types were found at Tell Keisan (Nodet, 1980: pl. 96:5-7), bone and steatite types were found at the tombs at Megiddo (Guy and Engberg, 1938: figs. 175:11, 12), and probably steatite ones were found at Tell Abu Hawam (Hamilton, 1935: pl. 37.1:109). Of our three examples, two appear in Late Bronze Age strata (Figures $23.4 \mathrm{e}, 23.6 \mathrm{c}$ ).

## Type 3

These are spindle whorls with a slightly biconvex profile and are represented by two examples (Figure 23.4a and Reg. No. 1037), both of which are made of limestone, but only the first is complete. The first was found on the site's surface, whereas the second is from a Late Bronze Age level. Biconvex spindle whorls
are also fairly common, and similar examples of serpentine were recovered from Iron Age tombs at Megiddo (Guy and Engberg, 1938: fig. 175:24, pl. 166:17) and of limestone and serpentine at Tel Keisan (Nodet, 1980: pl. 96:27, 29-31), although the latter are more convex in profile than our examples. More similar is the limestone example from Beth Shean, Level XIII (FitzGerald, 1935: pl. VI.20) and a fragment from the City of David excavations (Shamir, 1996: fig. 22:17).

## Type 4

These are flat, disk-shaped spindle whorls. Only one example comes from Tell Jemmeh (Figure 23.4j), a limestone fragment, bifacially drilled and smooth, nearly polished.

## Type 5

These are cylindrically shaped spindle whorls, represented by two artifacts, one of chalk (Figure 23.4 h ) and the other possibly of limestone (Figure 23.3f). The complete example of chalk (Figure 23.4 h ) is chipped and fractured, is relatively flat in cross section and profile, and has vertical edges where striae are still visible. This was found in a 7th century BCE context. A similar type was found in the City of David (Shamir, 1996: fig. 22.26). The other fragment, a surface find, is carefully worked hard limestone, with a drilled, highly polished interior hole found on the ground surface. One very similar in morphology was found at Samaria (Kenyon, 1957: fig. 117.4). Decoration is formed by light parallel lines in an X pattern along the exterior (Figure 23.3f), somewhat similar to the zigzag pattern lightly incised on a spindle whorl found at the City of David (Shamir, 1996: fig. 22:20). Other similar forms, but with slightly different incised patterns, were found by Petrie at Jemmeh (1928: pl. XLIV:47, 48; see also Figure 23.6f).

## Type 6: Truncated Cone Shape

One complete example (Figure 23.6e) of this morphological form was found, made of hard gypsum. A few artifacts may have been intended as spindle whorls but were never completed. One, a round limestone fragment (Reg. No. 2861), was bifacially pecked, and this pecking probably caused the piece to break. There is evidence of drilling, however, so this may have been intended for some other use when complete. Another item, a small chalk disk fragment (Figure 23.4 g ), was drilled from one side, perforating the disk and also probably the cause of breakage during manufacture.

Nine spindle whorls are very similar. All are made of steatite, are relatively small (ranging from 7 to 12 mm in height and from 22 to 26 mm in diameter), and vary from hemispherical to a squat, truncated cone in profile (Types 1 and 2). Most are complete. A few have a fine, incised line around the circumference, in one case etched precisely (i.e., Figure 23.4d and Reg. No. 673, both Type 1), similar to one from Megiddo (Loud, 1948: pl. 172:19,41). Another (Figure 23.4e, Type 2) has numerous incised concentric lines around the surface, suggesting it was
turned on a mechanical device (e.g., Loud, 1948: pl. 172:24,26). A steatite domed spindle whorl (Type 1, Figure 23.6f) with a single incised line is not precisely etched and has additional vertical lines etched on the domed exterior for decor. The only fragment (Reg. No. 677, Type 1) is from a polished domed example but is larger than the others. Another slightly flatter example is made of hard reddish limestone (Figure 23.4f) but is otherwise also similar to the seven steatite examples discussed above. Finally, it is interesting to note that none of the spindle whorls found at Tell Jemmeh resemble the "wide-brimmed hat" type found at many sites, such as Tel Dan (Biran and Ben-Dov, 2002: fig. 2.123).

## Perforated Stones

For a variety of reasons, other stone artifacts $(N=23)$ drilled through the center seem unlikely to be spindle whorls (Appendix 23.1; Figures 23.4i, n, 23.6b). Smaller examples may have served as loom weights, although loom weights are generally made of unbaked clay and are much larger. For example, little attention was dedicated to the exterior finish of a bifacially drilled chalk nodule (Figure 23.4i), which probably would not spin evenly. Other drilled and perforated artifacts are disk shaped and bifacially drilled in the center but appear to be too large and made of poor material for spinning, such as the perforated disk made of coquinoidal sandstone (SI Cat. No. 387, Reg. No. 669) or the heavy and large perforated basalt example (Figure 23.4n). A chalk disk fragment bifacially perforated through the center (Figure 23.6b) may represent the wheel from a chariot model or a toy. One side is smooth and slightly convex in profile; the other side was intentionally manufactured to be concave, and light incisions from tool marks are visible over the surface. Included in this category are stones with apparently natural holes through a natural nodule $(N=6)$, which may have been collected by the inhabitants.

## Pivot Stones

Pivot stones are cobbles with small (relative to the pebble blank) concavities on one or both faces that do not perforate the blank (Figures 23.3h, 23.4o). Sometimes called "door sockets," some of the present examples $(N=5)$ may be small to serve as the stone for a door socket. Some scholars distinguish between cobbles with pecked concavities on one or both faces and those with heavy wear marks leaving traces of concentric wear and polish. This has been followed for the present study.

Three of these are bifacially drilled, and the others have a concavity or drill mark on only one face. The bifacial drilling suggests that perhaps some are unfinished perforated stones; however, when the blank is so close to perforation (Figure 23.4o, originating in Room G, Field III, dated to MBIIB-C, Phase 15), the alternate possibility, that the piece is expended, appears just as convincing. Two are fragments, and the rest are complete examples. Most are made of limestone or chalk; only one is made of basalt. One limestone example has multiple overlapping concentric incised impressions, suggesting repeated use


FIGURE 23.7. Potter's wheel pivot found on the site's surface.
as a door socket (Figure 23.3h). Some examples are similar to what other scholars refer to as "cupmarks on cobbles," "cupped stones" (Elliott, 1991:28, fig. 7.2), or perforated stones (Wright, 1992a:637). Ranging in size from $210 \times 185 \times 61 \mathrm{~mm}$ to $130 \times$ $114 \times 40 \mathrm{~mm}$, none of these are particularly large cobbles.

## Wheel Pivot

A complete potters' wheel pivot made of limestone was found on the site's surface as well (Figure 23.7). It is impossible to stylistically date this artifact, although it might have been connected to the potter's kiln in Field I FUR (chapter 7).

## VARIA

This broad category $(N=26)$ is for those stone artifacts that occur singly or those without clear function.

## Chariot Knob

A spindle-shaped object made of limestone probably represents a chariot knob (Figure 23.8f). The artifact has a contracted medial area, a rounded section, and is larger on one end than the other. The ends are flat and chipped from manufacture and secondary deposition. Drilled through the center ( $\sim 12 \mathrm{~mm}$ diameter), the circular hole was fashioned into a square shape on the larger end.


FIGURE 23.8. Various stone artifacts. us = unstratified.

| Part | Reg. No. | Description | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | 856 | Hammerstone (chert) | GMIII B (55) 1 | 10 |  |
| b | 834 | Hammerstone (chert) | GMII A3 TT2 (20) | 6 |  |
| c | 847 | Hammerstone (chert) | GMI FUR (5) 2 | FUR 3 |  |
| d | 695, SI Cat. No. 115 | Cosmetic palette (limestone) | GM 1C-1D P1 (1) | Unknown |  |
| e | 694, SI Cat. No. 61 | Mold (limestone) | GM 2B (18) | Unknown |  |
| f | 659, SI Cat. No. 957 | Chariot knob (limestone) | GM (+) | us |  |
| g | 1009 | Statue/leg(?) (diorite?) | GMIII B (56) 2 | 10 | Unit 6 |
| h | 661, SI Cat. No. 2017 | Slab/palette? (greenish stone) | GM 2C TT1 (0A) 2 | Unknown |  |

The knobs from excavations at Beth Shean (James, 1978) are divided into four major types, and the Jemmeh example, flat on both ends and lacking the grooves and ridges found on the other types, most closely parallels Type A-2 (James, 1978: figs. 2:8,10, 3:4). Similar forms are also known from Ras Shamra (Caubet, 1991: fig. 1a,b). The majority of chariot knobs appear to be found in deposits dated to the LB, including similar forms from Hazor of limestone and alabaster (Yadin et al., 1960: pls. CXCVI:6,7, CL:9). The example from Jemmeh is a surface find.

## Stopper?

A small round incomplete gypsum piece (Reg. No. 658), poorly preserved, may represent a stopper or button. One side is convex, with a shallow incision that could have held twine or a thong, possibly originally a perforation for the attachment. The other side is flat, with a small circular central area in relief to fit a jar opening. Similar artifacts from Lachish (Tufnell, 1953: pl. 65:11, Iron II) and Petrie's excavations at Jemmeh (Petrie, 1928: pl. XLV:12, also of gypsum, LBII-Iron) would date this type of artifact to either the LBII or Iron Age.

## Cosmetic Palette

Made of limestone, this is a flat fragment with four round, slightly rimmed cup depressions ( $\sim 35 \mathrm{~mm}$ in diameter). Originally square in outline, the four cups surround a small rosette pattern in the center (Figure 23.8d). Similar artifacts from Tel Michal (Singer-Avitz, 1989b: fig. 31.4:16), Deve Huyuk (Moorey, 1980: fig. 8.146), and Lachish (Tufnell, 1953:397, pl. 64:10) suggest a Persian dating; although the context for the Jemmeh example is unclear, a great deal of Persian material was associated.

## Jeweler's Mold(?)

An incomplete artifact of chalk appears to be one half of a mold for metallurgy (Figure 23.8e). The piece is roughly rectangular, with vertical sides. The ventral side has parallel, light incisions. The opposite face has deeper incisions consisting of a straight rectangular stem, rounded at one end, connecting to two short slightly raised "arms" or stems. A single channel to the side of the mold may have directed overflow of the smelted material. Vaguely parallel artifacts are known from Megiddo (Loud, 1948: pl. 269:4, Stratum XIII, MBI), and more closely analogous
artifacts are known from the City of David (Hovers, 1996: fig. 30.13, with two holes piercing the object). Alternatively, this might be a stamp. Stratigraphically, this is probably from Phase 4 of Field IV, a Persian context.

## Other Varia

One item (Reg. No. 1014) is a rectangular fragment, broken on both ends, which is well ground on both faces and with vertical carefully finished lateral sides. Made of fossiliferous limestone, this type of artifact is commonly referred to as a whetstone, although the deliberate care of fine grinding over the entire surface suggests that it was not used for sharpening. There is no clear evidence of use wear, and both faces are very slightly convex, rather than concave as we might expect from use as a whetstone. Another object made of polished hard gray and green limestone (Figure 23.8h), trapezoidally shaped but with both ends broken, also lacks any use wear suggestive of use as a whetstone. Like the previous example, it is bifacially slightly convex, but with naviform edges.

Other objects include a small rectangular piece of steatite with rounded corners, possibly a token, weight, or game piece (Figure 23.2a); a small smoothed chunk of alabaster (Reg. No. 663 ) is irregular in shape, highly polished on one face as if used as a fine abrader or handstone. The polished face is very slightly concave, whereas the opposite face is smoothed from use, similar to an artifact of diorite from a Hellenistic stratum at Tel Keisan (Briend, 1980: pl. 16.8). Another fragment of ferruginous limestone (Reg. No. 662) is in the shape of a tongue depressor. The piece is thin, polished, with lateral sides that are relatively parallel and smooth. The unbroken end is rounded and polished, suggesting that this might have served as a weaving shuttle, although it could also be a broken fragment of a decorative object such as a pendant or, less likely, a figurine. Another polished cylindrical piece (Figure 23.8g, made of diabase or diorite) has a trapezoid section, one end broken and the other rough; this could be either a pestle or a leg of a large vessel or a statue. A small fragment of steatite (Reg. No. 1021) appears to be the detritus from the manufacture of a spindle whorl. Although similar to what an unfinished conical steatite spindle whorl might look like, including the heavy striae covering it, a shallow incised circle delineating the circumference, and a shallow point in the center from drilling, the piece is much too small in size and weight to be intended for use as a spindle whorl. It seems likely that this was a small fragment from a steatite spindle whorl possibly intended as a bead (or button) before being discarded. A final interesting piece (Reg. No. 2189) is a disk fragment made of white, slightly metamorphic limestone or marble. Finely ground, one side is flat, and the other is just slightly convex; this may have served as a lid and is perhaps somewhat similar to those found of alabaster at Ras Shamra (Caubet, 1991: pl. X.11).

## Mace Head

A fragment of a hard limestone mace head (Figure 23.3e) may have been broken during the drilling process. Roughly
barreled in shape with flattened ends, the exterior is polished but scratched and speckled from slight battering. Both ends were drilled, but it appears the piece broke before the perforation was complete. Mace heads are found throughout the Near East, from Egypt to Mesopotamia, dating from as early as the Neolithic up to historic periods (Cialowicz, 1987, 1989; Rosenberg, 2010; Rowan and Levy, 2011). Given the absence of distinctive morphological features and wide regional and chronological distribution, this fragment is difficult to link with a particular period or area (it was found in an LB context in Field III). Although probably later than the Chalcolithic period, the barrel-shaped form and nonexotic material makes it difficult to define chronologically. Mace heads are only rarely reported from historic tell sites, with other prestige objects apparently replacing the status that mace heads seem to have held during late prehistoric and protohistoric periods.

## Hammerstones

The class of tools typically called hammerstones is probably one of the more problematic tool types in terms of matching implied functionality with evidence supporting that function(s) (Figure $23.8 \mathrm{a}-\mathrm{c}$ ). These tools range from spherical cobbles to very angular spheroids and cobbles that range between a sphere and a cube (listed in Appendix 23.1, also termed cuboid/spheroid). Many of these have two or three faceted aspects, which appear to be the result of grinding and abrasion. Others are battered, with chipping and fragmentation evident on a few. Classification as a hammerstone rather than a handstone (particularly Type C, see above) is based on a greater degree of battering, chipping, and fragmentation relative to smoothing and polish from abrasion.

All of the examples classified as hammerstones $(N=60)$ are apparently manufactured from flint (Figure $23.8 \mathrm{a}-\mathrm{c}$ ), although a few remain covered with a limestone cortex preventing inspection of the interior. Most are complete, with only four incomplete examples and two fragments. Despite the variability evident in use, the overall assemblage creates an impression of very limited size ranges. In Table 23.3, descriptive statistics indicate the low level of variability in the range of sizes, where the mean length, width, and thickness of the complete and incomplete examples are less than 1 cm , with a very low standard deviation for the length and width. The uniformity of these tools lends support to the idea that some of these may have served as weights; at the same time, such uniformity may result from a functional requirement for size in proportion to the human hand. Certainly, the ubiquity of similar tools of great uniformity from prehistoric contexts contradicts their interpretation as weights without further corroborating evidence.

## Pendants

Five stone pendants were recovered, four of them complete and one fragmentary. Two are limestone; one example (Reg. No. 1023) is a roughly triangular or heart-shaped, small, flat natural pebble with a natural hole that may have been drilled. The other

TABLE 23.3. Descriptive statistics for hammerstones.

| Statistic | Length $(N=41)(\mathrm{mm})$ | Width $(N=41)(\mathrm{mm})$ | Thickness $(N=38)(\mathrm{mm})$ |
| :--- | :---: | :---: | :---: |
| Mean | 63.66 | 59.85 | 56.05 |
| Standard error | 1.84 | 1.73 | 1.46 |
| Median | 64 | 59 | 56.5 |
| Standard deviation | 11.78 | 11.11 | 9.35 |
| Variance | 138.83 | 123.43 | 87.40 |
| Range | 67 | 67 | 72 |
| Minimum | 40 | 35 | 30 |
| Maximum | 107 | 102 | 72 |

limestone pendant (Reg. No. 1115) is elongate, carefully ground, and bifacially flattened, with a round cross section. Another pendant (Reg. No. 808; see Table 22.1), made of finely ground and polished steatite, is an angular teardrop shape bifacially drilled on the narrow end. The only fragmentary pendant (Reg. No. 660 ), probably made of tremolite, is finely ground with a bifacially drilled hole. Near one side of the perforation is a shallow point where a drilled point was begun and then abandoned. Found in an Iron I stratum, a thin, axe-shaped pendant (Figure 23.3a) made of polished jasper has a very small perforation on the narrow end, similar to those made of serpentine from Megiddo (Lamon and Shipton, 1939: pl. 101:2,3).

## Stone Vessels

The class of artifacts called vessels $(N=61)$ is conceived broadly for the present study. As such, it includes those artifacts ranging from finely ground bowls, often made of nonlocal rock, to roughly fashioned bowls (Figures 23.9, 23.10). Rather than calling all artifacts with a concavity a bowl, that term is reserved here only for those with clearly defined rims, with attention to the exterior, and usually interior finishing, of the wall and often the base (cf. Wright, 1992). Vessels thus include a broad class inclusive of many functional and stylistically different types: bowls, basins, mortars, crucibles, and perhaps even other stone objects with shallow concavities, i.e., cupmarks. Mortars and cruder implements with shallow concavities are treated separately in the present analysis.

The majority of bowls from Jemmeh are manufactured of two materials, basalt $(N=18)$ and alabaster $(N=24)$, the latter primarily calcite (see Table 23.1). The remainder are made of limestone $(N=5)$ or chalk ( $N=1$ ), sandstone ( $N=3$ ), steatite ( $N$ $=3)$, soapstone $(N=2)$, marble $(N=1)$, and fossiliferous silicified calcarenite $(N=1)$. Three were made of unidentified rock.

## Alabaster Vessels

The lithology of these vessels $(N=24)$ includes those made of gypsum and of calcite (Figures 23.3c,d, 23.9a-c, 23.10a, e). Most are made of calcite alabaster $(N=21)$, the material presumably
originating in Egypt. Only three fragments are made of gypsum, a locally available rock.

The calcite alabaster forms are clearly crafted with greater skill and attention to detail, and parallels to other forms suggest that they are imports, possibly Egyptian in origin or inspiration. The most complete example (Figure 23.10a), which was reconstructed, is a highly polished deep circular bowl with slightly convex upright walls and rounded base. Two finely executed small vertical pierced lug handles on either side, in the form of stylized duck heads, extend from the rim downward approximately 45 mm .

A slightly rounded, everted rim fragment (Figure 23.9a) with a beveled top and concave wall profile is similar to a number of different vessel types, including vessels such as a high-necked globular pot from Ras Shamra (Caubet, 1991: pl. III;13,14) as well as other forms from that site (Caubet, 1991: pl. II:4,9), but with parallels far to the south as well (Nubia, Steindorff, 1937: pl. 94:6,7). Similar rims are evident on a variety of vessels, including those from Beth Shean (Oren, 1973:114, figs. 45.26, 76.13, "high footed cup"), Jericho (Dorrell, 1983: fig. 232.23, Middle Bronze), and Lachish (Tufnell et al., 1940: pls. XXIV:78, XXV:13).

The remaining alabaster bowl fragments fall within the narrow repertoire of the small bowls and the alabastron, which achieved popularity across the Near East (Roosevelt, 2008). A number of vessel rim to base fragments provide profiles of shallow, finely worked bowls. Two (Figures 23.9 b,c, 23.10e) represent similar forms of shallow bowls with flat, finely ground rims and convex wall profiles. A similar form in the Dayan Collection was termed a "miniature cosmetic bowl" (Clamer, 1986: pl. 1:5). The third fragment (Reg. No. 649) is a flat, finely ground rim, probably similar to the other two but wider at the rim. Also roughly similar is one from Lachish (Tufnell, 1953: pl. 64:2,3). A similar rim found at Samaria is dated to Late Roman (Kenyon, 1957: fig. 119.5), but this is an unlikely date for the Tell Jemmeh rim fragment and is probably a ubiquitous rim type. One final rim fragment (Reg. No. 648) also appears to be a similar shallow dish with a wide, flat horizontal rim.

Other fragments of alabastra are several small, narrow neck fragments, all of them finely worked. One item (Figure 23.3c) has a plain, upright rim and straight tubular neck, with a narrow horizontal ridge ( $\sim 6 \mathrm{~mm}$ wide) approximately 5 mm below


FIGURE 23.9. Stone vessels. us = unstratified. (opposite)

| Part | Reg. No. | Description | Provenance | Phase | Architecture |
| :---: | :---: | :---: | :---: | :---: | :---: |
| a | 652, SI Cat. No. 811 | Alabaster bowl rim fragment | GMIII B (+) | Us |  |
| b | 646, SI Cat. No. 4000 | Alabaster shallow bowl rim | GM 2C NBR (+) | Us |  |
| c | 645, SI Cat. No. 214 | Alabaster, shallow bowl | GM 2D (1) | Us |  |
| d | 1054 | Basalt, shallow bowl, ring base, polished interior | GMI FUR (4) | FUR 2/3 |  |
| e | 4011 | Basalt, footed shallow vessel, highly ground interior | GM 2D TT2 (4) | 3? |  |
| f | 2976 | Limestone, shallow vessel, finely worked, exterior tool marks, ledge just below rim | GM 2B NBR (33) 2A | 5 ? |  |
| g | 3978 | Basalt, convex profile, rounded rim | GM (+) | Us |  |
| h | 3980/3966 | Basalt, convex profile, traces of foot | GM 2D TT2 (2) | 3? |  |
| i | 1053 | Basalt, pedestaled, fenestrated stand medial fragment (Chalcolithic period) | GMIII A2 (20) | 6 |  |
| J | 1022 | Limestone, rim fragment polished | GMIII C3 TT2 (2) | 19 |  |
| k | 994 | Shallow mortar, complete, sandstone | GM (+) | Us |  |
| 1 | 2197 | Limestone, pyxis(?), perforated handle | GM 00A Room F | 5 | Building I Room F |
| m | 2824 | Limestone, vessel fragment | GM 1A NBR (5) 3 | $1 / 3$ ? |  |

the rim. Another (Reg. No. 657) probable neck fragment also appears to have a ridge, albeit less pronounced. A third (Figure 23.3 d ) may be a body fragment of an alabastron with a gently curved shoulder to the beginning of a neck defined by a shallow groove. Approximately 23 mm below that groove is a small, vertical knob handle. A few other nondiagnostic fragments are probably also alabastra (Reg. Nos. 656, 2231, and 2188).

A narrow, tapering base fragment is made of gypsum and probably represents a locally produced "alabaster" vessel (Reg. No. 651). The base is relatively convex, with interior drill marks still evident. This may have been a conical rhyton originally, perhaps similar to the example from Ras Shamra made of chlorite (Caubet, 1991: pls. XII.9, VII.5). Other less similar examples have flat bases, such as those from Megiddo (Guy and Engberg, 1938: Fig. 184.9; Loud, 1948: pl. 259.15).

Two types of alabastra discussed by Clamer (1989) are probably both represented by fragments from Tell Jemmeh (Figure 23.10d and Reg. No. 2052). The small fragment of a wide, flat-topped ledge rim, as well as other body fragments from small cylindrical vessels, is similar to her Type A (see Clamer, 1989: fig. 30.1:11-13), whereas the ridged-neck fragments are similar to that from a Persian period tomb at Tel Michal (Clamer, 1989: fig. 30.1:14).

A thin, flat fragment of finely worked homogenous creamcolored alabaster appears to be disk shaped, with a fine, narrow opening (Reg. No. 2107). This is probably a fragment of a wide, flat-topped ledge rim from an alabastron, similar to those from Tel Michal (Clamer, 1989: fig. 30.1:11-12), Deve Huyuk (Moorey, 1980: fig. 8.124), Ras Shamra (Caubet, 1991: pl. V:9), Samaria (Reisner et al., 1924:333, fig. 204.3a), and Nubia (Steindorff, 1937: pls. 94.3, 95.12).

## Tripod Vessels

One complete example of a shallow tripod limestone bowl comes from Field IV (Figure 23.10f), and another possible fragment is made of basalt (Figure 23.9e). Shallow, well-ground vessels with three short feet, "tripod mortars" ( $N=3$ for Tell Jemmeh), are found covering a wide span of geography and time. Such tripod mortars are known from the north, such as Ras Shamra (Elliott, 1991:28-30), Hama (Fugmann, 1958: figs. 143: fig. 2B: 247,149, Period G), Hazor (Yadin et al., 1960: pls. LXXVII:2,3-6, CIV:13, CXXVI:12, CXLIX:9), Megiddo (Guy and Engberg, 1938: pls. 141:30, 153:7; Loud, 1948: pls. 262:9, 263:18; Sass, 2000: fig.12.2:12), City of David (Hovers, 1996: fig. 27.1,2,4,5), and Samaria (Reisner et al., 1924: fig. 211.2a), to name but a few. Chronologically, they may occur as early as the Early Bronze Age (e.g., Hama, Fugmann, 1958: fig. 46a), although according to Sparks (1998), they do not become common until the Middle Bronze Age, particularly by the MBIIB. Sparks finds no reason to support the earlier study by Buchholz (1963), who suggested a decline in tripod mortars for the Levant; instead, she suggests that $25 \%$ of the sample in her catalog is dated to the LBII (Sparks, 1999). Concentrations of tripod bowls are found at Hama, Hazor, Ras Shamra, and Tell el-'Ajjul according to Sparks (2007:130-132). Closer in proximity to Jemmeh, basalt tripod mortars are also known from Tell el-Farah (S) (Starkey and Harding, 1932: pls. XLII, XLIV:73), Lachish, and Tell en-Nasbeh (McCown, 1947: fig. 63.4,5).

A close parallel to the limestone example from Tell Jemmeh (Figure 23.10f) was found at Samaria (Reisner et al., 1924: fig. 209.8a). There is also a similar example from Hazor, but made


FIGURE 23.10.Stone vessels. us = unstratified.

| Part | Reg. No. | Description | Provenance | Phase | Architecture |
| :--- | :--- | :--- | :--- | :--- | :--- |
| a | 1055, SI Cat. No. 921 | Alabaster vessel, complete | GMIII A3 (2) 2 | 2? |  |
| b | 682, SI Cat. No. 131 | Basalt shallow bowl | GM 1C EBR P2 (9) | Unknown |  |
| c | 647, SI Cat. No. 130 | Limestone/alabaster bowl | GM 2C NBR (1) | us |  |
| d | 1048, SI Cat. No. 947 | Vessel (albastron?; gypsum?) | GMIII A3 (4) 3 | 9 | Unit 2 |
| e | 645 | Alabaster bowl (see Figure 23.9c) | GM 2D (1) | us |  |
| f | 679, SI Cat. No. 121 | Limestone three-legged bowl or tripod | GM 1C EBR P2 (9) | Unknown |  |
| g | 683, SI Cat. No. 23 | Steatite vessel(?) | GM 2B (11) | 3? |  |

from basalt (Yadin et al., 1958: pl. LXXXII:19). According to Sparks (2007:132), tripod bowls are commonly found in a variety of contexts, including palaces, tombs, cultic contexts, and, presumably, domestic contexts.

## Shallow Basalt Vessel, with Ring Base

This is a wide, shallow basalt platter with a low ring base, well ground and symmetrical, with only a faintly delineated rim (Figure 23.9d). Ring base shallow vessels such as this seem to be well documented from most sites, particularly from LB contexts. The closest parallels are found in LB strata at Jericho (Dorrell, 1983: fig. 233.4) and the LBII tomb context at Dan (Ben-Dov, 2002: fig. 2.97:240; Ben-Dov and Rowan, 2011), although other similar examples are known from Tell Abu Hawam (Hamilton, 1935:56. no.341a), Stratum VIIA at Megiddo (Loud, 1948: fig.262:16), and Hazor (Yadin et al., 1960: pl. CXXVII:17[?]).

## Plates/Platter

One very shallow basalt vessel (Reg. No. 682, Figure 23.10b) may be considered a plate by some (Sparks, 1998) but a platter by others (Wright, 1992a:141); it is round in plan, very shallow, with virtually no rim delineated from the body of the platter and little incline toward the vessel's center. The rim is rounded, flaring in a slightly convex manner, and may be the broken base fragment from a vessel that was reground to rejuvenate the vessel. The base is flat, with a slight dip or depression in the center, very similar to one found at Hazor (Yadin et al., 1960: pls. LXXXVII:23, CLIX:25).

## Flat-Based Bowl Fragments

Registration No. 684 has a relatively flat base, with walls that were upright originally but have been chipped and removed down to the base, removing any possibility to determine the original wall profile. The exterior of the base is very slightly convex, with deep striae of tool marks, and blackened from burning. The interior of the base retains very faint traces of tool marks, and no evidence of burning. Three more base fragments (Reg. Nos. 2282, 4002, 2226) are from bowls with relatively flat bases. A thin, small basalt bowl (Reg. No. 4002) probably had outwardly flaring walls and possibly some faintly incised exterior decoration. A larger, thicker bowl base fragment (Reg. No. 2282) may be made of sandstone and has very low walls that may have been reground to rejuvenate the vessel after breakage. The third base fragment of a basalt bowl (Reg. No. 2226) has a steeply sloping interior and may have had some outwardly flaring base to wall juncture. Like Reg. No. 2282, this vessel also has very low walls, suggesting that the original vessel broke, and the break was then reground into a new rim.

## Convex Bowls

Almost one-half of a carefully worked, highly polished limestone bowl (Figure 23.10c) was reconstructed from fragments. Although the base is missing, very slight traces of a ridge along
the broken underside of the bowl suggest that there was some form of ring base, pedestal, or some other form of raised base. Tool marks from bowl manufacture and finishing are evident on the interior, exterior, and rim, as seen in Figure 23.10c.

Three other fragments, all basalt, represent cruder bowls with convex wall profiles. Figure 23.9 g is a relatively coarsely finished round basalt bowl, with a continually curving convex profile from rim to base. Little of the base is preserved, and thus, it is unclear whether the base would be rounded, as the profile would suggest, or whether the base may have been flat. The other two rims (Reg. Nos. 2835, 2272) are small fragments with slight curvature in the rim profile, suggesting relatively shallow, open-form vessels with convex wall profiles.

## Fenestrated, Pedestaled Vessels

All three basalt fragments (Figure 23.9i) are from bowls atop a fenestrated, pedestaled stand, a well-known type dated to the Chalcolithic period (ca. 4500-3600 BCE; Amiran and Porat, 1984; Rowan, 1998). Two (Figure 23.9i and Reg. No. 3527) are the medial sections from the smaller form of fenestrated stand (see Rowan, 1998: Type 4Cii, for details) with the typical single band en relief. The other basalt fragment (Reg. No. 2643) is the leg and base ring fragment from a fenestrated, pedestaled bowl, with an estimated ring base exterior diameter of 200 mm . Such a ring base diameter falls between the means of Types 4Cii and 4 Ci , and thus, it is not possible to classify this fragment more precisely than Type 4C (fenestrated, pedestaled stand).

## Vessel Wall Fragments

Seven bowl wall fragments have no rim, base, or other diagnostic attributes. Two (Reg. Nos. 4003, 2810) are well-ground basalt bowl fragments, but with no distinguishing features. A very small highly polished black rock (Reg. No. 2237, marble?) fragment also provides no clues as to the original form. Three wall fragments (Figure 23.10g and Reg. Nos. 703, 2277) are steatite; Reg. Nos. 703 and 2277 are both thin and exhibit traces of parallel tool marks on the exterior. The other larger steatite fragment (Figure 23.10 g ) has parallel traces of tool marks across the exterior face, which also has a raised band oriented horizontally to the vessel. The raised $(\sim 2 \mathrm{~mm})$ band also has intentional nicks or gaps filed into this raised band, although not evenly spaced. The final fragment (Reg. No. 2276) is actually two conjoining pieces of a soapstone vessel found together. On the edge of the break where the two fragments join, a drilled hole is clearly part of an earlier attempt to mend the vessel; the other end also has a drilled hole for mending. A raised band ( $\sim 10 \mathrm{~mm}$ wide, 8 mm in height) may have once had similar nicks incised, similar to those found on Figure 23.10 g . Below this raised band, faint vertical facets decorated the bowl exterior.

## Other Vessels

A number of bowl fragments are dissimilar to other vessels from Tell Jemmeh, and close parallels at other sites are also
unknown. For instance, Figure 23.9 m is a soft limestone or chalk vessel with hollow pedestal, or "trumpet base" (Cahill, 1992:190-194), with a flat, ledged edge to the pedestal base. Only the pedestal section was found, and thus, the upper vessel section is unclear; however, the upper vessel section was probably quite shallow. Very similar chalk trumpet base forms are dated to the Persian/Hellenistic period from the City of David, with our example most similar to Cahill's (1992: fig. 14:20) Type 2a. Although made of diorite, a very similar form was also found at Tel Michal (Singer-Avitz, 1989b: fig. 31.4).

Another vessel fragment made of limestone (Figure 23.9f) may be of a deep bowl or other vessel type. An additional chalk vessel (Reg. No. 2277, see above) retains traces of fluting or the vertical shaving of the vessel exterior typical of later period vessels, in particular Roman period vessels (see Cahill, 1992). However, this is a shallow bowl with a convex wall profile and a ledge just below the rim, a form probably dating to the Hellenistic/ Persian period. Nevertheless, the ledge of the example from Jemmeh is slightly ( $\sim 10 \mathrm{~mm}$ ) below the flat, well-formed rim, unlike the forms from the City of David (Cahill, 1992: fig. 14:7-18) that are otherwise generally similar.

The remaining vessel fragments are either difficult to classify because of their fragmentary state or are so small that they are not readily classified. For instance, one fragment (Reg. No. 2811) appears to be from a narrow drilled chalk fragment, possibly the neck of a vessel, but this is uncertain. Others (Figure 23.9f,j and Reg. Nos. 2860, 702) are rim fragments with insufficient profiles to interpret the vessel type or rim form (e.g., Figure 23.9j). One vesicular basalt fragment (Reg. No. 3997) is not clearly a vessel; the concave aspect on one side may be the pedestal section of a vessel, the interior well of a crude mortar, or some other object. Another object (Figure 23.91) from Building I, Room F is a complete deep limestone vessel with two perforated lug handles; this could be possibly defined as a pyxis.

Incense Burners
The incense burners ( $N=9$ ) are all made of soft limestone, and most are decorated (Figure 23.11, 23.12a-e). Those that are decorated have incised geometric decor without any traces of paint. On the basis of comparative material and provenience, the Tell Jemmeh incense burners range from the 7th to 4th centuries BCE. Stylistic decor and morphology are suggested by Stern (1982), Shea (1983), and Tufnell (1953) to be significant to understanding chronology and regional affinities of these objects. For this reason, the specific attributes of the examples from Tell Jemmeh are described below; most come from unclear or late contexts.

1. Figure 23.11a shows two conjoining fragments forming nearly one half of a cuboidal limestone incense burner with legs. The legs (25-30 mm) are square in cross section and nearly cubical in shape. The basic rim is 15 mm high by 15 mm wide. There are incised horizontal bands with diamonds and a triangle pattern in between. These geometric decorations cover the sides as well as the top of the flattened rim, which is burned and polished. The feet also are blackened from burning or intentional smoking, as if the entire artifact sat in a fire. One side is also
blackened. Morphologically, the burner is not well balanced and is rather crudely made, and the decor was executed freehand. The context roughly dates to the Persian period.
2. Found on the site surface, Figure 23.11 b is an incomplete chalk example, missing one leg and corner. The depth of the basin is approximately 12 mm , with a rounded rim 10 mm in width. The two preserved sides are decorated with crude figurative incisions, possibly a horned altar with a bird or fish on either side, larger on one side than the other. Underneath the burned area within the basin, some traces of geometric pattern are still visible.
3. Figure 23.11c illustrates two conjoining fragments of a limestone cuboid burner with rounded corners. The basin shape conforms to the general morphology of the burner. The rim is decorated with a single row of drilled holes along the top (Figure 23.11 c , left). The feet ( $50 \times 50 \mathrm{~mm}, 10 \mathrm{~mm}$ in height) are created by two deep rounded grooves crossing one another, cut into the base. On each side there is a slightly recessed panel with some faint traces of geometric incised decor. This is from a context possibly dated to the Persian period (Phase 3?).
4. Figure 23.12a is approximately half of a limestone burner. The legs are broken off; each is about 35 mm . Incised geometric patterns on the sides are executed with care; the outer lines of the bands appear to have been drawn with a straight edge, whereas the interior decor was freehand but regular. The context is dated to the Persian period.
5. Figure 23.12 b shows a rim and corner fragment made of soft limestone. The rim is approximately 14 mm wide, and the basin in recessed about 9 mm . The top of the rim is decorated with geometric incisions that are ruled, but decor on the sides was executed freehand. The context dates to the Persian period.
6. Figure 23.12 c illustrates a rim and corner fragment. The rim is about 15 mm high and 15 mm wide, with freehand geometric decor of diamond patterns filled with horizontal lines on the top and side.
7. Figure 23.12 d is a limestone leg fragment, about 30 mm in width, with a $5-\mathrm{mm}$-high bevel at the bottom. Decoration is an incised geometric pattern executed freehand. The context dates to the Persian period.
8. Figure 23.12 e is a limestone rim fragment, 15 mm wide and about 12 mm high. The top of the rim has a ruled, incised border, with freehand incisions on the inside. Incised geometric decor on the sides is also freehand. The context dates possibly to the Persian period.
9. Figure 23.12 f is manufactured from chalk; the complete basin is approximately 10 mm deep, with a sloping interior up the sides to the rim. This is basically an undecorated incense burner, although one side does have some freehand incisions that are not accidental. The incisions are shallow and do not appear and are no more than eight horizontal (but not especially parallel) shallow lines. The context dates to the Iron IIC, 7th century BCE.

Stern suggests that the incense burners recovered during Petrie's excavations at Tell Jemmeh (Petrie, 1928: pls. XLI, XLII: 5,6 ) are attributed to the 6th and first half of the 5th century BCE (Stern, 1982:192). In agreement with Tufnell (1953), who had proposed that the Lachish incense burners should be


FIGURE 23.11. Incense burners: (a) Reg. No. 685, SI Cat. No. 119, GM 1A TT4 (6), Phase 4?/1?; (b) Reg. No. 686, SI Cat. No. 133, GM 2A (+), unstratified; (c) Reg. No. 687, SI Cat. No. 201, GM 1C-1D, (6) 3, Phase 3.


FIGURE 23.12. Incense burners: (a) Reg. No. 688, SI Cat. No. 118, GM 1B (5A), Phase 3?; (b) Reg. No. 689, SI Cat. No. 441, GM 0A (6), Phases 3-4, Unit 3; (c) Reg. No. 690, SI Cat. No. 234, GM 2C W2, Phase 2?-3?; (d) Reg. No. 691, SI Cat. No. 364, GM 0B (1) 2, Phase 3, Unit 2; (e) Reg. No. 692, SI Cat. No. 607, GM 1B NBR (6), Phase 3?; (f) Reg. No. 1052, SI Cat. No. 622, GM 1B EBR (17) 1, Phase 5?, Building II, Room A?.
dated later than those from Tell Jemmeh or Gezer, Stern further argues that on stylistic grounds, the more precisely decorated forms are earlier. Moreover, he contends that the South Arabian assemblage of altars belongs to a later period, 4th-1st centuries BCE, and that the source of the altars should be traced to Mesopotamia, as originally proposed by Petrie (Stern, 1982:194). He suggests that a Phoenician origin should be considered as an alternative on the basis of their discovery in the Phoenician temple at Makmish (Tel Michal) and from those found at Shikmona, where store jars with Phoenician inscriptions were found (Stern, 1982:194).

Shea (1983), who synthesized a broad collection of cuboid incense burners, does not entirely agree with Stern's assessment. Rather than base a typology on the precision of the designs, Shea suggests that the general form of the burners is a stronger indicator, with the short, squat forms earlier than the taller, more slender types. Dating of the incense burners is difficult for a number of reasons; in particular, the lack of strong comparative dates for burners found in site impedes it.

Of the Tell Jemmeh incense burner assemblage found at the site, most were recovered from unsecure contexts or from contexts dated to the Persian period. Two examples (Figures 23.11c, 23.12e) lack the incised geometric decor, although Figure 23.11c does have recessed panels on each side. In one of those panels, faint traces of decor are present, but it is unclear what the design would have been. In addition, a series of drilled holes on the rim are found on Figure 23.11c. Both of these relatively plain burners are relatively squat (wider than high), with rudimentary feet formed through the deeply incised perpendicular lines on the underside.

## Tesserae

These are small, angular cubes of stone, typically hard limestone ( $N=11$; Appendix 23.1). Most appear to be complete and are usually struck rather than ground. One (Reg. No. 2080) has a green tint, possibly indicating some copper mineral content, but the others bear no visible traces of paint or coloration.

## Ground Stone Fragments

Like at most ancient sites, a number of ground stone fragments $(N=20)$ are uncategorized because of their ambiguous morphological and functional attributes (Appendix 23.1). Those from Tell Jemmeh are all fragments; the majority are made of limestone ( $N=9$ ), followed by coquinoidal sandstone ( $N=7$ ) and one each of basalt, scoria, and sandstone. Although some examples are probably ground on at least one face and a few were ground carefully on two faces, a few exhibit little evidence for use wear or intentional modification. Their presence at the site is the result of human agency, and thus, they probably represent artifacts despite the ambiguity of their wear or morphology.

## DISCUSSION

Broad synthetic statements about the ground stone assemblage from Tell Jemmeh are difficult to make, but a few observations are possible. For instance, as one might expect, the relative frequencies of rock types generally reflect the available resources in the immediate vicinity (Table 23.1). Thus, limestone predominates some artifact types (e.g., mortars, modified pebbles, and cobbles) but not all (Table 23.1). Examination of the relative frequencies of the basic grinding and production process indicates that basalt was an important choice of rock for some artifact types. For example, substantial numbers of grinding slabs ( $N=40,44 \%$ ), handstones ( $N=24,27 \%$ ), and stone vessels ( $N=18,28 \%$ ) were manufactured from basalt. The category of fragments that may have been handstones or grinding slab fragments was predominantly made of basalt ( $N=47,75 \%$ ). Basalt is not a local material to the region of Jemmeh, although small outcrops are exposed in the Maktesh Ramon crater in the central Negev. More likely sources of larger boulders of less friable basalt are found in the northern regions, such as in the eastern Galilee and the extensive multiple flows of the Golan. Flows that also could have contributed to the production of basaltic artifacts are also found just to the east of the Dead Sea, on the Kerak plateau and exposed in the beds of the wadi systems, such as the Wadi el-Hasa, Wadi el-Mujib, and Wadi edh-Dana in modern day Jordan.

Other classes of artifacts, such as perforated stones, include a few made of basalt, whereas others (modified pebbles and cobbles, spindle whorls, hammerstones, and pivot or door sockets) have no examples manufactured of basalt. This is interesting for several reasons and contrasts with results obtained from other sites in the vicinity from earlier periods. For instance, of the hundreds of grinding slab fragments recovered in just three seasons of excavation at the nearby Chalcolithic site of Gilat, only one was made of basalt (Rowan et al., 2006). This holds true for the northern Negev Chalcolithic site of Shiqmim as well, where, despite a much more extensive excavation exposure than Gilat, there is a notable lack of basalt for basic grinding implements. Low frequencies of basalt in prehistoric ground stone assemblages recovered from sites distant from basalt flows are probably a direct result of the transport costs. Nevertheless, basalt
bowls are a hallmark of the Chalcolithic period, underscoring their role in late prehistoric prestige goods economies.

When the effort involved with transportation of heavy materials such as basalt sufficiently decreased to warrant the labor expenditure, perhaps with the increased use of the donkey during the Early Bronze Age, desirable materials for nonluxury goods may have been transported to sites increasingly distant from their original sources. This is apparent not only at Jemmeh, but at other sites with Late Bronze and Iron Age occupation as well, although the true extent is difficult to ascertain given the uneven nature of ground stone assemblage publications. At sites where publication is more complete, such as Megiddo, Hazor, Beth Shean, or Deir 'Alla, the common presence of basalt in ground stone assemblages at sites close in proximity to potential sources of basalt is unsurprising. However, other sites more distant from basalt flows, such as Lachish, also recover basalt ground stone artifacts. Unfortunately, few ground stone assemblages are published from sites where basalt must come from a distance.

Major components of the identifiable ground stone from Tell Jemmeh are those artifacts for basic grinding needs, such as the grinding slabs, handstones, and fragments that cannot be distinguished between handstones or grinding slabs. Together, those three categories constitute nearly one-half ( $44.4 \%$ ) of the total ground stone tool assemblage. Stone vessels are the fourth largest component $(11.88 \%)$ of the total assemblage and largely represent imported and probably prestige items. Many of the stone bowls are made from either calcite or gypsum alabaster, primarily the former. Many others are made of desirable rock types, such as basalt, steatite, and other less common materials, such as a few examples made of soapstone.

Both hammerstones and the unidentifiable ground stone fragments constitute nearly $9 \%$ of the total assemblage. Hammerstones are notable because all appear to be manufactured from flint; the lack of fragmentation makes it difficult to be certain in some cases. No other category of artifact exhibits such a clear preference by the users for flint.

The ground stone assemblage from Tell Jemmeh represents a number of different substantial occupations, and thus, discussion must focus on those that may be grouped by chronological relationships, based on stratigraphic associations. Nevertheless, preliminary observations may be suggested on the basis of the context or established dating of some artifact types. Clearly, tripod bowls and mortars may be established as early as the Middle Bronze Age and continue into at least the Persian period. Presumably, because morphology and size changes so little through time, at least on the basis of our limited understanding thus far, other artifact types, such as grinding slab fragments, handstones, mortars, and hammerstones are of limited utility as chronological markers. We may hope for greater chronological precision in the future based on the spindle whorls, although our chronological precision seems to remain inadequate. Spindle whorls from late prehistoric periods are typically made of limestone or ceramic, whereas steatite seems to become the preferred material for Late Bronze and Iron Age artisans.

In addition, the limited comprehension of tool function for many of the grinding and pounding implements found in profusion
at most sites hampers the interpretive potential ground stone artifacts contribute to our reconstruction of ancient production. Analytical studies such as use-wear and residue analyses of ground stone artifacts are in their infancy, and applications to assemblages from eastern Mediterranean sites are rare. Nevertheless, residue studies (Hyland et al., 1990; Loy, 1997; Evershed et al., 1992; Piperno and Holst, 1998; Quigg et al., 2001) are now applied to ground stone assemblages and show promise in application to southern Levantine assemblages, such as Ohalo II (Piperno et al., 2004). Likewise, use-wear and technical studies of ground stone assemblages are showing results (Adams, 1988, 1989a, 1989b, 1993a, 1993b; Dubreuil, 2004) but remain untested on later ground stone artifacts from southern Levantine contexts.

## ACKNOWLEDGMENTS

The author takes this opportunity to thank Ron Gardiner for his dedication to this project through many decades and

Bonnie Gardiner-Magness, for her work establishing the database. In addition, Theodore Gold was instrumental in the final completion of this chapter. This research was conducted while the author was a Smithsonian Institution Postdoctoral Research Fellow and Smithsonian Institution Visiting Scholar; the author particularly thanks the Department of Anthropology at the National Museum of Natural History, Smithsonian Institution, for their encouragement and support. Additional support was provided through a Shelby White-Leon Levy grant, for which the author would like to express his appreciation.

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TABLE 23.A1. Tell Jemmeh stone artifacts database. Abbreviations: $\mathrm{AL}=$ alabaster; $\mathrm{AM}=$ amethyst; $\mathrm{B}=$ basalt; biconv $=$ biconvex; $\mathrm{BR}=$ beach rock; $\mathrm{C}=$ complete; Car $=$ carnelian; $\mathrm{Ch}=$ chalk; Chal = chalcedony; Cob. = cobble; conc = concave; conv = convex; $\mathrm{CqS}=$ coquinoidal sandstone; $\mathrm{CS}=$ calcareous sandstone; ctr $=$ center; dia $=$ diameter; Dorso = dorsal (top); long. = elongate; Est = estimate; ext. = exterior; F = flint; FeL = ferruginous limestone; frag. = fragment; FosL = fossiliferous limestone; FSC = fossiliferous silicified calcarenite; $\mathrm{G}=$ gypsum; Geo_= geometric; $\mathrm{H}=$ hematite; Horiz = horizontal; Inc = incomplete; int. = interior; irreg. = irregular; $\mathrm{J}=$ jasper; $\mathrm{L}=$ limestone; lat. = lateral; longit. = longitudinal; $\mathrm{M}=$ marble; mano = handstone; mod. = modified; nat. = natural; p-c plano-convex; peb. = pebble; perf. = perforated; Pol = polished; poss. = possible; prob. = probable; $\mathrm{Q}=$ quartz; Qte = quartzite; rect. = rectangular; $\mathrm{S}=$ sandstone; $\mathrm{Sc}=\mathrm{scoria} ; \mathrm{SL}=$ siliceous limestone; $\mathrm{SMV}=$ siliceous metavolcanic; $\mathrm{St}=$ steatite; $\mathrm{T}=$ tremolite; triang. = triangular; trapez = trapezoidal; ventro = ventral (underside); vesic = vesicular; $\mathrm{w} /=$ with; x -sect $=$ cross section.
TABLE 23.A1 (continued)

| Reg. No. <br> (SI Cat. No.) | Grinders |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Provenance | Material | Fragment type | Length <br> (mm) | $\begin{aligned} & \text { Width } \\ & (\mathrm{mm}) \end{aligned}$ | Thickness (mm) | Height <br> (mm) | Cross section | Profile | Description |
| 927 | GMI 3G W1 | FSC | frag. | 210 | 120 | 73 | 73 | p-c | p-c | very ground unifacially, irreg. shape, w/ ochre staining highly polished area, cortical ventro |
| 940 | GMIII B (1) 15 | B | frag. | 103 | 85 | 31 | 31 | p-c |  | unifacially highly ground, slightly concave, thin, flattish frag. |
| 947 | GMI 3G (1A) 1 | B | frag. | 225 | 165 | 45 | 45 | conc-conv | conc-conv | unifacially well ground, ventro shaped |
| 948 | GMIII B (65) 9 | B | frag. | 175 | 170 | 42 | 42 | p-c |  | unifacially ground, relatively flat |
| 950 | GM 00A (1) 3 | B | frag. | 110 | 90 | 33 | 33 | flat |  | unifacially well ground |
| 952 | GMII A3 (1) 3 | B | frag. | 129 | 65 | 28 | 28 | conc-conv |  | unifacially well ground, thin and flat |
| 953 | GMI 3F (6) | B | frag. | 115 | 40 | 45 | 45 | flat | flat | unifacially well ground |
| 954 | GMI 4D (4) 7 | B | frag. | 100 | 65 | 31 | 31 | flat | flat | unifacially highly ground and polished, ventro rough |
| 956 | GMI FUR II (2) | B | frag. | 100 | 80 | 35 | 35 | flat | flat | unifacial, flat, ventro rough |
| 957 | GM 2A WBR (0) | B | frag. | 130 | 80 | 32 | 32 | flat | flat | bifacial, both faces well ground |
| 960 | GM 0B (2) 2 | B | frag. | 155 | 87 | 45 | 45 | p-c |  | unifacially well ground, ventro has groove (possibly natural) |
| 961 | GMI 1F (6) | B | frag. | 70 | 57 | 25 | 25 | flat | flat | primarily unifacial use, well ground |
| 962 | GM (+) | B | frag. | 125 | 115 | 36 | 36 | p-c | p-c | unifacially well ground, ventro roughly shaped |
| 964 | GMIII A1 (+) | B | frag. | 110 | 125 | 51 | 51 | p-c |  | unifacially highly ground, face slightly concave |
| 965 | GMIII A1 (2) 3 | B | frag. | 105 | 85 | 39 | 40 | p-c |  | unifacially highly ground, face slightly concave, rounded smooth edge |
| 966 | GMIII B (56) | B | frag. | 165 | 115 | 32 | 32 | conc-conv |  | unifacially highly ground, possibly basin |
| 1008 | GM 2B F24 | BR | frag. | 170 | 160 | 111 |  | p-c | p-c | unifacially ground slightly, very coarse |
| 2034 | GMI 5E (+) | B | frag. | 35 | 31 | 29 |  | flat | flat | unifacially highly ground, prob. grinding slab frag |
| 2050 | GM 1B (14) 2 | CqS | frag. | 135 | 78 | 64 |  | p-c |  | unifacially ground, prob. end frag. of grinder |
| 2051 | GMIII A3 (4) | CqS | frag. | 75 | 100 | 35 |  | p-c | p-c | unifacially ground |
| 2108 | GMI 1F (4) 1 | B | frag. | 38 | 35 | 20 |  | flat |  | unifacially well ground, prob. grind slab |
| 2145 | GMI 5G (0) | B | frag. | 175 | 145 | 38 |  |  |  | unifacially very ground, edge rounded, concave toward one edge, shallow concavity near center of artifact $\sim 160-180 \mathrm{~mm}$ dia |
| 2204 | GMIII J1 (12) 1 | B | frag. | 180 | 150 | 360 |  |  |  | unifacially well ground, thin, end frag of grinder, not shaped? |
| 2205 | GMII A3 TT1 (1B) | CqS | frag. | 270 | 175 | 70 |  |  |  | flat, unifacial, slightly concave toward broken edge, edges roughly chipped, prob. grinding slab |
| 2206 | GMII C2 (0) | CqS | Inc | 300 | 220 | 90 |  |  |  | unifacial, concave, nearly complete, underside unshaped, irreg. shape |
| 2207 | GM 2B F12 | CqS | frag. | 220 | 250 | 120 | 120 |  |  | very large grinder, deeply concave, unifacial use only, very ground |
| 2210 | GM 2B F12 | CqS | frag. | 160 | 60 |  |  |  |  | unifacially ground, int. frag., slight convex face |
| 2215 | GM 2B (3) | CqS | C | 285 | 230 |  | 110 |  |  | rectangular, squared, shaped, unifacial use w/ circular depression (160-170 mm dia) |


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TABLE 23.A1 (continued)

| Reg. No. <br> (SI Cat. No.) | Grinders |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Provenance | Material | Fragment type | Length $(\mathrm{mm})$ | $\begin{aligned} & \text { Width } \\ & (\mathrm{mm}) \end{aligned}$ | Thickness (mm) | Height <br> (mm) | Cross section | Profile | Description |
| 3017 | GMII C2 (5) 3 | CqS | frag. | 160 | 155 | 61 |  | p-c | p-c | unifacially smooth, ventro rough, ends broken |
| 3082 | GM 3B (12) 1 | CqS | frag. | 175 | 200 | 80 |  | conc-conv | irreg. | unifacial, well-worn and concave use face |
| 3546 | GMII A3 (0) | CqS | Inc | 178 | 143 | 31 |  | flat | flat | small grinder, flat and thin, unifacial, irregular shape |
| 3555 | GM 2B (63) | B | frag. | 99 | 97 | 43 |  |  |  | edge frag., unifacially well ground |
| 3562 | GMIII C3 TT3 (1) | CqS | frag. | 132 | 140 | 55 |  |  |  | edge frag., unifacially worked |
| 3564 | GMII D4 | B | frag. | 95 | 80 | 39 |  | flat | flat | edge frag., unifacially well ground |
| 3810 | GMIII A3 (4) | B | frag. | 68 | 34 | 43 |  |  |  | unifacially well ground |
| 3973 | GM 1D (1) 1 | B | frag. | 165 | 166 | 37 |  | flat | flat |  |
| 3983 | GM (+) | B | frag. | 170 | 145 | 45 |  |  |  | very vesic, unifacial |
| 3984 | GM (+) | B | frag. | 110 | 75 | 53 |  | flat | flat | bifacial edge frag. |
| 3985 | GM (+) | B | frag. | 107 | 102 | 32 |  | flat | flat | unifacial edge frag. |
| 3987 | GM (+) | B | frag. | 79 | 51 | 68 |  |  |  | edge frag., very vesic, unifacial |
| 4020 | GM (+) | B | frag. | 86 | 68 | 55 |  |  |  | unifacial, vesic, central frag. |
| 4022 | GM (+) | B | frag. | 66 | 81 | 46 |  |  |  | central chunk, unifacial |
|  | Handstones |  |  |  |  |  |  |  |  |  |
| Reg. No. <br> (SI Cat. No.) | Provenance | Material | Fragment type | Length | Width (mm) | Thickness (mm) | Height <br> (mm) | Cross section | Profile | Description |
| 663 (382) | GM 1A NBR W1 | AL | C | 83 | 66 | 30 |  |  |  | trapez, w/ corner missing; unifacially flat and highly polished; smooth and shaped, w/ striae |
| 867 | GM 2B (11) 11 | CqS | C | 285 | 122 | 65 |  |  | A | unifacial, well-ground, plano-convex x-sect; asymmetric p -c profile |
| 868 | GM 2E (3) | CqS | C | 240 | 115 | 44 |  |  | B | elongate-oval, unifacial surface use laterally convex |
| 869 | GMI 3G W1 | CqS | frag. | 215 | 154 | 62 |  |  | B | rectangular, unifacial use, handstone? |
| 870 | GM (+) | CqS | Inc | 230 | 120 | 68 |  |  | A | rectangular, unifacial use |
| 871 | GM 2C (37) 3 | CqS | Inc | 230 | 110 | 90 | 90 |  | A | rect. in shape, thick and heavy, end broken, well ground |
| 872 | GMI FUR (10) 5 | CqS | Inc | 200 | 137 | 45 |  |  | A | ovoid, bifacially ground, primary use on one face |
| 873 | GMIII A3 (6) | CqS | C | 285 | 134 | 54 |  |  | A | rounded rect. |
| 875 | GM 1B (+) | CqS | Inc | 320 | 148 | 91 |  |  | A | elongate ovoid, unifacial, slight convex working face |
| 876 | GM 2B balk removal (0) | CqS | Inc | 280 | 118 | 62 |  |  | A | elongate rect., unifacially slightly convex, underside shaped and smooth |
| 877 | GMIII A3 W4 (3) | CqS | Inc | 198 | 120 | 47 |  |  | B | unifacial working surface, very slight convex |
| 878 | GM 1A (1) 8 | CqS | frag. | 60 | 135 | 51 |  |  | A | unifacial, very slightly convex working surface |
| 879 | GM 00B P8 | CqS | frag. | 84 | 104 | 39 |  |  | B | unifacial, very slightly convex working surface |
| 880 | GM 2B P10 | CqS | frag. | 145 | 130 | 49 |  |  | B | unifacial, very slightly convex working surface |
| 881 | GMI 1F (7) | CqS | C | 254 | 139 | 37 |  |  | A | ovoid, primarily unifacial, but both faces well ground; primary face slightly convex, very well ground |
| 882 | GMIII A1 P1 | CqS | frag. | 88 | 90 | 29 |  |  | A | square, unifacial only, well-ground flat face |

round shape, unifacially flat working face, small, single hand size
edge fragment, prob. unifacial, convex face
long wedge, bifacial use, one face more ground slightly convex
medial frag., unifacial, working face slightly convex, other face smooth flat use face, other face w/ concavity in center; handstone
is secondary use convex unifacial grinding surface, end fragment unifacial, slightly convex use surface bifacially ground, irreg. shape, possibly used as grinding slab and handstone
elongate shape, unifacial grinding face slightly convex; p-c x-sect, flat profile; rim/foot protrually, one face slightly concave, other slightly convex, handstone? bifacial, one face slightly convex, other face slightly concave, handstone?

possible bifacial use; small, one-handed
unifacial, end frag., sides rounded, one-handed unifacial, rounded end fragment
bifacial, small, one-handed, well ground bifacial, small, one-handed, well ground, ends smooth and slightly convex
unifacial, rect., rounded end frag. w/ end curving up
vertically, handstone?
 smoothed and shaped
primarily unifacial use, small, prob. one-handed;
smoothed and shaped
probable bifacial use, fla
probable bifacial use, flaked to shape
unifacial, slightly convex face, well ground
unifacially, highly ground elong. shape, parallel sides

unifacially highly ground, flat face, p-c x-sect and profile unifacially highly ground, flat face unifacial, well-ground, slightly convex working face,
unifacially highly ground, small and narrow, handstone? unifacial, highly ground







TABLE 23.A1 (continued)

| Reg. No. <br> (SI Cat. No.) | Handstones |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Provenance | Material | Fragment type | Length (mm) | $\begin{aligned} & \text { Width } \\ & (\mathrm{mm}) \end{aligned}$ | Thickness (mm) | Height <br> (mm) | Cross section | Profile | Description |
| 935 | GM 2C SBR (7) | B | frag. | 125 | 68 | 49 | 49 |  |  | prob. bifacial, irreg. shape, one face highly ground, other somewhat ground, handstone? |
| 936 | GMIII J2 (17) 1 | B | C | 105 | 75 | 32 | 32 |  | B | bifacially highly ground, rounded rect. shape, edges rough and vertical, handstone? |
| 937 | GM 2A (11) | B | C | 97 | 85 | 45 | 45 |  | B | bifacially highly ground, rounded rect. shape, each face slightly concave |
| 938 | GMI 6F 1 | B | frag. | 70 | 62 | 33 | 33 |  | B | unifacially highly ground, pointed end frag. |
| 942 | GMI 4F TT5 (+) | B | C | 105 | 57 | 44 | 44 |  | B | trifacial use, all highly ground, rect. shape, two faces flat, third convex |
| 944 | GMIII B F1 | B | F | 62 | 110 | 38 | 38 |  |  | unifacially well ground, handstone? |
| 945 | GMI 4G F4 | B | C | 88 | 70 | 53 | 53 |  | C | unifacially highly ground and polished, rounded rect. shape, one-handed |
| 946 | GMIII A3 (2) 2 | B | Inc | 195 | 100 | 57 | 57 |  | B | unifacially highly ground, elliptical shape, slightly concave |
| 967 | GMIII C2 (82) | B | frag. | 80 | 76 | 41 |  |  | C | unifacially highly ground, small, one-handed, central concavity |
| 968 | GM 2B (44) | B | C | 87 | 98 |  |  |  |  | bell shaped, well ground on working face, one-handed, irregular cross section |
| 969 | GM (+) | B | C | 37 | 30 | 54 | 54 |  | C | oval x -sect, truncated cone profile, well ground, wide use face polished |
| 970 | GMII A3 (14) | S? | C | 75 | 66 | 46 |  | 299 | C | well-ground face, one-handed |
| 971 | GMI 3G (1A) 1 | L? | C | 61 | 56 | 50 |  |  | C | dome shaped, well ground, wide working face |
| 972 | GMIII A3 (4) | L? | C | 79 | 73 | 47 |  |  | C | dome shaped, well-ground working face, exterior top is polished and battered |
| 973 | GMI 4D (4) 3 | L? | C | 97 | 73 | 44 |  |  | C | ovoid, highly ground w/ striae oriented laterally; ends are lightly pecked |
| 989 | GM 1B (+) | CqS | frag. | 185 | 130 | 93 | 58 |  | A-1 | unifacial, well ground, concave working face, curved up end, handstone? |
| 1011 | GMI 4D (5) | B | frag. | 100 | 73 | 35 |  |  | C? | bifacially heavily ground |
| 1015 | GMI KB (22) 4 | Sc | frag. | 68 | 30 | 22 |  |  |  | one face highly ground, handstone frag? |
| 2091 | GMI FUR (8) 3 | B | C? | 80 | 72 | 65 |  |  | C | unifacially prob. ground, amorphous lump, highly scoriaceous |
| 2110 | GM 2C TT1 (2) | B | frag. | 52 | 52 | 49 |  |  | C | cuboid abrader/rubber, six polished faces, one w/ striae |
| 2209 | GM 2B F12 | CqS | frag. | 160 | 110 | 55 |  |  | A-1 | curved end, unifacially ground, narrow parallel sides, slightly convex face (laterally) |
| 2211 | GM 2B F12 | CqS | frag. | 150 | 115 | 40 |  |  | B | concave lengthwise, convex laterally, unifacially well ground (joins w/ Reg. No. 2212) |
| 2212 | GM 2B F12 | CqS | frag. | 90 | 115 | 40 |  |  | B | concave lengthwise, convex laterally, unifacially well ground (joins w/ Reg. No. 2211) |

ext. shaped, base is flat; face is slightly convex laterally,
unifacial use
unifacially well ground, tapers at end, handstone?
unifacial, very slightly convex working face
rectangular, bifacially slightly convex; lat. margins also
bifacially smooth, one more than the other, edges rounded, slightly convex laterally, handstone?
cuboid abrader/rubber, two flat and parallel faces, convex
side and rounded corners lided
ovoid cobble, slightly flattened and polished on two sides unifacial, well ground
unifacial, well ground, slightly convex working face
unifacial, well ground, slightly convex working face
rect. shape, bifacially smooth, lat. sides smooth, ends
rough
bifacially smooth cobble, lateral motion, bifacial striae bifacially smooth cobble, lateral motion, bifacial striae
are lateral
primarily unifacial use, very well ground
unifacially ground, handstone?
unifacially well ground, p-c x-sect, flat profile elongate-rect., bifacial wedge use, wedge shaped, one face slightly convex well ground, primarily unifacial, end broken, convex face prob. was oval, unifacially ground, handstone?
unifacially highly smoothed, w/ slight convexity laterally on face roughly rect. shape, one end flat, other convex, one use
face well ground
unifacially smooth, slightly convex surface side-to-side in x-sect
 on face shaped exterior, unifacially ground, slightly convex,
rounded end, elongate, p-c x-sect, flat profile bifacially ground, one face flat and more highly ground; bifacially ground, one face flat and more highly ground;
handstone/rubber; rect. x-sect, flat profile prob. bifacially smooth, one side highly ground, edge beveled, handstone/rubber
rounded rect. shape, $x$-sect, profile, prob. bifacial use

highly polished, black, bifacially highly ground to polish, also one side, irreg. x-sect and profile unifacial, use face is slightly convex, shaped exterior, trapez $x$-sect, flat profile $\infty$
$\infty$
+
$\begin{array}{cc}n & n \\ n & \text { in } \\ n & n\end{array}$







TABLE 23.A1 (continued)

| Reg. No. <br> (SI Cat. No.) | Handstones |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Provenance | Material | Fragment type | Length (mm) | Width (mm) | Thickness (mm) | Height (mm) | Cross <br> section | Profile | Description |
| 3187 | GM 2A (10) | L | frag. | 44 | 29 | 30 |  |  |  | unifacial ground smooth and flat |
| 3349 | GMII A3 | CqS | C | 337 | 145 | 69 |  |  | A | elongate shape, unifacial, slightly convex surface laterally, p-c x-sect, conc-conv profile |
| 3350 | GM 2B (36) 3 | CqS | C | 206 | 96 | 49 |  |  | B | slightly convex surface laterally, long thin type, unifacial, triang. x -sect |
| 3351 | GMII A2-C2 <br> balk 3 | CqS | frag. | 95 | 86 | 51 |  |  | C | long, thin type, end frag., unifacial, p-c x-sect |
| 3532 | GM 2A F7 4 | scoria | C | 91 | 52 | 48 |  |  | C | rounded rect. shape, sides ground, square x -sect, rect. profile |
| 3533 | GM 2A F7 4 | CqS | frag. | 135 | 120 | 45 |  |  | A-1 | elong. type w/ overhang, sides parallel, slightly convex laterally |
| 3535 | GM 2A (31A) | CqS | frag. | 93 | 85 | 41 |  |  | C | bifacially ground; biconv rect. x -sect and profile |
| 3537 | GMIII B (52) | CqS | frag. | 112 | 111 | 49 |  |  | B | convex grinding surface, flat x -sect, triang. profile |
| 3543 | GM 2A (30) | CqS | frag. | 205 | 126 | 59 |  |  | B | unifacial, slightly convex lateral surface, p-c x-sect |
| 3552 | GMIII (50) | CqS | frag. | 64 | 72 | 32 |  |  | C | unifacially well ground, p-c x-sect |
| 3563 | GMIII J2 (26) | CqS | frag. | 98 | 87 | 30 |  |  | B | unifacial, well ground, flat $x$-sect and profile |
| 3811 | GMIII A3 (4) | CqS | frag. | 100 | 81 | 42 |  |  |  | unifacially well ground, flat x-sect and profile |
| 3812 | GMI 2E (2) | diorite? | Inc | 153 | 107 | 90 |  |  | B | ovoid, unifacially polished |
| 3813 | GMI 2E (4) | B | frag. | 114 | 102 | 56 |  |  | B | elongate, unifacial |
| 3972 | GM 1A (7) 1 | BR | frag. | 75 | 57 | 42 |  |  | C | irreg. shape, unifacial |
| 3975 | GM 2C TT5 | L | C | 80 | 55 | 42 |  | 331.3 | C | rect., smooth all over, trapez x -sect and profile |
| 3977 | GM 1D TT1 (2) | L | C | 88 | 75 | 35 |  | 409.5 | C | square, unifacially polished, square $x$-sect and profile |
| 3981 | GM 2C (10) 1 | BR | frag. | 185 | 134 | 40 |  |  | B | slightly convex working surface; $\mathrm{p}-\mathrm{c} \mathrm{x}$-sect, conc-conv profile |
| 3986 | GM (+) | B | frag. | 84 | 77 | 32 |  |  | B | very vesic, unifacial; p-c x-sect, conc-conv profile |
| 3991 | GM 2A P2 | L | C | 69 | 56 | 36 |  | 287.5 | C | rect. shape, x -sect, and profile, well ground, poss. weight? |
| 3994 | GM 2B TT2 (17) | BR | frag. | 135 | 107 | 42 |  |  | B | unifacial, p-c x-sect, flat profile |
| 3996 | GM 1C F14 (6) | BR | C | 280 | 131 | 87 |  |  | A? | elongate, unifacial, rounded rect. x -sect, $\mathrm{p}-\mathrm{c}$ profile |
| 4012 | GM 2C (+) | S | C | 76 | 71 | 36 |  | 417.3 | C | square, bifacially worn, rect. x -sect and profile |
| 4015 | GM (+) | B | frag. | 101 | 88 | 34 |  |  | C | unifacial, sampled by Bill Melson, dense |
| 4016 | GM 2C TT1 (3) | B | frag. | 88 | 68 | 51 |  |  |  | very vesic, sampled by W.M., rect. x-sect and profile |
| 4017 | GM (+) | BR | frag. | 172 | 121 | 56 |  |  | A | unifacial, surface slightly convex, p-c x-sect, flat profile |
| 4018 | GM (+) | B | C | 111 | 78 | 39 |  |  | B | oval-rect., dense, bifacial?, flat $x$-sect and profile |
| 4048 | GMIII C3 TT3 (2) | CqS | frag. | 174 | 118 | 37 |  |  |  | unifacially well ground |

Handstones or grinding stones

| Reg. No. (SI Cat. No.) | Provenance | Material | Fragment type | Length (mm) | Width (mm) | Thickness (mm) | Height (mm) | Cross section | Profile | Description |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 939 | GMI 3F (3) | B | frag. | 52 | 44 | 22 | 22 | flat | flat | unifacially highly ground, small edge frag. |
| 941 | GM 2A WBR (0) | B | frag. | 100 | 100 | 27 | 27 | flat | flat | unifacially highly ground, thin, flat frag. |
| 943 | GMIII B (5) 5 | B | frag. | 52 | 50 |  | 30 |  |  | unifacially well ground |
| 949 | GMIII A3 (3) | B | frag. | 100 | 58 | 25 | 25 | flat | flat | bifacially ground |
| 951 | GM 00A (1) 3 | B | frag. | 80 | 64 | 42 | 42 | p-c |  | unifacially highly ground, small frag. |
| 955 | GMI 5F (5) | B | frag. | 62 | 49 | 16 | 16 | flat | flat | unifacially ground, flat, ventro rough |
| 958 | GMI 4D (4) 3 | B | frag. | 118 | 42 | 17 | 17 | flat | flat | unifacially highly ground, thin and flat |
| 959 | GM (+) | B | frag. | 62 | 40 | 28 | 28 |  |  | unifacially highly ground |
| 961 | GMI 1F (6) | B | frag. | 70 | 57 | 25 | 25 | flat | flat | primarily unifacial use, well ground |
| 963 | GM 2A F20 | B | C | 355 | 150 | 51 | 51 | p-c | flat | one face highly ground slightly convex (mano); other face w/ diagonal elongate concavity |
| 2041 | GMIII C1 (81) | B | frag. | 75 | 35 | 22 |  |  |  | unifacially well ground |
| 2042 | GMIII A2 (20) | B | frag. | 45 | 45 | 29 |  | flat | flat | unifacially ground, probably handstone |
| 2043 | GMIII B (61) 3 | B | frag. | 75 | 30 | 25 |  | flat | flat | unifacially well ground |
| 2045 | GM 1C P2 (8) | B | frag. | 40 | 33 | 26 |  |  |  | unifacially well ground |
| 2046 | GMI 5E (4) | B | frag. | 50 | 45 | 29 |  | flat | flat | unifacially well ground |
| 2047 | GMI 5D (7B) 2 | B | frag. | 37 | 37 | 25 |  |  |  | unifacially well ground |
| 2048 | GM 2D TT3 (5) | B | frag. | 75 | 43 | 40 |  | flat | flat | unifacially ground, edge fragment |
| 2049 | GM 1C W1 | B | frag. | 50 | 25 | 15 |  | flat | flat | unifacially ground |
| 2077 | GM 1A TT11 (0) | B | frag. | 37 | 28 | 31 |  |  |  | small fragment |
| 2086 | GM 1A (1) 8 | CqS | frag. | 70 | 75 | 40 |  | p-c |  | unifacially, highly ground |
| 2089 | GMI 6E-F (2) | B | frag. | 75 | 37 | 33 |  |  |  | unifacially ground, slightly convex working face |
| 2090 | GMI 4F TT4 (2) | B | frag. | 40 | 48 | 33 |  |  |  | bifacially highly ground, two conjoined frags |
| 2093 | GM 1D (5) | CqS | frag. | 70 | 43 | 30 |  |  |  | unifacially ground, other side rough |
| 2095 | GMIII C1 (81) | B | frag. | 33 | 32 | 22 |  | flat | flat | unifacially very ground, other side rough |
| 2208 | GM 2B F12 | CqS | frag. | 200 | 130 | 70 |  | flat | flat | possibly broken rough out of unused grinding slab; no evidence for use wear |
| 2223 | GMI 5D (7B) 2 | B | frag. | 65 | 50 | 18 |  |  |  | bifacially very ground, edge frag |
| 2224 | GMI 3D (5) | B | frag. | 85 | 57 | 23 |  | flat |  | thin, flat unifacially used |
| 2278 | GM 2A (1) | B | frag. | 61 | 37 | 28 |  | flat | flat | prob. unifacially ground, other face prob. just shaped |
| 2279 | GM 2A TT2 (4) | B | frag. | 50 | 32 | 50 |  |  |  | small frag., unifacially ground |
| 2751 | GM 0B (15) 4 | CqS | frag. | 70 | 70 | 40 |  | flat |  | unifacial grinding slab frag. |
| 2889 | GM 2A NBR F7 <br> (1) | CqS | frag. | 76 | 67 | 42 |  |  |  | unifacially well ground, edge frag. |
| 3007 | GMII B3 (19) | CqS | frag. | 149 | 53 | 35 |  |  |  | edge of grinder; highly ground to faceted; two conjoining frags |
| 3013 | GM 2B NBR (2) | CqS | frag. | 132 | 113 | 61 |  | planoirreg. | planar | unifacially smooth, ventro nat. smooth, ends broken |
| 3352 | GMII A3 (13) | CqS | frag. | 135 | 75 | 44 |  | p-c |  | unifacially well-ground |
| 3516 | GMIII J2 (26) | CqS | frag. | 84 | 76 | 30 |  |  |  | unifacially well ground |
| 3536 | GMIII B (66) 14 | B | frag. | 70 | 33 | 24 |  | flat |  | flat grinder frag., probably unifacial |
| 3548 | GMII A2 (0C) | B | frag. | 63 | 47 | 25 |  | flat | flat | small fragment, unifacial, vesicular |

TABLE 23.A1 (continued)



| TABLE 23.A1 (continued) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Mortars |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Reg. No. (SI Cat. No.) | Provenance | Material | Fragment type | $\begin{aligned} & \text { Length } \\ & (\mathrm{mm}) \end{aligned}$ | Width (mm) | Thickness $(\mathrm{mm})$ | Height (mm) | Cross section | Profile | Description | Wall thickness (mm) | Base thickness (mm) | Rim diameter (mm) | $\begin{aligned} & \text { Diameter } \\ & (\mathrm{mm}) \end{aligned}$ | Well depth (mm) |
| 2442 | $\begin{aligned} & \text { GMI FUR } \\ & \text { (10) } 5 \end{aligned}$ | Ch | C | 175 | 135 | 55 | 60 |  |  | deep, cup- <br> shaped <br> depression <br> cut in one <br> face, $115 \times$ <br> $100 \times 30 \mathrm{~mm}$; <br> one end has <br> rim w/ striae |  |  |  | 30 |  |
| 2226 | GMI 5D (8A) | B | frag. | 80 | 70 |  | 58 |  |  | flat, polished rim, base wall section broken, originally flared outward |  |  |  | 18-16 |  |
| 1054 | GMI FUR (4) | B | frag. |  |  |  | 60 |  |  | highly <br> ground <br> surface, <br> convex ext. <br> wall/base <br> profile, little <br> raised rim | $36$ |  |  | 380 |  |
| 2594 | GM 1D (1) 1 | B | frag. | 64 | 45 | 21 |  |  |  | plain rounded rim frag., ground up to rim int., shallow basin, w/ ochre traces |  |  |  | 30 |  |
| 682 (131) | GM 1C <br> EBR P2 (9) | B | frag. |  |  | 22 | 31 |  |  | poss. reused bowl base frag., int. highly ground, ext. rough, base dia = 105 mm dia |  |  |  | 170 |  |
| 2880 | GM 2B <br> WBR (26) | CqS | frag. | 155 | 155 |  | 83 |  |  | flat wide rim; rounded base ext, smoothed finish, ground int. |  | 26 |  |  | 65 |


TABLE 23.A1 (continued)

| Reg. No. (SI Cat. No.) | Mortars |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Provenance | Material | Fragment type | $\begin{aligned} & \text { Length } \\ & (\mathrm{mm}) \end{aligned}$ | Width <br> (mm) | $\begin{aligned} & \text { Thickness } \\ & (\mathrm{mm}) \end{aligned}$ | Height (mm) | Cross section | Profile | Description | Wall thickness (mm) | Base thickness (mm) | Rim diameter (mm) | Diameter (mm) | Well <br> depth <br> (mm) |
| 680 (541) | GM 00A (1) 3 | L | rim | 145 |  |  |  |  |  | pecked ext., convex wall profile, prob. shallow |  |  |  | 160 |  |
| 2280 | GM 2A TT1 (0) |  | tripod | 50 | 44 | 37 |  | triang. |  | faces well ground, end is rounded tripod mortar leg frag. |  |  |  |  |  |
| Pebbles with cavities |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |


|  |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Reg. No. | Provenance | Material | Fragment <br> type | Length <br> $(\mathrm{mm})$ | Width <br> $(\mathrm{mm})$ | Thickness <br> $(\mathrm{mm})$ | Height <br> $(\mathrm{mm})$ | Cross <br> section | Profile | Description |


| Reg. No. | Provenance | Material | Name | Fragment type | $\begin{aligned} & \text { Length } \\ & (\mathrm{mm}) \end{aligned}$ | Width (mm) | Thickness (mm) | Cross section | Profile | Description |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 974 | GM 1A TT5 (2A) | L | mod. cob. | frag. | 136 | 39 | 45 |  |  | handstone?, rounded edge of natural cobble, possibly ground |
| 976 | GMIII B F1 (6) | S | mod. cob. | frag. | 128 | 75 | 31 | biconv | biconv | handstone?, slightly ground on one face, rounded natural edges |
| 979 | GM 1D W4 | L | mod. cob. | frag. | 91 | 77 | 27 | flat | flat | flat w/ rounded edges, natural cobble, prob. used as handstone unifacially |
| 983 | GMIII B F1 (6) | S | mod. cob. | frag. | 115 | 90 | 31 | biconv | flat | unifacially slightly ground |
| 2087 | GM 1A (8) 6 | L | mod. cob. | frag. | 110 | 105 | 54 |  |  | smoothed cortical ext. of cobble, no clear wear |
| 2142 | GMIII C1 (78) | SL | mod. cob. | C | 51 | 44 | 22 | biconv | biconv | bifacially pecked, smooth oval pebble |
| 982 | GMI 5F (3) | L? | mod. peb. | C | 113 | 56 | 30 | biconv | conc-conv | elliptical shape, bipolar pecking, unifacial wear w/ slight concavity, other face prob. also ground |
| 987 | GMI 4D (4) 5 | Qte? | mod. peb. | C | 60 | 57 | 43 |  |  | ovoid, naturally smooth pebble, one face highly ground and polished w/ striae |
| 988 | GMI 3G (2) 1 | hard L. | mod. peb. | C | 111 | 39 | 23 | round triang. | flat | elongate w/ rounded ends, natural smooth pebble, one face highly ground, polished w/striae |


TABLE 23.A1 (continued)

| Reg. No. | Spindle whorls |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Provenance Material |  | Fragment type |  | Thickness (mm) |  | $\begin{aligned} & \text { Height } \\ & (\mathrm{mm}) \end{aligned}$ | Diameter (mm) | Weight <br> (g) | Cross section | Profile | Description |  |  | Hole diameter max/min (mm) |
| 676 | GM 1A P6 (4) | St | C |  |  |  | 12 | 23 | 10.2 |  |  | bifacially drilled, hemis flat w/ striae, groove ar | erical, polish <br> nd edge | d, one sid |  |
| 677 | GM 2C P1 (3) | St | frag. |  |  |  | 11 | 33 |  | p-c |  | polished |  |  | 6 |
| 1039 | GMI 3G (9) | St | C |  | 7 |  |  | 22 | 43 |  |  | unifacially drilled dome flat face, incised circle a | parallel stria <br> ng edge | covering |  |
| 1040 | GMIII B (50) 4 | St | C |  | 10 |  |  | 24 |  |  |  | conical, polished, heavi unifacially drilled | random stria | on flat sid |  |
| 1041 | GMIII B (56) 3 | G | frag. |  | 6 |  |  | 20 |  |  |  | dome shaped, moderately | ground |  | 5/3 |
| 1041 | GMIII B (56) 3 | G | C |  | 14 |  |  | 29 |  | flat | flat | conical, sides well grou <br> $\mathrm{w} /$ striae; flat profile | rough top, | at side | 4/3 |
| 1046 | GM 2A (31A) | hard L | C |  |  |  | 8 | 31 | 10.2 | flat |  | unifacially drilled, flat cor | ical shape, | ell ground | 6/5 |
| 1047 | GM 1B NBR <br> (16) 1 | Unknown | C |  | 21 |  |  | 46 | 39.5 |  |  | prob. bifacially drilled, w/ striae | tical edges, | ell ground | 14/11 |
| 1111 | GMI 4D (3) | St | C |  |  |  | 11 | 244 |  |  |  | conical, w/ concentric in w/ random striae, bevel | sed striae, fla edge |  | 3/2 |
| 1112 | GMI 4D (4) 3 | St? | C |  |  |  | 10 | 22 | 5.9 |  |  | conical, smooth plain to striae; unifacially drilled | flat bottom | w/ parallel | 2 |
| 1113 | GMI FUR (10) 5 | L | C |  |  |  | 13 | 28 | 11.3 | p-c |  | unifacially drilled, caref | ly ground, st | ae all over | 4 |
| 678 | GM (+) | Unknown | C |  |  |  | 21 | 30 | 14.9 |  |  | bifacially drilled, half cy ext. crosshatch incision | der, flattene | bifacially, | 10 |
| 670 | GM 1B (2B) 1 | marble | C |  | 5 |  |  | 25 |  |  |  | flat, circular smooth dis not perforated, unfinish | bifacially dr bead? |  |  |
|  | Perforated stones |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Reg. No. <br> (SI Cat. No.) | Provenance Material |  |  | Fragment type |  | $\begin{aligned} & \text { Length } \\ & (\mathrm{mm}) \end{aligned}$ | Width (mm) | Thickness (m) | Height (mm) | Cross section | Profile | Description $\quad \begin{aligned} & \text { Diameter } \\ & (\mathrm{mm})\end{aligned}$ |  | Hole diameter $\max / \mathrm{min}(\mathrm{mm})$ | Name |
| 664 (7) | GM 1B TT1 F1 (2) |  | te? | C |  | 57 | 47 | 35 |  | irreg. | irreg. | nat. hole in nat. pebble, nat. peb. <br> smooth, irreg. shape, $\mathrm{w} / \mathrm{hole}$ <br> hole near edge on  <br> diagonal  |  |  |  |
| 665 | GM 1B EBR (8) | L |  | C |  | 35 | 33 | 12 |  | irreg. | irreg. | nat. pebble w/ nat. hole, off-center and diagonal, smooth peb., irreg. shape | 3.5 | 8/5 | nat. peb. <br> w/ hole |
| 666 (386) | GM 2D SBR (8) |  |  | C |  | 45 | 43 | 17 |  |  |  | nat. hole widened slightly in nat. pebble, polished, hole diagonal through pebble |  | 12/7 | nat. peb. w/ hole |

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$\bar{\infty} \quad$ in
in nodule w／shaped ext．
spindle whorl？weight？
irreg．shape，bifacially irreg．shape，bifacially
perforated，soft
ovoid，flat pebble

one－third of bifacially perforated slightly biconvex blank
natural hole prob． worked also，possible
loom weight frag．？
flat，vertical edges， centered hole drilled
 drilled，ovoid，edges rough but rounded，
weight $=92.7 \mathrm{~g}$
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diagonal cobble is water rolled and smooth bifacially perf．frag．，
hole cia $=38-56 \mathrm{~mm}$ pole dial $=38-56$ bifacially，small frag．
unifacially ground，
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ovoid，natural
peb．w／nat．hole，

nat．smoothed
bifacially drilled disk，one side slightly concave w／deep striae，
other flat
bifacially drilled hole in biconvex chalk 0
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| 667 （2025） |
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| 668 （506） |
| 1027 |
| 1036 |
| 1026 |
| 2100 |
| 1939 |
| 669 （387） |
| $1033(453)$ |
| 1003 |
| 2888 |
| 1004 |
| 044 |



TABLE 23.A1 (continued)





 GMIII B (56) 4
GMI 5D (2)
GM 3B (2)
GMI FUR (5) 2
GM 2B P9
GM 2B P9
GMI FUR (7) 2
GMI FUR (7) 3
GMI FUR (0) 2
GMI 3G (3) 1
GMI 3G (16) 1
GMI 3F W4
GMIII B1 F1 (1)
GMI 5E (4) 2
GMIII B (1) 15
GM 0B (0)
GMI 3G (16) 2
GM 1A TT2 P3 (4)
GMIII J1 W3
GMI 4D (4) 3
GM 1B (13) 2
GM 1B (13) 2
GMI 5G (0)
GMIII J2 P1A (2)
GM 2B (8)
GMI FUR (9) 4
GM 1C (20)
GMIII B 955) 1
GMI FUR (10) 4
GMI FUR (6) 2


|  | Pendants |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Reg. No. <br> (SI Cat. No.) | Provenance | Material | Fragment type | Length <br> (mm) | Width <br> (mm) | Thickness (mm) | Diameter (mm) | Cross <br> section | Profile | Description | Hole diameter $\max / \mathrm{min}(\mathrm{mm})$ |
| 1115 | GMIII A2 (8) | L? | C | 44 | 10 | 9 |  | round |  | pendant, elongate, single hole at one end, carefully ground, bifacially flattened | 1.5 |
| 1116 (634) | GM 2B NBR (27) | J? | C | 36 | 29 | 9 |  | flat | lentic | axe-like pendant, small perf., well ground, polished |  |
| 660 (11) | GM 2A (1) | T | frag. | 29 | 13 | 9.5 |  | square | flat | pendant frag?, single hole prob. drilled bifacially, start of drill mark on opposite face | 1 |

TABLE 23.A1 (continued)

| Reg. No. <br> (SI Cat. No.) | Pendants |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Provenance | Material | Fragment type | $\begin{aligned} & \text { Length } \\ & (\mathrm{mm}) \end{aligned}$ | $\begin{aligned} & \text { Width } \\ & (\mathrm{mm}) \end{aligned}$ | Thickness (mm) | Diameter (mm) | Cross <br> section | Profile | Description |  | diameter <br> min (mm) |
| 808 | GM1A (1) 10 | St | C | 17 |  |  | 0.7 |  |  | angular/teardrop shape; bifacially drilled on narrow end, finely ground and polished, pendant/bead? |  |  |
| 1023 | GMII A2 (+) | L | C | 26 | 25 | 7 |  |  |  | natural hole possibly drilled also, small edge section missing, heart/triangular-shaped pebble, pendant? |  |  |
|  | Stone vessels |  |  |  |  |  |  |  |  |  |  |  |
| Reg. No. <br> (SI Cat. No.) | Provenance | Material | Fragment type | $\begin{aligned} & \text { Length } \\ & (\mathrm{mm}) \end{aligned}$ | Widths (mm) | Thickness (mm) | Wall thickness (mm) | Base thickness (mm) | $\begin{aligned} & \text { Height } \\ & (\mathrm{mm}) \end{aligned}$ | Description | Rim diameter (mm) | Diameter (mm) |
| 2824 | GM 1A NBR (5) 2 | Unknown | rim |  |  |  | 12 | 18 | 46 | open form vessel w/ wide flat rim, base unclear | 90 |  |
| 2237 | GMI 5D (7) 2 | Unknown | wall | 22 | 17 | 6 |  |  |  | highly polished int. and ext. |  |  |
| 2081 | GMIII A1 P1 | AL | frag. |  |  | 8 |  |  | 38 | heavily eroded, int. groove |  | 70 |
| 2389 | GM 2B (20) | B | frag. | 50 | 40 | 15 |  |  |  | rim frag., carinated bowl, rim vertical w/ flat top, well-ground int., coarse ext., prob. shallow |  |  |
| 2272 | GM 1A P2 (3) | B | frag. | 60 | 44 | 20 |  |  |  | shallow basin/mortar, rim polished and almost flat, open form, convex profile |  |  |
| 1053 | GMIII A2 (20) | B | frag. | 72 | 50 | 15 | 10 |  |  | wall base frag. w/ single raised band, prob. Chalcolithic fenestrated stand (Type 4Cii) |  |  |
| 2835 | GM 2A WBR P1A (1) | ) B | rim | 40 | 45 | 25 |  |  |  | rim frag., shallow, open-form bowl, convex wall profile, well-ground int. and ext. |  |  |
| 2643 | GM 1E (1) | B | ring/leg | 70 | 65 | 22 |  |  |  | fenestrated stand frag.; leg width = 39 mm ; leg thickness $=22 \mathrm{~mm}$; ring height $=29 \mathrm{~mm}$; ring thickness |  |  |
|  |  |  |  |  |  |  |  |  |  | $=22 \mathrm{~mm}$ |  | 200 |
| 2810 | GM 1A TT11 (14) | B | wall | 53 | 32 | 13 |  |  |  | wall frag., well-ground int. and ext. |  |  |
| 702 | GM 1D (+) | BR? | rim? | 65 | 50 | 25 |  |  |  | unexamined? |  |  |
| 3016 | GM 2B (46) | FSC | rim | 48 | 32 | 22 | 22 |  |  | rounded rim, well-ground int. and ext., open form |  |  |
| 1022 | GMIII C3 TT2 (2) | L | frag. | 135 |  | 26 | 26 |  | 83 | rim frag., vertical sides, rounded rim; int. highly polished. | 220 | 240 |
| 2823 | GM 2D (12) | L | rim | 36 | 32 | 14 |  |  |  | tapered edge, bifacially very smooth, poss. rim frag? |  |  |


TABLE 23.A1 (continued)

| Reg. No. <br> (SI Cat. No.) | Stone vessels |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Provenance | Material | Fragment type | $\begin{aligned} & \text { Length } \\ & (\mathrm{mm}) \end{aligned}$ | Widths (mm) | Thickness (mm) | Wall thickness (mm) | Base thickness (mm) | Height <br> (mm) | Description | Rim <br> diameter (mm) | Diameter (mm) |
| 1049 | GM 1B F18 (1) | AL | frag. | 51 | 20 | 7 |  |  |  | ext. very smooth, int. rough, faint remnant of rim or neck remains on broken edge |  |  |
| 649 (2019) | GM 1C (3) | AL | rim | 30 | 27 | 6 | 6 |  |  | open form, highly finished, flat-topped rim, shallow vessel, int. rim dia $=100 \mathrm{~mm}$ | 120 | 120 |
| 2107 | GM 1B P1 (1B) 1 | AL | frag. | 45 | 16 | 7 |  |  |  | flat, horizontal rim w/ rounded edge, prob. from alabastron |  |  |
| 655 (2022) | GM 1C P2 | AL | frag. |  |  | 7 |  |  |  | body frag., alabastron?, gently curved shoulder to start of straight neck w/ groove; knob handle below neck, finely polished exterior, coarse int. | 40 |  |
| 2231 | GM (+) | AL | neck? | 20 |  |  | 4 |  |  | juglet or small bottle neck frag. |  | 26-18 |
| 2232 | GM 2D (6) | AL | neck? | 17 | 17 | 7 |  |  |  | polished ext., smooth int., poss. body frag. or neck of small vessel |  |  |
| 699 | GM 1C (5) | ceramic? | frag. | 100 |  | 18 |  |  |  | many frags., all from same vessel | 220 |  |
| 2811 | GM 1A TT11 (0) | Ch? | frag. | 34 | 25 | 14 |  |  |  | slight curvature int. and ext., int. $\mathrm{w} /$ horizon. striae from drilling, poss. cylindrical vessel |  |  |
| 2052 | GM 1D P1 (1) | G | frag. | 32 | 18 | 8.5 |  |  |  | small body frag., int. striae visible |  |  |
| 651 (122) | GM 1C P2 (0) | G | base |  |  |  | 7-10 |  | 42 | narrow jar, jug, or alabastron base frag., w/ slightly convex base; int. striae |  | 38 |
| 1048 (937) | GMIII A3 (4) 3 | G | base/wall | 58 | 54 |  | 5 | 8 | 22 | shallow vessel frag., base and wall, unclear whether rim still preserved; rough |  | 100 |
| 698 | GM 3B (1) | L | rim? | 85 | 50 | 32 |  |  |  | not clear rim frag.; possibly some other tool type |  |  |
| 647 (130) | GM 2C NBR (1) | L | frag. |  |  | 12 |  |  | 52 | one-third of shallow basin w/ plain flat rim, poss. ring/disk base; ext. and int. polished w/ striae |  | 210 |
| 2189 | GMI 5D (8B) 3 | M | frag. | 53 | 32 | 8 |  |  |  | flat disk edge frag., very smooth, poss. lid or shallow platter |  |  |
| 2282 | GM 2A P4 | S? | frag. | 120 | 100 | 5 |  |  | 40 | rim ground, possibly reground wall after breakage, ext. has striae; poss. decor? |  |  |


TABLE 23.A1 (continued)




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# Egyptian Amulets from Tell Jemmeh Cbristian Herrmann 

## INTRODUCTION

Twenty-three faience amulets or amulet fragments from the Smithsonian excavations at Tell Jemmeh are presented here. All the amulets presented here are made of Egyptian faience, whose production requires a rather complicated technical procedure. Initially, with the help of a positive, a clay mold was prepared; the moistened composite material was squeezed into the mold, which then had to be fired at a high temperature (for details on the production technology and different methods employed, see Herrmann, 1985: IV, 1994:27ff).

Although many amulets have been found in Israel and Palestine ( 1,873 pieces), it cannot be assumed that they are local products because until now in the geographical area of Israel and Palestine, no workshop or large quantities of molds for the production of amulets have been found (see Herrmann, 1994:35ff). Until today, only four amulet molds have been found in archaeological contexts: one comes from Gezer (surface find), one from Tell el-‘Ajjul, one from Beth Shean (area of the temple), and one from Tel Rehov (surface find). A workshop such as in Tell el-Amarna (Petrie, 1894) or Qantir (Herrmann, 1985) has so far not been found. This is probably because the technology for the production of high-quality Egyptian faience was very complicated, requiring long experience and the necessary know-how (Kaczmarczyc and Hedges, 1983), which in antiquity was reserved mainly for the Egyptian faience manufactures.

The great similarities in type, style, and material with Egyptian amulets in the cities inhabited by Phoenicians in the Mediterranean (Sardinia, Carthage, ancient Italy, the Iberian Peninsula, etc.) can only be considered as an indication that regarding Egyptian amulets in the entire Mediterranean area, there are influences between cultures reflected in the content and the form of the artifacts. This relation, however, in my opinion, is influenced not by the Phoenicians but by the Egyptians: what was available in Egypt as an amulet was also found in all the other cities in the Mediterranean, which were inhabited by the Phoenicians. Thus, it seems to me that the Egyptian amulets that were used in Israel and Palestine were exclusively imported from Egypt and arrived through the commercial relations into Israel and Palestine (Herrmann, 2006:49).

## CATALOG

## Dating

The date of each object, according to the author (for the dating criteria, see Herrmann, 1994:31ff), indicates the time span in which the amulet was most probably produced but not necessarily the date it was exported to Israel or Palestine. This date is listed in the catalog as "Author's Date." The dating of the excavator is based on the criteria of context and is listed in the catalog as "Find Spot." Differences between the date according to its find spot and that of the author exist because many of the amulets were used over a number of centuries (see Herrmann, 1994:31), and thus, the production date and the date of the find context do not coincide.

## Anthropomorphic Figures

Cat. No. 1, Reg. No. 1129, SI Cat. No. 222 (Figure 24.1a). Isis or Isis-Hathor with the Horus child (Isis lactans). Find Spot: Field IV, GM 1D TT4 (19), Phase IV-5? (Iron IIC?). Year Excavated: 1971. Dimensions: $14 \times 21 \times 9 \mathrm{~mm}$. Material: gray composite material with

f


FIGURE 24.1. Amulets: Catalog Nos. 1-12.
white glaze. Production: moldmade. Preservation: body and head broken (missing). Description: Isis with Horus child (fragment). Ventral: fragment of a goddess in long female dress sitting upon the throne of gods. Dorsal: inscription. Author's Date: Iron IIB-C.

A very popular and widely distributed amulet is the suckling Horus child on the lap of

Isis, sitting on the godly throne, where Isis merges with Hathor (cow horns and sun disk on the head) or with Mut (double crown on the head). In her function as the mother goddess and nursing mother of the Horus child, Isis's main task was the care and preservation of life, which one thousand years later would live on in the Christian Madonna lactans. The Isis-Horus child amulets were mainly for protection from danger. According to the Osiris myth, Isis raised the Horus child secretly in the swamps of the Nile delta, and protected it from evil forces. In the "Ritual of the Seventh Hour," she is mentioned among the gods that protect Ra on his journey in the sun bark: "Isis, the Great, powerful in magic with her saying, effective (?) with her magic" (Hymn 7B, 5-6; Assmann, 1999:83).

As such, the mother goddess with the Horus child became the protective object, which was supposed to protect children from sickness and evil. These amulets often bear inscriptions that underline the life-giving and protecting function and, moreover, reinforce them with their own effect.

With 49 amulets found in excavations of ancient Israel and Palestine, from the LB to the Hellenistic period, Isis with the child Horus is very well represented (see Herrmann, 1994, 2006).

Cat. No. 2, Reg. No. 1136, SI Cat. No. 762 (Figure 24.1b). Fragment of god (Thoth, Anubis, or Khnum). Find Spot: Field IV, GM (+), unstratified. Year Excavated: 1976. Dimensions: $27 \times$ $7 \times 10 \mathrm{~mm}$. Material: gray composite material with red glaze. Production: moldmade. Preservation: part of body and head broken (missing). Description: plastic. Ventral: the fragment shows a walking male deity figure with a short kilt. Dorsal: supporting ridge. Author's Date: Persian-Hellenistic. Remarks: This is a fragment of Thoth, Anubis, or Khnum in their typical posture. For Thoth, see Herrmann (1994: cat. nos. 4-58, 2006: cat. nos. 20-27), for Anubis, Herrmann (1994: cat. nos. 59, 60, 2006: cat. nos. 28-35), and for Khnum, Herrmann (1994: cat. nos. 64, 65, 2006: cat. nos. 37, 38).

Cat. No. 3, Reg. No. 1132, SI Cat. No. 626 (Figure 24.1c). Stylized Nefertem. Find Spot: Field IV, GM 2C SBR (7), Phase IV-3 (Persian). Year Excavated: 1975. Dimensions: $17 \times 7 \times 11 \mathrm{~mm}$. Material: gray composite material with red glaze. Production: moldmade. Preservation: head broken along the locket (missing). Description: plastic. Ventral: the fragment shows a walking male deity figure with a short kilt . Dorsal: supporting ridge. Author's Date: Persian-Hellenistic. Remarks: A portion of the characteristic Nefertem god's beard is still clearly visible. For similar Nefertem figures, see Herrmann (1994: cat. no. 213, 214).

The name Nefertem can mean "Atum is good" or "the totally Beautiful." In the Pyramid Texts of the Old Kingdom he is attested to as a primordial god, who is the "lotus flower on the
nose of Re." According to the myth, he emerged from the primeval waters of an island. As a god, beauty ointments and perfumes were associated to him. Iconographically, Nefertem is displayed as a head flanked by two "menits," or as an unsegmented, human body with a lion's head, a lotus flower, and towering feathers. It can sometimes be found sitting together with the lion-headed Sekhmet on the double throne. Nefertem amulets appear in various color glazes: black to brown for the hair style, sometimes for the men's kilt, and green to blue for the body.

Cat. No. 4, Reg. No. 1133, SI Cat. No. 6 (Figure 24.1d). Fragment of a god. Find Spot: Field IV, GM 1B TT1 (2), Phase IV-3 (Persian). Year Excavated: 1970. Dimensions: $18 \times 11 \times 5 \mathrm{~mm}$. Material: gray composite material with white-green glaze. Production: moldmade. Preservation: part of body and head broken (missing). Description: plastic. Ventral: the fragment shows a walking male deity figure with a short kilt. Dorsal: supporting ridge. Author's Date: Iron IIC-Persian.

Cat. No. 5, Reg. No. 1137, SI Cat. No. 711 (Figure 24.1e). Aegis. Find Spot: Field IV, GM 2B Wall 9, Phase IV-5 (Iron IIB-C). Year Excavated: 1976. Dimensions: $30 \times 20 \times 5 \mathrm{~mm}$. Material: gray composite material with remains of red glaze. Production: moldmade. Preservation: part of neck collar broken (missing). Description: front view. Ventral: aegis (neck collar) with woman's head, cow horns, and sun disk. Dorsal: flat; a hole was perforated through the solar disk. Author's Date: Iron IIA-B.

Cat. No. 6, Reg. No. 1144, SI Cat. No. 112 (Figure 24.1f). Fragment of Aegis. Find Spot: Field IV, GM 1A Pit 6 (5A), Phase IV-1 (Crusader-Mamluk). Year Excavated: unknown. Dimensions: 14 $\times 20 \times 4 \mathrm{~mm}$. Material: gray composite material with rests of red glaze. Production: moldmade. Preservation: head and half of neck collar broken (missing). Description: front view, Ventral: Fragment from an Aegis; Dorsal: flat. Author's Date: Iron IIA-B.

In ancient Egypt the collar, or the so-called aegis, was adornment as well as a reward and a token of distinction for officials, landed proprietors, or other subjects of the king. At the same time it also carried protective functions, be it as a large throat collar that was placed around the neck of the dead on the day of their funeral or as a small molded feature in the form of an amulet with a woman's head (mostly the head of Mut) or the head of a holy animal (falcon, uraeus, vulture, cat, or lion). Through the deity, which the corresponding animal represents, the collar amulet receives additional protective and regenerative functions on top of its function in the domain of the death cult, which is supposed to manifest through the respective animal head (Bonnet, 1952:8-9; Helck and Westendorf, 1977:2,933). For distribution of aegises with a woman's head, cow horns, and sun disk, see Herrmann (2003: cat. no. 216).

Cat. No. 7, Reg. No. 1143, SI Cat. No. 805 (Figure 24.1g). Bes. Find Spot: Field III, GMIII B (58) 2, Phase III-10 (LBII). Year Excavated: 1977. Dimensions: $12 \times 7 \times 1.5 \mathrm{~mm}$. Material: white composite material with white-blue glaze. Production:
moldmade. Preservation: suspension broken (missing). Description: front view. Ventral: Bes figure standing, with broad phallus extending between the twisted, bulging legs down to the rim of the base. Both hands of the slightly bent forearms are clenched and partly resting on the corpulent belly, with a prominent belly button. The head with beard, large nose, inflated/bloated cheeks, large eyes, and protruding ears is directly attached to the chest. Dorsal: flat. Author's Date: LBIIB-Iron IA

Bes was, like other specific protective divinities, not a lord of a temple or a main recipient of a cult. Nevertheless, he was very popular not only in the common peoples' faith but also in the circles of high regal official and at the Egyptian court. He is attested since the Old Kingdom. Beginning in the New Kingdom, he steadily gained favor in the whole Mediterranean area, only to disappear slowly during Roman rule (Bonnet, 1952:101-189; Helck and Westendorf, 1977:720). The typical characteristic of the Bes figure is the grotesque face with beard, wide nose, blownup cheeks, stuck-out tongue, and wide ears. Commonly, he was represented naked, with either a long or short penis, rarely with a short fur apron. The feather crown later became his characteristic (cf. Herrmann, 1994:316).

His entity is multilayered. Possibly Bes was, similar to Aha, a popular form of the sun god. As a protective god he adorned bedroom furniture. Together with Hathor he was present during birth, where he also had creative powers. With knives and protective signs he would watch over the newborn child. In the myths about Hathor this popular god also became a musician and dancer (Herrmann, 1994: cat. nos. 424, 425). An additional characteristic is Bes pantheos (Herrmann, 2003: cat. no. 493), who can be found beginning in the late periods on stelae and in the form of amulets. The main characteristics of this figure are the large, spread-out wings and the bearded head from which at least eight different animal heads come out (for more, see Kakosy, 1981:45). Assmann (1993:42) sees in him the only world god of an esoteric cosmotheism. The similarity to Patecus is noteworthy; beginning in the late periods Patecus can be found in a similar complex form as an amulet (cf. Herrmann, 2003: cat. nos. 532, 533).

These characteristics were important in the field of amulets. Also, the apotropaic effect as protection against all evil and hostile powers was very important (Hornung and Staehelin, 1976:94). The frequent combination with Wedjet eyes (Herrmann, 2003: cat. no. 493) and with the baboon underlines his solar characteristic (see the remarks in Herrmann, 1994: cat. nos. $338,339,463,355)$. For the different variants of Bes and their distribution in ancient Israel and Palestine, see Herrmann (1994: cat. nos. 317, 318, 2006: cat. nos. 109-144).

Cat. No. 8, Reg. No. 1139, SI Cat. No. 956 (Figure 24.1h). Stylized Bes with feather crown. Find Spot: Field I FUR, GMI FUR (10) 5, Phase FUR 4 (Iron I). Year Excavated: 1978. Dimensions: $13 \times 8.5 \times 4 \mathrm{~mm}$. Material: gray composite material with white glaze. Production: handmade. Preservation: Suspension broken (missing). Description: front view. Ventral: stylized Bes figure standing. The head with large mouth and a wide nose is directly attached to the chest. Dorsal: flat. Author's Date: LBIIB-Iron IA.

A stylized Bes with a feather crown appears also at Beth Shean (Herrmann, 2003: cat. no. 109/III).

Cat. No. 9, Reg. No. 1131, SI Cat. No. 405 (Figure 24.1i). Brocken-off Patecus head with scarab (fragment). Find Spot: Field IV, GM 2B P5 TT5, Phase IV-5 (Iron IIB-C). Year Excavated: 1973. Dimensions: $14 \times 14 \times 10 \mathrm{~mm}$. Material: white composite material with green and black glaze. Production: moldmade. Preservation: body broken (missing). Description: plastic. Ventral: broken-off Patecus head. On the head a rudimentary scarab can be recognized, which is lined with black glaze. Dorsal: supporting ridge. Author's Date: Iron IIA-B.

Like Bes, Patecus did not belong to the official cult but belonged to the popular piety. He is the lifelike reproduction of a dwarfish person and is attested almost exclusively in amulet form. Herodotus mentions the custom of the Phoenicians to put up Patecus as a protective divinity on their ships (Bonnet, 1952:584). Already during the Amarna period he had gained consideration in Egypt and during the Ramesside period came to life again. Innumerable amulet forms for the production of these dwarfish figures have been found in the faience workshops of Tell el-Amarna and Qantir (see Herrmann, 1994:404, with the following references: Petrie, 1894: pl. XVIII:275; Khawam, 1971: pls. XXXIV:23, XXXVII:10,11, XXXVIII:11,12; Samson, 1978:94, fig. 49; Herrmann, 1985: cat. nos. 129-134, 1989:29, fig. 1, 1994: cat. nos. 30-37).

The fascination that these lilliputian people aroused among normal-sized people led to the fact that important functions related to ladies' toiletries or to artisans were attributed to Patecus. He was seen as a small Ptah provided with the power of creativity. The name Patecus is derived from Ptah (it is merely the Greek diminutive form of Ptah), and thus, he can also bear a scarab on his head (Herrmann, 1994: cat. nos. 616-623, 629, 634, 639, 2003: cat. nos. 512-516, 2005: cat. nos. 170-172, 174-178), which, on one hand, underlines his creative spirit and, on the other hand, establishes the relation to the sun god. A magic formula from the XIX-XXth Dynasties suggests the custom to wear this small popular divinity against evil as an amulet around the neck (Herrmann, 1994:404, with reference to Bonnet, 1952:584). For the different variants of Patecus and their distribution in Ancient Israel and Palestine, see Herrmann (1994:405-406, 2003:20-22, 2006:18).

Cat. No. 10, Reg. No. 1130, SI Cat. No. 2 (Figure 24.1j). Stylized Patecus (fragment). Find Spot: Field IV, GM 1A TT1 (0), unstratified. Year Excavated: 1970. Dimensions: $18 \times 18 \times 15$ mm . Material: white composite material with blue-green glaze. Production: moldmade. Preservation: body broken (missing). Description: plastic. Ventral: fragment off Patecus. On the head the cap of Ptah can be recognized. Dorsal: behind the neck, the four-banded hanging arrangement protrudes. Author's Date: Iron IIC-Persian.

Stylized Patecus amulets were found, for example, in Akhzib, Atlit, Dor, and Ashkelon, mostly in tombs, all dated to the Iron II or Persian periods (Herrmann, 2003: Cat. Nos. 520-522).

## Animals

Cat. No. 11, Reg. No. 1138, SI Cat. No. 301 (Figure 24.1k). Sitting cat. Find Spot: Field IV, GM 0B (2) 2, Phase IV-3/4? (Persian). Year Excavated: 1972. Dimensions: $12 \times 10 \times 5 \mathrm{~mm}$. Material: gray composite material with gray-green glaze. Production: moldmade. Preservation: head broken (missing). Description: plastic. Ventral: sitting cat. Dorsal: behind the neck, the hanging arrangement protrudes. Author's Date: Iron IIC-Persian.

The cat is attested in Egypt until the Middle Kingdom in the form of pictures or inscriptions. In tombs of the New Kingdom it was the favorite animal under the chair of the grave lord. The height of the cat cult, however, reached only into the late period. Notably, the cat Bastet was considered the animal that was the antithesis to mad Sekhmet. For the distribution of this amulet type in the Levant and the Mediterranean, see Herrmann (2003: cat. nos. 585-612).

Cat. No. 12, Reg. No. 1142, SI Cat. No. 804 (Figure 24.11). Uraeus or Renenutet. Find Spot: Field III, GMIII B (58) 2, Phase III-10 (LBII). Year Excavated: 1977. Dimensions: $19 \times 7.5 \times 2 \mathrm{~mm}$. Material: white composite material with white-blue glaze. Production: moldmade. Preservation: broken (missing). Description: plastic; front view. Ventral: on a small basis uraeus or Renenutet with double feather crown. Dorsal: flat. Suspension on the double feather crown. Author's Date: LBIIB-Iron IA. Bibliography: Herrmann and Staubli (2010:fig. 63:18, S.112). Comments: This uraeus or Renenutet amulet has not yet been verified in Israel and Palestine.

The uraeus snake is often an apotropaic head decoration on the headdress of the king of the gods. This was also a symbol of strength and regeneration; the uraeus was identified with both the moon and the sun's eye. The body of the snake can be coiled once, twice, or thrice and is often depicted wearing the sun disk on his head, indicating the solar aspects of its nature. In the Ramesside period the so-called Uräenknoten were in the form of small plates popular as rings. The two curved uraeus was between two flowers or a ring under the winged sun disk usage. Snake heads, mostly made of faience, were input into larger uraeus compositions, where the body was made of wood or other materials. The rampant cobra with a tortuous tail in a figure eight (as in Cat. No. 12) probably shows the goddess Renenutet (Nährschlange, or "breadwinner"). Further, the rampant snake could also be displayed with monkeys, lions, or a falcon's head, which has solar properties. All of these aspects, the apotropaic protective forces, the connection to the Nile flood, the ability to regenerate, and the nutritive power contributed to the great popularity of the various snake amulets.

This is actually the first example of such an amulet from Israel (for occurrences in Egypt, see Herrmann, 1985: cat. no. 337, for a mold; see Schoske and Wildung, 1992: cat. no. 66; Herrmann, 2003, cat. no. 920, for a positive).

## Оbject Amulets

Cat. No. 13, Reg. No. 1147, SI Cat. No. 702 (Figure 24.2a). Wedjet eye: small, rectangular. Find Spot: Field I, GMI 2E (1) 2 ,

Phase I-1? (LBII?). Year Excavated: 1976. Dimensions: $6 \times 12.5$ $\times 3 \mathrm{~mm}$. Material: red composite material with red glaze. Production: moldmade. Preservation: upper half broken along the hanging arrangement (missing). Description: front view. Ventral: fragment of Wedjet eye. The surface is slightly curved; the spiral bow and the two-part projection are undecorated. Dorsal: flat. The hanging arrangement goes horizontally through the central axis. Author's Date: LBIIB-Iron IA.

Cat. No. 14, Reg. No. 1140, SI Cat. No. 832 (Figure 24.2b). Wedjet eye. Find Spot: Field III, GMIII B (63) 5, Phase III-12? (LBII). Year Excavated: 1977. Dimensions: $10 \times 14.5 \times 2 \mathrm{~mm}$. Material: white composite material with white-blue glaze. Production: moldmade. Preservation: suspension broken (missing). Description: front view. Ventral: Wedjet eye. The surface is slightly curved. The spiral bow and the two-part projection are undecorated. Dorsal: flat. Author's Date: LBIIB-Iron IA.

The name Wedjet eye signifies "safe" eye. The Wedjet eye was the favorite Egyptian amulet in Israel and Palestine. It belongs to the class of the human body parts but differs from it because it has to be assigned to the divine sphere, and as such, it does not represent a human eye, but a divine eye. As such, it has apotropaic functions (Müller-Winkler, 1987:93-94). It has primarily regenerative characteristics but was also used very often as an amulet with an apotropaic effect. It has a close relationship with the Horus eye, which, like the moon, always regenerates itself anew (Bonnet, 1952:854-856; Helck and Westendorf, 1977:824).

Iconographically, the Wedjet eye is represented with a smooth or decorated eyebrow, eyelid, lid edges, eyeball, pupil, smooth or decorated makeup line, spiral bow, wedge area, and smooth or decorated vertical projection. The projection suggests the relation with the falcon-headed heavens god (for the terminology, see Müller-Winkler, 1987:94). The Wedjet eye is the most common amulet type in Israel and Palestine and is represented by 536 examples (Herrmann, 2006); it reaches its peak, similar to Bes and Patecus amulets, in the Iron IIA-B. According to the typology and the material, one can also note a stylistic evolution for this very common amulet (for this, see Herrmann, 1994:612-613). For the period of the LBIIB-Iron IB there is evidence of objects with smaller dimensions and raised relief. Occasionally, carnelian is used as a production material rather than Egyptian faience.

In the Iron II the Wedjet eye is often decorated with a twocolored glaze, and the upper side is almost always curved and still shaped in raised relief. The dimensions are normally much larger than during the LBIIB-Iron IB period, and the colors are dominated by shades from green to blue. Completely new criteria appear in the Iron IIC: The surface is mostly flat, and the edges are angular. Often, the decoration is applied to the flat surface with a thick composite material. Sometimes, the eyes are represented in very large dimensions. The fine reliefs are almost always sunk. The production materials used alongside Egyptian faience are also granite. Rarely, one can find Wedjet eyes made of carnelian or mother-of-pearl. Their production date has to be put most likely already in the LBIIB-Iron IB period. For the distribution of this most common form of Wedjet amulets in the Levant and elsewhere, see, e.g., Herrmann (1994:611-773).


FIGURE 24.2. Amulets: Catalog Nos. 13-23.

Cat. No. 15, Reg. No. 2891 (Figure 24.2c). Wedjet eyes: flat with relief drawing. Find Spot: Field IV, GM 2A F7, north balk (2), unstratified. Year Excavated: unknown. Dimensions: $14 \times 22 \times 4$ mm . Material: gray composite material. Production: moldmade. Preservation: two-part projection broken (missing). Description: front view. Ventral: Wedjet eye. The surface is flat; fine lines mark the brow, edges of lids, eyeliner line, pupil, and the two-part projection. Dorsal: flat. The hanging arrangement goes horizontally through the central axis. Author's Date: Iron IIC-Hellenistic.

Cat. No. 16, Reg. No. 3358 (Figure 24.2d). Wedjet eye. Find Spot: Field IV, GM 2B (37) 2, Phase IV-6 (Iron IIB-C). Year

Excavated: unknown. Dimensions: $13 \times 17 \times 5 \mathrm{~mm}$. Material: yellow composite material with red glaze. Production: moldmade. Preservation: broken along the hanging arrangement. Description: front view. Ventral: Wedjet eye. The surface is flat; fine lines mark the brow, edges of lids, eyeliner line, pupil, and the two-part projection. Dorsal: flat. The hanging arrangement goes horizontally through the central axis. Author's Date: Iron IICHellenistic. For the distribution of flat Wedjet eyes with relief drawing see, e.g., Herrmann (1994:620-629).

Cat. No. 17, Reg. No. 1061 (Figure 2.24e). Wedjet eyes: flat and partially decorated with black faience paste. Find Spot: Field IV,

GM 0B P4 (8), Phase IV-4? (Persian?). Year Excavated: 1972. Dimensions: $6 \times 7 \times 3.5 \mathrm{~mm}$. Material: white composite material with green glaze. Production: mold- and handmade. Preservation: fragment. Description: front view. Ventral: Wedjet eye. The surface is flat; the pupil is decorated with black faience paste. Dorsal: flat. The hanging arrangement goes horizontally through the central axis. Author's Date: Iron IIC-Persian.

Cat. No. 18, Reg. No. 1062 (Figure 24.2f). Wedjet eye. Find Spot: Field IV, GM 1A (0), topsoil. Year Excavated: 1970. Dimensions: $9 \times 7 \times 3 \mathrm{~mm}$. Material: white composite material with green glaze. Production: mold- and handmade. Preservation: upper half broken along the hanging arrangement (missing). Description: front view. Ventral: Wedjet eye. The surface is flat. Dorsal: flat. The hanging arrangement goes horizontally through the central axis. Author's Date: Iron IIC-Persian.

Cat. No. 19, Reg. No. 1135, SI Cat. No. 611 (Figure 24.2g). Wedjet eyes: flat and fully decorated with black faience paste. Find Spot: Field IV, GM 2A F7, north balk, unstratified. Year Excavated: unknown. Dimensions: $9 \times 12 \times 3 \mathrm{~mm}$. Material: white composite material with green glaze. Production: moldand handmade. Preservation: fragment. Description: front view. Ventral: Wedjet eye. The surface is flat; black faience paste marks the brow, edges of lids, eyeliner line, pupil, and the two-part projection. Dorsal: flat. The hanging arrangement goes horizontally through the central axis. Author's Date: Iron IIC-Persian.

Flat Wedjet eyes fully decorated with black faience paste come, for example, from Tell Jemmeh (Petrie, 1928: pl. XLV), Ashkelon, and Achzsiv (see Herrmann, 2003).

Cat. No. 20, Reg. No. 1145 (Figure 24.2h). Wedjet eye in raised relief. Find Spot: Field I, GMI 2E (2), Phase I-1? (LBII-Iron IA?). Year Excavated: 1976. Dimensions: $6 \times 17 \times 4 \mathrm{~mm}$. Material: gray composite material with gray glaze. Production: moldmade. Preservation: upper half broken along the hanging arrangement (missing). Description: front view. Ventral: fragment of Wedjet eye in raised relief. Dorsal: flat. The hanging arrangement goes horizontally through the central axis. Author's Date: LBIIB-Iron IA.

Cat. No. 21, Reg. No. 2066 (Figure 24.2i). Wedjet eye. Find Spot: Field IV, GM 2B (35) 2A, Phase IV-5 (Iron IIB-C). Year

Excavated: 1976. Dimensions: $5 \times 3 \times 3 \mathrm{~mm}$. Material: blue composite material (Egyptian blue). Production: mold- and handmade. Preservation: upper half broken along the hanging arrangement (missing). Description: front view. Ventral: fragment of Wedjet eye. Dorsal: flat. The hanging arrangement goes horizontally through the central axis. Author's Date: Iron IIB. Another example of Wedjet eyes in raised relief comes from Lachish (Herrmann, 2003: cat. no. 1113/I).

Cat. No. 22, Reg. No. 1148, SI Cat. No. 823 (Figure 24.2j). Finger ring. Find Spot: Field III, GMIII B (63) 5, Phase III-12? (LBII). Year Excavated: unknown. Dimensions: $15 \times 12 \times 2 \mathrm{~mm}$. Material: white composite material with white-blue glaze. Production: mold- and handmade. Preservation: ring broken (missing). Description: front view. Ventral: surface slightly curved, but the ring plate cannot be identified clearly. Dorsal: flat. Author's Date: LBIIB-Iron IA.

In the Ramesside period finger rings were made of earthenware, and their popularity in Israel and Palestine is well documented archaeologically. Although this ring was not well preserved, it is possible that the ring originally showed the prince ramessidian sun, as in Qantir it was a model for finger rings (Herrmann, 2007:340). Another possibility is that the ring plate shows a uraeus between two flowers, a popular motive in the Ramesside period.

Cat. No. 23, Reg. No. 1134, SI Cat. No. 114 (Figure 24.2k). A fragment not assigned to any particular amulet. Type: undefined. Find Spot: Field IV, GM 1B TT1 (5), Phase IV-3? (Persian?). Year Excavated: 1970. Dimensions: $12 \times 17 \times 5 \mathrm{~mm}$. Material: white composite material with white-blue glaze. Production: moldand handmade. Preservation: other part broken. Description: front view.

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## Various Finds: Faience, Glass Bone, Ivory, and Pumice David Ben-Shlomo

This section covers finds not included in other chapters, mostly those of siliceous materials, faience, and glass (not beads, scarabs, or amulets); bone and ivory objects are also discussed in this chapter (excluding beads discussed in chapter 22) as well as pumice, botanical, and other finds.

## FAIENCE

Very few faience objects were recovered apart from beads (see chapter 22), Egyptian amulets (see chapter 24), and scarabs (chapter 27). A rim fragment of an open, thick bowl (Figure 25.1a, Reg. No. 343, GM 2C NBR (4)) is made of light colored faience and has a wide ledge rim. Another small fragment (Figure 25.1b, Reg. No. 3122, GM 1A (8) 6) has decoration of bands and stripes between them, possibly a fragment of a closed vessel. Both items come from Persian period contexts in Field IV.

## GLASS

A small assemblage of decorated glass fragments, probably dating to the final Iron Age and Persian period, was found in Field IV (Figure 25.1c-s, Table 25.1). Most of the examples are small fragments of closed vessels, probably bottles or juglets. One example (Figure 25.1 m ) shows a cylindrical narrow body, like an alabastron. It has a matte white color and black decoration on the upper part; the inside is also dark. For parallels see the Dobkin Collection (Barag, 2003:53-54, no. 30), dated to the 6th-5th centuries BCE. Another example (Figure 25.1i) seems to be a fragment of a bottle with a square profile. The glass is black with a white decoration of wavy bands. A decoration of wavy or zigzag bands of light color appears on several fragments (Figure 25.1c,e,g,h); one of these shows decoration in cream and yellow on black glass (Figure 25.1h). Figure 25.1e,k shows cream/white-colored glass with yellow decoration; Figure 25.1d is also light colored, bluish green; another fragment has a very strong orange-yellow color (Figure 25.11), also decorated with a wavy band. These fragments may belong to amphoriskoi or aryballoses, usually dated by style to the 6th-5th centuries BCE (see, e.g., Tell el-Hesi, Bennett and Blakely, 1989:274-275, fig. 206; Barag, 2003: nos. 39, 40, 43).

Although decorated glass already appears in Late Bronze Age Egypt (e.g., Barag 2003:38, nos. 3-5), this style of decorated glass in these forms is typical of the "Mediterranean Series" class, found in the Levant and other regions during the late 7th through the 4th centuries BCE at least (Barag, 2003:51-52, nos. 29-60). However, most fragments from Jemmeh are stylistically dated to the 6th-5th centuries BCE, to the Persian period. These miniature vessels are usually in Greek shapes like alabastra, amphoriskoi, and aryballoses, as well as juglets, and were produced mostly in Rhodes and Cyprus and possibly on the Phoenician coast.

Two large decorated glass beads (Figure 25.1r,s) are also illustrated (see chapter 22; see also Petrie, 1928: pl. XXII).
Other glass fragments are not similarly decorated, belong to larger vessels (Figure 25.10-q), and are made of dark lustrous glass. They may be dated to the Crusader or Mamluk period. A handle of a vessel (Figure 25.1q) is made of a greenish transparent glass, possibly dating to the Crusader-Mamluk period (see, e.g., a glass jug from the Dobkin Collection, Brosh, 2003:357, no. 481, dated to the 11th-12th centuries BCE). Another fragment (Figure 25.1n) is a small colored fragment of a handle made of turquoise-colored glass.


FIGURE 25.1. Faience and glass objects.

## BONE AND IVORY

A relatively large collection of bone objects was found at Tell Jemmeh (over 120 items, Table 25.2); selected and more complete objects from various contexts will be discussed. Ivory is not always distinguished from bone by the naked eye, especially in small items; furthermore, some classes of objects such as inlays and spindles are similarly made from both materials; for these reasons bone and ivory objects will be discussed together.

## Bone and Ivory Inlays

Inlays are thin, flat bone or ivory objects with one side smoothed and often decorated by incision or relief that decorated the surface of wooden objects (such as boxes) or furniture.

The back side is unworked, flattened, and shows signs of sawing and delicate incisions. In many cases holes are found on the edges of the inlays; these were used to attach it to the surface of the larger object, usually by means of bone or ivory pegs. Flat rectangular inlays are also termed panels. The small group of inlays discussed (Figures 25.2, 25.3), about a dozen, can nevertheless be dated to several periods according to both style and find context.

Several bone inlay fragments, probably rectangular panels, show incised decoration of dotted circles (Figure 25.2b,c) or two concentric circles with a centered dot (Figure 25.2a, made on lustrous whitish bone). These examples come from MBII or unstratified contexts. This style is well dated to the MBII (although some similar inlays continue into the LBA), with parallels, for example, at Petrie's excavations (Petrie, 1928: pl. XXIII:43),

TABLE 25.1. Selected glass objects. wgm = a label added to some glass objects that did not have a registry number.

| Reg. No./ wgm | SI Cat. <br> No. | Provenance | Description | Phase | Architecture | Period | Figure |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| wgm 613 |  | GM 2C (3) | Decorated glass fragment | IV-2? |  | Persian? | 25.1c |
| wgm 614 |  | GM 1D (19) | Decorated glass fragment | IV-5? |  | Iron IIC? | 25.1 e |
| wgm 621 |  | GM 2B (2) 2 | Decorated glass fragment, square profile vessel | IV-5? |  | Iron IIC? | 25.1i |
| wgm 625 |  | GM 1A (2) 2 | Decorated glass handle | IV-1? |  | Crusader- <br> Mamluk? | 25.1n |
| wgm 611 |  | GM 1A (5A) 2 | Greenish glass jug neck | IV-1/2 |  | Unknown | 25.1p |
| wgm 68 |  | GM 2B (7) 1 | Decorated glass base | IV-1 |  | Crusader- <br> Mamluk | 25.10 |
| wgm 628 |  | GM 1A (5A) 7 | Decorated glass fragment | IV-4 |  | Persian | 25.11 |
| wgm 619 |  | GM 2A (1) | Decorated glass fragment | Topsoil |  | Unknown | 25.1j |
| wgm 61 |  | GM 2C P1 (3) | Decorated glass handle | IV-1 |  | Crusader- <br> Mamluk |  |
| 1089 |  | GM 0A (6) | Decorated glass fragments | IV-3/4 | Unit 3 | Persian | 25.1h |
| 1093 |  | GM 2D P2 (1) | Decorated glass handle | IV-1 |  | Crusader- <br> Mamluk | 25.1q |
| 1094 |  | GM 2A NBR P1B | Decorated glass fragment | IV-1 |  | Crusader- <br> Mamluk | 25.11 |
| 1104 |  | GM 1A P6 (10) | Decorated glass vessel (alabastron?) | IV-4? |  | Persian? | 25.1 m |
| 1107 | 324 | GM 0B F1 (1) | Decorated glass fragment | IV-3/4 | Unit 1 | Persian | 25.1k |
| 1108 | 224 | GM 2D (2) | Decorated glass fragment | IV-3? |  | Persian? | 25.1 d |

'Ajjul (Petrie, 1931: pl. XXIII, 1933: pl. XXIX, 1934: pl. XXX-VII:60-101), Hazor (Yadin et al., 1958: pl. CXLII:18), Megiddo (Guy and Engberg, 1939: pl. 108), and Batash (Yahalom-Mack, 2006a:262, photo 127; see also, e.g., Megiddo, Strata XII-XI, for the dotted circles pattern, Loud, 1948: pls. 192:1, 193:9,10). Another rectangular bone inlay fragment (Figure 25.2f) with two diagonal lines is probably also of the same group. A panel fragment with one side cut (Figure 25.2e) is 1.3 cm wide, has only one peroration near one of the edges, and shows no decoration. It comes from a possibly transitional MBII-LB phase in Field I. A slightly wider panel ( 1.8 cm , Figure 25.2 d ) has a decoration of an X design in a frame of a double lines. This panel comes from an LBII context in Field I. Parallels come from 'Ajjul (Petrie, 1933: pl. XXIX:46,47, 1934: pl. XXXVII:76,77).

The most complete and impressive bone items come from Room 1 of Phase 1 in Field I (Figure 25.3), dated to the LBII. These are large bone inlays or components of a larger object, the first depicting a wing (Figure 25.3a), sized $15.2 \times 6.2 \mathrm{~cm}$, and the second probably is a tail of a bird (Figure 25.3 b ), sized $8.5 \times 6.5$ cm . These are very likely to be parts of the same object, maybe a bird-shaped cosmetic box or a furniture piece with a bird depiction on it. This assumption is based on both the find spot and the similarity of style and technique for both these objects. Both back sides are undecorated (Figure 25.3).

The wing (Figure 25.3a) has two perforations aligned with its straight side near the edge; these were probably used to attach the wing to the surface of a box or furniture or whatever other object it was part of. The inner part is decorated by dotted circles depicting the body feathers. The outer part widens and is decorated by wavy lines separated by radial bands, naturalistically depicting the wing feathers. These two zones are separated by a diagonal double frame. The tail (Figure 25.3b) shows exactly the same design as the wing feathers; it ends in a roughly straight line. A series of four equidistant holes is aligned along this separation frame. The perforations on the wing probably indicate it was indeed an inlay, although it is not completely flat; the tail lacks any perforations.

These bone inlays reflect a typical Canaanite style of the LBII-Iron I period (see, e.g., Ben-Shlomo and Dothan, 2006:1820) and fit well in their find context. An almost identical set of ivory wing and tail inlays were found at Tel Harasim, Stratum IV, Locus 9113, dated to the LBII, and were included in a cache within a jar (Giveon, 1998:11*, fig. 15:5,8); here also the lower body of a bird-shaped cosmetic box was found (Giveon, 1998: figs. $15: 7,16$ ), and thus, the cosmetic box can be completely reconstructed. See also a similar wing from LBII Tell Fakhariyah (Kantor, 1958a: pl. 67a,b). Other parallels for the wing inlay come from Tel Dan (Biran and Ben-Dov, 2002:141-144, figs.

TABLE 25.2. Selected bone and ivory objects. Bld = building.

| Reg. <br> No. | SI Cat. <br> No. | Provenance | Description | Phase | Architecture | Period (context) | Fig. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1373 | 1005 | GMIII F1 (4) | Bone inlay | 15 |  | MBII | 25.2c |
| 1374 | 1007 | GMIII C1 (3) 3 | Bone inlay | Unknown |  | MBII | 25.2 b |
| 1371 | 624 | GMII A2 (0D) | Bone/ivory inlay or knob? | Topsoil |  | Unknown | 25.2j |
| 1377 | 202 | GM 2C (8) 2 | Ivory inlay depicting a palmette, back side cut | Post IV-3 |  | Persian? | 25.2 i |
| 1372 | 801 | GMI 4G (4) 1 | Rectangular bone inlay, X design | I-3 | Corridor/ <br> Unit M1 | LBII | 25.2d |
| 1376 | 977 | GM 3G P5 | Rectangular bone inlay, perforated | I-6/7 |  | LBII/MBII | 25.2 e |
| 1375 | 509 | GMII C1 WBR (+) | Bone inlay, decorated | Topsoil |  |  | 25.2a |
| 1380, 1381 | 212 | GM 2D TT2 (4), F1 2 | Handle/kohl tube | IV-3? |  | Persian? | 25.5a |
| 1382 |  | GM 1A (0) | Rectangular bone inlay, $5.1 \times 1.4-1.5 \times 0.4 \mathrm{~cm}$ | Topsoil |  | Unknown |  |
| 1383 |  | GM 1C (3) | Bone inlay, burnt | IV-3 |  | Persian | 25.2 g |
| 1386 |  | GM 2B (37) 3 | Ivory rectangular inlay, $1.9 \times 5.9 \times 0.2-0.3 \mathrm{~cm}$ | IV-6 |  | Iron IIB | 25.2h |
| 1387 |  | GMIII C1 (75) | Bone inlay | III-14/15 |  | LBII/MBII | 25.2 f |
| 1392 |  | GMI 3G P5 | Bone tool | I-6/7 |  | LBII/MBII? | 25.5 g |
| 1393 |  | GMIII C2 F22 | Bone tool (socket) | III-18 |  | MBII/ <br> Chalcolithic | 25.5h |
| 1399 |  | GM 1C F3 2 | Bone awl, 4.2 cm long | Unknown |  | Unknown | 25.5 e |
| 1401 |  | GMIII C2 (82) | Bone awl?, 6.3 cm long | III-16 |  | MBII | 25.5 f |
| 1368 | 1012 | GMIII F1 (6) 4 | Bone tool, complete | III-15/16? |  | MBII | 25.5 d |
| 1369 | 979 | GMI 3G (4) 1 | Complete bone needle | I-4? |  | LBII | 25.51 |
| 1413 | 768 | GM 1C P2 (1) | Bone handle | IV-1? |  | Crusader- <br> Mamluk? | 25.5 b |
| 1435 | 442 | GM 0A (6) | Bone spatula | IV-3/4 | Unit 1 | Persian | 25.4a |
| 1415 |  | GM 1C P2 | Tube? | Unknown |  |  | 25.5c |
| 1436 | 140 | GM 1A TT11 (0) | Bone spatula | Topsoil |  | Unknown | 25.41 |
| 1437 | 139 | GM 1C p2 | Bone spatula | Unknown |  |  | 25.4 b |
| 1438 | 213 | GM 2D P3 (1) | Bone spatula | IV-1? | Burial? | CrusaderMamluk? | 25.4 c |
| 1440 | 980 | GMIII A1 P1 | Bone spatula | III-1? |  | Persian? | 25.4d |
| 1441 | 935 | GMIII A1 P1 | Bone spatula | III-1? |  | Persian? | 25.4 e |
| 1447 | 52 | GM 1D P1 (1) | Bone spatula | IV-1 |  | Crusader- <br> Mamluk | 25.4 f |
| 1460 | 76 | GM 1D TT1 (2) | Bone spatula | Topsoil |  | Unknown |  |
| 1469 | 236 | GM 2D TT3 F18 | Bone spatula | Unknown |  | Unknown | 25.4h |
| 1473 |  | GM 2C (7A) 2 | Bone spatula | Post IV-3 |  | Persian | 25.4 g |
| 1443 |  | GMIII B (67) | Bone spatula | III-13 | Unit 10 | LB II | 25.4j |
| 1452 |  | GM 1B (11) 2 | Bone spatula | IV-5 | Bld I, Room A | Iron IIC | 25.4 k |
| 1453 |  | GM 1B (11) 2 | Bone spatula | IV-5 | Bld I, Room A | Iron IIC | 25.41 |
| 1456 |  | GM 3B (10) | Bone spatula | IV-5 | Bld III, Unit 2 | Iron IIC | 25.4 m |
| 1472 |  | GM 00A (1) 3 | Bone spatula | IV-5 | Bld I, Room F | Iron IIC | $25.4 n$ |
| 1421 |  | GMII C1 (5) | Bone/ivory spindle, complete, 2.7 cm diameter | II-1 |  | Persian? | 25.5 i |
| 1422 |  | GM 2B (32) 2A | Bone bead/spindle, 2.1 cm diameter | IV-5 | Bld II, Room B | Iron IIC | 25.5 k |
| 1424 |  | GMI FUR (3) 2 | Bone/ivory spindle, complete, 1.4 cm diameter | FUR 2/3 |  | Iron I | 25.5 j |
| 3186 |  | GM 2B (58) | Bone pendant | IV-9 | Room D* | Iron IIA | 25.5 m |
| 1941 |  | GM 2A NBR (15-15A) | Complete bone die | IV-4? |  | Persian? | 25.5 n |
| 1378 | 824 | GMI 4D (2A) | Wing inlay, bone | I-1 | Room 1 | LBII | 25.3a |
| 1379 | 825 | GMI 4D (2A) | Tail inlay, bone | I-1 | Room 1 | LBII | 25.3 b |



FIGURE 25.2. Bone and ivory inlays.
2.101:202, 2.102:207, for the tail see fig. 2.101:203), Ugarit (Gachet-Bizollon, 2007: pl. 34:337), and Kition (Karageorghis, 1976: pl. 35), the Louvre collection (Fischer, 2007: pl. 107: L.35, L.36), and possibly Beth Shean, Stratum S-3b (also bone, PanitzCohen et al., 2009:757, fig. 16.11:2).

Three ivory inlays all come from later contexts of the Iron II or Persian period (Figure $25.2 \mathrm{~g}-\mathrm{i}$ ). The most elaborate is an inlay depicting a vegetative motif (Figure 25.2i); this item is probably redeposited in the Persian level from an Iron Age phase. The piece $(3.2 \times 2.4 \mathrm{~cm})$ was cut in the shape of the motif, which is a high palmette depiction showing the volutes on the bottom and at least five leaves springing high above them. The details are made in the incision technique.

This motif appears in Canaanite ivories, such as at Megiddo (Loud, 1939: pl. 34:165,166) and Ugarit (Gachet-Bizollon, 2007: pl. 32:276), both of the LBII, but is a more typical Phoenician motif popular during the 9 th and 8th centuries BCE. The motif appears, for example, in the Samaria ivories (Crowfoot and Crowfoot, 1938:35-42, pls. XVII:10,14, XXI) and the Nimrud ivories (e.g., Herrmann, 1986: pls. 49, 145:611-613, 152, 204-207, 306; Herrmann and Laidlow, 2008:75-78, pls. 28:199a). Maybe this motif recalls the proto-aeolic capitals as well, or the motif should be turned upside down. These examples above differ, however, from the Tell Jemmeh inlay as they are carved in high relief and are not an independent motif but part of a composition (usually on top of the scene); the depiction of the leaves is also different, shorted and more rounded, in the Assyrian examples.

Another Iron II inlay, probably of ivory, from Field IV, Phase 6 (Figure 25.2 h ) has no decoration; it is a 1.9 cm panel. Figure 25.2 g is a partly flat, rounded ivory fragment showing signs of burning to a light gray color. It is decorated along the edge by deep-cut rings or thick circles (at least seven). This could have
been an inlay related to a pyxis or a furniture piece or maybe part of a rounded object related to netting or sowing, as suggested by Petrie in relation to a complete bone item from Jemmeh (Petrie, 1928: pl. XXXIV:4), or a cosmetic palette (see also Megiddo [Schumacher, 1908: fig. 150], Tell Fara'h (S) [Starkey and Harding, 1932: pl. LXXIV:116], and Batash, Stratum III [Mazar and Panitz-Cohen, 2001:263-254, photo 195, pl. 27:9, a bone piece, with discussion and many parallels relating to similar cosmetic plaques/palettes]). See also similar decoration on handles from Tell Jemmeh (Petrie, 1928: pl. XXXIII:29) and Iron II Motza (Greenhut and De Groot, 2009:193, fig. 9.1:2).

Another item made of ivory (from topsoil, Figure 25.2j) is a hollow knob with a domed head ( 2.1 cm long, 1 cm in diameter). This is either a part of a tool or an inlay.

## Bone Tools

The term bone tools encompasses various categories, such as spatulas, points, awls, etc., which are proper tools, as well as tool components, such as handles and spindles. Other accessories or objects are also included in this category.

## Spatulas

At least 50 bone spatulas were found at the site, and this is by far the most common bone artifact (Figure 25.4). These are bone plaques worked to a thin, elongated to oval piece, with one end usually rounded or concave and the other one triangular, converging, or pointed (Figure 25.4, with 14 items illustrated; see also Van Beek and Van Beek, 1990). They vary in size, and complete items probably were anywhere between 6 cm (see Figure 25.4 d , i) and 10 cm (see Figure 25.4 g ; some up to 18 cm , Van Beek and Van Beek, 1990:206) long and 2-3 cm wide; they are


FIGURE 25.3. Bone inlays (bird-shaped box).
$1-2 \mathrm{~mm}$ in thickness. One side is well smoothed and polished, whereas the back side is roughly smoothed (as Figure 25.4j). A number of similar bone spatulas were also published from Petrie's excavations (Petrie, 1928: pl. XXXIV:5-34).

These objects are not chronologically indicative and appear in many periods. Most of the items come from Iron II, Persian, and unstratified contexts. However, at least one example comes from the LBII (Figure 25.4j). Three examples were found in Field IV, Building I, two were found in Room A (Figure $25.4 \mathrm{k}, \mathrm{l}$ ), and one was found in Room F (Figure 25.4n). Bone spatulas appear in many Levantine and Near Eastern sites from the at least the Bronze Age onward but become more popular from the late Iron Age onward (appearing, for example, in large numbers at Megiddo, Strata III-I, Lamon and Shipton, 1939: pl. 95:39-62; see Van Beek
and Van Beek, 1990:209, and parallels therein). Additional parallels come from the City of David, Iron II (Ariel, 1990: fig. 14, later contexts, fig. 15), Tel 'Ira, Stratum VI (Goldsmith et al., 1999: fig. 14.5:4-11), Kadesh Barnea, Strata 4-1 (Gera, 2007:226, pl. 13.5 :6,19,22,30,31,36,37,48,49,52) , and Tell el-Hesi, Stratum V (Persian period, Bennet and Blakely, 1989: fig. 211).

The function of these objects has been not been resolved, and many suggestions have been made. Macalister (1912:274) suggested they were styli for ink writing, and Petrie referred to them as netting tools (Petrie, 1928:17) and possibly also as a delicate awl for fine leather working; at Megiddo and elsewhere it has been suggested they were used for applying cosmetics (Lamon and Shipton, 1939:95-96), hence the name spatula. The Van Beeks suggested spatulas were an ophthalmic utensil (Van


FIGURE 25.4. Bone spatulas.

Beek and Van Beek, 1990:208-209) used to extract foreign matter from the eye.

## Other Tools or Handles

Bone objects include tools (Figure $25.5 \mathrm{~d}-\mathrm{h}$ ), various handles (Figure 25.5a), spindles (Figure 25.5i-k), and pendants/rods (Figure 25.5 m ). A large handle or kohl tube or container (Figure 25.5 a, Persian period?) was restored from several fragments, measuring 8.7 cm altogether. This is the upper end of a carved hollow bone and is oval with one flat side in section, which
tapers from the top. The rim is plain with a decoration of seven parallel grooves (six ridges) below it, then a plain band $(1.1 \mathrm{~cm}$ wide), and below it an area with crisscross incision decoration. This could be either a hollow container or a large handle. Several Persian-Hellenistic and late Iron Age parallels include, for example, Lachish (Tufnell, 1953: pl. 63:14), Tell Abu Hawam (Hamilton, 1935: pl. XXXII:31), Hazor, Stratum II (Yadin et al., 1961: pl. CXCI:23,24), Beth El (Kelso, 1968: pl. 45:2), Megiddo (Lamon and Shipton, 1939: pl. 99:3; Loud, 1948: pl. 197:7; Guy and Engberg, 1938: fig. 175:16), Shikmona (Elgavish, 1968: pl. LXII:50), and Ashdod (Dothan and Freedman, 1967: fig. 1:7).


FIGURE 25.5. Various bone tools and objects.

An unusual object may also be a handle (Figure 25.5b, Crusader-Mamluk context, 6.7 cm long). It is about one-third of the circumference of a bone tube, broken on two sides and one end. The complete end is carved into two points with a $V$ opening between them at the end of a $2.2-\mathrm{cm}$-long plain area with random striations, which are probably file marks; a series of at least seven delicate shallow perforations was carved in this area. A long bone carved into a square-sectioned and hollowed object (Figure 25.5 c) may also be a handle or a tool or a knife; possibly remains on the shaft are within the amalgam (see chapter 33).

Proper tools include pointed objects made of a long bone from a sheep or goat, with one edge pointed and the other serving as the handle (Figure $25.5 \mathrm{~d}-\mathrm{g}$ ). This tool could be defined as an awl or a borer. A complete example (Figure $25.5 \mathrm{~d}, 14.5 \mathrm{~cm}$ long) comes from Field III, Phase 15 or 16, dated to the MBIIB-C. This object is formed from the immature (unfused) distal tibia of a sheep or possibly a goat. A length of 7 cm is worked into a sharp, polished point (Fauna Lot No. 3545, see chapter 33). A similar tool was found at Megiddo, Stratum XIV, also dated to the MBII (Loud, 1948: pl. 198:12). Several other points coming from various contexts (Figure $25.5 \mathrm{f}, \mathrm{g}$ ) may have belonged to similar tools. Figure 25.5 h may be a similar tool but is hollowed and polished and thus possibly was the handle for a shaft, maybe metal. It was probably made from a leg bone. Similar bone tools come, for example, from Bronze Age Megiddo, Strata XVIII-XIII (Loud, 1948: pls. 198:2-9, 199:21-24), Tell el-Hesi, Stratum V (Persian period, Bennett and Blakely, 1989: fig. 213), Hazor, Stratum X (Yadin et al., 1961: pl. CCVII:30), and Iron Age Megiddo, Strata IV-III (Lamon and Shipton, 1939: pl. 96:1-4); other bone points
come from Jemmeh (Petrie, 1928: pl. XXXIII:30-35). A complete awl point with an elongated shaft (Figure 25.5 e , unclear context) is 4.2 cm long and may have had a nonbone handle. It has a $1.5-\mathrm{cm}$-long roughly pared handle or knob, thinning to a roughly round-section shaft (again pared) that tapered at the end to a blunt point (Fauna Lot No. 297, see chapter 33).

A complete bone needle (Figure 25.51) was in a probable LBII context and is 8.2 cm long. The rounded drilled needle eye was fully preserved. Later parallels come, e.g., from Kadesh Barnea, Stratum 2 (Gera, 2007: pl. 13.5:47,53; see also Petrie, 1928: pl. XXXIII:50 for a different bone needle).

## Spindle Whorls

Other bone objects include several spindle whorls. Two of these (Figure $25.5 \mathrm{i}, \mathrm{j}$ ) are complete and may be from ivory. The larger one (Figure 25.5i, Persian period?) is 2.7 cm in diameter and has a plano-convex or bell-shaped section; the back side shows prominent signs of cutting. Parallels come from Ashdod, Stratum XII (Dothan and Ben-Shlomo, 2005: fig. 3.37:15-17, from stone and bone; Dothan and Porath, 1993: fig. 36:4,10,11), Dan (Biran and Ben-Dov, 2002: fig. 2.123:343), and Megiddo, LBII (Guy and Engberg, 1938: pls. 95:45-46, 132:2,3). Similar objects from stone were also found at Tell Jemmeh (see chapter 23), Lachish, Levels VII-VI (Sass, 2004a: fig. 23.12:11-13), and elsewhere. The smaller spindle (Figure 25.5j, Iron I context) is only 1.4 cm in diameter and is almost conical in section. Parallels come from Lachish, Levels VII-VI (Sass, 2004a: fig. 23.12:24) and Megiddo (Guy and Engberg, 1938: pl. 95:43). A bone disk,
bead, or spindle (Figure 25.5k) has a diameter of 2.1 cm ; similar objects were published by Petrie (Petrie, 1928: pl. XXXIII:47,48); see also Megiddo (Guy and Engberg, 1938: pl. 152:8-10).

## Other Bone Finds

An elongated object decorated with dotted circles (Figure 25.5 m , Iron IIA) was also found; this could have been a fragment of a pendant (see chapter 22 and, e.g., Petrie, 1928: pl. XXXIII:7,8; Lamon and Shipton, 1939: pl. 97:8-19 [Iron Age Megiddo]; Tufnell, 1953: pl. 37:19-23,26,27 [Lachish]; Yahalom-Mack, 2006a:262, photo 129, pl. 83:6-8 [Batash, Stratum V]) or of a bone rod or needle (such as from Tel 'Ira, Goldsmith et al., 1999: fig. 14.5:14,15).

A bone die (Figure 25.5n) was found in Field IV, Phase 4(?), the Persian period. Some parallels include Bronze Age bone dies from 'Ajjul (Petrie, 1931: pl. XXIII:13, 1934: pl. XXXVI:21-27) and unstratified Hazor (Yadin et al., 1961: pl. CCCXXXVI:15; also from later periods, e.g., Beth Shean, Ayalon, 2006:672673). Many astragali (mostly of sheep or goat) were found at the site; some of these were worked or perforated (see chapter 33). Astragali with their sides flattened include, for example, items from the Middle and Late Bronze Age found in Field III, Phase 16 (Reg. Nos. 1433, 1434, Fauna Lot No. 1625, from GMIII C1 (81), unillustrated) and Field I, Phase 6 (Reg. No. 1431, Fauna

Lot no. 1658, GMI 3G (14)) and from the late Iron Age found in Field IV, Phase 5 (Reg. No. 1429, Bone No. 844, GM 2B (35) 2A). The complete horn of an antelope or hartebeest (Alcelaphus horn core) was found in Phase 6 of Field I, dating to the early LBII (Fauna Lot No. 1664, see chapter 33); although not worked, this rare find could have held significance at its time. An ostracon written in ink on a polished bone fragment from the Iron IIC levels (Phase 5, Building III) in Field IV should also be mentioned (Figures 8.106h, 33.3).

## PUMICE

A few pieces of pumice were excavated, mostly in Field I, Square 4D (Figure 25.6, Layers 1A and 2C in Locus 1), and belong to Phase 1 (some in Room 1, also TTC Layer 3). According to their context, these cannot be dated later than the end of the LBII. Other examples were found in Iron I, GMI FUR (4), the Iron IIC (GM 2B W11, GM 2B (35) 2A, in Room B of Building II), and the Persian period (Field IV, Phase 3, GM 2A TT7 F7, Layer 2), and there are some unstratified examples (Melson and Van Beek, 1983: table 1).

Although they are not worked and there is no evidence for any usage of these objects, they may carry significance as evidence of volcanic eruptions in the eastern Mediterranean and


FIGURE 25.6. Pumice fragments.
because of the nature of their transport to the site. Ten examples were analyzed by petrography and by electron microprobe for provenance. The petrographic analysis indicates that seven of the samples have a matrix of $95 \%$ glass and $5 \%$ phenocrysts (Melson and Van Beek, 1983: table 2, group 2, fig. 1); four of these samples date to the LBII or Iron I, and three are unstratified. Three showed a higher than $99 \%$ glass matrix, and all date to the late periods (Melson and Van Beek, 1983: group 1). Chemical analysis supported this grouping (Melson and Van Beek, 1983: table 3) and further showed that Group 1 is very homogenous, attesting to a single source, whereas Group 2 is less homogenous but also may belong to the same source. It is thus suggested that
the older pumices were collected from the nearby beach and arrived there from some Bronze Age eruption, maybe the Santorini one. The late group could have been brought by trade for some reason, yet the source was not identified.

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# Chipped Stone Assemblage from Tell Jemmeh 

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## INTRODUCTION

The analysis of chipped stone tools from the early historic periods is reasonably well established within Levantine archaeology. It has provided information on economic systems and trade, ancient technology and agricultural systems, and even ethnicity. In special circumstances it has even provided important chronological information.

Beyond a standard description of the lithic materials recovered, the chipped stone assemblage from Tell Jemmeh is special for two reasons. First, unlike most sites from the second and first millennia BCE for which we have lithic data, Jemmeh shows no underlying Early Bronze Age strata and only a minimal Chalcolithic presence. Thus, the problem of the intrusion of Early Bronze nondiagnostic lithic materials into Middle Bronze, Late Bronze, and Iron Age assemblages does not pertain, allowing far better control of the basic configuration of the lithic assemblages from these periods (cf. Rosen, 1996b, 1997:34-38). Second, in addition to the "natural advantage" of a reduced intrusion problem, the total recovery system instituted at Jemmeh ensured that all lithic artifacts, including waste, were collected. This is reflected, for example, in the reasonably high proportion of waste ( $80.8 \%$ ) in the assemblage. Thus, the collection is one of the largest $(N=7,658)$ and best of its kind, incorporating a complete range of both tools and manufacturing waste.

These factors are of particular importance in more precisely defining the slow decline in the use of chipped stone in the historic periods (Rosen, 1996b, 1997:151-166). Needless to say, they also provide better data for general economic reconstruction based on lithic evidence, as well as a good database for typological and technological description. In this context, it may be noted that since there is no chronologically sensitive lithic typological change in the periods under study here, the basic technological and typological descriptions from the different strata are presented as a unit, and culture-period analysis is conducted separately. It would be superfluous to describe the same types repeatedly. Similarly, for the nonlithic specialist, there are rarely idiosyncratic or special pieces, and description focuses on the assemblages and subassemblages and not individual items.

## RAW MATERIALS

Classification of the different flint types at historic sites in Israel (e.g., Hammond, 1977) is difficult because of great inherent variability within single-flint sources, as well as that caused by differential weathering processes, such as patination, which mask original flint color, and by postdepositional effects, such as burning, which cause discoloration. In general, three basic features have been used to distinguish flint types, color, graininess or coarseness and matrix (including the presence of impurities), and cortex. Cortex is the least useful of these features since it is not present on most pieces.

The following raw material types were defined (cf. Hammond, 1977; Rosen, 1997:32-33):

1. A dark brown, fine grained, high-quality flint is probably Eocene or late Cretaceous in origin, with sources in the Shephelah and the central Negev (e.g., Amiran et al., 1985: sections II, III). Sickle blades are commonly produced on this material.
2. Brown and light brown flints of medium and fine grain are variable and may be variants of the above type. Sources are probably in the hilly regions or from nodules collected from wadis in the case of smaller artifacts.
3. Gray flints come in either medium- or fine-grained versions. The fine-grained gray flint is translucent or shiny. These are commonly used for bladelets and bladelet tools and seem to derive from small wadi cobbles found in many of the stream beds in the Negev.
4. Striped flint is medium grained and occurs in medium-sized cobbles in the streambeds of the northern Negev. It is a flint whose original source lies in Transjordan and that was transported prior to the development of the Rift Valley. It is the most common material used in the manufacture of Chalcolithic sickles in the Beer-Sheba region.
5. Mottled flint is finely grained but full of cracks and fissures and shows numerous color changes. It derives from the Mishash Formation, and the closest source is in the southern hilly region (Hammond, 1977), although it too is found as wadi cobbles in most streambeds.
6. Hard limestone is occasionally used as well as flint (e.g., Gilead, 1989). It is common all over.
7. Other flints, relatively rare, include white, yellow, red, black, and orange pieces. Some of the orange pieces may be longdistance imports (e.g., Rosen, 1988). The others are probably variants of the materials noted above, modified by burning or exposure of one kind or another. A few patinated pieces are also included.
8. A final category, burnt flints (e.g., Figures 26.3f, 26.5e), includes those pieces not identifiable because of burning and discoloration.

Table 26.1 shows clearly that raw materials were exploited differentially in the manufacture of different tool types. In particular, it is clear that the dark brown fine-grained flint was deliberately selected for the manufacture of sickles. Specifically, more than $80 \%$ of both sickles (including retouched but unused blanks) and sickle flakes (the unretouched flakes used in making sickles) are of this dark brown flint. Adding the other shades of brown flint, which may be related, the proportions rise to $85 \%$. The selection for this dark brown flint is also reflected in the relatively high proportions used for producing miscellaneous retouched pieces and retouched blades. The miscellaneous retouched pieces included trimmed sickle flakes in the stage before they are classified as sickle blanks (unused sickles). The retouched blades are also in many cases probably preliminary
sickles. Similarly, the waste blade category may also be related to the sickle reduction sequence and also shows a greater use of dark brown flint. The advantages of the dark brown flint for the production of sickles are probably to be found both in the large size of the flakes that could be knapped, a necessity for the production of the large geometric sickles, and in the high quality of the raw material for working.

Neither are the different types of sickle blades themselves uniformly manufactured on dark brown flint. Whereas the large geometric sickles are almost exclusively on dark brown flint, only somewhat less than half of the backed blade sickles and plain blade sickles were manufactured from this material (Table 26.2). Five clear Canaanean sickle segments were manufactured from the dark brown flint, as is typical of the type (Rosen, 1997:46). Since many of the backed blade and plain blade sickles are probably Chalcolithic in date, this difference in raw material exploitation probably reflects differences in the organization of sickle production as well as exploitation of different flint sources.

In marked contrast to the clear selection for a special raw material for the production of sickles, other tools show considerably more variability in the type of flint used. This is most especially evident in the flake waste and core categories. The use of limestone, as reflected in both the flakes and a few tools, should be noted (cf. Gilead, 1989, for the Chalcolithic). Retouched bladelets, probably all Chalcolithic or intrusive epipaleolithic, are dominated by gray and translucent flint.

Given that the dark brown flint is not available in the environs of Tell Jemmeh and must be imported from either the western Shephelah 30 km east or the hilly areas of the western Negev 20 km to the south, these differences in raw material exploitation suggest fundamental differences in the organization of production of different tool types (Rosen, 1997:103-116). Basically, the raw material analysis suggests a two-tiered system, the sickles reflecting a form of economic specialization requiring special imported raw materials and the other tools reflecting a more ad hoc system with little specialization, either in production or exploitation.

TABLE 26.1. Raw material frequencies according to selected debitage and tool types. All percentages are based on samples.

|  | Flake <br> $(\%)$ | Blade <br> $(\%)$ | Bladelet <br> $(\%)$ | Sickle <br> flake <br> $(\%)$ | Core <br> $(\%)$ | Retouch <br> blade <br> $(\%)$ | Retouch <br> bladelet <br> $(\%)$ | Retouch <br> pieces <br> $(\%)$ | Sickles <br> $(\%)$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Flint type | 22.0 | 35.3 | 22.2 | 82.4 | 14.5 | 40.8 | 15.4 | 34.5 | 80.1 |
| Dark brown | 22.2 | 25.0 | 29.6 | 9.1 | 17.1 | 26.5 | 38.5 | 18.7 | 4.8 |
| Brown | 18.8 | 11.0 | 27.8 | 4.5 | 39.3 | 14.3 | 46.2 | 23.0 | 5.4 |
| Gray | 6.1 | 12.5 | 3.7 | 0.6 | 10.3 | 4.1 | 0 | 2.9 | 1.4 |
| Striped | 8.8 | 3.8 | 0 | 0.6 | 11.1 | 12.2 | 0 | 7.2 | 0.8 |
| Mottled | 5.9 | 0.7 | 0 | 0 | 0 | 0 | 0 | 2.9 | 0 |
| Limestone | 14.2 | 5.1 | 5.6 | 0 | 2.6 | 0 | 0 | 7.2 | 1.7 |
| Other | 2.0 | 6.6 | 11.1 | 2.8 | 5.1 | 2.0 | 0 | 3.6 | 5.8 |
| Burnt | 409 | 136 | 54 | 176 | 117 | 49 | 13 | 139 | 1044 |
| Total $(N)$ |  |  |  |  |  |  |  |  |  |

TABLE 26.2. Raw material frequencies according to sickle type.

| Flint type | Backed blade (\%) | Plain blade (\%) | Canaanean (\%) |
| :--- | :---: | :---: | :---: |
| Dark brown | 44.2 | 36.2 | 100 |
| Brown | 15.1 | 24.1 | 0 |
| Gray | 12.8 | 12.1 | 0 |
| Striped | 10.5 | 6.9 | 0 |
| Mottled | 4.7 | 5.2 | 0 |
| Limestone | 0 | 0 | 0 |
| Other | 3.5 | 8.6 | 0 |
| Burnt | 9.3 | 6.9 | 0 |
| Total $(N)$ | 91 | 53 | 5 |

## TECHNOLOGICAL AND TYPOLOGICAL DESCRIPTION

The lithic assemblage from Tell Jemmeh is composed of 7,658 artifacts, of which, $6,192(80.8 \%)$ are waste products and $1,466(19.2 \%)$ are classified as tools, that is, pieces with retouch (Tables 26.3, 26.4). The following descriptions are based on the typological and technological frameworks outlined in Rosen (1997:39-102).

Although the materials from Jemmeh are divisible stratigraphically according to period, and indeed to subperiod, as indicated above, the basic technological and typological homogeneity
of the overall assemblage renders description according to each period redundant. Discussion of tentative chronological trends is incorporated into the analysis presented later (also see Tables 26.3, 26.4).

## Waste Assemblage

The waste assemblage is dominated by two fundamentally different flake technologies, an ad hoc flake technology and a large geometric sickle flake technology. The ad hoc technology, constituting the numerically largest component in the debitage assemblage, is composed of small flakes, rarely exceeding 3 or

TABLE 26.3. Waste and debitage frequencies by period. Note that the dating is based on preliminary excavation notes and not on the final phasing used in this report.

| Period or century BCE | Chips | Chunks | Flakes | Primary | Blades | Bladelets | Sickle <br> flakes | Core trimming | Cores | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 4th-3rd? | 21 | 45 | 29 | 16 | 5 | 0 | 1 | 0 | 3 | 120 |
| 4th? | 153 | 150 | 31 | 12 | 1 | 0 | 4 | 1 | 0 | 352 |
| 5th-4th | 6 | 11 | 2 | 3 | 3 | 0 | 1 | 0 | 0 | 26 |
| 5th | 61 | 16 | 11 | 4 | 0 | 0 | 0 | 0 | 0 | 92 |
| 5th-6th | 83 | 19 | 11 | 7 | 0 | 1 | 1 | 0 | 0 | 122 |
| 7th-6th | 9 | 13 | 1 | 8 | 1 | 0 | 2 | 0 | 1 | 35 |
| 7th | 49 | 47 | 18 | 22 | 3 | 0 | 3 | 1 | 1 | 144 |
| 8th-9th | 21 | 16 | 7 | 6 | 3 | 2 | 2 | 0 | 2 | 59 |
| 10th-11th | 47 | 51 | 18 | 13 | 3 | 0 | 21 | 0 | 0 | 153 |
| 12th | 68 | 72 | 59 | 27 | 6 | 2 | 30 | 0 | 1 | 265 |
| 13th | 90 | 3 | 72 | 23 | 7 | 4 | 41 | 1 | 0 | 241 |
| 14th-15th | 344 | 30 | 25 | 5 | 18 | 1 | 44 | 2 | 0 | 469 |
| 16th-17th | 261 | 278 | 1243 | 403 | 50 | 41 | 2 | 18 | 73 | 2369 |
| Chalcolithic | 0 | 1 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 6 |
| 17th/Chalcolithic | 4 | 5 | 27 | 17 | 1 | 3 | 0 | 0 | 1 | 58 |
| Not attributable | 329 | 318 | 691 | 228 | 25 | 8 | 21 | 24 | 37 | 1681 |
| Total | 1546 | 1075 | 2248 | 794 | 128 | 62 | 173 | 47 | 119 | 6192 |

 parentheses give the percentage of the total frequency for each type.

| Period or century BCE | Sickles | Sickle <br> blanks | Retouched blades | Retouched bladelets | Borers | Retouched pieces | Notches and denticulates | Choppers | Scrapers | Adze | Tabular <br> Scraper | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 4th-3rd? | 10 (66.7) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 3 (20.0) | 1 (6.7) | 0 (0.0) | 0 (0.0) | 1 (6.7) | 0 (0.0) | 15 (100.0) |
| 4 th ? | 31 (73.8) | 5 (11.9) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 2 (4.8) | 2 (4.8) | 1 (2.4) | 1 (2.4) | 0 (0.0) | 0 (0.0) | 42 (100.0) |
| 5th-4th | 6 (54.5) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (9.1) | 3 (27.3) | 1 (9.1) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 11 (100.0) |
| 5 th | 2 (66.7) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (33.3) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 3 (100.0) |
| 5th-6th | 5 (55.6) | 0 (0.0) | 0 (0.0) | 1 (11.1) | 1 (11.1) | 2 (22.2) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 9 (100.0) |
| 7th-6th | 2 (100.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 2 (100.0) |
| 7th | 7 (50.0) | 0 (0.0) | 1 (7.1) | 2 (14.3) | 0 (0.0) | 2 (14.3) | 1 (7.1) | 1 (7.1) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 14 (100.0) |
| 8th-9th | 25 (80.6) | 1 (3.2) | 1 (3.2) | 0 (0.0) | 1 (3.2) | 1 (3.2) | 2 (6.5) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 31 (100.0) |
| 10th-11th | 74 (75.5) | 10 (10.2) | 3 (3.1) | 0 (0.0) | 0 (0.0) | 8 (8.2) | 3 (3.1) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 98 (100.0) |
| 12th | 217 (77.8) | 38 (13.6) | 4 (1.4) | 1 (0.4) | 4 (1.4) | 8 (2.9) | 5 (1.8) | 1 (0.4) | 1 (0.4) | 0 (0.0) | 0 (0.0) | 279 (100.0) |
| 13th | 166 (77.2) | 28 (13.0) | 5 (2.3) | 1 (0.5) | 6 (2.8) | 7 (3.3) | 2 (0.9) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 215 (100.0) |
| 14th-15th | 113 (70.6) | 25 (15.6) | 3 (1.9) | 0 (0.0) | 2 (1.3) | 13 (8.1) | 3 (1.9) | 0 (0.0) | 1 (0.6) | 0 (0.0) | 0 (0.0) | 160 (100.0) |
| 16th-17th | 59 (29.1) | 4 (2.0) | 11 (5.4) | 5 (2.5) | 12 (5.9) | 48 (23.6) | 49 (24.1) | 0 (0.0) | 13 (6.4) | 1 (0.5) | 1 (0.5) | 203 (100.0) |
| Chalcolithic | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (100.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (100.0) |
| 17th/Chalcolithic | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (25.0) | 0 (0.0) | 3 (75.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 4 (100.0) |
| Not attributable | 193 | 23 | 13 | 5 | 14 | 63 | 55 | 0 | 11 | 1 | 0 | 378 |
| Total | 910 (62.1) | 134 (9.1) | 41 (2.8) | 15 (1.0) | 43 (2.9) | 161 (11.0) | 127 (8.7) | 3 (0.2) | 27 (1.8) | 3 (0.2) | 1 (0.1) | 1466 (100.0) |

4 cm in length. The primary flakes are best associated with this technology. As mentioned above, they are variable in raw material and show no evidence for standardization in manufacture, either in the form of size and shape or in the presence of any special core preparation attributes.

The cores well reflect this expedient small-flake technology. With the exception of one obviously residual Middle Paleolithic Levallois core (showing strong patina to clinch the case for intrusion), all the 118 other cores are basically ad hoc in their conception.

The single blade core was made on a pebble, shows a single striking platform, is roughly conical in shape, and measures 5.6 cm in maximum dimension. It does not match any standard blade core technology (e.g., Canaanean technology, Chalcolithic blade technology).

The 117 remaining cores were all used for the production of flakes, although 17 show mixed flake and bladelet scar patterns. With the exception of 20 cores on chunks and broken flakes, all were made on pebbles. Shapes vary from irregular to roughly cylindrical, conical, and pyramidal, but this appears to be determined by the shape of the pebble rather than any standardized technology. The number of striking platforms is variable: 50 have only a single platform, 43 have two platforms, 11 have three platforms, and three have four platforms. No patterns are evident in the location of the platforms relative to each other. All but nine pieces retain cortex, perhaps reflecting somewhat limited reduction and overall exploitation. The generally small size of the cores, averaging only $4.7 \pm 1.42 \mathrm{~cm}$, agrees with the idea of limited reduction of small pebbles.

Given the above, it is clear that none of the cores are appropriate to the manufacture of sickle segments. Even the six cores larger than 7 cm in maximum dimension do not show scar patterns attributable to sickle flake removal.

The 47 core trimming elements (CTE) recovered probably relate to this general core category. They can be subdivided into 21 ridge blades, 10 core tablets, and 11 miscellaneous core trimming or renewal flakes. Even given this breakdown, there seems to be little standardization in the actual core preparation and rejuvenation process, and the different core trimming elements are not typical of standardized reduction sequences known from other periods. The relatively low CTE:core ratio $(0.39)$ is indicative of general low-level exploitation, in fact, with little core preparation and rejuvenation.

The second major technological category is that of the "large geometric sickles," represented in the waste assemblage by "sickle flakes." These are large flake blades, varying in size between 5 and 10 cm in length (Figure 26.1). In shape they may be squat blades or elongate flakes. They usually show a pronounced bulb of percussion and a well-defined striking platform. The platforms do not show faceting or other obvious evidence of preparation. As mentioned above, raw materials are almost exclusively dark brown, fine-grained flints. No cores appropriate to the manufacture of these flakes were recovered from the site. This, of course, agrees well with the import of raw material in the form of sickle flakes and not as cores. A similar picture is obtained from the sickle production caches found at Gezer (Rosen, 1986).

Blades and bladelets constitute two secondary technologies represented on the site. Blades are medium to small, resembling those known from the Chalcolithic period of the northern Negev (cf. Gilead et al., 1995; Levy and Rosen, 1987; Rosen, 1997:6567). Although some may have been intended for the production of the smaller elements in composite large geometric sickles, many should probably be associated with the Chalcolithic occupation of the site. The relatively small size of the blades (average breadth $=1.97 \pm 0.5 \mathrm{~cm}$ ) matches Chalcolithic dimensions. The relatively high proportion of striped flints (Table 26.1), common in the Chalcolithic Negev, supports this conclusion. The near absence of cores associated with the production of blades suggests a general pattern of import of blades, although numbers are quite low. No unretouched Canaanean blades were recovered.

Of the bladelets (by convention, blades less than 14 mm in width), five are twisted, a feature typical of Chalcolithic and Early Bronze Age I assemblages (e.g., Roshwalb, 1981; Gilead, 1984; Rosen, 1988). As with the blades, for the most part these should probably be associated with the Chalcolithic occupation of the site, although some may be intrusive from the epipaleolithic. The relatively high proportion of gray and translucent bladelets ( $30 \%$ ) is typical of the Chalcolithic.

The debris category, chips, chunks, and cobbles and pebbles, represents the unusable amorphous waste, either before significant reduction or as a result of shatter during the production process. Some of these materials show heat fracture and are probably the result of burning.

## Tool Assemblage

The tool assemblage from the post-Chalcolithic layers at Tell Jemmeh can be divided into two basic components, a standardized and typologically formal sickle industry and a range of other ad hoc or expedient tools. Exceptions are in intrusive elements such as bladelet tools, the single adze, and the tabular scraper.

## Sickle Blade Segments and Blanks

Sickle segments ( $N=1,044,71.4 \%$ ) are generally identifiable by the presence of luster or gloss along the working edge of the piece (Figures 26.2, 26.3). Although it is generally agreed that the harvesting of cereals results in the formation of this gloss (e.g., Anderson, 1980; Witthoft, 1967) and that the formation of gloss does not require especially intense use of the blade (Unger-Hamilton, 1984), there is disagreement on the precise mechanism responsible for the formation of the gloss (Meeks et al., 1982) and on whether other actions, such as the cutting of cane, can also result in the formation of gloss (e.g., Curwen, 1930; Unger-Hamilton, 1984). Microwear analyses have also suggested the possibility that some gloss may result from the threshing of grasses and not only reaping (e.g., Anderson and Inizan, 1994). For our purposes, two points are to be considered. First, the historical and geographical contexts suggest strongly that the lustrous segments recovered from Tell Jemmeh were indeed sickles used in the harvesting of cereals and that therefore

a


FIGURE 26.1. Sickle flakes. Unretouched flakes appropriate for Large Geometric sickle segment manufacture.


FIGURE 26.2. Sickle segments with medium to heavy gloss. (a-e) Large geometrics, (f) plain blade, ( $\mathrm{g}-\mathrm{k}$ ) large geometrics, ( l ) plain blade, and (m-t) large geometrics.


FIGURE 26.3. Sickle segments with light gloss. (a) Plain blade, (b) backed blade, (c) large geometric, (d) backed blade, (e-g) large geometrics, and (h) backed blade, (i-n) large geometrics.


FIGURE 26.4. Unused (nonglossy) large geometric sickle segments.
the presence of gloss can be used as a general indicator of such. Other uses may well have occurred, but they are best considered as secondary or subsidiary to the prime cereal harvesting function. Second, the absence of both gloss and edge retouch (edge sharpening) on a subset of pieces morphologically identical to the sickles suggests that these should generally be considered unused or even incomplete sickles (sickle blanks; Figure 26.4). Some pieces, showing reasonably heavy retouch, may well be repaired sickles whose lustrous edge has literally been sharpened off. Although some of these pieces may well have been used for other purposes, at present it is difficult to ascertain what those were. Thus, those pieces classified as sickle blanks (Table 26.4) will be treated analytically as sickle segments.

Morphologically, the sickle class as recovered at Tell Jemmeh can be divided into three subtypes: backed blade sickles (Figures $26.3 \mathrm{~b}, \mathrm{~d}, \mathrm{~g}, 26.5 \mathrm{a}, \mathrm{d}-\mathrm{g}$ ), plain blade sickles (Fig. 26.2f,l), and large geometric sickles (Figures 26.2a-e,g-k,m-t, 26.3a-c,e-g,im). Canaanean sickles, typical of the Early Bronze Age (Rosen, 1983, 1997:44-60), are virtually absent. Some pieces seem to fall on the cusp between types; however, analytically they pose little problem. The general class breakdown, according to raw materials, is presented in Table 26.2, and it constitutes the total number of classifiable sickles. Metric differences are presented in Table 26.5. Notably, the typological distinctions are confirmed by metric differences.

## Backed Blade Sickles

The backed blade sickle segments (91 segments), as indicated by the name, show abrupt backing along one edge of the
piece (Figures $26.3 \mathrm{~d}, \mathrm{~h}, 26.5 \mathrm{a}, \mathrm{d}-\mathrm{g}$ ). One piece showed an arched back (Figure 26.3b), but the others are straight backed. Gloss and retouch characteristics are summarized in Table 26.6. Only 11 pieces retain the bulb of percussion, and another two show bulbar thinning. Only 44 pieces are unbroken, although the determination of whether a snap is intentional or not is difficult. Of the unbroken pieces, 20 show single truncations, with one edge terminating either in a hinge fracture, a bulb and platform, a feather edge (rare), or a point. Twenty-three unbroken segments show double truncations.

Seven backed blade sickle segments retain pieces or signs of the lime plaster used as an adhesive to keep the segments in the haft (see Figure 26.7). Another two show plaster as well as an adhering piece of bone, and two more show pieces of bone with little plaster. In one case, the preservation of the plaster is so good that more than one half of the sickle is obscured. The difference in quantities of plaster used seems to be a function of the relative fit of the segment into the haft. A large groove with a thin segment clearly required more plaster than a narrow groove and a relatively thick segment. This probably explains the difference in the amount of plaster found on those pieces preserving plaster and/or remnants of the bone haft.

## Plain Blade Sickles

The plain blade sickle segments $(N=53)$ are manufactured on simple blades (Figures 26.2f,1, 26.3a), technologically similar to the backed blade class. Four pieces show nibbling or partial nibbling along the back, but otherwise, the pieces lack the abrupt retouch diagnostic of the backed blade sickle subtype. In general,


FIGURE 26.5. Chalcolithic artifacts. (a) Backed blade sickle segment, (b-c) bladelet tools, (d-g) backed blade sickle segments, (h) ax fragment, and (i) steep scraper with point.

TABLE 26.5. Summary of average sickle metrics according to type with standard deviations. Sample size $(N)$ refers to measureable pieces.

|  | $N$ | Length <br> $(\mathrm{cm})$ | Width <br> $(\mathrm{cm})$ | Thickness <br> $(\mathrm{cm})$ |
| :--- | :---: | :---: | :---: | :---: |
| Type | 35 | $4.3 \pm 1.3$ | $1.5 \pm 0.4$ | $0.5 \pm 0.2$ |
| Backed blade sickles | 14 | $5.5 \pm 1.9$ | $1.9 \pm 0.4$ | $0.6 \pm 0.2$ |
| Plain blade sickles | 648 | $4.6 \pm 1.1$ | $3.0 \pm 0.7$ | $0.8 \pm 0.3$ |
| Large geometric sickles |  |  |  |  |

the plain blade sickle segments are somewhat larger than the backed blade segments. Working edge retouch characteristics are summarized in Table 26.6. The general range of retouch is similar in configuration to that of the backed blade sickles. Only 10 pieces retain the bulb of percussion, and only 1 shows bulbar thinning. A high proportion (41 of 53) of the plain blade sickle segments are broken. Of the unbroken pieces, eight show double truncations, three have only single truncations, and one is lacking truncations. None of these pieces show remnants of either plaster or bone hafts.

## Large Geometric Sickles

Large geometric sickle segments $(N=894)$ constitute the largest and most diagnostic sickle class of the Middle Bronze, Late Bronze, and Iron Ages (see, e.g., Waechter, 1958; Payne, 1983; Rosen, 1997:59-60). Unlike the above sickles, large geometrics were manufactured on blade flakes and not blades, technologically a significant departure from earlier types (Figures 26.2a-e, g-k,m-t, 26.3a-c,e-g,i-m). In addition to the size and shape contrasts (Table 26.7), truncations, backing, and bulbar treatment are typical. Finally, the combination of wider flakes with truncations allows definition of clear geometric shapes, such that the sickles can be classed as rectangles, parallelograms, triangles, symmetric trapezes, and asymmetric trapezes.

Gloss and retouch characteristics are summarized in Table 26.6. An important point is that, in general, the large geometric sickle segments show significantly greater or more intense retouch than the other types do. This, of course, is a function of how much the pieces were resharpened, which is, in turn, a measure of how long the pieces were considered useful before they were discarded and replaced. This, in turn, can be interpreted as a measure of value: pieces retained for a longer time were more valuable, that is, more expensive to replace. In short, the large geometric sickles seem to have been more valuable than the

TABLE 26.6. General retouch type frequencies according to sickle type and degree of luster where $0=$ no luster, $0.5=$ slight luster, $1=$ obvious luster, and $2=$ luster on two edges. The retouch categories are arranged in order of increasing intensity of retouch.

|  | Degree <br> of gloss | Fresh <br> edge | Damaged | Nibbled | Nibbled- <br> serrated | Serrated | Heavily <br> serrated | Other |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | ---: |
| Backed blades | 0 | 3 | 4 | 6 | 0 | 2 | 0 |  |
| edges |  |  |  |  |  |  |  |  |

TABLE 26.7. Summary of large geometric sickle shapes according to number of truncations. For example, I I represents a rectangle, $\backslash \backslash$ represents a parallelogram, and $\wedge$ represents a triangle. Numbers are based on only glossy, unbroken large geometric sickle segments.

| Truncations | Shape/truncation direction |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | / / | 八 | II | / 1 | \। | \/ |  |  |  |  |  |
|  | 1/ | \\| | $\wedge$ | Total |  |  |  |  |  |  |  |
| 1 | 0 | 1 | 10 | 4 | 5 | 2 | 9 | 1 | 1 | 83 | 116 |
| 2 | 1 | 9 | 86 | 4 | 53 | 16 | 250 | 4 | 1 | 5 | 429 |
| Total | 1 | 10 | 96 | 8 | 58 | 18 | 259 | 5 | 2 | 88 | 545 |

blade-based sickles, and given the basic chronological differences between the types, this suggests that sickles in the earlier periods were less valuable than in the later periods. This may be a function of increasing specialization in manufacture.

There is a clear correlation between the presence of gloss and the intensity of retouch. Nonglossy edges tend to be either unretouched or only minimally retouched. Obviously, the underlying factor here is simply usage: reaping causes the appearance of gloss, on one hand, and requires resharpening, on the other hand. The presence of three large geometric sickles with gloss on two edges is interesting since it indicates blade reversal in the haft, unusual for these sickles, although quite common for Canaanean sickles.

Some 282 of the total 894 large geometric sickles were broken or partially broken. However, all could nevertheless be typed as large geometrics. The unbroken and complete sickles, as keyed by the presence of gloss, could be divided into nine general shapes, indicated by the direction of the ends of the sickle: $/ \backslash, \mid$
 quency of the different shapes. Clearly, the parallelogram shape dominates, followed by rectangles. There is a general dominance of NW-SE diagonals in the shape and truncation patterns. For example, there is only one / / (as opposed to $\backslash \$ ) parallelogram present in the assemblage (holding the sickle segments dorsal face up). Aside from the obvious fact that the diagonal truncations facilitate a curved haft and blade, the orientation of the sickles may perhaps reflect right-handedness of the knapper or some similar phenomenon.

Of the single truncated pieces, the triangular type dominates. The ratio of triangular to other shapes of roughly $5: 1$ is constant throughout the Levant and probably is indicative of the use of triangular segments as the long end pieces in the composite blade. Thus, the ratio represents an average length of 30 cm per composite sickle. It is not surprising that the average dimensions of the triangular segments are somewhat longer and narrower than the others (length $=5.1 \pm 1.1$, width $=2.6 \pm 0.5$, thickness $=0.7 \pm 0.2 \mathrm{~cm}$ ), given a selection to fit into the end of the haft.

Backing is the retouch on the edge of the segment opposite the working edge, used to facilitate hafting. Of the 542 glossy segments that could be analyzed for backing, $70.8 \%$ (384) showed backing or partial backing of one kind or another. Of these, $249(64.8 \%)$ show abrupt or semiabrupt dorsal retouch along the length of the back edge. Another 17 pieces show ventral backing. Bifacial backing was present on 29 pieces, alternate backing on 2 pieces, nibbling on 20 pieces, natural cortical backing on 18 pieces, and "face plan" or pseudoburin backing on four pieces. Partial backing was present on 56 pieces, 2 of which showed ventral retouch instead of dorsal.

Bulbar treatment, or removal (Figures $26.2 \mathrm{~b}, \mathrm{~d}, \mathrm{j}, 26.3 \mathrm{~g}$ ), is also a means of facilitating hafting. It varies from the presence of two to three small trimming flakes removed from the bulb to intensive ventral retouch on the proximal end. The common retouch is restricted to the bulbar area. Only $18.2 \%$ (of the 615 glossy items) of the pieces that could be checked retained the bulb of percussion. Another $29.8 \%$ show bulbar thinning. More than half of the sickles show complete bulbar removal. It is of
interest to note that of the nonglossy sickle blanks, only $19 \%$ showed bulbar thinning, indicating that some of these sickles had not yet been hafted or basically completed.

Remains of hafting are present on many of the Jemmeh large geometric sickle segments (Figure 26.7). Bones, bone splinters, and traces of bone are attached to 28 pieces, with another 10 showing bone or bits of bone with plaster still intact. Another 50 pieces show plaster or traces of plaster with no bone remaining. Some of these pieces of plaster are basically intact casts of the inside of the jaw used as a haft. One piece was, in fact, identifiable as the inside of the mandible of a goat (P. Wapnish, Penn State University, personal communication; see chapter 33).

## Canaanean Technology

Canaanean technology, attributable to the Early Bronze Age (including the EBIV/MBI), is represented by only five sickle segments ( $0.5 \%$ of the sickle assemblage). Only three are complete. All show gloss, and, typically, one piece shows gloss on two edges. Retouch is restricted to edge damage, except for one piece, which shows ventral nibbling, also typical of the type. All five pieces show truncations, but only one is bitruncated. One of the complete pieces is patinated, showing later unpatinated retouch, probably reflecting an original Early Bronze use and a later reuse. The pieces are most likely intrusive, brought onto the site in brick materials or something like that, or perhaps were collected from nearby fields for reuse. The average dimensions are a length of $7.1 \pm 2.6 \mathrm{~cm}$, width of $2.3 \pm 0.4 \mathrm{~cm}$, and thickness of $0.6 \pm 0.1 \mathrm{~cm}$. The type is notably distinct metrically from the other types described above.

The final sickle "class" consists of six unidentifiable fragments, showing gloss on one edge. One of these even shows plaster remnants.

The use of lime plaster as an adhesive is worthy of comment. Bitumen, originating in the Dead Sea, is known to be a common adhesive for use in sickles in the Early Bronze Age (Schick, 1978; Marder et al., 1995). It has not been reported on for the later periods. The possible use of mud plaster has been suggested at Deir el-Balah (Rosen and Goring-Morris, 2010). Although the use of lime plaster as a hafting adhesive for sickles should not be a surprise, the materials at Jemmeh constitute the first clear documentation of the phenomenon in Israel.

## Backed and Retouched Blades

The retouched blade category ( $N=41,2.8 \%$ ) is not typologically standardized. Twenty-seven are simple blades with edge retouch varying from minimal dorsal nibbling (10), ventral nibbling (1), more intense serration or semiscraper retouch (14), one of which shows bilateral retouch, to deeper but more irregular denticulation (2). Another massive blade (Figure 26.6e), measuring $10.3 \times 3.7 \times 1.1 \mathrm{~cm}$, shows intense retouch and can be classified as a knife.

Of the 15 backed blades, only 4 show truncations, but 2 are bitruncated. One of the backed blades is naturally backed with cortex. The remaining 10 blade tools show one (7) or two (3)


FIGURE 26.6. Other tools. (a-d) Borers, (e) knife, and (f) retouched flake.
truncations. Some of the backed and truncated blades may be preliminary sickle segments but are not typical of large geometric sickles and therefore have been classified as retouched blades rather than sickle blanks.

Technologically, the blades on which the blade tools were manufactured are small, rarely longer than 4 or 5 cm in length. Most are broken. Average dimensions on those measured (excluding the massive blade described above) are a length of 4.51 $\pm 0.94(N=6)$, width of $2.02 \pm 0.63(N=25)$, and thickness of $0.70 \pm 0.23(N=25)$. These dimensions match those of the waste assemblage. Only three are on blades that might be considered technologically Canaanean (cf. Rosen, 1983, 1997:60-65).

## Bladelet Tools

Six bladelets are nibbled (Figure 26.5b,c), two are notched, five are backed, one is truncated, and three can be classified as micro-end scrapers (Gilead, 1984; total $N=17,1 \%$ ). One of the notched bladelets and the backed bladelets are probably epipaleolithic intrusions. The remainder are best attributed to the Chalcolithic.

## Borers

Seven of the borers ( $N=46,2.9 \%$ ) show long narrow bits with abrupt retouch on two edges and were classified as drills. Five of these were on blades. Two others, manufactured on a bladelet and a small flake, respectively (Figure 26.6b), were classified as microdrills. The latter was made of hard limestone.

Of the remaining 34 borers (Figure 26.6a-d), all but one (on a blade) were made on flakes. They all show short bits and are classified as awls. Five of these were made on used large geometric sickles or fragments thereof (Figure 26.6c,d), retaining gloss and/or other characteristics of the sickle class. Three others were on unretouched sickle flakes. These eight pieces show retouching or notching of a corner of the piece in order to form a point or bit. The significant aspect of these pieces is that they are clearly not intrusive or Chalcolithic, having been made using sickle flakes or large geometric sickles, chronologically diagnostic to the second millennium BCE.

Of the remaining 26 awls, 20 were manufactured by either double notching to leave a point between the notches or corner notching to leave a point on the corner of the piece. Two pieces
are borderline between awls and nosed scrapers, two are burins, showing possible accidental burin removals to create the points, and two are natural points with retouch.

## Tabular Scrapers

The single tabular scraper $(0.1 \%)$ is a broken piece, measuring $3.4 \times 4.2 \times 0.9 \mathrm{~cm}$. As is characteristic of the type, it retains its cortex. It shows a thinned bulb of percussion and striking platform. It should be attributed in the Tell Jemmeh context to the Chalcolithic occupation.

## Scrapers

The scrapers ( $N=27,1.8 \%$ ) are heterogeneous, reflecting the ad hoc nature of the assemblage. Nineteen are on flakes (one on a sickle flake), five are on primary elements, and one is on a pebble. Two are flat sidescrapers, six are flat end scrapers, six are steep end scrapers (Figure 26.5i), three are steep sidescrapers, and three are small scrapers (thumbnail). Five are broken and impossible to classify.

## Notches and Denticulates

Of the 92 notches, 49 are steep and 43 are flat ( $N=127$, $8.7 \%$, for both notches and denticulates). They were made on a wide range of blanks: 2 on sickle flakes, 2 on pebbles, 4 on blades, 56 on flakes, 22 on primary flakes, 3 on core trimming elements, and 1 on an exhausted core. Retouch is dorsal on 73 pieces, ventral on 16 , and alternating or bifacial on 5 .

Of the 35 denticulates, 17 are steep and 18 are flat. Twentysix were made on flakes, five on primary elements, one on a pebble, one on a reused Levallois core, and one on a ridge blade (core trimming element). The number of notches on the denticulates ranges from three to six. All retouch is dorsal except for two pieces showing alternating retouch.

## Retouched Flakes and Pieces

This is a heterogeneous group comprising morphologically nonstandardized pieces ( $N=161,11 \%$; Figure 26.6f).

Twenty-eight of the retouched flakes are nibbled or retouched large geometric sickle flakes, which should clearly be associated with the first stages of sickle manufacture. Another three are truncations on large geometric sickle flakes. In addition to these pieces, another 10 are truncations on flakes and may also be attributed to sickle manufacture. Four chips show retouch reminiscent of the truncations on large geometric sickles and are probably fragments of larger pieces. One flake with minimal retouch shows what appears to be sickle gloss.

Beyond the retouched flakes and pieces associated with sickle manufacture, 115 other pieces show miscellaneous retouch. Four are backed flakes, showing abrupt retouch along one edge but not resembling sickle segments. Thirteen are retouched chips, two with alternate retouch, one with ventral retouch, and 10 with fine dorsal retouch. Eighty-one flakes are retouched, 12
of them primary elements. Of the flakes, 23 are retouched ventrally, 43 dorsally, and 1 bifacially, and 14 show alternating retouch. Finally, one pebble and two chunks show ventral retouch.

## Celts

One Chalcolithic adze shows a subtriangular cross section and a broken working edge showing transverse and longitudinal repair flaking ( $N=3,0.2 \%$, for celts). It measures $7.3 \times 3.4 \times 2.3$ cm . Two axe fragments were recovered (Figure 26.5h), one with a polished edge. These too are attributable to the Chalcolithic, although one was recovered from 17th century BCE contexts.

## Choppers and Hammerstones

Two choppers are on cobbles and retain much cortex. One shows bifacial retouch covering much of the surface. All three are small, not larger than 5 cm in length. One hammerstone is a cobble with clear signs of pecking (total $N=4,0.3 \%$ ).

## DISCUSSION AND CONCLUSIONS

As discussed above, the lithic assemblages from Tell Jemmeh reflect two distinct levels of industrial organization, one specialized and the other nonspecialized. The sickles show what appears to be a medium level of craft specialization, using imported raw materials (Figure 26.7). This can be reconstructed from the total absence of cores appropriate for the manufacture of large geometric sickle segments, the near exclusive use of the imported fine-grained dark brown flint (Table 26.1), and the concentration of waste, sickle flakes, incomplete sickles (sickle blanks), and sickle blades in apparent caches in specific loci. Table 26.8 summarizes the statistics of the only five loci from which more


FIGURE 26.7. Sickles with remains of plaster (hafted).

TABLE 26.8. Summary of loci with evidence for sickle manufacture.

| Flint <br> Reg. | Phase | Period | Total <br> loci from <br> period | Total sickle <br> flakes from <br> period | Total sickle <br> flakes from <br> locus | Percentage <br> found in <br> locus per period | No. of <br> sickles | No. of <br> sickle <br> blanks |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 509 | GMII C3 (AB) | $6 / 7$ | LBII | 36 | 21 | 13 | 61.9 | 26 |
| 536 | GMIII A3 (2) 2 | $2 ?$ | Persian? | 93 | 28 | 7 | 25 | 16 |
| 567 | GMIII B (52) | 9 (Room A) | LBII | 86 | 40 | 7 | 17.5 | 6 |
| 589 | GMIII B (63) 5 | 12 | LBII | 13 | 44 | 5 | 11.4 | 43 |
| 591 | GMIII B (64) 5 | 12 | LBII | 13 | 44 | 19 | 43.2 | 20 |

than five sickle flakes were recovered. In each case, the number of sickle flakes found in the individual locus far exceeds proportionally the expected number given an even distribution throughout the excavation (hence the column "total loci from period"). Flint Nos. 589 and 591 from Field III, Phase 12 of the Late Bronze II probably represent the same occurrence: No. 589 coming from the fill (GMIII B (63) 5) above the floor or debris of No. 591 (GMIII B (64) 5). All loci seem to represent domestic contexts (four of the five are dated to the LBII). In short, we can suggest a system of primary reduction from cores to sickle flakes at some as yet undiscovered quarry site, the import of the sickle flakes to Jemmeh for retouching and hafting in sickles by secondary specialists, who may or may not be the same people involved in the quarrying, and the distribution to the users. Although it is unclear whether repair and further retouch, much in evidence, were accomplished by the user or the piece was returned to the specialist, given the simplicity of the resharpening and retouching process in contrast to the actual manufacturing, there would seem to be little reason that the farmer could not do this himself.

The second level of organization, represented by the ad hoc tools, especially notches, denticulates, scrapers, borers, and retouched pieces, is fundamentally unspecialized. Cores for the production of appropriate flakes are present in the assemblage, indicating that these tools were manufactured on site. Furthermore, the raw materials used for the ad hoc tools reflect less deliberate selection than seen in the sickles, indicating a less specialized, more expedient mode of manufacture.

According to the preliminary dating available when this study was conducted, it seems that within the periods represented at the site during which chipped stone tools were in common use, from the MBII through the end of the Iron I or the Persian Period, no change in basic lithic technology is evident. Furthermore, this is matched by a basic typological continuity. This, of course, is of interest since there are major ceramic changes that occur during this roughly millennium-long span. Beyond the fact that the lithics are probably less sensitive to stylistic change than the ceramics, the basic underlying continuities are nevertheless of interest, suggesting basic economic continuities at Jemmeh during this period.

Functionally, the presence of sickle blades is clearly an indicator of agriculture. Although perhaps not surprising, the high
density of sickle blades suggests that agriculture was an important activity at Jemmeh from the MBII through at least the midIron Age (and perhaps later, but beyond the range of the lithic evidence). This is important given the marginal nature of the Jemmeh environment.

Analysis of the decline in the use of chipped stone tools is a subject for which the Jemmeh lithic assemblage is well suited. Table 26.9 presents the sickle frequencies as a proportion of the total tool assemblages from the MBII, Late Bronze Age, and Early Iron Age, the three periods for which there is no question as to the use of flint sickles (it should be noted that this dating was done only according to the excavation notes and not according to the final phasing used in this report). If the datings are representative, the table shows a major change in the functional configuration of the lithic assemblage following the MBII. Whereas in the first half of the second millennium BCE (the MBII), sickles constitute $31 \%$ of the tool assemblage, by the second half, they jump to $89 \%$, with a complementary decline in other lithic types. Although this decline in range of stone tool types (and presumably functions) in the second millennium BCE has been demonstrated before (Rosen, 1996b, 1997:151166), the problems of intrusion of materials from earlier strata into those of the MBII, such as at the City of David (Rosen, 1996a), have always rendered the transition difficult to pin down chronologically. For example, at Teluliyot Batashi there is a significant decline in waste products from the MBII to LB but no corresponding decline in tools (Rosen, 1997:154). Thus, the assemblage from Jemmeh indicates that although a technological transition occurred from EBIV to MBII, from Canaanean sickle

TABLE 26.9. Sickle frequencies relative to total tools, according to period. Note that the dating is based on preliminary notes and not on the final phasing used in this report.

| Period | Tools | Sickles | Percentage of sickles |
| :--- | :---: | :---: | :---: |
| Iron I | 377 | 339 | 89.9 |
| LBII | 375 | 332 | 88.5 |
| MBII | 203 | 63 | 31.0 |

blades to large geometric sickle blades, the functional transition, the decline of the great range of lithic uses, occurred later, more or less coincident with the transition from Middle to Late Bronze Age. Of course, this is probably a consequence of the increasing availability and use of bronze.

Beyond this major change, the sequence from MBII through Iron I shows an ever-increasing dominance of sickles in the assemblages. This is, of course, indicative of the accelerating restriction in the use of stone tools, probably indirectly the result of the rise of metallurgy.

Table 26.10 presents tool and waste frequencies per square meter of excavation according to selected periods (note again that dating was done according to the preliminary phasing and not according to the final phasing used in this report). Several important conclusions can be drawn from these data. First, the contrasts between the periods appear marked and require explanation. Working backward, the Persian and Iron II assemblages show a great drop in tool densities, although no real drop in waste densities. The key point here is that the waste does not reflect the manufacture of most of the tools present in the assemblages, that is, the sickles, but rather, reflects a general low-level expedient manufacture. In other words, although in these periods sickles represent more than $50 \%$ of any assemblage, they are imported, and the debitage and debris from their manufacture is mostly to be found off site. Thus, the decline in tools is in actuality a decline in the use of sickles and need not be reflected in the waste assemblage. This decline in the use of sickles can be pinpointed, using the Jemmeh data, to the early Iron II (Table 26.4). Since the major decline in ad hoc tools seems to have occurred following the Middle Bronze Age, the relatively constant level of waste seems to be reflective of a permanent residual of expedient usage, probably continuing very late, perhaps into modern times. Summarizing this, there is a significant functional change in the general lithic assemblage from the Middle to Late Bronze Age, a major decline in expedient usage of chipped stone tools. Sickle segments, the products of specialized manufacture whose waste by-products are not found on site, increase proportionately as a result.

Table 26.10 also shows a major anomaly in the extremely high density of tools and waste in the LBII and Iron I. However, the very small area actually exposed $\left(47 \mathrm{~m}^{2}\right)$ from the Iron I, mostly in Field I FUR (the kiln area), renders interpretation difficult. There is an especially high density of sickles and waste
around these domestic structures, and the explanation for the anomalously high lithic density in these periods may have to do with some special sickle production or storage function, such as in Flint No. 509 (GMII C3 (AB), Phase 6/7; see Table 26.8). Thus, there are also high densities of sickle flakes (Table 26.3) and sickle blanks (Table 26.4) as well as sickles in the restricted area exposed from the Iron I. Of course, these high densities render the contrasts with the succeeding Iron II even greater, but this seems primarily to be a consequence of the special function of the loci exposed in the LBII and possibly Iron I and is perhaps not reflective of the normal situation.

Finally, the much greater lithic densities evident in the Middle and Late Bronze Age loci, in terms of both waste and tools, reflect the production of ad hoc tools on site. In fact, given the low numbers of ad hoc tools in post- 1500 BCE levels, a fair proportion of the waste found in these levels, most of which is typical of ad hoc production, is almost undoubtedly intrusive.

In sum, the lithic assemblage from Tell Jemmeh provides an important addition to our knowledge of both the technologies and economies of the second millennium BCE. A remaining task is for us to compare it to similarly well collected assemblages from other sites to provide a more comprehensive picture.

## ACKNOWLEDGMENTS

We are grateful to Gus Van Beek for providing the opportunity to study the lithic materials from Tell Jemmeh and for helping us to understand his site. For the first phase of the research, the Smithsonian Institute provided a grant to S.A.R. Ron Gardiner helped immensely in arranging and cataloging the materials and explaining various issues and problems to us; Ora Van Beek treated one of us (S.A.R.) wonderfully, making him feel quite at home while in Washington. For the second phase of the research, Yorke Rowan aided us greatly in processing the material, and support was provided by a grant from the White-Levy Grant program. Finally, we are grateful to David Ben-Shlomo for his patience and understanding of the problems of the specialist writing and rewriting reports years after the initial analyses. For the specialist working on someone else's materials, reports written early in the history of the publication are difficult to modify afterward: the efforts required to change the statistics to fit

TABLE 26.10. Tool and waste frequencies according to period and area excavated. Note that the dating is based on preliminary notes and not on the final phasing used in this report.

| Period | Area $\left(\mathrm{m}^{2}\right)$ | Total tools | Total waste | Tools $/ \mathrm{m}^{2}$ | Waste $/ \mathrm{m}^{2}$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Persian Iron IIC | 299 | 57 | 472 | 0.19 | 1.58 |
| Iron IIA-B, 7-9th centuries BCE | 370 | 45 | 203 | 0.12 | 0.55 |
| Iron I, 12th-10th centuries BCE | 47 | 377 | 418 | 8.02 | 8.89 |
| Late Bronze, 15th-13th centuries BCE | 460 | 375 | 710 | 0.82 | 1.54 |
| Middle Bronze II, 17th-16th centuries BCE | 66 | 203 | 2369 | 3.08 | 35.89 |

revisions of stratigraphy and periodization are substantial, and the demands cannot always be accommodated. In this case, we feel that in spite of stratigraphy and chronological revision, the basic conclusions, even in their details, remain sound.

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# Scarabs and Stamp Seals Othmar Keel 

## INTRODUCTION

Thirty-one scarabs and five stamp seals from the Smithsonian Institution excavations at Tell Jemmeh are described in the catalog below. The description of the head, back, and side of the scarabs (for example, B2/0/e9) follows the classification system of Tufnell (1984:31-38), Keel (1995:74-114), and Eggler and Keel (2006: XVI). The numbering is according to the Keel corpus, "Gamma" entry (Keel, 2013:56-93, Gamma Nos. 130-160, 207-211).

The symbol $\mathbb{\$}+$ number (for example, $\mathbb{\$} 128$ ) refers to the relevant paragraph in Keel (1995). Place-name + number (for example, Afek no. 45) refers to the corresponding entry in Keel (1997) for sites beginning with A, Keel (2010a) for sites beginning with B, D, and E, Keel (2010b) for sites beginning with F, and Keel (2013). The spelling of the place-names follows these publications. Letter + number (for example, M16) refers to the "List of Hieroglyphic Signs" in Gardiner (1957:438-548). If not indicated otherwise, the object is pierced longitudinally for threading.

## SCARABS

Gamma 130, Reg. No. 1149 (SI Cat. No. 928, Figure 27.1a). Context: GM (+), unstratified. Scarab, A3/vIv/d5, rim of the base and one side damaged, enstatite, $16 \times 11 \times 7 \mathrm{~mm}$. Base: At the top boat on a socle ( P 1 or 3 ) with a sun disk above it; it should be read as $J m<w>$ $n R^{c}$, a playful writing and spelling of Jmn-R', "Amun-Re" (see $\$ 646$ ); compare Achsib no. 20 and Tell Farrah no. 1, with parallels; beneath the boat is a sign reminiscent of Gardiner's S42 "aba-" or "kherep-sceptre"; the second one has the meaning of "controller"; the two open booths supported by a pole (O22) mean shbw, "counsels"; Hornung and Staehelin (1976: no. 731) read the group of signs $m n h$ sḥw as "with helpful counsels"; parallels are Matmar (Brunton, 1948: pl. 63:76f), Sanam/Nubia (Newberry, 1907: pl. 10:36612, 1908: pl. 40:43; Griffith, 1923: pl. 47:7); for further parallels, see Hornung and Staehelin (1976: no. 731). Date: 22nd-25th Dynasties (945-656 BCE).

Gamma 131, Reg. No. 1150 (SI Cat. No. 759, Figure 27.1b). Context: GM (+), unstratified. Scarab, A1/vIv/d6, rim of base damaged, hollowed-out engraving, enstatite, $21 \times 16 \times 9 \mathrm{~mm}$. Base: In a horizontal arrangement striding falcon-headed griffin ( $\$ 549$ ); the tail of the griffin is bent forward over the back of the hybrid and ends in a turned outward uraeus ( $\$ 522$ ); in front of the griffin a uraeus ( $\$ 522$ ) facing the hybrid; MBIIB forerunners of this composition are Tell el-‘Aǧul nos. 657, 755, Gezer (Giveon, 1985:116, no. 19), Jericho (Kirkbride, 1965:618, fig. 291:13; 641, fig. 299:5); the composition continues into the New Kingdom: Tell el-‘Ağul no. 708; a variant is Timna no. 4(?), double framing line. Date: Probably 19th Dynasty (1292-1190 BCE).

Gamma 132, Reg. No. 1151 (SI Cat. No. 445, Figure 27.1c). Context: GM (+), unstratified. Scarab, D7/0/d5, rim of the base is slightly damaged, hollowed-out engraving with hatching, enstatite, $21 \times 16 \times 9 \mathrm{~mm}$. Base: Standing above a $n b$ sign $(\mathbb{\$} 458)$ is a falcon-headed anthropomorphic figure with pointed apron held by two shoulder straps; the arm behind hangs down along the body; the arm in front is raised at a right angle and touches the snout of a vertically placed outward turned crocodile; the gesture probably expresses worship ( $\$ 533$ ); parallels are Tell el-‘Aǧul no. 118 (without $n b$ ), no. 159 (with additional uraei), nos. 952, 1046-1048, Lachish (Tufnell, 1958: pl. 32:129); Achsib no. 48 has instead of the falcon-headed figure a crocodile-headed figure; local. Date: Late MBIIB (ca. 1600-1500 BCE).


FIGURE 27.1. Scarabs: Gamma Nos. 130-134.

Gamma 133, Reg. No. 1152 (SI Cat. No. 448, Figure 27.1d). Context GM 3B (+), unstratified. Scarab, B2/0/d5, rim of the base slightly damaged, linear engraving, enstatite, $15 \times 11 \times 7 \mathrm{~mm}$. Base: In a horizontal arrangement, a variant of design group 7B1 ( $\mathbb{\$} 506$ ), which has paired scrolls with a top and bottom loop framing; in the present case the scrolls end in buds bound to each other by a double line; the sign framed by this device is a $n f r(\$ 459)$; compare Tell el-‘Ağul no. 1158, Jericho (Kirkbride, 1965:653, fig. 303:4); local. Date: MBIIB (1600-1500 BCE).

Gamma 134, Reg. No. 1153 (SI Cat. No. 929, Figure 27.1e). Context GM (+), unstratified. Scarab, the features of the scarab are reminiscent of Tell el-Dab‘a type III (Ben-Tor, 2007: pls. 30:9:17, 31:1:16): B3/0/e10, one small side is broken, particularly at the base, linear engraving, enstatite, $14^{*} \times 11 \times 7 \mathrm{~mm}$. Base: A column of hieroglyphs in the center; the uppermost is broken away, sun disk ( $\$ 461$ ), inverted $k 3(\$ 456)$, a pseudohieroglyph in the form of a $n b$ with short vertical strokes; the columns are flanked by two pairs of $n f r(\$ 459)$ in antithetical position; a rather unusual composition of hieroglyphs; local. Date: unclear, possibly Iron IIA (900-750 BCE).

Gamma 135, Reg. No. 1154 (SI Cat. No. 931, Figure 27.2a). Context GM (+), unstratified. Scarab, unusual head, close to B2/I, the pronotum line V shaped/e9a, a similar type of scarab is Tell el-Far‘a-South no. 690, linear engraving, enstatite, $17 \times 12 \times$ 8 mm . Base: In a horizontal arrangement, striding lion (\$536f); the tail raised straight; above its neck three vertical signs without meaning; in front of the lion two oblique strokes; parallels to this type of archaizing lion in linear engraving are Beth Shemesh no. 153, Deir el-Balah no. 79, Tell el-Far'a-South no. 490, all three with parallels. Date: 19th-20th Dynasties (1292-1070 BCE).

Gamma 136, Reg. No. 1155 (SI Cat. No. 390, Figure 27.2b). Context GM (+), unstratified. Scarab, A1/vIv/d6, the whole scarab is worn and the rim of the base and part of it are damaged, hollowed-out engraving, enstatite, $17.5 \times 13 \times 8 \mathrm{~mm}$. Base: In the center an oval ( $\$ 462$ ) with $M n-b p r-r^{c}$, the throne name of Thutmosis III $(\$ 624,634,647,650,663)$; the oval is flanked by two turned outward uraei $(\$ 522 \mathrm{f})$; below the oval a $n b w(\$ 458)$; exactly the same composition is found at Lachish (Tufnell, 1958: pl. 38:282); without the nbw below are Tell el-Far ${ }^{〔}$-South no. 739, Tell el-'Aǧul no. 223, and Tall as-Sa'idiya (Eggler and Keel, 2006:368f, no. 4); the latter two with ' 3 - $b p r w-r^{\prime}$, the throne name of Amenophis II (\$634, 663). Date: Probably 19th-20th Dynasties (1292-1070 BCE), but maybe earlier.

Gamma 137, Reg. No. 1156 (SI Cat. No. 932, Figure 27.2c). Context: GM (+), unstratified. Scarab, B2/0/e9, rim of the base at the lower small side slightly damaged, linear engraving with hatching, enstatite, $16 \times 11 \times 7.5 \mathrm{~mm}$. Base: Falcon ( $\$ 442$, 454, $467,556 f)$, behind the falcon $n t r(\$ 460)$ or $q n b t(\$ 460)$; for the falcon with a kind of angle, see Beit Mirsim no. 7, Beth Shean no. 157, Beth Shemesh no. 171; for more examples, see Ben-Tor (2007: pl. 33:13-35, Second Intermediate Period, and pl. 52:140, Early Palestinian Series); for the interpretation as a debased
writing of "Hathor," see Goldwasser, 2006:121-129; Ben-Tor, 2007:126, remains rather skeptical); above the falcon red crown $(\$ 452)$, a debased $b^{c}(\$ 453)$ and below that $t 3(\$ 463)$; for the Red Crown, see Ben-Tor, 2007: pl. 33:18; regarding the $b^{c}$, see Hall (1913: no. 2575 = Ben-Tor, 2007: pl. 33:26). The scarab is a typical representative of the Early Palestinian Series B2 head (Ben-Tor, 2007:151, pls. 64:1-18, 65:1-17, 66:1-18, 67:1-11); local. Date: Early MBIIB (1700-1640 BCE).

Gamma 138, Reg. No. 1157 (SI Cat. No. 930, Figure 27.2d). Context: GM (+), unstratified. Rectangular piece, type II (\$216218, 220-224), hollowed-out engraving with hatching, enstatite, $16 \times 11 \times 4.5 \mathrm{~mm}$. Base: Side A: Jmn-r${ }^{\text {c }}$, "Amun-Re" $(\$ 642-$ 650); on three sides the name is surrounded by a twice bent stem with a lotus bud ( $\$ 429 \mathrm{f})$; just below the name a branch $(\$ 433)$; the name Amun-Re framed on two sides by a stem with a lotus bud is quite common; see, e.g., Bet-Shean no. 3 with parallels; the framing from three sides and the branch are uncommon. Side B: In a horizontal arrangement, a standing falcon ( $\$ 442,454$, $467,556 f$ ); in front of it, a squatting falcon-headed god with a sun disk above and a bent line in front of it; behind the falcon, a uraeus ( $\$ 522$ ); the same composition as Ashdod no. 32 (the squatting deity is falcon-headed and not $\mathrm{Ma}^{\mathrm{c}}$ at, as stated in Keel, 1997:674, no. 32) and Gamma No. 73. Date: 19th-20th Dynasties (1292-1070 BCE).

Gamma 139, Reg. No. 1158 (SI Cat. No. 1, Figure 27.2e). Context: GM 1C TT1 (0), topsoil. Scarab, D9/0/e10, rim of the base slightly damaged, linear engraving with hatching, enstatite, $10 \times$ $7.5 \times 5 \mathrm{~mm}$. Base: In a horizontal arrangement, $k 3(\$ 456)$, below it, a curved line based on the framing line; both signs are flanked by two bent stems with a lotus bud ( $\$ 429 \mathrm{f})$; a parallel with an inverted $z 3$ instead of a $k 3$ is Tell el-‘Aǧul no. 603; see also Tell el-‘Aǧul no. 1005; local. Date: MBIIB (1650-1500 BCE).

Gamma 140, Reg. No. 1159 (SI Cat. No. 235, Figure 27.2f). Context: GM 1A (12) 7, Field IV, Building I, Room C?, Phase 5 (Iron IIC, 700-650 BCE). Scarab, A1 or D1/pronotum line II, elytra line $\mathrm{I} / \mathrm{d} 5$, hollowed-out engraving, enstatite, $14 \times 10.5 \times 7 \mathrm{~mm}$. Base: In a horizontal arrangement, a sun disk ( $\$ 461$ ) and a falcon ( $\$ 442,454,467,556 f$ ) in a boat; boats with just a sun disk are quite common on scarabs of the 26th Dynasty: Achsiv no. 20.53, Ashkelon no. 76, Dor no. 14, Gamma No. 34; in these cases and in many others (e.g., Carthage, Vercoutter, 1945: nos. 254-256) the arrangement is vertical, and the sun boat is just one element at the top of the design; the bow and stern of the boat seem to end in a head with double crown (sbmtj; $\$ 461$ ); for a boat whose bow ends in a king's head, see Landström (1970:119, fig. 369). Date: 25th Dynasty to early 26th Dynasty (664-600 BCE).

Gamma 141, Reg. No. 1160 (Figure 27.3a). Context: GM 2A (13), Phase 3 (Persian, 530-330 BCE). Scarab, B2/0/d5, rim of the base slightly damaged, the whole object worn, hollowed-out engraving, enstatite, $14 \times 10.1 \times 7 \mathrm{~mm}$. Base: In horizontal arrangement, a design that is very difficult to decipher; one possibility is a winged hybrid creature who follows a quadruped


FIGURE 27.2. Scarabs: Gamma Nos. 135-140.


FIGURE 27.3. Scarabs: Gamma Nos. 141-145.
who has actually just three legs; to the left and above the creature with three legs, straight strokes; the composition has some similarity to a scarab from Perachora, Greece (Pendlebury and James, 1962:509, fig. 37:559). Date: Uncertain.

Gamma 142, Reg. No. 1161 (SI Cat. No. 446, Figure 27.3b). Context: GMII C2 (6) TT2, Phase 4 (Iron IIA, 980-800 BCE). Scarab, A1/I/d5, worn and rim of the base slightly damaged, hollowed-out engraving, Egyptian blue (\$401f), $19 \times 10.5 \times$ 9 mm . Base: In horizontal arrangement, striding bull; above its back meaningless signs, a kind of pseudoscript; the aggressive bull represents, on Egyptian scarabs of the 18th and 19th Dynasties, the pharaoh: Tell el-'Ağul no. 222, 242, Akko no. 94, Beth Shean no. 5.33; on early Iron Age seals the bull becomes a symbol of fertility; see, e g., Tell el-Far'a-South no. 210; see Keel (1992:169-193); very close to the present representation, which includes the pseudoscript, is Beth Shemesh no. 156, which may be dated in Keel (2010a:284f, no. 156) slightly too early. Date: Late Iron IB-early Iron IIA (1050-900 BCE).

Gamma 143, Reg. No. 1162 (SI Cat. No. 933, Figure 27.3c). Context: GMIII A3 (+), topsoil. Scarab, A6/probably vIv/d6, most of the back is broken, hollowed-out engraving with hatching, enstatite, $21 \times 10.5 \times 8.5 \mathrm{~mm}$. Base: Under the winged sun disk ( $\$ 450$ ) the standing god Ptah ( $\$ 581$ ) holding a wis scepter $(\$ 463)$; facing the god is the standing pharaoh with an ankle-length garment and a pointed apron; he wears the blue crown (S7; bprš). His hands, folded below the chest, are holding the hqit scepter (S38) and the flagellum nhbw (S45); the pharaoh facing Ptah (or any other deity) is usually shown in a worshipping attitude (see Gamma No. 152 with parallels); behind Ptah there is a uraeus $(\$ 522)$ with a sun disk above its head. A uraeus is sometimes shown in front of Ptah; see Deir el-Balah no. 29, Lachish (Tufnell, 1958: pl. 39/40:360); the constellation displayed on this scarab is, as a whole, uncommon. Date: 19th Dynasty (1292-1190 BCE).

Gamma 144, Reg. No. 1163 (SI Cat. No. 352, Figure 27.3d). Context: GMII C2 (0), topsoil. Scarab, ?/0/e9, nearly half of the scarab is broken, the engraving is linear, enstatite, $12 \times 10.5 \times$ 7 mm . Base: The surface is divided into an upper and lower half by a bar; in the center of the complete lower half is a scarab $(\$ 454,516)$ flanked by two ${ }^{\text {' } n h(\$ 449) \text {; just parts of signs are }}$ preserved in the upper half; in the center are remains of two flower buds; at the left rim is the lower part of a $y$ flowering
 of the surface by a bar is common on Late Middle Kingdom scarabs (Ben-Tor, 2007: pls. 7:19,20,25,26, 10.3:6-8); examples from Palestine with a scarab below or above the bar are Lachish (Tufnell, 1958: pl. 32:123), Megiddo (Loud, 1948: pl. 150:107); a scarab at the bottom flanked by ' $n \mathrm{~b}$ signs is from Megiddo (Guy and Engberg, 1938: pl. 105:13); unclear whether local or imported. Date: MBIIB (1700-1600 BCE).

Gamma 145, Reg. No. 1164 (SI Cat. No. 754, Figure 27.3e). Context: GM 2B (35) 2A, Building II, Room B, Phase 5 (Iron

IIC, 700-650 BCE). Scarab, A3/vIv/d6, rim of the base and sides badly damaged, hollowed-out engraving, enstatite, $17 \times 13 \times$ 8 mm . Base: In the upper part of the surface, $d d$ pillar ( $\$ 451$ ); above it was probably a sun disk; the pillar was flanked by two schematic falcons with protectively outspread wings and feet; see Bible and Orient Museum, Fribourg SK 1977.13, or as, another possibility, there were two winged sun disks; see Akko no. 51; below this composition is an oval $(\mathbb{\$} 462)$ in a horizontal position with $M n-h p r-r^{\circ}$, the throne name of Thutmosis III ( $\mathbb{\$} 634$, 647, 650, 663). For the horizontally arranged name of this king, see Achsib no. 59, Akko no. 178, Beth Shean no. 49. The $d \underline{d}$ pillar and $M n-b p r-r^{c}$ are often combined on scarabs of the 18th dynasty but in a quite different way (see Jaeger, 1982:1102f); the present combination is certainly later. Date: Uncertain; maybe 19th-20th Dynasties (1292-1070 BCE) or more likely 22nd Dynasty (945-713 BCE).

Gamma 146, Reg. No. 1166 (SI Cat. No. 610, Figure 27.4a). Context: GMI FUR (1), Phase 3, the kiln (Iron IB, 1150-980 BCE). Scarab, A4/0/d6, hollowed-out engraving, enstatite, remains of red paint or glazing, $19 \times 13.8 \times 8.3 \mathrm{~mm}$. Base: At the top a winged sun disk ( $\$ 450$ ); below it an oval $(\$ 462)$ in a horizontal position with five anra signs ( $\$ 469 \mathrm{f}): r, n,{ }^{c}, n$, and $r$; below the oval $\underline{d} d$ pillar $(\$ 451)$ flanked by two uraei turned toward the pillar. Anra signs in a horizontally positioned oval are sometimes found on MBIIB scarabs, for example, Tell el-'Aǧul no. 987 (Eggler and Keel, 2006:210f), Pella no. 22; Aniba in the Sudan (Steindorff, 1937: pl. 56:103); in these cases the signs above and below the oval are different from what is seen here; a winged sun disk above the oval with anra signs and a $d d$ pillar below, although flanked by two red crowns and not by uraei, is found in Eggler and Keel (2006:62f, 'Amman no. 7). The oval and the $\underline{d} d$ pillar below are also on Tell el-Far'a-South no. 843; for two uraei facing a $d d$ pillar, see Dotan no. 6, Tell el-FaraSouth no. 604. Date: 19th-20th Dynasties (1292-1070 BCE).

Gamma 147, Reg. No. 1167 (SI Cat. No. 924, Figure 27.4b). Context: GM 2B (41), Phase 7 (Iron IIB-C, 800-700 BCE). Nearly round piece with domed back (see $\mathbb{\$ 1 9 6 - 1 9 8 ; ~ t h e ~ p i e c e ~}$ shares the blank back with Type I, it has the grooved side in common with Type II, the piece is worn and the rim of the base is damaged, the engraving is mainly linear, enstatite, $8 \times 7 \times 6 \mathrm{~mm}$. Base: A very schematic clumsily drawn human figure seems to raise one hand in a gesture of worship; the figure faces an upright element, which may be intended to represent a uraeus ( $\$ 522$ ); a similar figure with a uraeus in front is Akko no. 274, side B. Date: Uncertain, maybe Iron I (1200-980 BCE).

Gamma 148, Reg. No. 1168 (SI Cat. No. 948, Figure 27.4c). Context GMI FUR (9), Phase 4 (Iron IB, 1150-980 BCE). Scarab, A1/I/e12, small pieces of the rim of the base are missing, partly hollowed-out with hatching, partly linear engraving, $13 \times 10.5 \times 5 \mathrm{~mm}$. Base: In a horizontal arrangement $y$ Pth $n b<=y>$, "O Ptah, (my) lord," or Pth $\left.n b m^{\prime}\right)^{c} t$, "Ptah (is) the lord of truth"; in some cases the sign on the right is clearly the $y$ reed


FIGURE 27.4. Scarabs: Gamma Nos. 146-150.
( $\$ 456$; M17), in other cases it is clearly recognizable as a $\mathrm{Ma}^{〔}$ at feather ( $\$ 462$; H6); in many cases one version is as probable as the other; parallels are Tell el-'Ağul no. 250, Aseka no. 29, Asor no. 19, Beth Shean no. 122, 248, Tell el-Far'a-South nos. 175, 451, 498, 523, 621, 623, 700, 722, 769, 774, 801, 911, Tel Harasim (Karon and Anbar, 1994:45, fig. 15:10; see further \$641; Keel, 2006:262-265). Date: 19th to first half of the 20th Dynasties ( 1292 to ca. 1100 BCE).

Gamma 149, Reg. No. 1169 (SI Cat. No. 755, Figure 27.4d). Context: GM 2E (4), Phase 1/3? (LBII?, 1400-1200 BCE). Scarab, A4/pronotuminie vIv, elytraline II/coarse d5, worn and rim of the base damaged, mainly coarse hollowed-out engraving, blackish stone, $16 \times 13 \times 8 \mathrm{~mm}$. Base: Highly schematic human figure facing left, sitting on a throne with slightly raised back, holding a $w$ ss scepter $(\$ 463)$; on the forehead a small protrusion reminiscent of a uraeus; it remains unclear which god is meant to be represented, perhaps Ptah (Tel Zippor, Lalkin, 2008: pl. 37:645) or Amun (Taanach, Lalkin, 2008: pl. 35:611); it cannot even be excluded that by a misunderstanding the pharaoh was meant to be represented, although enthroned he usually holds the hast scepter (Wiesse, 1990:27-40). Date: Late LBIIB or Iron IA (1250-1150 BCE).

Gamma 150, Reg. No. 1170 (SI Cat. No. 830, Figure 27.4e). Context: GMIII B (64) 5, Unit 8?, Phase 12 (LBII, 1400-1200 BCE). Scarab, ?/?/d5, the back and nearly half of the plinth are missing, the engraving is linear, enstatite, $20 \times 12.5 \times 4 \mathrm{~mm}$. Base: The small sides of the plinth are engraved with two antithetical $n f r$ signs ( $\$ 459$ ); between them are the remains of a bunch of spirals; the design could be described as convoluted coils combined with hieroglyphs; parallels are Kahun (Petrie, 1891: pl. 10:161 = Ben-Tor, 2007: pl. 14:24); Uronarti (Reisner, 1955: figs. 8:182; 9:185 = Ben-Tor, 2007: pl. 14:8,10). Tell el-Far'a-South no. 690 is probably a 19th Dynasty imitation of this type of design. Date: 12th-13th Dynasties, from Amenemhet III onward (1818 to ca. 1700 BCE).

Gamma 151, Reg. No. 1171 (SI Cat. No. 1022, Figure 27.5a). Context: GMIII C1 (67), Unit 10, Phase 13, LBII (1400-1200 BCE). Scarab, A8/vIv/d5, rim of the base slightly damaged, mainly hollowed-out engraving with little hatching and a linear element (sun disk), enstatite, $16 \times 12 \times 7 \mathrm{~mm}$. Base: At the top winged sun disk ( $\$ 450$ ) with two schematic uraei; below it an oval ( $\$ 462$ ) with two uraei turned outward ( $\$ 522 \mathrm{f}$ ) and nbw ( $\$ 458$ ) below the oval; in the oval is written '3-bprw-r', the throne name of Amenophis II $(\$ 634,663)$ or, less probable, $M n$ -bprw-re , the throne name of Thutmosis IV $(\$ 634,663)$. The second element from the top is not entirely clear; in Palestine and Israel about 30 seals were found with the name of Amenophis II (see Bet-Mirsim no. 67, Beth Shean no. 81, Beth Shemesh no. 175 , all with parallels) and about 20 with the name of Thutmosis IV (see Beit Mirsim nos. 33, 103, Bet-Shean no. 59, 110, all with parallels). All the elements of the composition have quite close parallels for all the elements of compositions from Lachish
(Tufnell, 1958: pl. 38:289, with the name of Amenophis III, and pl. 38:282, with the name of Thutmosis III and two pairs of uraei). Date: Time of Amenophis II (1426-1400 BCE) or Thutmosis IV (1400-1390 BCE).

Gamma 152, Reg. No. 1172 (SI Cat. No. 946, Figure 27.5b). Context: GMI FUR (8) 3, Phase 3/4, Iron IB (1150-980 BCE). Scarab, A1/vIv/d6, hollowed-out engraving with some hatching, enstatite, $19.5 \times 14 \times 10 \mathrm{~mm}$. Base: Under the winged sun disk $(\$ 450)$ is the standing god Ptah $(\$ 581)$ in his chapel (indicated by two bent lines above his head), holding a wis scepter ( $\$ 463$ ). Facing the god is the standing pharaoh with an ankle-length robe and a pointed apron; he wears the blue crown ( $\mathrm{S} 7 ; h p r s ̌$ ) with a uraeus $(\$ 522)$ on his forehead; both hands are raised in a gesture of worship. King and god are standing on a line that forms together with the framing line a $n b(\$ 458)$. Parallels are Akko no. 189, Beth Shean no. 134, Deir el-Balah nos. 73, 99, Tell el-Far'a-South no. 565, Gezer (Macalister, 1912: pl. 203b:8), Tel Harasim (Karon, 1985: no. $10=$ Keel et al., 1989:306, fig. 93), Tell el-Hesi (Bliss, 1898:79, fig. 125), Megiddo (Guy and Engberg, 1938: pl. 131:3). A rare variant of the common subject is Gamma No. 143. See further parallels in Keel et al. (1989:301, 302, 306, figs. 64-66, 69-72, 74, 75, 84-94), Lalkin (2008: pl. 30f, nos. 531-540). Date: 19th to middle of 20th dynasties (1292 to ca. 1150 BCE). Bibliography: Van Beek (1993a:668), Lalkin (2008: pl. 30:531).

Gamma 153, Reg. No. 1173 (SI Cat. No. 949, Figure 27.5c). Context: GMI FUR (8) 3, Phase 3/4, Iron IB (1150-980 BCE). Scarab, A1/vIv/d6, hollowed-out engraving with some hatching, enstatite, $19 \times 15 \times 9 \mathrm{~mm}$. Base: The design is very similar to the one on Gamma No. 152; it is, however, not the same piece; there are small differences in the design; the wings of the winged sun disk are straight on no. 152 and bent on no. 153; the roof of Ptah's chapel is indicated on No. 152 by two bent lines, whereas on No. 153 it is indicated just by one. The position of the hands and the shape of the counterweight of the pharaoh's necklace are also different. Date: 19th to middle of 20th dynasties (1292 to ca. 1150 BCE ).

Gamma 154, Reg. No. 1174 (SI Cat. No. 947, Figure 27.5d). Context: GMI FUR (9) 4, Phase 4, Iron IB (1150-980 BCE). Scarab, A1/?/d6, the back is missing, hollowed-out engraving with hatching, enstatite, $19 \times 11 \times 7 \mathrm{~mm}$. Base: In a horizontal arrangement, squatting $\mathrm{Ma}^{\text {cat }}(\$ 456)$, falcon ( $\$ 442,450,454$, $467,556 f$ ), uraeus ( $\$ 522,529$ ); exact parallels are Akko no. 68, Tell el-Far'a-South no. 731; on Tell el-Fara-South no. 711 the uraeus is winged; Ashdod no. 32 and Gamma Nos. 73 and 138 have, instead of $\mathrm{Ma}^{\text {cat, }}$, a squatting falcon-headed deity. Date: 19th to middle of 20th Dynasties (1292 to ca. 1150 BCE).

Gamma 155, Reg. No. 1175 (SI Cat. No. 511, Figure 27.6a). Context: GM 3B (11) 2, Building III, Unit 2, Phase 6, Iron IIB-C (800-700 BCE). Scarab, B5/0, $\$ 103 / \mathrm{d} 7$, part of the back is missing, hollowed-out engraving, enstatite, $19 \times 14 \times 7 \mathrm{~mm}$. Base:


FIGURE 27.5. Scarabs: Gamma Nos. 151-154.


FIGURE 27.6. Scarabs: Gamma Nos. 155-160.

In the center of the composition is the horizontally arranged oval ( $\$ 462$ ) with $M n-b p r-r^{〔}$, the throne name of Thutmosis III ( $\$ 624,634,647,650,663$ ); beside the $m n$ is a complimentary $n$ and a tiny oval between the hind legs of the beetle, perhaps the sun disk (see Keel, 1997:779f, with fig. 2); below the oval, tyt Jmn-r', "Image of Amun-Re." Above the oval in the center is a $n f r(\$ 459)$; to the right of it is an angle and within it a disk; to the left of the $n f r$ there are three horizontal lines. The whole group is reminiscent of $n t r n f r n b t 3 w y$, "the perfect god, the lord of the two lands," which is found at this place in similar compositions (see, for example, Hall, 1913: no. 753; the uppermost part on Akko no. 53 is similarly debased as on the present piece; Ramesseum [Quibell, 1898: pl. 30:13; Jaeger, 1982:60 ill. 90]). Date: 19th Dynasty (1292-1190 BCE) or later, until the 22nd Dynasty (945-713 BCE); for the difficulty in attributing a date to this type, see Jaeger (1982:143f), $\$ 1090$.

Gamma 156, Reg. No. 1176 (Figure 27.6b). Context: GM 1B P16 (3), Phase 3? (Persian?, 500-350 BCE). Scarab or scaraboid, fragment, just one long side preserved, faience, $14 \times 8 \times 3 \mathrm{~mm}$. Base: Undecipherable remains of signs. Date: Uncertain.

Gamma 157, Reg. No. 1177 (SI Cat. No. 829, Figure 27.6c). Context: GMIII B (64) 5, Unit 8, Phase 12, LBII (1400-1200 BCE). Cowroid, Type II (\$184-189), linear engraving, enstatite, $16 \times 13 \times 8 \mathrm{~mm}$. Base: In the center of a vertical bar and four convoluted coils is a circle; the vertical bar end at the top and the bottom in a bent double line, which rests on the framing line; parallels are Tell el-‘Ağul nos. 71, 394; local. Date: MBIIB (1650-1500 BCE).

Gamma 158, Reg. No. 1179 (SI Cat. No. 435, Figure 27.6d). Context: GMI 5E (2), unclear phase. Cowroid, Type III ( $\$ 185$, 190-193), hollowed-out engraving, enstatite, $16.5 \times 11 \times 5 \mathrm{~mm}$. Base: Hathor fetish (\$577-579); the neck is flanked by very schematic, hardly recognizable uraei ( $\$ 523$ ); Tell Abu Hawam no. 24, Akko nos. 7, 146, 212, Ashkelon no. 65, Dan no. 23; Tell el-Far'a-South no. 709 is particularly close because it is also a cowroid of the same type; Gezer (Macalister, 1912: pls. 204a:12, 205a:10, 206:2; Hornung and Staehelin, 1976: no. 675; cf. Keel et al., 1989:139, 199). Date 18th Dynasty from Thutmosis III onward (1479-1292 BCE).

Gamma 159, Reg. No. 1195 (SI Cat. No. 760, Figure 27.6e). Context: GM (+), unstratified. Rectangular piece, Type II (\$216218, 220-224), half of side B is missing, hollowed-out engraving with hatching, enstatite, $17 \times 12 \times 4 \mathrm{~mm}$. Base: Side A: In a horizontal arrangement, $n f r(\$ 459)$ and pintail duck; the wings of the pintail duck are reminiscent of G40 rather than G39; nfr and pintail duck appear usually together in the royal epithet $n f r z 3$ $J m n-R^{c}$, "perfect (is) the son of Amun-Re." See Tell el-'Aǧul no. 251 with parallels and, in addition, Betaniën no. 9, Beth Shean no. 189, Megiddo (Guy and Engberg, 1938: pl. 131:10 = Rowe, 1936: no. 771); instead of Amun-Re, the present scarab shows an ' $n b$ ( $\$ 449$ ). On Beit Mirsim no. 70, Amun-Re is replaced by Re alone. Side B: In a horizontal arrangement, $n h(\$ 449)$, falcon
( $\$ 442,454,467,556 f)$, and uraeus ( $\$ 522$ ); the same combination of signs is found on Tell el-Far'a-South no. 530 and at Tel Harasim (Givon, 2004:73, fig. 109:1). Date: Late 18th-19th dynasties (1400-1190 BCE).

Gamma 160, no registration number (SI Cat. No. 22, Figure 27.6f). Scarab, ?/?/e11, the back and half of the base are missing, linear engraving, enstatite, $9 \times 11 \times 5 \mathrm{~mm}$. Base: An insect with at least six legs and a small round head; the head is flanked by two dots. Date: Uncertain.

## STAMP SEALS

Gamma 207, Reg. No. 1194 (SI Cat. No. 304, Figure 27.7a). Context: GM (+), unstratified. Oval, unilaterally engraved, Type III $(\$ 204,209)$ or Scaraboid, Type I ( $\$ 133 f)$, about one-third is broken off, the relief is delicately raised ( $\$ 324$ ), which is unusual, and it seems as if it is the impression of another seal; black stone, $25 \times 20 \times 7.5 \mathrm{~mm}$. Base: Two human figures with short aprons, one behind the other, border the shape of the seal. The iconography is very similar in Ashdod no. 26 (Avigad and Sass, 1997: no. 1065), where it is listed as possibly a Philistine seal. Iconographically, it could be either the motif of the ruler, who leads a prisoner before him (see parallels to Ashdod no. 26). However, the plain behind the figures on the fish scaraboid (Hornung and Staehelin, 1976: no. 892; scarabs from Kamid el-Lōz, Kühne and Salje, 1996: fig. 25:83) is different. Under the two figures there is a $n b \operatorname{sign}(\$ 458)$, without a border line. Date: Iron IIB (830-700 BCE).

Gamma 208, Reg. No. 1235 (SI Cat. No. 232, Figure 27.7b). Context: GM 2C W4, unclear. Conoid, Type IV (\$248, 253), perforated top, square base, engraved surface, gray stone, $10 \times 9$, height 14 mm . Base: Schematic, quadruped, left sided probably a caprid ( $\$ 518-521$ ), although the tail is rather long for a caprid; no additional motifs appear, no border line (see parallels for Gezer no. 110 in Keel, 2010a). Date: Iron IB-IIA (1050-900 BCE).

Gamma 209, Reg. No. 1236 (Figure 27.7c). Context: GM 2A W2, Phase 2 (Persian period?). Konoid, Type V (\$248, 254-258), the upper end and a portion of the base are broken, worn out rim base, engraving area, wells, composite ( $\$ 392-401$ ), probably glass ( $\$ 396 f$ ), $12-10$, height $9^{*} \mathrm{~mm}$. Base: left-facing caprids ( $\$ 518-521$ ) without an additional motif. For caprids, see Gezer no. 110, with parallels to the late glass conoid seals with an animal as the only motif (see Gezer nos. 147, 551, Lachish [Tufnell, 1953: pl. 45:139]). Date: Persian period (530-330 BCE).

Gamma 210, Reg. No. 1237 (Figure 27.7d). Context: GM 1D (2), unstratified. Konoid, probably Type IV (\$248-253), the dome and part of the side are broken, engraved surface, drill holes, quartz crystal stone ( $\$ 362-364$ ), 10, height 13 mm . This engraving technique also appears on an impression from a sealing from Field IV (Gamma 189, Reg. No. 1219, Figure 20.3c). Base: Four-legged animal with horns or pointed ears and a short

b


1 cm


FIGURE 27.7. Stamp seals: Gamma Nos. 207-211.
tail, probably a caprid $(\$ 518-521)$, before the animal is a flower ( $\mathbb{\$} 429$ ); on his back, an unspecified element, perhaps the head of an animal (see the ram's head in Keel, 2010a: Gezer no. 112, under the caprids); no border line. Date: End of Iron IB to beginning of Iron IIA (1050-900 BCE)

Gamma 211, Reg. No. 1238 (SI Cat. No. 836, Figure 27.7e). Context: GMI 4D (3)\{77\}, Phase 1, LBII (1400-1200 BCE). Finger ring or oval plate with handle, Type I (\$210f), base edge worn out and partly broken off, linear engraving, drilled holes, black stone, probably basalt, $45 \times 28 \times 32 \mathrm{~mm}$. Base: A geometric design of several lines forming right angles: two complete rectangles, two incomplete, and a circle segment, except in the
right corner, there are holes in the top left, in which an oblique line is located. For compositions of rectangles and drill holes, see Gamma No. 91 (from Petrie's excavations) with parallels; no border line. Date: Iron I (1200-980 BCE).

## AUTHOR NOTE

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# Cylinder Seals: A Clay Cylinder with Cuneiform Signs Wayne Horowitz and Tallay Ornan 

## INTRODUCTION

In 1982, excavators at Tell Jemmeh from the Smithsonian Institute under the direction of G. W. Van Beek recovered a small cylinder seal made from clay in the Middle Bronze level of Field III (Figures 28.1-28.2, Reg. No. 1234, SI Cat. No. 1023, context: GMIII J2 (16) 1, Phase 17, dated to the MBIIB-C). The find was never published in full, but its archaeological context and a brief description were given by Van Beek in his article on Tell Jemmeh in The New Encyclopedia of Archaeological Excavations in the Holy Land (Van Beek 1993a:668) in the second paragraph of the MBII period section: "In field III, a small cylinder seal of baked clay, with five vertical rows of geometric designs and two vertical lines of cuneiform was also found." Van Beek provided further information in a letter to the Cuneiform in Canaan Project regarding the find, and some of this information was published in Horowitz and Oshima (2006:95) with Van Beek's permission; the cylinder seal is listed there as Tell Jemmeh 1. This information included the dimensions of the object (diameter: 9 mm ; height: 22 mm ) and find information (Field III, Square J2, Layer 16, Locus 1, found August 3, 1982). Earlier, Van Beek had communicated with William Hallo of Yale University in regard to the cylinder seal. Hallo's formal response to Van Beek's enquiries are available in a letter from the former to the latter dated to September 1, 1990. At this time, we find it proper to make available, in Van Beek's name, additional information supplied in the letter to W. Horowitz. We also add here some further observations from the letter of William Hallo and of our own.

## THE CYLINDER SEAL

Description
Upon reexamination, the seal is engraved with 10 vertical single rows, including 2 rows with cuneiform. The rows, as seen from left to right on the modern impression, are (1) a vertical zigzag made of four thin lines, (2) a row of superimposed upturned V signs, (3) cuneiform signs, (4) a row of superimposed downturned V signs, (5) another line of cuneiform signs, (6) a second row with a zigzag made of four thin lines, (7) a third row with a zigzag whose components are drawn in mirror image to the previous one, (8) a second row of superimposed downturned V signs, (9) a second row of superimposed


FIGURE 28.1. The seal, Reg. No. 1234, and its impression. Photograph: Gabi Laron.


FIGURE 28.2. Drawing of the seal, Reg. No. 1234, and its impression.
upturned V signs, and (10) a third row of superimposed downturned V signs (see Figure 28.2).

## The Cuneiform Inscription

As pointed out by Van Beek, the cylinder seal is inscribed in the negative, as is typical for cylinder seals whose impressions are meant to be read when rolled out on clay in the positive. Thus, the signs are also in the negative on the seal but are in the positive in the impression (see Figure 28.1). The two rows of cuneiform noted by Van Beek are, in fact, two rows of repeated series of highly stylized versions of the same cuneiform signs, first a row of AN signs ( $n \times r$ ) and then a row of three slightly different versions of the same sign. The sign forms cannot be used to confirm the Middle Bronze date suggested by the archaeological find site and the stylistic dating offered below. The form of AN remains basically the same throughout the second millennium BCE, and in any case, the strokes of both signs are too stylized to be of any real use in epigraphy.

## TOWARD AN INTERPRETATION OF THE CUNEIFORM INSCRIPTION

In his letter of September 1, 1990, W. Hallo mentions a "farfetched" idea he had concerning the cuneiform inscription, suggesting that the two lines of cuneiform may be related to a set of incantations that present repeated sets of signs in a line. A number of these are noted and discussed in Tonietti (1979:311312) and Horowitz (1998:214-215). In particular, Hallo's letter cites the incantation 16 in Nies (1920), which includes a series of
seven AN signs and seven KI signs, perhaps for Sumerian an.ki, "heaven and earth":

```
ÉN en.ni.nu.na
an.an.an.an.an.an.an
ki.ki.ki.ki.ki.ki.ki
su.su.su.su.su.su.su
bára.bára.bára.bára.bára.bára.bára
xxxxxxx
nin!.nin!.nin!.nin!.nin!.nin!.nin!
ezen?.ezen?.ezen?.ezen?.ezen?.ezen?.ezen?
```

We believe that Hallo's idea may not be so farfetched after all. Both the above incantation and a parallel incantation collected by Tonietti and Horowitz typically include rows of AN signs. Most important for the context of the Jemmeh seal, a similar example is available in the Bronze Age cuneiform far west, at Amarna as El Amarna (EA) letter no. 355, on another clay cylinder (Knudtzon, 1915; see also Izre'el, 1997):

```
DU DU DU DU
TU TU TU TU
NU NU NU NU NU NU NU
NA NA NA NA NA
ŠA ŠA ŠA ŠA
AN AN AN AN AN
UD UD UD UD UD UD UD
NI NI NI NI NI NI
KI KI KI KI KI KI
SAR SAR SAR SAR
DUB DUB DUB DUB
```

Therefore, it seems likely that the maker of the Tell Jemmeh seal copied his set of AN signs from a cuneiform incantation that he may have had in his possession or seen. If this supposition is true, an important question may be asked: Did the Jemmeh seal maker know the magical quality of the AN signs he was drawing? In other words, was he truly excerpting a line from the incantation or just using both the cuneiform signs as decorations without attention to any semantic value in Sumerian, Akkadian, a West Semitic dialect, or any other language written in cuneiform? The question then is what the purpose of the cuneiform was on seals such as Tell Jemmeh 1 or Bet Mirsim 1 in the corpus from Canaan (Horowitz and Oshima, 2006:46).

## ATTRIBUTION AND DATING

The composition, composed of vertical rows, links the Jemmeh cylinder seal to Group 1c of the early and classic phases of Middle Bronze Age Syrian glyptics dated from the last third of the 19th and the first half of the 18th centuries BCE (according to the Middle Chronology). Seals belonging to this group were typical of northwest Syria, mainly from the surroundings of Carchemish and westward toward the Mediterranean coast (Otto, 2000:113-115, pls. 4, 5). Two additional features offer further support for the above attribution: (1) the presence of rows of tiny superimposed V-shaped signs (also depicted on a MBII clay cylinder seal from Tell Hammam al-Turkman, see below) that recall similar vertical rows made of archlike elements found mainly on seals belonging to Group 1c (Otto, 2000:273) and (2) the very fact that the seal is made of clay. Particularly telling are clay cylinder seals and sealings made by the former found in the palace of Šamši-Adad and his son Yasmah-Adad in Tuttul/Tall Bi'a, with tiny arches, at times arranged in rows, which may narrow the date if the Jemmeh seal to the first quarter of the 18th century BCE (Otto, 1999:337, 340-342, figs. 6, 7, 2004:93-95, pls. 99-100). The fact that the impressions of the clay seals from Tuttul were not found on written documents, only on door sealings, stresses their simple character (Otto, 1999:342). Seal impressions from Hammam al-Turkman located on the Balikh River in northern Syria, made by a clay cylinder seal found at the site, were also probably used for sealing door bolts (Meijer, 1995) and may further imply a similar usage for the Jemmeh cylinder seal. Another Middle Bronze clay cylinder seal from Jemmeh reported by Petrie (1928:11, pl. 19:28) enhances the association between the cheap Jemmeh seals and similar finds from northwest Syria, in particular Tuttul/Tall Bi'a (Otto, 1999:340-342, figs. 6, 7). The link of the Jemmeh cylinder seals to north Syria adds other artifacts attesting to the strong connections between northern Syria and the southern Levant during the MBIIB period that probably reflect Amorite traditions, which spread from Babylonia to the Levant, extending to the Asiatic settlements in the

Nile Delta, during the first half of the second millennium BCE (Hallo, 1992:399-400).

## MEANING

Seals, along with their bureaucratic functions, had an important amuletic role (Keel, 1995:10-12). Thus, the repetition of cuneiform signs on the Jemmeh seal can be seen as a means of enhancing the apotropaic role of the object. This multiplicity of signs or icons is loaded with intrinsic meanings of its own that is required for the charm to be "realized" in an effective manner and to enhance the seal's powers to bless, protect, or ward off evil (Berleunjg, 2010; cf. Winter, 2003:257, 259; Bahrani, 2004:118). Indeed, such repetition of motifs is a very typical property of Middle Bronze Syrian glyptic, which is expressed through both pictorial and inscriptional elements on seals (e.g., Parker, 1949: nos. 19, 17, 72; Otto, 2000: nos. 2-9, 12-60; Stein, 2003). The possible borrowing of certain cuneiform signs from incantation formulas on the Jemmeh seal can be compared to a parallel dynamics in the southern Levant with regard to the use of hieroglyphs on locally produced scarabs. A comparison can be made to the depiction of hieroglyphs taken from Egyptian formulas as good luck signs on Middle Bronze Age "anra" scarabs (Ben-Tor, 2009:87). This may imply that the artisan who made the Jemmeh cylinder seal also acknowledged the magical quality of the AN signs he was copying, although he did not necessarily understand their original meaning.

The comparison of the two groups of zigzag with the Syrian pictorial motif of the guilloche, standing for running water with reference to abundance and productivity (Otto, 2000:114, 275), suggests that the "geometric" designs on the seal may also have had an apotropaic meaning. However, the inspiration for Vshaped elements may have come not from the world of pictures but from the realm of writing. Considering that the junction of the heads and tails of cuneiform signs forms a sort of V shape (see a seal from Megiddo, Parker, 1949: no. 133), we may even speculate that the inclusion of rows of V-shaped elements was also motivated by recognition of the efficiency of written formulas. However, the seal maker's lack of competence and/or knowledge of real writing results in the appearance of cuneiform-like signs without any tangible meaning for one who can read cuneiform. However, this does not mean that these elements had no meaning for the ancient maker and owner of the seal.

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# Cylinder Seals: A Mitannian Cylinder Seal with a Worshipper and Divine Images 

Tallay Ornan

## DESCRIPTION

The limestone seal (height: 29 mm , diameter: 15 mm ) was found on the site's surface (Figure 29.1; Reg. No. 1233, SI Cat. No. 404). The small globes surrounded by thin circles seen on the impression, which mark the animals' heads and the tree's volutes, were made with a drill terminating with thin and slightly protruding borders inside which led to a tiny bump (cf. Gorelick and Gwinnett, 1978: fig. 12). The seal depicts three compositional groups: two shown are lengthwise, whereas the third forms a horizontal "band" on the upper part of the seal. The lengthwise groups are composed of two scenes. The left (on the impression) consists of two figures: an enthroned man facing a horned animal, probably an ibex, standing on its rear legs. The scene on the right depicts three images: two standing human figures facing each other and in between them a "mirror" image of a similarly standing ibex, looking to the right. Between the latter and the right-side standing figure is, perhaps, a schematically rendered gazelle head. A line of six globs, slightly curving to fit the back of the left ibex, may have served as a divider between the two- and three-image scenes. To the right of the three-image scene, serving as a termination of the lengthwise scenes, are a stylized volute tree and a reclining horned animal, perhaps an oryx. The horizontal band stretching from the top of the right ibex to above the seated man shows three animals: on the left is an antlered animal, probably a young male fallow deer, facing left; on the right are two bulls with large curved horns facing each other.

## STYLE AND INTERPRETATION

Stylistically, the seal can be assigned to the Common Mitannian cylinder seals of the north Mesopotamian/Syrian group typified by meticulous and plastic workmanship: subgroup 3 of Group 2.1.1 according to the classification offered by Salje (1990:82, pl. 9:166168). These seals are usually made of sintered quartz, a term replacing the formerly common usage of faience, frit, or paste (Collon, 1987:61). However, the latter group has some stylistic and iconographic features, such as a volute tree, figures with rounded brimmed hats, and a nude female, that are also found on Elaborate Mitannian cylinder seals often made of hard stones, such as hematite or agate (see hematite cylinder seals from Akko and Ugarit; Beck, 1977:63-64, pl. 21:1; Amiet, 1992: no. 50, fig. 11). Similarly, worked seals made of sintered quartz were found in Israel and Palestine. In their details or layout these seals recall the Jemmeh cylinder seal (see below) and confirm the links prevailing between the Elaborate and the Common Mitanni styles (Stein, 1997b:74), on the one hand, and the connections between local Common Mitanni cylinder seals and glyptic items belonging to the eastern realm of the Mitanni workmanship centered at Nuzi, on the other hand. The Jemmeh cylinder seal can thus be assigned to group 1 of the seal impressions from the Nuzi archive of Šilwa-Teššub, which show gods and human figures in presentation compositions and are dated to end of the 15 th and the beginning of the 14th centuries BCE (Stein, 1993:79-99).


FIGURE 29.1. A limestone cylinder seal, Reg. No. 1233. Photograph: Gabi Laron.

Similar seals from Israel were found in 'Azekah (Tell Zakariya) and Megiddo; both items lack a clear stratigraphic attribution. The limestone (as registered in the Israel Antiquities Authority archive) seal from 'Azekah (Bliss and Macalister, 1902:153, pl. 83:27; Parker, 1949, no. 86, designated as made of frit; Frankfort, 1939:280 note 1; Salje, 1990:200, no. 57, cf. pl. II: 28,29 ) in particular recalls the second three-image group on the seal from Jemmeh: a worshipper with a rounded brimmed hat facing a figure holding a sickle sword and in between a horned animal standing of its rear legs. Similar, almost identical compositions are found on a seal impression from Nuzi (Stein, 1993: cat. no. 2) and on a sintered quartz seal from Ugarit classified as belonging to the Elaborate Mitanni style, although made of sintered quartz (Schaeffer-Forrer, 1983:123, Ras Shamrama (R.S.) no. 20.49; Stein, 1997b:94, fig.4d). The difference between the three image scenes on the Jemmeh and 'Azekah seals lies in the arrangement of the figures: the man with the sickle sword on the latter faces left (on the impression). The seal from 'Azekah also differs from Jemmeh's in its second lengthwise scene depicting two confronting seated sphinxes and in the addition of a lion to the two horned animals comprising the file on the upper part of the seal.

Although a sintered quartz seal from Megiddo (Guy and Engberg, 1938:183, pl. 176:3; Parker, 1949: no. 128; Salje, 1990:207, no. 101) differs from the Jemmeh seal in the tree and ibexes being a central motif, the (large) figure of the worshipper with the rounded brimmed hat on the left and the volute tree flanked by standing ibexes, which are identical to the ones on the Jemmeh seal, link the two seals. This association suggests that the Megiddo seal can be assigned to Nuzi impressions group 1 (Stein, 1993:79-99). The layout of the Megiddo seal recalls that
of Jemmeh's, although arranged in an inverted manner: on the latter the file of animals tops the lengthwise scenes, whereas on the Megiddo seal it appears as the lower band of the composition (with the image of the nude woman inserted into it).

The seal from Jemmeh can also be associated with two sintered quartz Mitanni-style cylinder seals found in the monumental building on the acropolis of Hazor (Ben-Tor and Rubiato, 1996:16, bottom right; Ornan, 2011: fig.13), although it differs in having a bouquet tree instead of a volute tree as on the seal from Jemmeh and in having only one group of three images (as on the seal from 'Azekah). The seals from Hazor also belong to Salje's north Mesopotamian-Syrian Group 2.1.1 (Salje, 1990:82, pl. 9:166-168). A related cylinder seal from Gezer, of which only a line drawing is known (Macalister, 1912:345, fig. 464), shows two pairs of standing figures at the sides of a small tree that seems to be a type of volute tree. The two figures to the left of the tree have rounded brimmed hats and long dresses with squares decorating the hems; one of these figures holds a sickle sword.

The seated figure in the left scene of the Jemmeh seal wears the brimmed rounded hat typical for Mitanni glyptics. He raises his left forearm in front of his face; the right arm is tucked behind the back. The figure is clad with a girdled long dress whose folds, hardly observed on the lap, are perpendicular to the legs. This manner of display was perhaps aimed to allow the viewer to fully observe the dress's folds and therefore emphasize a special kind of garment. The throne on which the figure sits has a low backrest, slightly turned out at the top. Four fine, slightly oblique lines (see a seal from Ugarit; Salje, 1990: pl. IV:64), clearly differentiated from the thick bar below them, probably represent a soft seat made of woven textile stripes or of bands made by basketry. In front of the enthroned figure is a standing
ibex whose foreleg is touching the former's knee. The seated position, the detailed throne, and the close nexus between the figure and the ibex imply that the seated figure is to be identified as a god. Accordingly, the ibex is to be seen as the animal attribute of this god. Similar relations between standing horned animals and enthroned gods on an early Akkadian period seal impression from Tell Brak (ancient Nagar, located in the Khabur basin in northeast Syria) support these identifications (Felli, 2001:140-141, no. 346) and may reflect a long-term shared Hurrian tradition.

The left figure of the standing three-image scene has a rounded brimmed hat similar to that of the seated god. However, the plain dress of this figure and, in particular, the raising of the arms toward the standing ibex (and the figure behind it) suggest he is worshipper. A similarly dressed figure on the abovementioned seal from Megiddo identified as a worshipper (Keel and Uehlinger, 1998:56, fig. 52) enforces the above identification. The common Mitanni rounded brimmed hat and long dress with squares decorating the hem (Salje, 1990:82) do not, however, assist in identifying the right figure of the three-image scene as this outfit appears with regard to both worshippers and addressees of veneration in the Common Mitanni style (e.g., the seal from Hazor: Ornan, 2011: fig. 13); the short kilt below the open long dress may hint, however, at a divine image (see below). The sickle sword held by this figure cannot be taken as a decisive criterion for its identification since the object is held, although not frequently, by a variety of figures on Common Mitanni cylinder seals (cf. Macalister, 1912: fig. 464; Salje, 1990: pl. XIII, 263; Ben-Tor and Rubiato, 1996:16; also see a Megiddo tomb KassiteMitannian cylinder seal in Guy and Engberg, 1938: pl. 90:8). However, since in some cases the sickle sword is clearly held by divine images (e.g., Porada, 1981:55, no. 29; Collon, 1987: no. 462 ), the identification of this figure as a god is possible.

The clues for identifying the right figure of the three-image scene seem, then, to rely more on the composition of the scene. The standing ibex interpreted as an attribute of the seated god combined with the identification of the man with the raised
hands as a worshipper strongly implies that the right figure of the three-image scene, signified by the worshipper and the ibex, represents a divine image. Some support for this proposal can be found in the short kilt seen below the long open garment of this figure, which is often found in representations of combatant deities (e.g., Collon, 1987: no. 560).

The identical mirror images of the standing ibexes in the two- and three-image scenes not only define these animals as the attributes of the gods depicted on the Jemmeh seal but also indicate that the two deities could have been understood as one and the same god shown in two positions: sitting and standing. Whereas the three-image scene depicts a cultic occasion, a "meeting" between a worshipper and a god accompanied by his (ibex) attribute, the two-image scene on the left only shows the god and the attribute.

The cylinder seal from Jemmeh depicts, then, a god accompanied by a tree and a variety of horned animals that probably mirror the abundance of nature. It is commonly accepted that representations combining horned animals and trees belong to the imagery of female deities that represent various notions of fertility and/or sexuality (Keel and Uehlinger, 1998:29, 51, 5458, 72-75). However, a large bronze statue found in a monumental building on the acropolis of Hazor identified as the storm god Ba'al, whose headgear is adorned with horned animals on the sides of a volute tree (Ornan, 2011), suggests that the double figure of the god on the cylinder seal from Jemmeh could also be identified as a storm god, the god in charge of the propagation of nature in the Levant, Syria, and northern Mesopotamia (Ornan, 2011:272, 275).

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## 30

## Coins: Coins from the 1978-1990 Excavation Seasons at Tell Jemmeh Donald T. Ariel

Twenty-three coins were found in the excavations, excluding one stray find (now apparently missing). Sixteen were identified: a hoard of 11 coins ( 10 deniers and one obol) of the Crusader period (discussed in chapter 31) and five isolated finds. ${ }^{1}$

## A SINGLE STRAY COIN

Regarding the single stray find, we quote from an undated typewritten report prepared by Gus W. Van Beek:
A coin of Ptolemy II struck in Alexandria was found on 9 March 1980, by Stephen E. Montgomery, who visited the site to look for sherds and chert blades in the wadi. The heavily encrusted coin was found in the wadi about 200 m west of the tell resting on a silt ledge immediately below the south bank and just above the wadi bed
Obv. Head of Zeus-Ammon, r.
Rev. [BALI] $\AA \mathrm{E} \Omega \Sigma-\Pi T O \Lambda E M A I O Y$ Spread-winged eagle stg. l. on thunderbolt; in l. field: Ï above shield; between legs: $\Lambda$ Æ, $18.10 \mathrm{~g}, 26 \mathrm{~mm}$.
Kromann and Mørkholm, 1977: pl. IV:122.
The coin [Figure 30.1] probably comes from the tell and belongs to the final occupation of the site-the Granary Phase-which is assigned to the late fourth and third centuries BCE, and therefore fits nicely into the present chronological framework.

## THE ISOLATED FINDS

Catalog number 1 (Figure 30.2) is a silver-plated underweight drachm (or $r b^{‘} s \check{q} l$ ) of the general category discussed in Gitler et al. (2007). Fifty-nine drachms were presented there, of which six were plated (cat. nos $23,32,34,36,42,57$ ), appearing in two subcategories: drachms/rb' šqln struck from worn, recut, and repolished dies and those with obverses depicting a "prominent dome-shaped motif." The Tell Jemmeh coin could belong in either category.

This coin is certainly worn, although it cannot be determined whether before or after striking. This is the second specimen of the general category that is derived from a controlled archaeological excavation. The first


FIGURE 30.1. A stray silver coin.


FIGURE 30.2. Coin, Cat. No. 1.
is a coin from Horbat ${ }^{`}$ Etri (Gitler et al., 2007:55, cat. no. 10), which was categorized as a drachm $/ r b^{‘}$ šqln struck from a worn die. The findspot for Cat. No. 1 agrees well with the general geographical conclusion that Athenian-style silver coins struck from worn dies were common in southern Palestine. The Tell Jemmeh coin, however, adds weight to the Philistine origin of such coins, perhaps alongside the Edomite attribution for similar coins struck from worn dies as proposed in 2007 (Gitler et al., 2007). It is interesting to note that in the spring of 1970, a few months before Van Beek's excavation began, a hoard of five minute silver coins of the Yehud class, roughly contemporaneous with Cat. No. 1, was found on the surface of the tell (see Rahmani, 1971).

The remaining four isolated finds (Figures 30.3-30.5) are all bronzes related to Alexander the Great. Remarkably, each one represents a different type of the bronzes of that king, whose gold and silver series were prolifically struck throughout his empire during his life and posthumously. The types are a head of Heracles with a quiver and bow on the reverse ( $1 / 4$ unit; Cat. No. 2 ), a diademed head with a horse running on the reverse ( $1 / 2$ unit; Cat. No. 3), and a "Macedonian" shield with a Macedonian helmet on the reverse ( $1 / 4$ unit; Cat. No. 4). The fourth coin is an anonymous Anatolian bronze definitely inspired by Alexander types: A "Macedonian" shield with a quiver and bow on the reverse (Cat. No. 5).

As a group, these five isolated finds represent a relatively short period of time. All could belong to the 4th century BCE.


FIGURE 30.3. Coin, Cat. No. 2.


FIGURE 30.4. Coin, Cat. No. 3.


FIGURE 30.5. Coin, Cat. No. 4.

The drachm/rb ${ }^{\text {s }}$ šql (Cat. No. 1) seems to date to the first part of that century (Gitler et al., 2007:53), whereas the remainder, or at least Nos. 2-4, fall in the last third of the century. The date for Cat. No. 5, a type imitative of Alexander's bronzes, may continue into the 3rd century BCE. Ariel (2006:72) discussed the numismatic finds in the southern Levant from this period, particularly the time of Alexander's reign and the period of the Diadochi, and came to the conclusion that a number of sites on the eastern Mediterranean coastline were adversely affected by the military events of 312-311 BCE. The southernmost site he discussed was Yaffo. It may be that these finds from Tell Jemmeh are evidence that the upheavals discussed above extended to Tell Jemmeh on the southern Philistine coast, some 80 km south of Yaffo.

## CATALOG OF THE ISOLATED FINDS

1. Reg. No. 1167, SI Cat. No. 967, GM (+), Surf., Israel Antiquities Authority (IAA) 135892. Figure 30.2.
Autonomous, 4th century BCE?
Obverse (Obv.) Head r.?
Reverse (Rev.) Owl r., head facing; in 1. field, olive sprig; below it: $\Theta(?)$.
Æ, 6?, $2.85 \mathrm{~g}, 14 \mathrm{~mm}$.
Compare Gitler et al. (2007:55, no. 23).
2. Reg. No. 1122, SI Cat. No. 973, GM (+), Surf., IAA 135890. Figure 30.3.
Alexander the Great (during his lifetime and possibly posthumous).
Obv. Beardless head of Heracles r.
Rev. Quiver (above) and bow (below); between them: [A $\Lambda$ ] E[EANAPOY].
Æ, $6,1.72 \mathrm{~g}, 13 \mathrm{~mm}$.
3. Reg. No. 1128, SI Cat. No. 135, GM 2D (2), Field IV, unclear phasing, IAA 135893. Figure 30.4.
Alexander the Great (336-323 BCE), Macedonia.
Obv. Diademed head r.
Rev. Horse running r.; below [ $\cdot \cdot]$.
Æ, $9,4.04 \mathrm{~g}, 18 \mathrm{~mm}$.
Compare Price (1991:123, no. 338).
4. Reg. No. 1122/1, SI Cat. No. 968, GM (+), Surf., IAA 135889. Figure 30.5.

Alexander the Great (posthumous), Salamis?, 323-315 BCE.
Obv. "Macedonian" shield; in central boss, gorgoneion.
Rev. Crested Macedonian helmet with cheek pieces.
Æ, $6,2.83 \mathrm{~g}, 10 \mathrm{~mm}$.
Compare Price (1991:393, no. 3157).
5. Reg. No. 1122/2, SI Cat. No. 968, GM (+), Surf., IAA 135891.

Anonymous, Anatolia, after 323 BCE.
Obv. "Macedonian" shield.
Rev. Quiver and bow.
Æ, $2.42 \mathrm{~g}, 19 \mathrm{~mm}$.
Compare Liampi (1998:103, no. M11.2a).

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## NOTE

1. With one exception the coins were cleaned in the laboratories of the Smithsonian Institution. The exception is Cat. No. 1, which was cleaned in the laboratories of the IAA by Hila Rosenstein. All of the photographs are by Clara Amit of the IAA photography studio.

# Coins: The Crusader Purse from Tell Jemmeh Robert Kool 

## INTRODUCTION

A small Crusader period hoard consisting of 11 coins in a corroded lump was found in the topsoil of the center of the tell while the crew was digging a test trench (Field IV, Square 1A) during the 1984 excavation season. Most of the hoard was published in exemplary fashion by Michael Metcalf (1987:84-91). The report below contains an updated summary of the finds, photographs of all the coins, and some new insights on the contents and context of the hoard since its publication a quarter of a century ago. ${ }^{1}$

## THE PURSE AND ITS CONTENTS

The hoard consisted of 11 thin billon coins, 9 royal deniers of King Amaury of Jerusalem (1163-1173 CE) and 2 French feudal coins, an obole of the lords of Melgueil in the Languedoc and a denier from the episcopal mint of Le Puy in south central France (Table 31.1).

Upon discovery the coins were found cemented together in a rouleau, a roll-shaped lump, of which parts were coated with textile fragments. Evidently, the find seemed to constitute the remains of a small purse since the corroded lump had preserved the image of the coins pressed together in a pouch. Examination of the textile fibers welded into the corrosion of the coins showed that the purse was made of cotton. ${ }^{2}$ Carrying small amounts of money in purses made of cotton or linen seems to have been a common practice in the Medieval Near East in contrast to Western Europe, where such fabrics were much rarer. Archaeological evidence shows the widespread use of such textile pouches between the end of the 10th century and 14th century CE in southern Syria (Kool et al., 2011:38). A similar cotton pouch hoard also dated to the second half of the 12th century CE was excavated at the castle of Vadum Iacob guarding the northern frontier of the Kingdom of Jerusalem. It apparently belonged to one of the defenders who died violently in the conquest of the castle by Saladin's forces, August 1179 CE.

The careful separation of the coins, with the aid of mechanical tools, and in a few cases using a formal acid solution, showed that the hoard consisted of two groups of billon:

1. The main group consisted of nine AMALRICVS deniers minted in the Kingdom of Jerusalem during the 12th century CE. These billon coins were introduced under Amaury I (1163-1173 CE), replacing the previous BALDVINVS issues of his brother and predecessor Baldwin III (1143-1163 CE). Styled on the billon coinage of Christian Europe, they were widely used in the kingdom for smaller cash transactions alongside locally minted cut gold fragments (Kool, 2007:152-154). Of a standard design and weight, these coins remained the main royal-controlled issue of the Kingdom of Jerusalem until the 1190s, when they were replaced by a similar but more irregular and lightweight type (Metcalf, 1987:84-92). ${ }^{3}$ Reexamination of the eight legible Amaury deniers based on the styling of the letter A and associated annulets and stops in the inscriptions and cross surface deviated somewhat from the classification by Metcalf (1987:91-92) and consisted of the following types: double barred (two), chevron barred (one), triple barred (two), and dotted chevron barred (three).
2. The second part of the hoard consisted of two French Feudal coins: an obole of the lords of Melgueil, circulating widely in the Languedoc during the 11th-12th centuries CE, and a denier from the episcopal mint of Le Puy in south central France. These coins were found midway in the lump, sandwiched between the royal deniers, clear evidence that they circulated together with the royal billon of Jerusalem after 1163 CE. These coin types have commonly been identified by scholars with events surrounding the First Crusade (1095-1099). They supposedly functioned as some sort of semiofficial "crusader money" during Pope Urban II's extended

TABLE 31.1. Amaury billon type varieties. IAA = Israel Antiquities Authority.

| IAA No. | A type; obverse $(\mathbf{2 x}) /$ reverse $(\mathbf{1 x})^{a}$ | Mintmarks in REX | Annulets/stops in cross squares |
| :--- | :--- | :--- | :--- |
| 122218 | Triple; triple/unbarred | None | $2 / 3$, annulets |
| 122217 | Triple; double/double barred | Single annulet | $2 / 3$, annulets |
| 122220 | Double; double/double barred | None | $2 / 3$, annulets |
| 122219 | Double; triple/double barred | Single annulet | $2 / 3$, annulets |
| 122215 | Chevron; chevron/chevron | Triple annulet | $2 / 3$, stops |
| 122216 | Chevron; illegible/chevron barred | Single stop | $2 / 3$, annulets |
| 122222,122223 | Dotted chevron; dotted chevron/dotted chevron | Single annulet | $2 / 3$, annulets |
| 122221 | Dotted chevron; dotted chevron/dotted chevron | Single stop | $2 / 3$, stops |

${ }^{\mathrm{a}} \mathrm{A}$ appearing twice in obverse legend, once in reverse legend.
tour of south central France and preparations for the First Crusade in 1095/1096 CE (Matzke, 1994:13-19). Thereafter, according to most scholars studying Crusader period coinage, they served as "travel money" among the participants of the First Crusade, based on a detailed listing of seven types of monies by the chronicler Raymond of Aguilers (Schlumberger, 1877:2-3; Porteous, 1989:356). ${ }^{4}$ Metcalf (1995:1213), noting the pro-Provencal bias of Raymond of Aguilers's narrative as chaplain to the Count of Toulouse Raymond St. Gilles, went further and argued that these coins in fact reflected the currencies used by the Provencal contingent of the First Crusade army (1095-1099 CE).

My ongoing research, however, shows the presence of relatively large numbers of these Le Puy and Melgueil billon in sites within the Kingdom of Jerusalem, both hoards and single finds, many of them coming from controlled excavations. These seem to suggest that the coins continued circulating within the kingdom long after the First Crusade. ${ }^{5}$ Accumulated evidence at present shows some 51 exemplars from at least 15 different sites. The large majority of these were debased Le Puy deniers, regarded by contemporaries as a fractional denier (half or quarter denier) vis-à-vis other French/European billon (Raymond of Aguilers himself valued the Le Puy denier as one-half of the other deniers listed by him as "duo pogesi pro uno istarum"). These pogesi were particularly popular among the many pilgrims visiting the shrine of Notre-Dame du Puy during the 12th century CE. They were used widely in the southern part of France as a fractional coinage as evidenced by their appearance in medieval documents (Dieudonné, 1936:246) and two dozen hoards (Duplessy, 1985:157). In comparison, Melgueil deniers were found in less than half of the sites where the pogesi were found (Acre, Caesarea, Jaffa, Qal'at Ad-Dam/Castrum Dumi, Jerusalem).

The presence of these coin types ( 29 of the 51 noted above) is noted in five hoards with mid- to late 12th century CE royal deniers and other coins, like the Tell Jemmeh hoard. Most of these hoards were buried or lost with the Ayyubid conquest of the kingdom in 1187 CE , unequivocally showing the extended use of these small billon coins throughout the 12 th century CE. ${ }^{6}$ The
hoard evidence is backed up by numerous isolated finds, some 22 coming from 12 separate site finds, many of them excavations. The distribution of these finds and their archaeological context is clearly indicative of the continuous and widespread use of these so-called First Crusade French billon, during the entire 12th century CE in the kingdom. They are found in major cities and pilgrim centers of the kingdom such as Jerusalem, Acre, and Jaffo. ${ }^{7}$ However, they are also found in the smaller towns and faubourgs adjacent to seignorial centers such as Arsur/Arsuf, Belinas/Banias, Bet Shean/Bethsan. ${ }^{8}$ A few specimens have also turned up in more isolated contexts: a Le Puy denier from a Frankish villeneuve situated in the western hinterland of Jerusalem (el-Burj), along the Vicus ad Civitatem, the main medieval road leading from Jaffa to Jerusalem from excavations (1992; Israel Antiquities Authority (IAA) 81069, unpublished); a denier from Melgueil excavated outside the wall of the small Templar stronghold of Qal'at Ad-Dam/Cisterna Rubea, protecting a nearby crusader khan and the many pilgrims journeying from Jerusalem to the Jordan River and its holy sites (Pringle, 1994:148-166; Magen, 2008:309-313); ${ }^{9}$ and even farther north a single coin found in the grounds of a small isolated parish church of St. George, above Crusader period Tiberias (Bijovsky, 2004:174, no. 60, although she made no reference to its Crusader period context).

Similar pouches of Amaury deniers with small additions of west European money often appear in military or civilian contexts of this period: smaller purses ( $\sim 160$ coins) were discovered at Ateret/Vadum Iacob on the skeleton of one of its defender's, killed by Ayyubid forces in the summer of 1179 CE, at Tel Yavneh/Ibelin (50), and Jaffa (6). A much larger hoard of some 3,400 deniers was found at Harenc/Harim in northern Syria, presumably lost in the battle for the castle in 1164 CE (Metcalf, 2008:179-180; Philips, 2008:432-433), showing that such purses sometimes could contain also a very large quantity of silver.

## (RE)DATING OF THE HOARD

Metcalf (1987:84-92) dated the loss of this small pouch to 1175-1187 CE, but we suggest redating it somewhat earlier to
the late 1160s-1170s CE. This is based on a comparison of the Amaury types in the hoard with other (new) hoard material and excavated finds from the kingdom's territory, particularly in the past two decades. These show that the AMALRICVS types in the hoard belong to the early/middle period of the type's development (note 6).

More important, however, the site where the pouch was lost plays, in our eyes, a pivotal role in redating the hoard and should not be treated as a mere isolated venue where a chance traveler passing through lost his money (Metcalf, 1987:84; Van Beek, 1993a:669). This becomes clear when we consider the site and its hoard within the context of the southern boundary and history of the Latin Kingdom of Jerusalem.

In ancient times Tell Jemmeh functioned as a major staging point for military units operating in the border zone between Egypt and Philistia. By the 12 th century CE Tell Jemmeh seems to have been situated well beyond the Jerusalem kingdom's most southern settlement belt, which probably ran more to the north ( $\sim 20 \mathrm{~km}$ ), along the banks of Wadi el-Hesi according to mid-13th century CE evidence (Blakeley and Huster, In press). This seems to explain why no remains of a permanent Crusader period settlement were discovered on the tell: although various pits contained Crusader-Early Mamluk pottery, no architectural remains of this period were uncovered. Situated about 8 km east of, but on the same latitude as, the kingdom's most southern outpost at Darum/Deir el-Balah (visible to the naked eye from Tell Jemmeh), it lay in an area that constituted a taghr, a frontier region between Ayyubid-Egyptian-controlled territory and the Latin Kingdom. Nevertheless, the site's elevated position (~60 m high) and its situation near a water source made it a strategic point overlooking the ancient wayfare running through Wadi Ghazzeh/Nahal Besor that connected the main road leading to Fatimid/Ayyubid Egypt with the southern reaches of the kingdom of Jerusalem. Presumably because of this, it is likely that it served as a temporary station or a rallying point for one of Amaury's army units participating in the king's expeditions to conquer Egypt in 1162-1163 and 1167 CE, during which this small money pouch was apparently lost.

## CATALOG OF THE CRUSADER HOARD

All coins correspond to Reg. No. 1118, SI Cat. No. 15, GM (+). The catalog contains the following abbreviations: Reg. No. = excavation basket number; Loc. = excavation locus number; IAA = Israel Antiquities Authority number; Obv. = obverse of coin; Rev. $=$ reverse of coin; $s$ = silver; $\mathrm{g}=$ gram; $\mathrm{mm}=$ millimeter; axis $=$ die axis of the coin.

## Series with Triple A Issues

1. Reg. No. 5/15, Surf., IAA 122218. Figure 31.1a.

Amaury I, 1163-1173 CE.
Obv. + AMALRICVS REX Cross patteé.
Rev. + DE IERVSALEM Church of Resurrection.
š denier, $0.86 \mathrm{~g}, 19 \mathrm{~mm}$, ã axis.
Metcalf (1987:92, no. 4, this coin).
2. Reg. No. 10/15, Surf., IAA 122217. Figure 31.1b. Amaury I, 1163-1173 CE. Obv. + AMALRICVS REX Cross patteé.
Rev. + DE IERVSALEM Church of Resurrection.
š denier, $0.82 \mathrm{~g}, 19 \mathrm{~mm}$, ä axis.
Metcalf (1987:91, no. 3, this coin).

## Series with Double A Issues

3. Reg. No. 3/15, Surf., IAA 122220. Figure 31.1c. Amaury I, 1163-1173 CE.
Obv. + AMALRICVS REX Cross patteé.
Rev. + DE IERVSALEM Church of Resurrection.
š denier, $0.90 \mathrm{~g}, 18 \mathrm{~mm}$, ã axis.
Metcalf (1987:91, no. 6, this coin).
4. Reg. No. 8/15, Surf., IAA 122219. Figure 31.1d. Amaury I, 1163-1173 CE.
Obv. + AMALRICVS REX Cross patteé.
Rev. + DE IERVSALEM Church of Resurrection. š denier, $0.92 \mathrm{~g}, 18 \mathrm{~mm}$, â axis.
Metcalf (1987:91, no. 5, this coin).

## Series with Chevron A Issues

5. Reg. No. 9/15, Surf., IAA 122215. Figure 31.1e. Amaury I, 1163-1173 CE.
Obv. + AMALRICVS REX Cross patteé.
Rev. + DE IERVSALEM Church of Resurrection.
š denier, $1.02 \mathrm{~g}, 17 \mathrm{~mm}$, ä axis.
Metcalf (1987:91, no. 1, this coin).
6. Reg. No. 11/15, Surf., IAA 122216. Figure 31.1f. Amaury I, 1163-1173 CE.
Obv. + AMALRICVS REX Cross patteé.
Rev. + DE IERVSALEM Church of Resurrection.
š denier, $0.60 \mathrm{~g}, 17 \mathrm{~mm}$, ä axis.
Metcalf (1987:91, no. 2, this coin).

## Series with Dotted-Chevron A Issues

7. Reg. No. 4/15, Surf., IAA 122222. Figure 31.1g. Amaury I, 1163-1173 CE.
Obv. + AMALRICVS REX Cross patteé.
Rev. + DE IERVSALEM Church of Resurrection. š denier, $0.97 \mathrm{~g}, 17 \mathrm{~mm}, ~ ß$ axis.
Metcalf (1987:92, no. 8, this coin).
8. Reg. No. 1/15, Surf., IAA 122223. Figure 31.1h. Amaury I, 1163-1173 CE.
Obv. + AMALRICVS REX Cross patteé.
Rev. + DE IERVSALEM Church of Resurrection.


FIGURE 31.1. The coins from the Crusader purse.
š denier, $1.03 \mathrm{~g}, 18 \mathrm{~mm}$.
Metcalf (1987:92, no. 9, this coin).
9. Reg. No. 7/15, Surf., IAA 122221. Figure 31.1i.

Amaury I, 1163-1173 CE.
Obv. + AMALRICVS REX Cross patteé.
Rev. + DE IERVSALEM Church of Resurrection.
š denier, $0.83 \mathrm{~g}, 17 \mathrm{~mm}, ~ ß$ axis.
Metcalf (1987:92, no. 8, this coin).
10. Reg. No. 2/15, Surf., IAA 122224. Figure 31.1j.

Lords of Melgueil, Languedoc, France 1050-1215 CE.
Obv. R $\wedge$ MVNOS Pale with two pennons.
Rev. N $\Lambda$ IBON $\Lambda$ Four annulets.
š obole, $0.25 \mathrm{~g}, 15 \mathrm{~mm}$.
Metcalf (1987:92, no. 10, this coin).
11. Reg. No. 6/15, Surf., IAA 122225. Figure 31.1k.

Bishops of Le Puy, 12th century CE.
Obv. Cross.
Rev. Chrimon.
š denier, $0.68 \mathrm{~g}, 18 \mathrm{~mm}$.
Metcalf (1987:92, no. 11, this coin).

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## NOTES

1. The hoard was reexamined by me after its registration in the National Treasures of Israel by the Smithsonian Institution, Washington D.C., in 2010. I thank David Ben-Shlomo for his assistance in bringing the coins over and initiating their final publication in this volume.
2. In many places the fiber stands were completely covered in green copper corrosion. The fibers showed the typical collapsed-tube morphology of cotton fibers twisting to the right or left without a particular pattern or sequence. The width of the fibers was $10-18 \mu \mathrm{~m}$. See an unpublished conservation report (No. 3551) by Catherine Valentour, conservator at the Smithsonian's Conservation Analytical Laboratory (presently the Museum Conservation Institute), dated 15 November 1983. I thank the Smithsonian Institution for providing me with a copy of the report.
3. An updated detailed analysis of the "regular" Amaury type minted during the 12th century CE based on excavation finds is currently in preparation by the author.
4. "Erat haec nostra moneta Pictavini, Cartenses, Manses, Luccenses, Valenziani, Melgorienses et duo pogesi pro uno istarum"; see Raymond of Aguilers (1968), Historia Francorum qui ceperunt Iherusalem, RHC Occ 3 (Recueil des Historiens des Croisades. Historiens occidentaux, Volume 3) (1866):278. The context of the passage was the capitulation of the Fatimid governor of Tripoli to the crusader army on May 13-14, 1099, and payment of a ransom of 15,000 dinars ("aureos Saracenae monetae"). Raymond of Aguilers, who finished his manuscript several years after the First Crusade, knew that his Western readers were completely unfamiliar with gold coins (reintroduced only in the second half of the 13th century CE after a 500 year absence). To impress his readers with the large amount of money involved, he made a simple calculation showing that one dinar equaled at least seven or eight coins of the money familiar to his region: "Valebat quipped unus aureus eo tempore octo vel novem solidos monetae nostri exercitus."
5. On the basis of an unpublished database/gazetteer of Crusader period finds that forms part of my Ph.D. research on the "Use of Coinage in the Latin Kingdom of Jerusalem (1099-1291)."
6. Burj al-Ahmar/Turris Rubea hoard (excavation), burial date ca. 1187 CE: 20 coins of Le Puy together with 4 regular Amalricus deniers (IAA 26892-
26910) and a denier from Gap (lost); several of the coins of Le Puy were stuck together in a rouleau, possible evidence that the coins were once held in a purse and then dispersed (Meshorer, 1986:175-176); Jaffo, crusader citadel(?) hoard, ca. 1190s CE (Metcalf, 2003-2006:138-139): two early Le Puy, six Amalricus coins, one Eudes of Burgundy, and one denier of the Priors of Souvigny; Jaffa-Yefet street hoard (excavation), around the end of the 12th century CE: a minihoard of three Le Puy deniers from a domestic-type context within the lower city faubourg intra muros (IAA 60290-60292, unpublished); Jerusalem "YMCA" hoard, ca. 1170s-1180s CE, two Le Puy and Melgueil deniers with some $\sim 150-200$ billon, including Chartres (1), Celles (2), Baldwin III (3), Amalricus (73; IAA 56505-56600); these coins arrived on the market with a number of the other 13th century CE coins (John de Brienne [1], Tripoli [2], Cyprus [10]), but it is not certain these belonged to the original hoard (Pesant, 1980:102-121); Jerusalem Citadel area hoard (excavation), ca. 1180s CE: one Le Puy denier with six Amalricus deniers (IAA 73198-73203, Metcalf, 1995:314).
7. From Acre: two excavated Melgueil deniers (IAA 102934, 102632) from the Eastern intra muros section of the Crusader period city (currently outside the Ottoman walls of the Old City; Akko, School for Maritime Officers excavation, 1998) and the Hospitaller compound excavation, 1994; two stray finds from Melgueil and Le Puy (Metcalf, 1995:359-360). From Jerusalem: two Melgueil deniers and one obole of the same mint apparently from the area north of the seven-arched entrance to the Crusader period Salomon's Stables on the Temple Mount (Temple Mount Sifting Project, 2004-2012); a Le Puy denier (IAA 38214, unpublished) from the cattle market/tannery area in the southeastern part of the Crusader period city of Jerusalem, Temple Mount excavations, 1968. From Jaffa: two deniers of Le Puy and Melgueil (IAA $60283,60285)$ from domestic structures in the fortified faubourg below the citadel (excavation, 1993, unpublished).
8. From Arsur/Arsuf: two Le Puy deniers (IAA 117042, 117102, unpublished) from the walled villeneuve of the castle (excavations). From Belinas/Banias: a Le Puy denier (IAA 61595, unpublished) found near the citadel area. From Beth Shean/Bethsan: a Le Puy denier (IAA 75222; stray find, unpublished).
9. Magen (2008:306) mentioned the dearth of 12th century CE billon coins at the site but noted the presence of post-1187 CE period billon(?) evidence of the continuous presence of European pilgrims after the Ayyubid conquest.

# Ostraca from Tell Jemmeh Haggai Misgav 

## INTRODUCTION

A group of 17 ostraca found in the Smithsonian Institution excavation at Tell Jemmeh are discussed in this chapter. These come from Iron IIB-C, Persian period, or unstratified contexts. The ostraca can be divided into two groups: one that is written in Hebrew script and dated to the late Iron Age or early Persian period. Two Hebrew ostraca were previously published by Naveh (1985:11-14 figs. 1-3, pls. 2C, 3), who suggested they contain non-Semitic personal names. These ostraca are presented with Naveh's and the current readings. In addition, Petrie also published a seal and an inscribed sherd, probably of the same period (Petrie, 1928: pl. XLIII:1,2; Naveh, 1985:9-10, 16, fig. 1:1,2). The second group is of Aramaic script and language, and these date later, probably to the late Persian period (5th-4th centuries BCE or later). In addition a collection of sherds with a single letter incised on them either before or after firing were also found in the site. These are presented in the chapter dealing with ceramic objects (chapter 19, Figures 19.3, 19.4).

## OSTRACA IN HEBREW SCRIPT

Of the four or five ostraca written in Hebrew script, two were published by Naveh (Figure 32.1a,b, SI Cat. Nos. 507, 233, 406; Naveh, 1985:11-13, figs. 1,2, pl. 3) and his reading is in parentheses. Naveh read in these ostraca names that are not Semitic, having an $\check{s}$ ending typical of Indo-European languages (see also Na'aman and Zadok, 1988:36-38). The script is typical of the 7th century BCE, and it is difficult to identify any special characteristics for this group beyond a personal style of writing.

Reg. No. 1959, SI Cat. No. 507, IAA No. 84-208. Context: GM 3B (11) 1, Phase IV-6, Iron IIB-C (Figure 32.1a).

Lhrš bn yhw[ ]q[...] (lhrš bn kš
'mnh 'gnh (wnnt'snš
Šlm 'nš[...]
b'š̌m'. II q (b'lšm' šgš)
rkh šm'š
$\mathrm{b}^{\mathrm{Cl}}$.[??]m II (b'l ḥmš
Ntn.nnš (ntn ppš

- --- (t šl)

```
להרש בנ יהו] [][... (להרש. (ל) בנ כש)
        אמנה אגנה (וננת אדנש)
    #שלמ אנש[ ]
    בעלשמא. II P (בעלשמא שגש)
                            הכר שמאש
    בעלא. [??][ם II (בעלא חמש)
        נתנ.ננש (שפפ נת)
            ----(טי של)
```

Apparently, in this ostracon there are fewer Philistine names than have been published, and some are Hebrew; the ostracon probably mentions a name beginning with "Yho" in the first line, even though the actual person is named brš. If this reading is correct, the text testifies to a mixture of population and/or significant cultural influences. Na'aman and Zadok (1988:36-42) suggested that these indicate the presence of deportees (possibly also from Iran) brought to the site by Sargon II and employed by the Assyrians. The script fits a dating of the 7th century BCE, and there are no differences between this script and the Hebrew script during this period (except for possible differences that can be attributed to personal style). Another difference between the current reading and Naveh's (1985:11, fig. 2:1) reading is an addition element reflecting numbers and quantities in the text (in the fourth and sixth lines). As most list names known to us from this period are receipts for commodities or supply lists, the appearance of single letters denoting figures and small


FIGURE 32.1. Hebrew ostraca from Tell Jemmeh.
numerals are not surprising. It should be noted that the ink on the ostracon is not very clear, and thus, any reading should be taken with reservation.

Reg. No. 1952, SI Cat. No. 233. Context: GM 1D (23A), Phase IV-5, Iron IIC fill (Figure 32.1b; Naveh, 1985:11, fig. 2:2).

| Klytbš II |  | II | בטילכש |
| :---: | :---: | :---: | :---: |
| Qlgryh $=($ qsryh $)$ | (יםריה) | = | קלגריה |
| ssbršyh (y.brṣy) | (י. ברציה) |  | צברשיה |
| Rwš III r (rwš III >) | (רוש | ר III | רוש |
| L |  |  |  |

In this sherd as well we are dealing with a list of names and numbers, and it includes names unknown in the Semitic vocabulary.

Reg. No. 1956, SI Cat. No. 406. Context: GM 2B (35) 2, Phase IV-5, Iron IIC, Building II (Figure 32.1c; Naveh, 1985:15, fig. 3, pl. 2C).

$$
\mathrm{I}=\mathrm{Z}
$$

The first sign is Z shaped, and it could be also a ', yod. Naveh read it as " 21 X " and dated it to the 7th century BCE.

Reg. No. 1967. Context: GM (+), unstratified (Figure 32.1d).
This ostracon is worn and blurred and cannot be read in this stage. Nevertheless, several identifiable letters are clearly in Hebrew script, typical for the 7th century BCE. Single letters that can be identified include a ${ }^{\prime}$, yod, and a $\beth$, beit, at the end of the second line (or possibly the third line) and possibly כלכ 'kl' in the bottom line.

Reg. No. 1958, SI Cat. No. 443, from jar RV 33. Context: GM 0A (9), Phase IV-5, Building I, Room E, Iron IIC (Figure 32.1e).
Ěqd.bl.qb שקד.בל.קב

The ostracon is very worn; the mention of $\check{s} q d$, "almond," possibly suggests the document deals with the marketing of almonds.

Summarizing these three Hebrew ostraca, a homogeneous picture of some economic activities, possibly commercial or agricultural, is reflected. Possibly, one may assume certain relationships between the Philistine and Judaic populations during the 7th century BCE according to these texts, yet all readings should be taken with extreme caution. Previously, analysis of excavations of Tel Miqne-Ekron, has suggested similar cooperation between these populations in relation to the olive oil industry (Gitin and Cogan, 1999). In the inscription from Tel Miqne, typical Semitic and Philistine names appear side by side and are attributed to the same family.

## ARAMAIC OSTRACA

The second group of ostraca from Tell Jemmeh is written in Aramaic script and language and dates probably to the 4th
century BCE or slightly later, i.e., the late Persian and possibly early Hellenistic periods. From this aspect this group fits well with the data arising from the collection of ostraca from southern Israel currently being published by B. Porten and A. Yardeni, Hebrew University (personal communication) and the group of ostraca from Beer-Sheba and 'Arad (Naveh, 1973, 1986), all dated roughly to the same period. All the Jemmeh ostraca probably also deal with some economic activities or transactions and include names, numbers, few dates references (which are not datable), and names of commodities and products. The private names that were preserved are very few and include זבידי, zbeidi, which is an Arabian name, and בעל נבו, ba'al nebo, which is a combination of an Acadian god's name with the Semitic "Ba'al"; also, נתתן, natan, is a common name in all ethnic groups of the Levant. There are no names with the theophoric element of יהו, Yho.

Reg. No. 1948, SI Cat. No. 171, IAA No. 03-238. Context: GM 1C (2A), Phase IV-2?, Persian period? (Figure 32.2a).

| s(yw? ${ }^{\text {d }}$ dm ntn | צ(יו?)דמי נתנ |
| :---: | :---: |
| krm?dwy | כרע?דוי |

The meaning of these words is not clear; the sherd possibly includes names including the word krm, "vineyard" (as in Figure $32.3 \mathrm{c})$.

Reg. No. 1847, SI Cat. No. 170, IAA No. 03-237. Context: GM $1 \mathrm{C}(0)$, unstratified (Figure 32.2b).
dkrṣ̣̆r $\quad$ דכרצחר
Possibly, this refers to wool of a male, probably a white deer.
Reg. No. 1949, SI Cat. No. 177, IAA No. 03-239. Context: GM 2A (5) 2, Phase IV-2? Persian? (Figure 32.2c).

```
hmrpp חמר פ
Štbr שתבר
```

The script of this ostracon seems earlier, and it dates to the earlier Persian period (5th century BCE). It mentions the word $h m r$ (wine) probably with a personal name (as in Figure 32.3d).

Reg. No. 1951, SI Cat. No. 200, IAA No. 03-240. Context: GM 2D (+), unstratified (Figure 32.3b).

$$
\text { [b]šnt II } \quad \text { II שבת }]
$$

The writing reads "year 2," but there is no way to say what year that is. This possibly refers to the second year of one of the first Ptolemaic kings (late 4th to early 3rd centuries BCE).

Reg. No. 1953, SI Cat. No. 293. Context: GM 2D (6), postgranary fill, Persian period (Figure 32.3a).

B III [III?]
[?III ]IIII ב
L[...]
Šqyn III III I [...]yn
(possibly numbers) [...] ל
שקין III III III I....]
Clearly, this is a dispatch document of some commodities (with the word "sacks"), going by the date appearing in the text,


FIGURE 32.2. Aramaic ostraca from Tell Jemmeh.
of which only the beginning of the day in the month is preserved, with some vague remains of letters and numbers.

Reg. No. 1960, SI Cat. No. 940, IAA No. 03-231. Context: GMIII A1 P1, Phase III-1?, Persian granary? (Figure 32.3c).

| hamr krm | חמר כרמ |
| :---: | :---: |
| Zby[dy] | זרי[די] |
| Sr/dmyt ${ }^{\text {² }}$ | סר/דמיתא |

The ostracon reads, "wine of the vineyard of Zudeidi, Sermita or Sedmita (Sodomite?)," noting wine from a person's vineyard and probably the type of the wine. The reconstruction of the name is according to Figure 32.3d (Reg. No. 1962; see below). Zubeidi is an Arabian name in the diminutive form. This name is also found in contemporary inscriptions from Be'er Sheva and 'Arad (Naveh, 1973, 1986). Another Aramaic ostracon from Ashdod also read "the vineyard of Zebadiah" (זבדיה כרם; Dothan, 1971: pl. XIII:1); there Naveh (1971) dated the


FIGURE 32.3. Aramaic ostraca from Tell Jemmeh.
script to the mid-5th century BCE and considered this to be a Hebrew name.

Reg. No. 1962, SI Cat. No. 952, IAA No. 03-236. Context: GMIII A1 P1, Phase III-1?, Persian granary? (Figure 32.3d).

```
hmr חמר 
Zbydy
זביד
```

See Reg. No. 1960 (Figure 32.3c) above.
Reg. No. 1961, SI Cat. No. 951, IAA No. 03-242. Context: GMIII A1 P1, Phase III-1?, Persian granary? (Figure 32.4a).
m'yn II
מעין II
This ostracon denotes a sum of money; no other names were preserved.

Reg. No. 1950, SI Cat. No. 190, IAA No. 03-232. Context: GM 2C (6) 2, postgranary fill, Persian period (Figure 32.4c).

Byt (ḥnn?) dḥt [yn? [ b'lnbw br [ntn?] Qbn ḥmšh dḥn [.....] III [...]

בית (חננ?) דחט[יץ?] בעלנבו בר (נתנ?)

The ostracon reads, "house (name) of wheat (name) 5 kabin of millet." Possibly, we are dealing here with a piece of land whose size is big enough to plant a certain amount of wheat. This amount is customary and has some references in Jewish sources, such as "beit se'ah zer'a" or "beit seataim" (בית סאתים; בית שאה זרע, a piece of land sufficient for growing these quantities of grain. Two names are possibly mentioned here: Hanan and Ba'al Nevo Bar Natan.

Reg. No. 1955, SI Cat. No. 295, IAA No. 03-235. Context: GM 2D (11), Phase IV-3, granary floor, Persian period (Figure 32.4b).

$$
\begin{array}{lr}
\text { B III l’dr? } \\
\text { בקין? } \text { SIIqyn? }
\end{array}
$$

The reading here is very difficult; as the word "sacks" (Šqyn) appears, this is possibly also a dispatch list or order.

Reg. No. 1963, SI Cat. No. 984, IAA No. 03-241. Context: GMIII A1 P1, Phase III-1, Persian granary? (Figure 32.4d).

A separation line between two lines of an inscription are visible; possibly, there were three lines: in the first the letter aleph
can be identified, and in the second the letter shin can be identified; the other signs are shadows of letters and are unreadable.

Reg. No. 1957, SI Cat. No. 407, IAA No. 84-206. Context: GM 1B (14) 2, Phase IV-5, Building I, Room A, Iron IIC (Figure 32.4e; Naveh, 1985:19, fig. 5, pl. 4D).
${ }^{0000}$ bšnt
0000 בשנת
------ ('1 yd)
----- (על יד)
hrwf? (h 2 p)
Egyptian numerals ( )
חרוף? (ח 2 פ)

On the top part of the sherd there are several open circles; it is doubtful these are letters (Naveh suggests these are a series of 'Ain letters). The word ḅaruf is a sheep in Arabic and Palestinian Aramaic. This is possibly a document dealing with the marketing of sheep's wool. Naveh also notes this as an ostracon in Aramaic script but also compares it with Assyrian dockets from Assur (Naveh, 1985:19, possibly dealing with grain) and defines it as a "7th century Aramaic script" (the word bšnt is Hebrew); this would fit its 7th century BCE context in Building I in Field IV.

A polished bone from the Iron IIC levels (Building III) with a Hebrew inscription in ink on it (Figure 8.106h, Reg. No. 4138) should also be noted. The letter $\amalg$, shin, and possibly $\kappa$, aleph, could be identified on it.

Summarizing this group of ostraca, a picture quite similar to those from other contemporary assemblages arises (Beer-Sheba and 'Arad). The population conducting the commercial activities at the site, as far as the very few private names preserved may indicate, was probably of mixed local and Arabian origin. In contrast to other sites from this period, no Edomite or Hebrew names appear, but as mentioned, there are too few names to draw any further conclusions.

## APPENDIX: A JAR WITH A SOUTH ARABIAN SCRIPT SIGN

Gus W. Van Beek

SI Cat. No. 313.1, RV 673 (Figure 32.4f; see also Figure 8.259a; Van Beek, 1989a: ill. 5).

The sign was marked with ink on a sherd that was restored on the top part of a Persian period jar found in the granary area

TABLE 32.1. Additional ostraca and possible ostraca from Tell Jemmeh. IAA = Israel Antiquities Authority.

| SI Cat. No. | Reg. No. | Provenance | IAA No. | Phase/period | Location |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 294 | 1954 | GM 2D (9) | $03-233$ | Postgranary (IV-3) fill (Persian) | IAA |
| 294.1 |  | GM 2D (6) | $03-234$ | Postgranary (IV-3) fill (Persian) | IAA |
| 985 | 1964 | GMIII A1 P1 | פ-567683 | III-1? (Persian granary?) | IAA |
| 986 | 1965 | GMIII A1 P1 | פ-567667 | III-1? (Persian granary?) | IAA |


$0 \quad 2 \mathrm{~cm}$
d


FIGURE 32.4. Various ostraca from Tell Jemmeh.
(Figure 8.259a). This seems to be a south Arabian script sign. A somewhat similar monogram reads 'abi or 'amm, meaning "my father" (Grohmann, 1963:242, fig. 109). A somewhat similar sign was recorded to have been found on a sherd from another similar jar in the granary area (SI Cat. No. 394, Van Beek, 1989a: ill. 4, here Figure 8.259b).

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# Temporal Trends in Animal Exploitation: Faunal Analysis from Tell Jemmeh 

 Edward F. Maher
## INTRODUCTION

Tell Jemmeh has revealed a long occupational sequence that spans, with minimal interruption, from the Chalcolithic to the Islamic periods. The field operations advanced archaeological methodologies in the region in that all artifacts and ecofacts were collected and saved, including the remains of animals on which the ancient community relied for a number of different products and services. Contemporary with Van Beek's field investigations at the site, Brian Hesse and Paula Wapnish were appointed the task of processing and studying the massive faunal sample recovered. In fact, at one point it was considered to be the largest such assemblage from a historical site in the southern Levant. Their efforts led to the presentation of multiple conference papers at professional academic meetings (e.g., Hesse and Wapnish, 1980, 1984b; Wapnish, 1981b; Wapnish and Hesse, 1982, 1984) as well as peer-reviewed publications (Wapnish, 1981a, 1996, 1997; Hesse and Wapnish, 1984a, 1985; Wapnish and Hesse, 1988). Their report on the fauna from Tell Jemmeh studied by them is published elsewhere (Wapnish, In press, after Hesse and Wapnish, 1984b). The research conducted by Hesse and Wapnish was critical for the development of zooarchaeology in that they clearly demonstrated the utility of a synthetic approach that incorporated faunal evidence with archaeology, anthropology, and historical studies to formulate a more complete understanding of ancient animal use as practiced by ancient communities. Simply put, their work was ahead of its time. More zooarchaeologists currently active in the field would do well to follow their example by emphasizing the interpretive value of faunal remains by underscoring cultural and historical themes and processes rather than strictly adhering to zoological taxonomy, morphologies, and metrics. Certainly, the zoological data are of critical importance and represent a cornerstone of zooarchaeology, but every effort must be made to render the faunal remains archaeologically meaningful not just to other faunal analysts but also to archaeologists in general.

In 2011 a small unstudied component of the faunal sample from the Tell Jemmeh excavations was analyzed and studied by the author. This chapter details the results of the study, a hand-collected zooarchaeological assemblage recovered from five fields of excavation at Tell Jemmeh, designated as GM ST1, GMI (including FUR and KB), GMII, GMIII, and GM (Table 33.1). The faunal assemblage is derived from all of the main periods of occupation, which begins in the Chalcolithic and continues from the Middle Bronze Age IIB-C to the Hellenistic period, as well as a small sample from the Islamic period. The assemblage was recovered from multiple years of field excavation, as early as 1972 and as recent as 1990 . This study consists of a total of 1,727 animal bones and bone fragments (of which 399 , or $23 \%$, were identified) from at least 12 different species (Tables 33.2 and 33.3).


#### Abstract

METHODS

Species identification was assisted by Boessneck (1969), Schmid (1972), Payne (1985), and Prummell and Frisch (1986). Because of the morphological and size similarity between sheep and goats, most of their remains were combined into a caprine category whenever precise taxonomic distinction between the two was not possible. For the bones that could not be identified, a size-based taxonomy comprising three classes was used: small, medium, and large mammals. Some of the remains in an advanced state of fragmentation could not be assigned to a size-based division and were considered unidentifiable.


TABLE 33.1. Faunal distribution by time period and field of excavation at Tell Jemmeh

| Period | Fields of excavation |  |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | GM ST1 | GMI | GMII | GMIII | GM |  |
| Chalcolithic |  |  |  | 4 |  | 4 |
| MBIIB-C | 706 |  |  | 12 |  | 718 |
| MBIIB-C/LBII |  | 55 |  | 3 |  | 58 |
| LBII |  | 359 | 58 | 28 |  | 445 |
| Iron IB |  | 21 | 6 | 17 |  | 44 |
| Iron II |  | 27 |  |  |  | 27 |
| Iron IIA |  |  | 7 | 1 | 12 | 20 |
| Iron IIB |  |  |  |  | 41 | 41 |
| Iron IIC |  |  |  |  | 303 | 303 |
| Persian |  |  |  |  | 22 | 22 |
| Persian/Hellenistic |  |  |  |  | 40 | 40 |
| Islamic |  |  | 5 |  |  | 5 |
| Total | 706 | 462 | 76 | 65 | 418 | 1727 |

TABLE 33.2. Species distribution with associated field of excavation at Tell Jemmeh.

| Species | Field |  |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | GM ST1 | GMI | GMII | GMIII | GM |  |
| Cattle, Bos taurus | 15 | 22 | 4 | 2 | 10 | 53 |
| Dog, Canis familiaris |  | 1 | 1 | 1 |  | 3 |
| Equid, Equus sp. |  | 1 |  |  |  | 1 |
| Cat, Felis sp. |  |  |  |  | 3 | 3 |
| Fish |  | 2 | 2 |  | 5 | 9 |
| Medium bird |  |  |  |  | 1 | 1 |
| Hare, Lepus sp. |  |  |  |  | 1 | 1 |
| Sheep/goat, Ovis/Capra | 64 | 69 | 26 | 14 | 113 | 286 |
| Pig, Sus scrofa | 36 |  |  |  |  | 36 |
| Turtle |  |  |  |  | 6 | 6 |
| Small mammal |  |  |  | 1 |  | 1 |
| Medium mammal | 281 | 170 | 33 | 29 | 150 | 663 |
| Large mammal | 24 | 28 |  | 7 | 21 | 80 |
| Unidentified | 286 | 169 | 10 | 11 | 108 | 584 |
| Total identified | 115 | 95 | 33 | 14 | 139 | 399 |
| Total | 706 | 462 | 76 | 65 | 418 | 1727 |

Mortality profiles, cultural modifications, and methods of quantification are important details to document in a faunal assemblage. Determining age at death was estimated using postcranial epiphyseal fusion rates (Silver, 1969) and dental attrition scores and eruption times for sheep and goats (Payne, 1973; Zeder, 1991:93). The mortality data for cattle was based on postcranial remains (Silver, 1969). Cut marks were considered in light of Binford's (1981) work that established how butchery intent can be inferred via cut mark placement and orientation on
the animal bones. His coding system (e.g., Hd-1, PS-8) pertains to marks made during processes of dismemberment, skinning, and filleting. It has been demonstrated experimentally that the color of burnt bone can reflect firing temperatures, where brown and black bones are associated with cooler temperatures than bones colored white or blue gray (Shipman et al., 1984; Nicholson, 1993). To reduce subjectivity, the color of each burnt bone was coded using the Munsell Soil Color Chart (1954) because it offers a standardized replicable method of description. The

TABLE 33.3. Faunal abundance by time period. NISP = number of identifiable specimens.

| Species | Period |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Chalcolithic |  | MBIIB-C |  | MBIIC/LBII |  | LBII |  | Iron IB |  | Iron II |  |
|  | NISP | NISP \% | NISP | NISP \% | NISP | NISP \% | NISP | NISP \% | NISP | NISP \% | NISP | NISP \% |
| Cattle, Bos taurus |  |  | 15 | 13\% | 1 | 11\% | 25 | 24\% | 1 | 8\% | 1 | $25 \%$ |
| Dog, Canis familiaris |  |  | 1 | 1\% |  |  | 1 | 1\% | 1 | 8\% |  |  |
| Equid, Equus sp. |  |  |  |  |  |  | 1 | 1\% |  |  |  |  |
| Cat, Felis sp. |  |  |  |  |  |  |  |  |  |  |  |  |
| Fish |  |  |  |  |  |  |  |  | 1 | 8\% | 1 | 25\% |
| Medium bird |  |  |  |  |  |  |  |  |  |  |  |  |
| Hare, Lepus sp. |  |  |  |  |  |  |  |  |  |  |  |  |
| Pig, Sus scrofa |  |  | 36 | 31\% |  |  |  |  |  |  |  |  |
| Sheep/goat, Ovis/Capra | 4 | 100\% | 65 | 56\% | 8 | 89\% | 79 | 75\% | 9 | 75\% | 2 | 50\% |
| Sheep, Ovis aries |  |  | 6 |  |  |  | 5 |  |  |  |  |  |
| Goat, Capra hircus |  |  |  |  |  |  | 2 |  | 5 |  |  |  |
| Turtle |  |  |  |  |  |  |  |  |  |  |  |  |
| Small mammal |  |  |  |  |  |  | 1 |  |  |  |  |  |
| Medium mammal |  |  | 286 |  | 46 |  | 140 |  | 23 |  | 13 |  |
| Large mammal |  |  | 25 |  | 3 |  | 28 |  | 2 |  | 1 |  |
| Unidentified |  |  | 290 |  |  |  | 170 |  | 7 |  | 9 |  |
| Total Identified | 4 |  | 117 |  | 9 |  | 106 |  | 12 |  | 4 |  |
| Total | 4 |  | 718 |  | 58 |  | 445 |  | 44 |  | 27 |  |

fauna was quantified using number of identifiable specimens (NISP) values, representing the number of fragments per taxon.

## RESULTS

## Chalcolithic Period

Fauna from Chalcolithic contexts was only found in Field III, Phase 19 (Tables 33.1 and 33.3). A total of four animal bones were collected from a pit in Square C3, Layer P3. All of the bones were identified as domestic sheep/goat and consisted of one upper molar and three rib fragments.

## Middle Bronze IIB-C

Most of the MBIIB-C fauna comes from ST1, although a small quantity has also been recovered in Field III (Table 33.1). There were no buildings defined in ST1, with sloping walls being the only architecture (see chapter 5). The fauna is derived from multiple contexts (Layers 1, 2, 3, 4, 4B, 5, 6, 7, 8, 10, and 19). This is the single largest sample of this study consisting of a total of 718 bones, of which 117 ( $16 \%$ ) could be identified (Table 33.3). Most of the remains consist of sheep/goat, pigs, and cattle (Table 33.4). This is also the only period with any evidence for pork consumption. The unexpected high incidence of pork ( $31 \%$ ) probably reflects the small sample size.

Cattle were culled at different ages: before 18 months of age (three unfused first proximal phalanx), after 18 months (fused proximal second phalanx), and after 3.5-4 years (unfused distal ulna). One piglet was killed during its first year (unfused proximal second phalanx), which agrees with an unfused distal radius epiphyses (less than 12 months) and five unfused metacarpals (less than 2 years). Two unerupted first lower molars (aged less than 4-6 months) further indicate that pigs were slaughtered early in life. On the basis of this evidence, the pigs were probably domesticated since juveniles are considered a signature of culling domestic stock rather than hunting wild game (Wapnish and Hesse, 1988:85; Horwitz, 2007:3). As pigs offer few secondary products, early culling indicates an interest in pork consumption. Caprids were culled at various stages of life. Juveniles were taken before 10 months old (unfused distal humerus and unfused acetabulum) and younger than 13-16 months (unfused first phalanx). Caprids with unfused distal radii, unfused humerus, and unfused proximal ulna signal animals taken before they were 2.5-3.5 years old. Fused epiphyses on a proximal humerus (older than 10 months), proximal second phalanx (at least 13-16 months of age), and proximal femur (at least $2.5-3$ years old) may indicate the same or multiple specimens.

Certain bones in the sample were culturally modified. Sixteen bones, all unidentified medium or large mammals, exhibited three distinct color classes: 10 brown (10YR 3/4) and 4 black ( 10 YR $2 / 1$ ) bones were fired at relatively cooler heat registers and likely indicate meal preparation. Two gray bones (10YR 4/1)

| Iron IIA |  | Iron IIB |  | Iron IIC |  | Persian |  | Persian/Hellenistic |  | Islamic |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NISP | NISP \% | NISP | NISP \% | NISP | NISP \% | NISP | NISP \% | NISP | NISP \% | NISP | NISP \% |  |
| 2 | 15\% | 2 | 13\% | 6 | 6\% |  |  |  |  |  |  | 53 |
|  |  |  |  |  |  |  |  |  |  |  |  | 3 |
|  |  |  |  |  |  |  |  |  |  |  |  | 1 |
|  |  |  |  | 3 | 3\% |  |  |  |  |  |  | 3 |
| 2 | 15\% | 1 | 6\% | 4 | 4\% |  |  |  |  |  |  | 9 |
|  |  | 1 | 6\% |  |  |  |  |  |  |  |  | 1 |
|  |  |  |  | 1 | 1\% |  |  |  |  |  |  | 1 |
|  |  |  |  |  |  |  |  |  |  |  |  | 36 |
| 3 | 23\% | 12 | 75\% | 84 | 86\% | 8 | 100\% | 7 | 100\% | 5 | 100\% | 286 |
|  |  | 1 |  | 17 |  |  |  | 2 |  | 3 |  | 30 |
|  |  |  |  | 3 |  |  |  |  |  |  |  | 10 |
| 6 | 46\% |  |  |  |  |  |  |  |  |  |  | 6 |
|  |  |  |  |  |  |  |  |  |  |  |  | 1 |
| 7 |  | 13 |  | 109 |  | 9 |  | 17 |  |  |  | 663 |
|  |  | 6 |  | 4 |  | 1 |  | 10 |  |  |  | 80 |
|  |  | 6 |  | 92 |  | 4 |  | 6 |  |  |  | 584 |
| 13 |  | 16 |  | 98 |  | 8 |  | 7 |  | 5 |  | 399 |
| 20 |  | 41 |  | 303 |  | 22 |  | 40 |  | 5 |  | 1727 |

fired at higher temperatures indicate a more intensive combustive event; one of the gray bones associated with hearth fragments may have been introduced as refuse or fuel. Four sheep/goat and two pig bones were butchered. The cut marks appear along the distal scapula (S-1), acetabulum (PS-8), and proximal metacarpal (MCp-1). Each of these marks indicates general dismembering. Fragments of pig mandibles were also cut to perhaps remove the animal's tongue or cheek meat. Eleven bones, a mix of ribs and limbs, exhibited a very high degree of smooth surface polish. Since the polish also appears on the interior of the bone, it may be the result of having been boiled in hot liquid as a soup or stew. Contacting the sides of the vessel, stirring utensil, and other bones could have produced the observed abrasion pattern. Seven rib fragments, perhaps originally all part of the same artifact, exhibited an extremely smooth polished surface, which also demonstrated unidirectional marks on the surface, suggesting a repetitive motion.

## MBIIB-C/LBII (Phase III-14)

Most of the fauna from the MBIIB-C/LBII contexts was found in Field I, although a few bones also come from Field III (Table 33.1). A total of 58 bones date to this phase, with only $9(16 \%)$ identifiable (Table 33.3). One cattle thoracic vertebra was found along with caprine cranial and postcranial remains. One sheep/goat was killed after it was 10 months old (fused distal humerus). One caprine proximal metacarpal was burned black (10YR 2/1).

## Late Bronze Age II

Most of the LBII fauna came from Field I, although smaller samples were also discovered in Fields II and III (Table 33.1). The LBII fauna is the second largest sample in this study, with a total of 445 bones, of which 106 ( $24 \%$ ) could be identified. Most of the assemblage consists of cattle and caprids (Tables 33.3 and 33.5).

Twenty-five caprine bones provided age-related data based on rates of long bone fusion (Table 33.6). The resulting mortality profile (Figure 33.1) suggests more interest in culling younger animals. One mandible with a first molar demonstrated wear consistent with a juvenile aged 6-12 months at death. It seems sheep and goats were more prized for their meat rather than secondary products. Although the mortality profile may illustrate actual LBII animal management, it could also reflect the small sample size on which the reconstructed culling patterns are based.

Some of the remains were culturally modified through burning and butchery. A total of 25 bones were burnt. Fifteen were black (10YR 2/1) and are associated with cooler temperatures likely associated with cooking meat (Table 33.7). Evidence for hotter temperatures such as gray, blue gray, and white illustrates a different activity that perhaps centered on disposal. A total of 10 bones were butchered. Most of the cuts were indicative of general dismembering procedures such as those on a cattle astragalus (TA-2) and rib (RS-3). Dismembering was also found on caprine remains: humerus (Hd-1), ischium (PS-7), proximal

TABLE 33.4. MBIIB-C animal skeletal parts.

| Bone and portion | Cattle | Sheep/goat | Pig | Total | Bone and portion | Cattle | Sheep/goat | Pig | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Astragalus |  | 1 |  | 1 | Metacarpal II |  |  | 1 | 1 |
| Fragment |  | 1 |  | 1 | Whole |  |  | 1 | 1 |
| Calcaneum | 2 |  |  | 2 | Metacarpal III |  |  | 1 | 1 |
| Fragment | 2 |  |  | 2 | Whole |  |  | 1 | 1 |
| Carpal | 3 | 3 | 2 | 8 | Metacarpal IV |  |  | 2 | 2 |
| Fragment | 2 |  |  | 2 | Proximal |  |  | 1 | 1 |
| Whole | 1 | 3 | 2 | 6 | Whole |  |  | 1 | 1 |
| Cranial |  |  | 2 | 2 | Metacarpal IV |  |  | 1 | 1 |
| Fragment |  |  | 2 | 2 | Whole |  |  | 1 | 1 |
| Femur |  | 1 |  | 1 | Metapodial |  | 3 |  | 3 |
| Proximal |  | 1 |  | 1 | Distal |  | 1 |  | 1 |
| Horn core | 1 |  |  | 1 | Proximal |  | 2 |  | 2 |
| Fragment | 1 |  |  | 1 | Orbital |  | 1 |  | 1 |
| Humerus |  | 8 |  | 8 | Fragment |  | 1 |  | 1 |
| Distal |  | 3 |  | 3 | Phalanx 1 | 2 | 3 |  | 5 |
| Proximal epiphysis |  | 1 |  | 1 | Distal |  | 3 |  | 3 |
| Shaft |  | 4 |  | 4 | Fragment | 1 |  |  | 1 |
| Incisor |  | 2 | 3 | 5 | Proximal | 1 |  |  | 1 |
| Fragment |  | 2 | 3 | 5 | Whole | 1 | 1 |  | 2 |
| Incisor lower |  | 1 | 1 | 2 | Phalanx 2 | 1 | 1 | 1 | 3 |
| Fragment |  | 1 | 1 | 2 | Fragment | 1 |  |  | 1 |
| Lateral malleolus | 1 |  |  | 1 | Whole |  | 1 | 1 | 2 |
| Whole | 1 |  |  | 1 | Phalanx 3 |  |  | 1 | 1 |
| M1 lower |  | 1 | 2 | 3 | Whole |  |  | 1 | 1 |
| Fragment |  | 1 |  | 1 | Pelvis | 1 | 3 |  | 4 |
| Whole |  |  | 2 | 2 | Acetabulum | 1 | 1 |  | 2 |
| M1/M2 lower |  | 1 |  | 1 | Ischium |  | 2 |  | 2 |
| Whole |  | 1 |  | 1 | Premolar lower |  |  | 3 | 3 |
| M2 lower |  | 1 |  | 1 | Fragment |  |  | 3 | 3 |
| Fragment |  | 1 |  | 1 | Upper Premolar 3 |  |  | 1 | 1 |
| M3 lower |  | 2 | 2 | 4 | Fragment |  |  | 1 | 1 |
| Fragment |  | 2 | 2 | 4 | Radius | 1 | 4 | 1 | 6 |
| M3 upper |  | 1 |  | 1 | Distal | 1 |  |  | 1 |
| Fragment |  | 1 |  | 1 | Distal epiphysis |  | 1 | 1 | 2 |
| Mandible |  | 4 | 2 | 6 | Shaft |  | 2 |  | 2 |
| Condyle |  | 1 |  | 1 | Whole |  | 1 |  | 1 |
| Coronoid process |  | 1 |  | 1 | Scapula |  | 1 |  | 1 |
| Fragment |  | 2 | 2 | 4 | Distal |  | 1 |  | 1 |
| Maxilla |  | 1 | 1 | 2 | Tibia | 1 | 1 |  | 2 |
| Fragment |  | 1 | 1 | 2 | Distal | 1 |  |  | 1 |
| Molar |  | 4 | 7 | 11 | Shaft |  | 1 |  | 1 |
| Fragment |  | 4 | 7 | 11 | Ulna | 1 | 2 |  | 3 |
| Molar lower |  | 8 |  | 8 | Distal |  | 1 |  | 1 |
| Fragment |  | 8 |  | 8 | Proximal | 1 | 1 |  | 2 |
| Molar upper |  | 2 |  | 2 | Vertebrae |  | 1 | 1 | 2 |
| Fragment |  | 2 |  | 2 | Thoracic process |  | 1 | 1 | 2 |
| Metacarpal |  | 3 | 1 | 4 | Total | 15 | 65 | 36 | 116 |
| Distal epiphysis |  |  | 1 | 1 | Total | 15 | 6 | 36 | 116 |
| Proximal |  | 1 |  | 1 |  |  |  |  |  |
| Shaft 2 |  | 2 |  |  |  |  |  |  |  |

TABLE 33.5. LBII animal skeletal parts.

| Bone and portion | Cattle | Sheep/goat | Total | Bone and portion | Cattle | Sheep/goat | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Astragalus | 2 |  | 2 | Naviculo-cuboid | 1 |  | 1 |
| Distal | 1 |  | 1 | Fragment | 1 |  | 1 |
| Fragment | 1 |  | 1 | Phalanx 1 | 1 | 4 | 5 |
| Calcaneum |  | 3 | 3 | Distal | 1 | 2 | 3 |
| Fragment |  | 1 | 1 | Proximal |  | 1 | 1 |
| Proximal epiphysis |  | 2 | 2 | Whole |  | 1 | 1 |
| Carpal | 2 | 2 | 4 | Phalanx 2 | 2 | 4 | 6 |
| Whole | 2 | 2 | 4 | Distal | 1 |  | 1 |
| Cuneiform | 1 |  | 1 | Fragment | 1 |  | 1 |
| Whole | 1 |  | 1 | Whole |  | 4 | 4 |
| Femur |  | 3 | 3 | Phalanx 3 | 2 | 1 | 3 |
| Proximal |  | 1 | 1 | Fragment | 2 |  | 2 |
| Proximal epiphysis |  | 1 | 1 | Whole |  | 1 | 1 |
| Shaft |  | 1 | 1 | Pelvis |  | 4 | 4 |
| Humerus | 3 | 5 | 8 | Ilium |  | 1 | 1 |
| Distal |  | 2 | 2 | Ischium |  | 1 | 1 |
| Proximal |  | 1 | 1 | Pubis |  | 2 | 2 |
| Shaft | 3 | 2 | 5 | Premolar | 1 |  | 1 |
| Incisor | 2 | 1 | 3 | Fragment | 1 |  | 1 |
| Fragment | 2 | 1 | 3 | Premolar upper | 1 | 1 | 2 |
| M1 lower |  | 3 | 3 | Fragment |  | 1 | 1 |
| Fragment |  | 2 | 2 | Whole | 1 |  | 1 |
| Whole |  | 1 | 1 | Radius | 1 | 4 | 5 |
| Mandible |  | 4 | 4 | Distal |  | 2 | 2 |
| Condyle |  | 1 | 1 | Proximal | 1 | 1 | 2 |
| Coronoid process |  | 1 | 1 | Shaft |  | 1 | 1 |
| Fragment |  | 2 | 2 | Rib | 2 | 4 | 6 |
| Maxilla | 1 |  | 1 | Proximal | 2 | 4 | 6 |
| Fragment | 1 |  | 1 | Scapula |  | 3 | 3 |
| Molar | 1 | 9 | 10 | Distal |  | 2 | 2 |
| Fragment | 1 | 9 | 10 | Fragment |  | 1 | 1 |
| Molar lower |  | 1 | 1 | Skull |  | 1 | 1 |
| Fragment |  | 1 | 1 | Fragment |  | 1 | 1 |
| Molar upper |  | 1 | 1 | Tibia | 1 | 1 | 2 |
| Fragment |  | 1 | 1 | Proximal | 1 |  | 1 |
| Metacarpal |  | 3 | 3 | Shaft |  | 1 | 1 |
| Distal |  | 1 | 1 | Tooth |  | 1 | 1 |
| Proximal |  | 1 | 1 | Fragment |  | 1 | 1 |
| Shaft |  | 1 | 1 | Vertebra |  | 13 | 13 |
| Metapodial |  | 2 | 2 | Caudal |  | 1 | 1 |
| Distal |  | 1 | 1 | Centrum |  | 5 | 5 |
| Distal epiphysis |  | 1 | 1 | Process |  | 6 | 6 |
| Metatarsal | 1 | 1 | 2 | Thoracic process |  | 1 | 1 |
| Distal |  | 1 | 1 | Total | 25 | 79 | 104 |
| Fragment | 1 |  | 1 | Total | 25 |  | 104 |

TABLE 33.6. Late Bronze Age II caprine fusion data.

| Bone and portion | Quantity | Rate of fusion | Age range |
| :--- | :---: | :--- | :---: |
| Unfused scapula | 1 | Less than $6-8$ months | $6-10$ months |
| Fused scapula | 1 | Greater than $6-8$ months |  |
| Unfused distal humerus | 1 | Less than 10 months |  |
| Fused distal humerus | 2 | Greater than 10 months |  |
| Fused proximal radius | 1 | Greater than 10 months |  |
| Fused proximal phalanges | 5 | Greater than $13-16$ months | $13-16$ months |
| Unfused proximal phalanges | 2 | Less than $13-16$ months |  |
| Fused distal metapodial | 1 | Greater than $18-28$ months | $18-30$ months |
| Unfused distal metapodial | 1 | Less than $18-28$ months |  |
| Fused distal metacarpal | 1 | Greater than $18-24$ months |  |
| Fused distal metatarsal | 1 | Greater than $20-28$ months | $30-36$ months |
| Unfused proximal femur | 1 | Less than $30-36$ months |  |
| Fused proximal femur | 1 | Greater than $30-36$ months |  |
| Unfused calcaneum | 3 | Less than $30-36$ months |  |
| Unfused distal radius | 1 | Less than $30-36$ months |  |
| Fused distal radius | 1 | Greater than 36 months |  |
| Unfused proximal humerus | 1 | Less than $36-42$ months |  |
| Total | 25 |  |  |



FIGURE 33.1. LBII caprine mortality based on bone fusion from Tell Jemmeh (top register: survivorship; bottom register: kill off).
radius (RCp-6), and proximal rib (RS-3). Cut marks on a cattle second phalanx illustrates skinning procedures. This is an area of low meat yield where the skin is attached more tightly to the body, requiring additional effort for its removal. Thus, cut mark placements indicate disarticulation aimed at the acquisition of two products: meat and hides.

The main architectural design is a large Canaanite building with multiple rooms with a paved cobblestone courtyard that includes a baking installation (see chapters 6 and 9; Van Beek, 1972:245, 1977:173). The distribution of over one-quarter of the LBII bones in Field I (Buildings I and II) should be considered (Table 33.8). Most of the animal remains were not found in large
areas within the buildings. Rather, most of the remains were in the street (Street J), a small area that separates Buildings I and II. As most of the identified remains from the street are non-meatbearing bones, their deposition seems to reflect discard onto the street outside. Streets were often used as locations for discard, as excavations in the streets also uncovered abandoned items, which included metal objects.

## Iron Age IB

Fauna from Iron IB contexts was collected in Fields I FUR, II, and III (Table 33.1), yielding a total of 44 bones, of which 12

TABLE 33.7. Late Bronze Age II burnt bones from Tell Jemmeh.

| Color | Standard Munsell color codes |  |  |  |  |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 10YR 2/1 | 10YR 4/1 | 10YR 5/1 | 10YR 6/2 | 10YR 8/1 | 2.5YR 7/1 | 7.5YR 8/1 | GREY2 4/1 |  |
| Black | 15 |  |  |  |  |  |  |  | 15 |
| Large mammal | 1 |  |  |  |  |  |  |  | 1 |
| Unidentified | 1 |  |  |  |  |  |  |  | 1 |
| Medium mammal | 6 |  |  |  |  |  |  |  | 6 |
| Limb | 4 |  |  |  |  |  |  |  | 4 |
| Phalanx 3 | 1 |  |  |  |  |  |  |  | 1 |
| Rib | 1 |  |  |  |  |  |  |  | 1 |
| Sheep/goat | 6 |  |  |  |  |  |  |  | 6 |
| Femur | 2 |  |  |  |  |  |  |  | 2 |
| M1 lower | 1 |  |  |  |  |  |  |  | 1 |
| Mandible | 1 |  |  |  |  |  |  |  | 1 |
| Molar | 1 |  |  |  |  |  |  |  | 1 |
| Phalanx 2 | 1 |  |  |  |  |  |  |  | 1 |
| Small mammal | 1 |  |  |  |  |  |  |  | 1 |
| Limb | 1 |  |  |  |  |  |  |  | 1 |
| Unidentified | 2 |  |  |  |  |  |  |  | 1 |
| Blue/Gray |  |  |  |  |  |  |  | 1 | 1 |
| Medium mammal |  |  |  |  |  |  |  | 1 | 1 |
| Unidentified |  |  |  |  |  |  |  | 1 | 1 |
| Gray |  | 1 | 3 | 1 |  | 1 | 1 |  | 7 |
| Cattle |  |  | 1 |  |  |  |  |  | 1 |
| Phalanx 1 |  |  | 1 |  |  |  |  |  | 1 |
| Medium mammal |  |  |  |  |  | 1 |  |  | 1 |
| Rib |  |  |  |  |  | 1 |  |  | 1 |
| Sheep/goat |  | 1 | 2 | 1 |  |  | 1 |  | 5 |
| Humerus |  |  | 1 |  |  |  |  |  | 1 |
| Metacarpal |  | 1 |  |  |  |  |  |  | 1 |
| Phalanx 1 |  |  |  |  |  |  | 1 |  | 1 |
| Skull |  |  | 1 |  |  |  |  |  | 1 |
| Vertebra |  |  |  | 1 |  |  |  |  | 1 |
| White |  |  |  |  | 2 |  |  |  | 2 |
| Medium mammal |  |  |  |  | 2 |  |  |  | 2 |
| Limb |  |  |  |  | 2 |  |  |  | 2 |
| Total | 15 | 1 | 3 | 1 | 2 | 1 | 1 | 1 | 25 |

( $27 \%$ ) could be identified (Table 33.3). The sample was dominated by caprids. One mandible and associated molars were identified as belonging to a goat. The attrition on its deciduous third molar and permanent first and second molars was consistent with a juvenile culled between 1 and 2 years, likely for its meat. One cattle bone, a second phalanx with a fused proximal epiphysis, is from a specimen aged at least 18 months. One fish vertebra indicates interest in aquatic resources. A foot bone of a dog (second phalanx) demonstrates the existence of nonfood animals in the community at Tell Jemmeh, employed as a form of security, herding aid, or companionship.

Twenty-one bones were found in the kiln (Field I FUR, see chapter 7), including the remains of cattle, dogs, caprids, and
fish, along with medium- and large-sized mammals. Three of these bones, medium mammal limbs, were burnt black (10YR $2 / 1)$. Other items were also found in the kiln, such as painted Philistine pottery, a scarab, and one small piece of gold (chapter 7; Van Beek, 1977:173). Had the kiln been operational at the time it was filled with general debris, everything would have been burnt. However, most of the bones were not burnt. Those fired at a much lower temperature (black) were more consistent with routine meal preparation and may have been fired elsewhere. It is likely the animal remains and the other items were tossed into the kiln as an act of discard when it was no longer in use. The lack of pig bones from the Iron I Philistine occupation at Jemmeh seems to run counter to the general notion that pork

TABLE 33.8. Spatial distribution of LBII fauna in Field I.

| Species | Building I | Street J | Total |
| :--- | :---: | :---: | :---: |
| Cattle | 2 | $6^{\mathrm{a}}$ | 8 |
| Sheep/goat | $6^{\mathrm{b}}$ | $12^{\mathrm{b}}$ | 18 |
| Medium mammal | 10 | $35^{\mathrm{a}}$ | 45 |
| Large mammal | 2 | 9 | 11 |
| Unidentified |  | 20 | 20 |
| Total | 20 | 82 | 102 |

${ }^{a}$ One butchered bone.
${ }^{\mathrm{b}}$ One burnt bone and one butchered bone.
is an undisputed hallmark of Philistine ethnicity. This topic will be discussed in more detail below.

## Iron Age II

Many of the Iron II levels could be assigned with precision to specific ranges within this time span, such as Iron IIA, Iron IIB, and Iron IIC. Precise temporal separation could not be assigned to all deposits, and as such, the Iron II constitutes its own temporal category. These levels were only found in Field I, Square KB (Table 33.1). A total of 27 animal bones were found here, of which only 4 ( $15 \%$ ) could be identified (Table 33.3). The identifiable assemblage consists of cattle (fused proximal second phalanx from a specimen aged at least 18 months), caprids (molar fragment and tibia shaft), and the vertebra of a rather small fish. One medium-mammal limb bone was butchered as evidenced by cut marks.

## Iron IIA

Fauna from the early Iron II was recorded in Fields II, III, and IV (Table 33.1). A total of 20 bones were retrieved from these deposits, of which $13(65 \%)$ could be identified (Table 33.3). The assemblage consists of cattle (two metatarsals), two fish vertebrae found in a pit, and six turtle shells. The turtle, whose relative abundance is overrepresented as a result of the small assemblage, may or may not have been consumed as it is only evidenced by carapace and plastron plate fragments (upper and lower shell halves). Perhaps these were the most valued parts readily convertible into a container.

## Iron IIB

Animal remains from Iron IIB contexts are only found in Field IV (Table 33.1). A total of 41 bones date to this occupation phase, of which 16 ( $39 \%$ ) were identified (Table 33.3). The sample consists of cattle, fish, an unidentified medium-sized bird, and caprids. All cattle remains are dental, whereas caprids are mainly represented with postcranial remains. The bird bone, a

TABLE 33.9. Species distribution associated with Iron IIB Buildings in Field IV.

|  | Building <br> I | Building <br> II | Building <br> III | Total |
| :--- | :---: | :---: | :---: | ---: |
| Species  1 1 2 <br> Cattle  1 1  <br> Fish 1 1 $10^{\mathrm{b}}$ 12 <br> Sheep/goat   1 1 <br> Medium bird 4 $4^{\mathrm{a}}$ 5 13 <br> Medium mammal  2 4 6 <br> Large mammal  8 6 6 <br> Unidentified 5 28 41  <br> Total     |  |  |  |  |

${ }^{\text {a }}$ One burnt black (10YR 2/1).
${ }^{\mathrm{b}}$ One with cut marks.
proximal femur, is not a convincing morphological match to Gallus (domestic chicken). Its proximal measurement $(\mathrm{Bp}=24.52)$ indicates it belongs to a slightly larger species, perhaps one of the domestic stock of ducks or geese previously identified by B. Hesse and P. Wapnish, Penn State University (unpublished). Only one bone offered cull-related data: the fused proximal end of a sheep/goat calcaneum from a specimen at least 2.5-3 years old.

The Iron IIB fauna was distributed between three buildings (Table 33.9). It may be significant to note that most of the fauna was found near rather than within Building III, a much smaller area than that of Buildings I and II. The observed pattern is probably best explained by the fact that Buildings I and II were hardly excavated in the lower phases.

## Iron IIC

The Iron IIC fauna was only found in Field IV, Phase 5 (Table 33.1). This area produced a total of 303 bones, of which 98 ( $32 \%$ ) were identified (Tables 33.3 and 33.10). The community members relied mainly on sheep and goats, although cattle are also present in small numbers. Sheep remains outnumber goats (17:3). Nondomestic animal resources were also exploited as evidenced by hare, possibly the brown hare (Lepus capensis), and unidentified species of fish. A maxillary fragment with two associated teeth was identified as a species of cat (Felis sp.), and its size is consistent with a domesticate cat.

A total of 15 sheep and goat bones offered data suitable for considering harvest profiles (Table 33.11, Figure 33.2). The data show a high degree of survivorship, especially in early and late age categories. Slaughters scheduled within the 13-28 month range would suggest an interest in meat acquisition. Culling younger animals is supported by the dental attrition score from a lower deciduous third molar, indicating a specimen aged 6-12 months at death. Dental wear can identify older individuals, which agrees with the fusion data. Attrition on affixed mandibular teeth, such

TABLE 33.10. Iron IIC animal skeletal parts.

| Bone and portion | Cattle | Sheep/goat | Total | Bone and portion | Cattle | Sheep/goat | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Astragalus | 1 | 3 | 4 | Metatarsal |  | 1 | 1 |
| Fragment | 1 | 2 | 3 | Proximal |  | 1 | 1 |
| Whole |  | 1 | 1 | Naviculo-cuboid |  | 1 | 1 |
| Calcaneum |  | 2 | 2 | Whole |  | 1 | 1 |
| Distal |  | 1 | 1 | Phalanx 1 |  | 3 | 3 |
| Proximal |  | 1 | 1 | Distal |  | 1 | 1 |
| Carpal | 1 | 1 | 2 | Proximal epiphysis |  | 1 | 1 |
| Fragment | 1 |  | 1 | Whole |  | 1 | 1 |
| Whole |  | 1 | 1 | Phalanx 2 |  | 4 | 4 |
| Femur | 1 | 3 | 4 | Whole |  | 4 | 4 |
| Distal |  | 1 | 1 | Phalanx 3 |  | 4 | 4 |
| Distal epiphysis | 1 |  | 1 | Fragment |  | 4 | 4 |
| Proximal |  | 1 | 1 | Pelvis |  | 1 | 1 |
| Shaft |  | 1 | 1 | Ischium |  | 1 | 1 |
| Humerus |  | 3 | 3 | Pm lower |  | 4 | 4 |
| Distal |  | 1 | 1 | Fragment |  | 4 | 4 |
| Shaft |  | 2 | 2 | Pm4 lower |  | 2 | 2 |
| Hyoid |  | 1 | 1 | Whole |  | 2 | 2 |
| Fragment |  | 1 | 1 | Premaxilla |  | 2 | 2 |
| Maxilla |  | 1 | 1 | Fragment |  | 2 | 2 |
| Fragment |  | 1 | 1 | Radius |  | 5 | 5 |
| M1 upper |  | 2 | 2 | Proximal epiphysis |  | 2 | 2 |
| Fragment |  | 2 | 2 | Shaft |  | 3 | 3 |
| M2 lower |  | 2 | 2 | Rib |  | 3 | 3 |
| Fragment |  | 2 | 2 | Fragment |  | 1 | 1 |
| M2 upper |  | 1 | 1 | Proximal |  | 2 | 2 |
| Fragment |  | 1 | 1 | Scapula |  | 4 | 4 |
| M3 lower |  | 4 | 4 | Distal |  | 3 | 3 |
| Fragment |  | 2 | 2 | Fragment |  | 1 | 1 |
| Whole |  | 1 | 1 | Skull |  | 1 | 1 |
| Mandible |  | 4 | 4 | Fragment |  | 1 | 1 |
| Fragment |  | 4 | 4 | Ulna |  | 3 | 3 |
| Molar |  | 2 | 2 | Distal |  | 3 | 3 |
| Fragment |  | 2 | 2 | Vertebra |  | 2 | 2 |
| Molar lower |  | 7 | 7 | Centrum |  | 1 | 1 |
| Fragment |  | 7 | 7 | Process |  | 1 | 1 |
| Molar upper | 1 | 4 | 5 | Total | 6 | 84 | 90 |
| Fragment | 1 | 4 | 5 | Total | 6 |  |  |
| Metacarpal | 1 | 1 | 2 |  |  |  |  |
| Proximal | 1 | 1 | 2 |  |  |  |  |
| Metapodial |  | 4 | 4 |  |  |  |  |
| Distal |  | 1 | 1 |  |  |  |  |
| Distal epiphysis |  | 1 | 1 |  |  |  |  |
| Shaft |  | 2 | 2 |  |  |  |  |

TABLE 33.11. Iron Age IIC caprine fusion data.

| Bone and portion | Quantity | Rate of fusion | Age range |
| :--- | :---: | :--- | :---: |
| Unfused scapula | 3 | Less than 6-8 months | $6-10$ months |
| Fused distal humerus | 1 | Greater than 10 months |  |
| Fused proximal phalanges | 3 | Greater than $13-16$ months | $13-16$ months |
| Unfused proximal phalanges | 3 | Less than $13-16$ months |  |
| Fused distal metapodial | 1 | Greater than $18-28$ months | $18-28$ months |
| Unfused distal metapodial | 1 | Less than $18-28$ months |  |
| Fused distal ulna | 3 | Greater than 30 months | Greater than 30 months |
| Total | 15 |  |  |



FIGURE 33.2. Iron IIC caprine mortality based on bone fusion from Tell Jemmeh (top register: survivorship; bottom register: kill off).
as a fourth premolar aged 4-6 years old and a second molar aged $6-8$ years, demonstrates the presence of mature animals. Recording such advanced ages is especially noteworthy since dental attrition scores are not bound by the same methodological limitations associated with epiphyseal fusion and, as such, can detect much older animals that would otherwise remain unnoticed in the assemblage. The remains of older animals were also butchered, as evidenced by dismembering marks (TC-1) on a goat calcaneum that was at least 2.5-3 years at the time of the animal's death. The undoubted historical significance of the Iron Age IIC caprine mortality profile will be discussed below.

Some of the Iron IIC bones could be assigned to their original context of discovery, enabling one to consider their distribution in relation to the Assyrian architecture in Field IV. A total of 265 bones were associated with Buildings I-III (Table 33.12). Most of the remains were found in Building I, an expected outcome since it occupies a much larger area than the other two structures. Of the 193 bones from Building I, 174 are associated with Room F, including the four fish bones from this occupation phase. A total of nine cut-marked bones (dismembering activities) were associated with these structures, seven coming from Building I and most from Room $\mathrm{F}(N=5)$. Evidence for butchery is absent in Building II. Burnt bones ( $N=6$ ) were only
found in Building I, most from Room F ( $N=5$ ). Two worked sheep astragali bones (both from the right side) were found in Room F of Building I. Both exhibit slightly ground surfaces. The proximal half of both anterior ridges is mildly flattened on one astragalus, whereas the other demonstrates some flattening on

TABLE 33.12. Faunal distribution and associated Iron IIC buildings in Field IV at Tell Jemmeh.

|  | Building <br> I | Building <br> II | Building <br> III | Total |
| :--- | :---: | :---: | :---: | :---: |
| Cattle | 2 | 1 | 2 | 5 |
| Cat |  |  | 3 | 3 |
| Fish | 4 |  |  | 4 |
| Hare |  |  | 1 | 1 |
| Sheep/goat | 51 | 3 | 22 | 76 |
| Medium mammal | 72 | 8 | 14 | 94 |
| Large mammal | 2 |  |  | 2 |
| Unidentified | 62 |  | 18 | 80 |
| Total | 193 | 12 | 60 | 265 |



FIGURE 33.3. An inscribed bone fragment (Reg. No. 4138; on the right is a close-up of the right part of the object).
its lateral aspect. Their function is not known, but some have speculated on their role in games or oracular proceedings (see Gilmour, 1997). Van Beek (1974a:274) noted the discovery of "60 knuckle bones" from the Assyrian period, although there is no mention of whether they were modified.

A medium mammal rib bone worked on both sides was found in Square 3B on the floor of Building III; its exterior aspect was repeatedly worn against another object to produce an incredibly smoothed and polished surface (Figure 33.3, Reg. No. 4138). The preserved length of the bone is 28.1 mm , its preserved width is 16.7 mm , and its greatest preserved thickness measures 1.8 mm . This is an especially significant discovery as it bears an inscription on the exterior side of the bone. The inscription is dye based rather than cut or etched into the bone surface (see Figures 8.106h, 33.3 and chapter 32).

## The Persian Period

Fauna dating to the Persian period was only discovered in Field IV (Table 33.1). These levels produced a total of 22 bones, of which $8(36 \%)$ were identified, all as caprids (Table 33.3). Most of the caprine remains came from the head (mandible, orbital, and four teeth) with a couple of postcranial (rib and metacarpal) fragments. The wear on a lower second molar is consistent with a young caprid that died at 6-12 months old. Four bones provided age-related data. Animals were killed after 10 months of age (fused distal humerus), after 13-16 months of age (fused proximal first and second phalanx), and before 2.5 years (unfused distal ulna). It is possible that all of these remains belong to the same individual specimen. Evidence for meal preparation is indicated by dismembering butchery marks (PS-8 and PS-9) on an ischium that was also burnt black (10YR 2/1).

Fauna from Persian/Hellenistic contexts comes from Field IV, Phase 2 (Table 33.1). These deposits produced a total of 40 bones, of which $9(23 \%)$ were identified as caprids (Table 33.3).

Two of these bones, a distal humerus and a second phalange, were from sheep.

## Late Periods (Crusader-Mamluk?)

Fauna from possibly the Crusader-Mamluk period comes Field IV, Phase 1 (Table 33.2). Only five animal bones were found in Islamic period ash levels, all of which were identified as caprids (Table 33.3). With the exception of one tooth (lower first or second molar fragment), all bones were from sections in the lower limb, including metapodials and astragali. Three bones were specifically identified as sheep (two astragali and one proximal metacarpal). As these postcranial remains are not significant meat-bearing bones, they were likely deposited during discard. One metapodial had a fused distal epiphysis, meaning the animal had died after it was 24-28 months old. Cut marks near the proximal end of the metacarpal (MCp-1) indicate general dismembering.

## DISCUSSION

During the course of excavations at Tell Jemmeh, it was estimated that the faunal sample consisted of more than 100,000 fragments (see Wapnish, In press). It should be noted that the observations made above and the ideas expressed below only pertain to the small assemblage available for this particular study. As such, the conclusions should be regarded as tentative given that the sample size is further reduced as it is spread over multiple time periods spanning thousands of years.

The rate of species identification for each period of occupation (excluding the very small Chalcolithic and Islamic samples) varies from $15 \%$ to $65 \%$. Since the assemblage also comes from different areas of the tell, the differential bone preservation also reflects significant intrasite variability in how organic remains
are preserved (Hesse and Wapnish, 1985:27). Many of the bones were encrusted internally and externally with crystalline growth (see Hesse and Wapnish, 1985:28, fig. 21) which often resulted in the destruction of the element, leaving only unidentifiable bone fragments still adhering to the rock crystals. Not only did this impact identification rates, but bone surfaces with evidence for butchery, pathologies, or animal disturbance such as gnawing or partial digestion were less likely to be noticed. Cut marks were identified, but there were likely more that eluded detection. Significantly, evidence for carnivore and raptor feeding habits or pathological development was not recorded on any of the remains. The number of different taxa from each occupation phase is relatively consistent. In all cases, the remains of domestic animals dominate the assemblage. Wild animals tend to comprise a small portion of the local cuisine. Since Tell Jemmeh's position within Israel's southern coastal plain is considered to be a marginal agricultural zone (Wapnish, 1981a:101), local economic reliance on domestic stock would have been oriented mainly toward pastoralism. Wild game was taken on occasion, as their remains have been previously identified (Wapnish, In press; Wapnish and Hesse, unpublished), but they never comprise a significant portion of the animals consumed at Tell Jemmeh. This is consistent with other historic period faunal assemblages in the region.

Faunal remains can sometimes indicate interaction with nonlocal markets. Two vertebrae from a cartilaginous fish were found in an Iron IIA pit in Field II, Square A2. These remains are from a shark or ray from the Mediterranean Sea. The merchants at Tell Jemmeh may have had direct contact with neighboring coastal communities. Alternatively, marine resources might have trickled inland to Tell Jemmeh from a large neighboring port city. The large shell of the freshwater bivalve Aspatharia rubens caillaudi, an import from Egypt, was found in Late Bronze Age levels at Tell Jemmeh (Reese et al., 1986:82; see also Appendix 33.1 on shells). Its initial entrance into the region was likely through a Mediterranean port, perhaps Gaza or Tell el-‘Ajjul.

Aspects of the current study's MBIIB-C fauna are compared to the earlier findings from Wapnish and Hesse (1988), who considered the nature of the MBIIB-C animal-based economy at Tell Jemmeh. The present and previous data have documented the importance of sheep, goats, pigs, and cattle. Each study demonstrates similarities in relative species frequency; Wapnish and Hesse found that cattle made up $13 \%$ of the assemblage, exactly the result of the current study. They also found that sheep were much more common than goats, an observation supported by the new data. Wapnish and Hesse noted that sheep and goats together comprised $72 \%-83 \%$ of the assemblage, and pigs comprised about $10 \%-15 \%$. Caprids from the current study represent only $56 \%$ of the sample, and pigs represent $36 \%$. Wapnish and Hesse's sample was much larger (NISP $=2,500$ bones) and more representative. The small MBIIB-C assemblage from the current study explains the underrepresentation of caprids and over representation of hogs. Wapnish and Hesse interpreted the harvest profiles as evidence for a self-contained economy that focused on dairy production, pork consumption, and cattle traction. Mortality data from the current study are too small for large-scale interpretation, but some general observations can be
put forth. The culling of young pigs and mature cattle agrees with the first study. However, some juvenile cattle were also identified, which indicates at least a minor interest in beef consumption. Immature caprine specimens and the presence of a mature specimen older than 3 years support culling strategies documented previously. The absence of data of sheep and goat dental attrition hampers further interpretation as older specimens cannot be identified.

The Iron IB period at Tell Jemmeh is thought to represent a Philistine occupation. If true, then one may expect to document evidence for raising pigs and the consumption of pork. In fact, the only pig bones in the current study came from the Middle Bronze Age (ST1, Layers 1, 2, 4, and 4B and Pit 10). Wapnish and Hesse (1988) indicated $12 \%$ of the identifiable Middle Bronze Age fauna from Jemmeh came from pigs. Not a single pig bone or tooth was found in the Iron I at Tell Jemmeh. This may be expected because of the sample size, but it should be noted that P. Wapnish (unpublished) also found little evidence for early Iron Age pig use at Jemmeh. Not every Philistine community consumed the same quantities of pork. On the basis of bone fragment counts, contemporary Iron I pig assemblages from Ashkelon (19\%) and Tel Miqne/Ekron (18\%; Hesse, 1990:217; Maher, In press) and Tell es-Safi/Gath (Lev-Tov, 2012:594; see also Maeir et al., 2013:16-17) contrast with Batash ( $8 \%$; Hesse, 1990:216) and Tel Qiri (1.4\%; Davis, 1985:149). Iron I Philistine rural occupations at Nahal Patish (Nahshoni, 2009a, 2009b), Qubur al-Walaydah, and Tell Farah (S) all produced very few pig remains, less than $1 \%$ at each site. The evidence suggests that pig consumption was practiced more often in urban centers than in smaller towns, cultic centers, or rural settlements (Maher, 2012). Much of our understanding of early Philistine economy is derived from large Philistine cities, yet the Philistine countryside is still largely unexplored. This top-down perspective may have led to a skewed perception of Iron I Philistine diet and ethnicity. Although elements of the same tradition, heritage, and history are shared, it should be considered that the dynamic elements of Philistine culture varied between city and country folk. High levels of pig consumption may not have actually been a Philistinewide cultural phenomenon, but rather, may have been specific to the lifeways of Philistine city dwellers.

Some Philistine communities ate canids ( $\operatorname{dog}$ and fox), a practice that seems temporally restricted to the Iron I, documented at Tel Miqne (Maher, In press), Ashkelon (Wapnish and Hesse, 1999), and Qubur al-Walaydah (Maher, unpublished). Dog bones bearing evidence of butchery are never as abundant as the cut-marked remains from more traditional food animals such as sheep, goats, cattle, and pigs are. Since many other animals would have been available for consumption, eating canid meat seems a tactic borne out of choice rather than crisis or desperation. The preference apparently was not adopted at Tell Jemmeh in the Iron IB, which only produced one nonbutchered dog bone. Once again, one must consider the impact of the small sample size of the study.

The Assyrian occupation at Tell Jemmeh in the 7th century BCE begun by Esarhaddon was continued later by his son Ashurbanipal. Tell Jemmeh may have been used as a military base from
which the Assyrians launched offensives against Egypt. The archaeological evidence for an Assyrian presence is illustrated by the establishment of new buildings reminiscent of Assyrian styles with vaulted rooms (see chapters 8 and 34; e.g., Van Beek, 1997:214). Assyrian-style pottery (chapter 13), including dimpled drinking cups and ribbed bowls, may suggest this structure served as the residence for a high-ranking Assyrian official (Van Beek, 1972:245). The Assyrian presence at Tell Jemmeh may have interrupted normal daily routines for the local Philistine community; their attention would have focused on meeting the needs of the Assyrian commanders, soldiers, and messengers or any other official representing Assyria's imperial agenda. The Assyrian occupation resulted in a change in the local economic system that is evident in the sampled faunal record in multiple ways. Each of these will be outlined and then compared to the data from the current study.

Wapnish (1981a:116) documented five distinct changes in the Iron IIC faunal composition not practiced by earlier settlers at the site. The proportion of caprids to cattle in the LBII and Iron I periods was 4:1, demonstrating a locally driven pastoral economy, but the proportion increased to 9:1 in the Assyrian period. Considering the data by century, the caprid to cattle ratio for the 8th century BCE is 10.4:1, and it is $6: 1$ in the 7th century BCE (Wapnish, 1996:289). From the current study, the combined LBII-Iron IIB samples produced a caprid to cattle ratio of 3.4:1, significantly different from the Assyrian pattern of $14: 1$. The species ratio method was also considered between sheep and goats, which Wapnish noted to be 3:1 in the LBII and Iron I phases and 4:1 during Assyria's presence. The best sequence from the current study, although still a small sample, is from the LBII, where the sheep to goat ratio is $2.5: 1$. This differs from the ratio of $5.7: 1$ during the Assyrian presence, which is closer to the more substantial and therefore more representative 7th century BCE sample (Wapnish, 1996:289). The sets of species ratios from the current study before and during the Iron IIC are not markedly different than those reported by Wapnish, thereby providing additional evidence for Jemmeh's possible economic shift during Assyrian control.

Why would the Assyrian occupation or influence coincide with elevated caprine abundance, specifically more sheep than goats? Wool was a resource regularly taken from sheep for taxation purposes (Hesse, 1986:26) and is the least perishable animal product well suited for distribution (Zeder, 1988:10) even over long distances. Goat hair was used to make tents, sacks, and rope (Hirsch, 1933:10; Borowski, 1998:63). Contemporary texts confirm the importance of the Philistine textile industry, as Assyrian documents record the receipt of linen, robes, and tent cloth as tribute from Philistia (Tadmor, 1966:93). Ten loom weights found in the Assyrian buildings at Tell Jemmeh (Van Beek, 1974a:274) indicate local weaving practices. By managing flocks with older animals, those at Tell Jemmeh could have met their obligations to Assyria. This may also explain why no pigs were found in this Late Iron Age Philistine settlement, although Hesse and Wapnish probably identified a few during their study of the material. Diener and Robkin (1978) point out that pigs do not offer any secondary products that can be used as tax payment to a ruling elite. Given this limitation, their management in
such circumstances would be discouraged (Zeder, 1996). Thus, there is convergence between zooarchaeological, archaeological, and epigraphic evidence regarding the nature of Tell Jemmeh's economy in the 7th century BCE.

Wapnish noted a shift in the Iron IIC caprine mortality profile that featured more mature specimens after 4 years of age. This slaughter schedule is much different than earlier phases, which were oriented more toward culling young animals. From the current study, the LBII caprine harvest profile (Figure 33.1) includes many juvenile animals. This contrasts with the Iron IIC mortality profile with evidence for fewer young and greater survivorship resulting in mature animals (Figure 33.2). The consumption of older sheep and goats is a consequence of the strained production strategies that fed Assyrian administrators and soldiers (Wapnish, 1981a:116). It is also possible that Assyrian tribute demands, a practice that involved the exportation of animal livestock from conquered regions, were executed, resulting in the removal of juvenile caprids from Tell Jemmeh's holdings (Wapnish, 1996:293).

Another way in which the Assyrian presence may have changed the local animal economy is marked by a substantive increase in camel remains, with camels intended for war, transport, or both (Wapnish, 1981a:116). The last faunal marker of Assyrian domination noted by Wapnish, aided by the expert identifications of H. Mienis, is the increased abundance of Nile mollusk shells, taken as an indicator of more frequent contact and exchange with Egypt. The current study did not identify any additional camel remains or imported Nile fauna (mammals, fish, or mollusks).

During the excavations of the large Assyrian building, Van Beek (1974b:138) reported that Rooms A and F in Building I were partly subterranean and served as basement storerooms full of storage jars (see chapter 8). This interpretation may explain why most of the butchered and burnt animal bones came from Room F in Building I (see above). These joints of meat, having already been cooked, were then placed in storage jars and were perhaps intended to provision Assyrian soldiers. Such valuable commodities would not be left unattended; perhaps the two worked astragali were cast in games of chance to whittle away the time during a guard's post. Although many items were recovered from Room F, some may have originally come from the upper floors of Building I, and their occurrence in the lower levels could be the result of eventual structural collapse.

## ACKNOWLEDGMENTS

I thank David Ben-Shlomo for inviting me to study the faunal assemblage from Tell Jemmeh. I also thank Paula Wapnish for her permission to work on this sample.

## AUTHOR NOTE

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## APPENDIX 33.1

Table 33.A1 includes preliminary identification of the shells from Tell Jemmeh stores in the National Museum of Natural History (NMNH), carried by Yorke Rowan and other NMNH interns (notes were copied from the cards). A few shells were not identified, or their identification is questionable, and others had no provenance.

TABLE 33.A1. List of shells with preliminary identification. Byz = Byzantine (see Schaefer 1989).

| Identification | Provenance | Items found | Notes/origin |
| :---: | :---: | :---: | :---: |
| Cerastoderma glaucum | GMI 4G (3) 1 | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GMI FUR (2) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GMIII F1 TT1 (1) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GMIII F1 (5) | 2 | Mediterranean Sea |
| Cerastoderma glaucum | GMIII B (59) 2 | 2 | Mediterranean Sea |
| Cerastoderma glaucum | GM 1B NBR (1) 1 | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 1B (1) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 00B P2 (2) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 00A (1) 3 | 2 | Mediterranean Sea |
| Cerastoderma glaucum | GM 1D (1) 1 | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 1A P9 | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 00A (4) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 1A (+) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 1E (9) 3 | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 2A (1) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 2A (6A) 3 | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 2A TT1 (6) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 2B (35) 2 | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 1A P6 (1) | 2 | Mediterranean Sea |
| Cerastoderma glaucum | GMI 4D (3) | 3 | Mediterranean Sea |
| Cerastoderma glaucum | GMI TTE (0) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GMI 5E (2) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GMI 5E TT1 (1) | 2 | Mediterranean Sea |
| Cerastoderma glaucum | GMI 1F (2) 1 | 2 | Mediterranean Sea |
| Cerastoderma glaucum | GM 3B (+) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 00A (7) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 2B TT2 (17) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 2B (0) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 2B (35) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 3B (9) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 2B TT3 (17A) | 1 | Mediterranean Sea |
| Cerastoderma glaucum | GM 2B (1) 3 | 1 | Mediterranean Sea |
| Cerithium scabridum | GMI 4G (0) | 1 | Red Sea |
| Terebridae or Turridae | GM 2C P1A (6) | 1 | Red Sea (Terebridae) Red Sea or Mediterranean Sea (Turridae) |
| Bufonaria crumena (Ranellidae or Buridae)? | GM 1A (+) | 2 | ? |
| Bufonaria crumena (Ranellidae or Buridae)? | GM 2A NBR (13) | 1 | unknown |
| Bufonaria crumena (Ranellidae or Buridae)? | Byz F1 TT1 (11) | 1 | unknown |
| Chambardia rubens arcuata | GMIII C2 (89) | 5 fragments | Nile |
| Chambardia rubens arcuata | GM 00A P5 | 1 | Nile |
| Chambardia rubens arcuata | GM 2A (12) | 1 | Nile |
| Hexaplex trunculus | GMI 4D (1) | 1 | Mediterranean Sea |
| Hexaplex trunculus | GMII A3 (20) | 1 | Mediterranean Sea |
| Hexaplex trunculus | GM 0M P6 (2) | 1 | Mediterranean Sea |
| Gyrineum bitoberculare | Byz F2 Square 2 (1) 2 | 1 | Murex family |

TABLE 33.A1 (continued)

| Identification | Provenance | Items found | Notes/origin |
| :--- | :--- | :--- | :--- |
| Euplica varians or Columbella rustica | GM 1C (11) 4 | 1 | Red Sea or Mediterranean Sea |
| Hiatella flacida? | GMII C2 TT2 (4) | 1 | Unknown |
| Barbatia perinesa? | GMI 5G (1) | 1 | Unknown |
| Glycymeris | Unknown | 12 |  |
| Monetaria annulus | GM 1A (+) | 1 | Red Sea |
| Monetaria annulus | GM 1B (7) | 1 | Red Sea |
| Monetaria annulus | GM 0A (1) | 1 | Red Sea |
| Monetaria annulus | GM 2B (15) | 1 | Red Sea |
| Monetaria annulus | GM 00A (2) | 1 | Red Sea |
| Monetaria annulus | GM 2C P1A (1) | 1 | Red Sea |
| Monetaria annulus | GM 1C (3) | 1 | Red Sea |
| Monetaria annulus | GM 2A (31) | 1 | Red Sea |
| Borátic(?) | GM 2B (25) 2A | 1 | Unknown |
| Glycymeris nummaria | GMI 4G (3) 1 | 23 | Mediterranean Sea |
| Glycymeris nummaria | GMI 5G (1) 3 | 12 | Mediterranean Sea |
| Glycymeris nummaria | GMI FUR (1) | 4 | Mediterranean Sea |
| Glycymeris nummaria | GM 2B (58) | 12 | Mediterranean Sea |
| Glycymeris nummaria | GM 00A (1) 3 | 82 | Mediterranean Sea |
| Glycymeris nummaria | GM 0A (7) | 17 | Mediterranean Sea |
| Glycymeris nummaria | GM 2B TT3 (17A) | 56 | Mediterranean Sea |
| Glycymeris nummaria | GM 2B (35) 2A | 13 | Mediterranean Sea |
| Glycymeris nummaria | GM 1B (14) 2 | 6 | Mediterranean Sea |
| Glycymeris nummaria | GM 3B (9) | 15 | Mediterranean Sea |
| Glycymeris nummaria | GM 3B (10) | 18 | Mediterranean Sea |
| Glycymeris nummaria | GM 3B (11) 2 | 4 | Mediterranean Sea |
| Total from all contexts |  | 1089 |  |

# Synthesis and Conclusions: The Significance of Tell Jemmeh David Ben-Shlomo 


#### Abstract

This chapter ending the report will summarize the results of the excavations at the site and will attempt to evaluate the significance of the site in the different periods of its occupation in relation to its closer and more distant vicinity and to the ancient history of the Levant.


## MIDDLE BRONZE AGE IIB-C

The Chalcolithic period is represented at Tell Jemmeh only by ceramic evidence, yet this region is well known in this period (such as the sites on the Besor and Gerar rivers and the Beer-Sheba Valley; e.g., Perrot, 1968; Gilead, 1989; Gilead et al., 1995). Then, there is a long gap in the occupation of Tell Jemmeh during the entire Early Bronze Age and the early Middle Bronze Age from ca. 3600 BCE to ca. 1700 BCE at least. Wherever virgin soil was reached, MBIIB-C remains were lying on top of it.

Although the Middle Bronze Age was excavated only in a relatively small area, important results were recovered. During this period the site was probably fortified with a rampart wall or an earth glacis, which was probably attached to the city wall (remains of which may have been found in ST1, chapter 5). Rampart and other massive fortifications are considered a typical phenomenon of the MBA in the Levant; these have been explained as competing power symbols of the local rulers (see, e.g., Bunimovitz, 1992:225-228; Finkelstein, 1992:206-207; Uziel, 2008:248-249). At Tell Jemmeh, domestic structures and open areas yielded a large and diversified pottery assemblage. This site compares well with other MBIIB-C tells in southwestern Israel such as Tel Nagila, Tell el-‘Ajjul, Tell es-Safi/Gath, Ashkelon, and Tel Haror. Generally, the pottery and other aspects of material culture in the southern Levant are more uniform during the MBIIB than during the LBII period (see, e.g., Uziel, 2008:264-266). Although no administrative or cultic complexes were unearthed (like at Tell Haror and Ashkelon, for example; Figure 34.1), the material culture testifies to the importance of the site. It includes a relatively large quantity of Cypriot imports, mostly White Painted ware (chapter 11), even though the site is not on the coast. Levantine decorated pottery such as Tell el-Yahudiyeh and Red, White, and Blue ware and a large group of impressed sealings, scarabs, jewelry, and other small finds were also found. The faunal remains may indicate a specialization with production of dairy products and interesting remains of equid burials (see chapter 33). Whereas the long-range connections with Cyprus are well attested (chapter 11), even connections with the north are reflected by a rare find of a clay cylinder with cuneiform signs (chapter 28). The four overlying excavation phases dated to this period at Field III, located on the edges of the tell, have a thick accumulation of debris and also testify to the size and density of the settlement during this period. If the central part of the tell (located under the LBII courtyard building, Field I) would have been excavated down to the MBII levels to a large extent, possibly, an administrative center of the town would have been unearthed. Thus, Tell Jemmeh was probably a large and well-connected urban site during the MBII, located on an important crossroad on the way from Egypt to the Levant and farther north.

## LATE BRONZE AGE

The transition between the MBIIC and the Late Bronze Age is elusive at Tell Jemmeh, and a clear LBI assemblage is difficult to identify (for example, there are no Cypriot imports from this period). The Late Bronze Age II, however, is well represented will at least


FIGURE 34.1. Map of Israel with sites mentioned in the text (chapters 8,13 , and 32 ).
six occupation phases in Fields I and III, as well as two phases in Field II. Apparently, the intensity of the settlement of the site during the LBII was high. The main importance of the Field III remains is the overlying sequence of at least six LBII phases, enabling us to compare pottery assemblages, although of limited size, from the different stages of this period. Such a sequence has not been published yet from any other site of this period in southern Israel. The remains from Field II are quite limited, and their interpretation is unclear. Possibly, remains of fortifications dated to the LBII were found here, and several interesting small finds came from this field. The highlight of the LBII remains is the quarter excavated in Field I including two large courtyard buildings, one of them nearly complete (Building I). Building I boasts a very large, carefully paved courtyard, a series of rooms with a high-access depth scheme, a bath or other water-holding installation, and several food preparation installations. This building was probably an affluent patrician house (Oren, 1992; Ben-Shlomo, 2012b). The building adjacent to Building I was only partly excavated, but it seems to have been of a similar plan and nature. Relatively, the finds from Building II are even richer, including seals, sealings, figurines, and bone inlays. The finds from the LBII consist of pottery, including decorated pottery in the Canaanite style (chapter 10), imported Cypriot and Mycenaean wares (dated to mid-14th through the 13th centuries BCE, chapter 11; notably, Egyptian-style pottery is rare), female figurines (chapter 17), stone vessels and tools, metal weapons and tools, bone tools and inlays, jewelry, beads, scarabs, and amulets. Other small finds include a fine example of a Mitannistyle cylinder seal (chapter 29).

The intensity and affluence of the LBII site fit well with the textual and historical record mentioning Yurza (= Tell Jemmeh) as an important Canaanite border town. The term "Canaanite" in the Late Bronze Age southern Levant is largely defined by external elements such as the Egyptian and biblical sources, and the people in this region were probably diversified ethnically in the modern sense of the term (see Tubb, 1988; Killebrew, 2005:12, 93-96). The external sources define Canaan as a land lying south of Alalakh and Ugarit and north of the Egyptian border, yet textual evidence from Canaan proper is rather scarce. Nevertheless, the Canaanite culture may be defined by a socioeconomic system represented by various city-states (as reflected by the Amarna letters, for example) and other sites and by a mutual, yet diversified, material culture (see, e.g., Killebrew, 2005:93-148).

As noted above, Tell Jemmeh lies in the southern most edge of this area. The Egyptian expression "from Yurza to the outer ends of the earth" (see Maisler [Mazar], 1952:50) vividly reflects its status as a border town, whereas the finds from the excavation show its Canaanite character. Moreover, the Egyptian influence in the material culture remains quite minimal and is limited mainly to the appearance of Egyptian-style amulets and scarabs (160 altogether with Petrie's collection, see chapters 20, 24, and 27), which are quite common in most sites of southern Israel. The reason for this may be that the Egyptian presence in the southern Levant was limited to specific garrison towns such as Deir el-Balah (Dothan and Brandl, 2010a), Tel Sera’ (Oren, 1993c), Aphek (Stratum X12, Gadot and Yadin, 2009), and

Qubur Walaydah, Stratum VIII (Lehmann et al., 2009), as well as Beth Shean in the north (e.g., James and McGovern, 1993; Killebrew, 2005:51-98). Outside these towns, even on the southern coast of Israel, Canaanite culture predominates. A similar picture arises from the remains of Late Bronze Age Ashdod and Tell es-Safi/Gath (Gadot et al., 2012:252-253). Furthermore, as a (relatively) independent Canaanite town on the border between Canaan and Egypt, the population may have deliberately intensified Canaanite material culture and other elements related to "Canaanite identity" and possibly "resisted" Egyptian cultural elements. Such cultural behavior related to areas on the border of two different ethnic groups was suggested also, for example, for the Philistines and their neighbors in the same region during the Iron I (see, for Beth Shemesh, Bunimovitz and Lederman, 1997; Bunimovitz and Faust, 2001; see also Parker, 2006:86-87; Ben-Shlomo, 2012b:152-153).

Apparently, Tell Jemmeh was important and flourishing during both the Middle and Late Bronze Ages; its importance was in its strategic location controlling the coastal route and is also evidenced from the textual sources mentioning it during the New Kingdom as the town of Yurza. During the MBII the town was probably fortified; the evidence so far regarding fortification during the LBII is not clear. As noted, the Canaanite character of the site is clearly evident from the archaeological results. The courtyard building architecture is typical during the Bronze Age Levant for both public and private houses. The material culture including both pottery and small finds is typically Canaanite. This includes also figurative artifacts such as decorated pottery, female figurines, and bone inlays, all indicating the Canaanite tradition. This tradition reflects both Egyptian and Syrian influences but still carries its own independent character. These remains together with other recently published finds from the region of southern Israel (such as Aphek, Batash, and Tell es-Safi) add important data on the material world of the Canaanites.

## IRON I

The Iron I (ca. 1200-1000 BCE) is a period with special importance in this region as it involved the appearance of a new ethnic group: the Philistines, who were probably immigrants from the west (the Aegean and/or Cyprus; see, e.g., Dothan, 1982; Killebrew, 2005; Ben-Shlomo, 2006a; Yasur-Landau, 2010). Regretfully, this period was not exposed in large areas in the Smithsonian Institution excavations at Tell Jemmeh. The main reason for this is that Petrie's excavations exhausted these remains in the upper layers in Field I, whereas in Field IV the Iron II structures were not removed. Thus, this period is only testified to in Phases 5 and 6 in Field III and in the small exposure of Field I FUR, where three phases could be attributed to this period. Petrie's results display pottery and small finds from this period, but because of the excavation methods, it is difficult to securely attribute these finds to the recorded architectural remains (see chapter 1).

Nevertheless, the Smithsonian excavations yielded a very important and rare find from the period: the nearly complete and
well-preserved pottery kiln from Field I FUR. This kiln is furthermore unique in its structure and is more sophisticated than other kilns found in the Levant, especially because of the extensive usage of flues to regulate the firing temperature and atmosphere. It would have been natural to associate this kiln with the production of Philistine Bichrome and other Iron IB pottery found in the site. However, hardly any area was excavated around the kiln, and no apparent kiln wasters could be identified. Interestingly, the Iron I kiln area yielded a large number of scarabs (five in total), all dated stylistically to the 13th-early 12 th centuries BCE (see chapter 27). Maybe this indicates a certain Egyptian influence on the Philistines or possibly testifies to an earlier phase in the area of the kiln dated to the Iron IA.

Tell Jemmeh lies within the territory of Philistia, in its southern part, bordering the Negev, with Gaza being the closest main Philistine city. As Gaza has barely been excavated, this site is important for understanding this part of the Philistine territory. The site probably connects the town of Gaza to its hinterland, which lies farther to the east. The proper hinterland is reflected by small sites in the northwestern Negev such as Qubur Walayideh (Lehman et al., 2009; Lehmann, 2011) and the Iron IB-IIA village and temple at Nahal Patish (Nahshoni, 2009a, 2009b; Figure 34.1). The Philistine character of this site is reflected by the Philistine Bichrome pottery found at the site (attested in Fields I FUR and III, as well as in Petrie's excavations) and by Aegean-style cooking jugs. According to the petrographic analysis, it seems that most of the Philistine Bichrome analyzed was produced at the site (chapter 15). In the later phases of the Iron IB and the early Iron IIA "degenerated" Philistine pottery also appears. Philistine Monochrome pottery typical of the early 12th century BCE was not found at Tell Jemmeh, but this is not surprising, as this ware is hardly found outside the main Philistine cities. The pottery kiln can also attest to the developed pottery production technology of the Philistines, yet Aegean parallels for this type of kiln are not clear.

Notably, the faunal remains, as far as we know (chapter 33), are not typically Philistine. No pig bones were identified from the Iron I levels (of a small sample, see Table 33.3). This is not a regional phenomenon, as in the MBIIB sample $31 \%$ of the identified bones were from pigs. A lack of pig bones was also encountered in nearby Iron I Qubur Walayideh, for example. A similar phenomenon at Beth Shemesh, the lack of pig bones in an Iron I settlement containing nevertheless Philistine Bichrome pottery, was interpreted as the "resistance" of the Canaanite culture to the Philistine one (Bunimovitz and Lederman, 2011). Indeed, at Tell Jemmeh Canaanite-style pottery continues to appear as well as a few bowls in the Egyptian style. Apparently, as in other Philistine settlements (or settlements in Philistia), the Canaanite material culture coexisted with the Philistine one.

## IRON IIA

The Iron IIA (ca. 1000-800 BCE) was probably a formative period in sociopolitical history of the southern Levant. During this period new ethnic states evolved, and the material culture
was changed (e.g., Mazar, 1990:387-390; Herzog and SingerAvitz, 2004). This period was also not exposed in a large area at Tell Jemmeh. Clearly, Petrie's excavations produced material from this period, but it is difficult to isolate a clear architectural plan of the Iron IIA. In the Smithsonian Institution excavations this period was exposed only in a small area in Field IV (Square 2B under the Iron IIB-C Assyrian building), where about three phases of this period could be defined (Phases 11-9), as well as in Phase 4 of Fields III and II and in Phase KB3 of Field I.

This phase yielded some examples of Late Philistine Decorated Ware (Ben-Shlomo et al., 2004), which could indicate the continuance of the distinct regional Philistine material culture at the site during this period. Several sealings found in Field I, Square KB may also be of importance. On the other hand, it seems that this horizon may anticipate the next period of the Iron IIB-C, with its strong Neo-Assyrian affiliation, which may be reflected by a group of pottery bowls showing a mixture of Philistine, local, and Assyrian characteristics (chapters 8 and 12, Type BL5). However, it is impossible to compare the Iron IIA and IIB-C architectural remains as the latter were not dismantled. Moreover, Iron I levels were not excavated under the Iron IIA ones anywhere in the Smithsonian Institution excavations, and thus, the site cannot really contribute to the discussion on the dating of this important transition. It is therefore difficult to fully assess the significance of Tell Jemmeh during this period.

## IRON IIB-C AND NEO-ASSYRIAN INFLUENCE AT THE SITE

## Remains from Tell Jemmeh

The Iron IIB-C (late 8th through the 7th century BCE) is a period characterized by the involvement and influence of the Neo-Assyrian Empire in the southern Levant. At Tell Jemmeh this is probably the most extensively represented period. From Petrie's excavations two to three levels belong to this period (Levels C-D and probably Levels E-F and A-B as well). These levels illustrate well-built public architecture; however, the better-documented results come from Field IV in the Smithsonian Institution excavation.

In Field IV four phases belong to this period (Phases 8-5), with Phases 8-7 probably dating to the Iron IIB (ca. 800-700 BCE) and Phases 6-5 dating to the Iron IIC (probably the early 7 th century BCE). The remains of Phase 5 include a complex of structures that are probably public in their nature. The most well preserved structure is the vaulted or Assyrian Building (Building I, Figure 34.2a), a building with at least two stories, where the ground floor is carried by true brick arches built on the basement floor. This structure was erected within the existing local town of the Iron II. Similar structures seem to have been unearthed by Petrie (Figure 34.2b).

Although this building was not completely preserved or excavated, its construction technique and plan points to NeoAssyrian architectural traditions. The building may have a certain resemblance to structures in the Neo-Assyrian Empire (Figures
34.2c-h, 34.3), as examples from Nimrud, Arslan Tash, Zinjirli, Shekh Hamad, and Nush-i Jan indicate (see chapter 8 for further references; Figure 34.2). These examples are usually auxiliary buildings near or adjacent to palaces, but some examples are forts or burial structures (Figure $34.2 \mathrm{~g}, \mathrm{~h}$ ). Comparing the plans seen in Figure 34.2, it seems that the Jemmeh buildings are quite a bit smaller than the Neo-Assyrian buildings and have a simpler plan in most cases. A second adjacent building, Building II, was not as well preserved but also may illustrate a Neo-Assyrian ground plan with a courtyard surrounded by elongated rooms (see Amiran and Dunayevsky, 1958). The plan of this area may have been similar in Phase 6, whereas in Phase 7 there might have been a somewhat different administrative complex built here. However, this could not be ascertained as most of the Phase 5 remains were not dismantled. The Neo-Assyrian traditions more clearly attested at Tell Jemmeh thus include mainly the extensive use of true brick arches with voussoir-type bricks and brick paving (see chapter 8). Moreover, there is certain evidence of Neo-Assyrian architectural techniques used at Tell Jemmeh in previous periods, as early as the late Iron IIA/Iron IIB (Phase 8); these include brick arches and the wall-building techniques.

The pottery from Phases 7-5 is relatively similar and is comparable to other contemporary sites in southern Israel and the southern coastal plains. Certain forms show a strong link to the region of the northern and central Negev (such as comparisons with sites like Kadesh Barnea, Tel Malhata, Tel 'Ira, and 'Aroer indicates; see chapter 5). Apparently, during this period Tell Jemmeh was an important post on the route from the Negev, the spice route and Arabia, and the Mediterranean emporia such as Gaza. Other classes of material culture are also typical of the late Iron II in this part of the country such as the horse and horse and rider figurines.

The most important contribution of the pottery from this period is the Assyrian-style pottery found only in Phase 5 and almost entirely concentrated in Buildings I and II. This pottery was found in large numbers, more than in any other site in the Levant, mostly from Building I. The forms include bowls and beakers, and the pottery appears in various fabrics. Much of it is of high quality and cannot be visually distinguished from proper Neo-Assyrian palace ware. However, petrographic analysis clearly shows that most of this pottery was locally produced at Tell Jemmeh or in its vicinity. Moreover, the petrographic analysis of similar pottery found at other sites (e.g., Tell el-Hesi, Ashkelon, and 'Aroer) indicates the pottery at those sites was also produced mostly in the Tell Jemmeh region. Thus, Tell Jemmeh was probably a center producing Assyrian-style pottery distributed in southern Israel in the early 7th century BCE. A few rooms in Building I were also quite rich in complete pottery vessels and small finds, especially Room A, where a large quantity of Assyrian-style pottery was found. Ornan (1997:268-269) identified several stamp seals made in the Assyrian tradition from Petrie's excavations at Tell Jemmeh (Petrie, 1928: pls. XVII:49, XIX:50, XX:14, 15,17 ), but none come from the Smithsonian Institution (SI) excavations. She notes these are all made locally, incorporating Assyrian influences in their style and themes (Ornan, 1997:269).


FIGURE 34.2. Building I from Field IV, Phase 5 at Tell Jemmeh and possibly similar Assyrian period buildings. (a) Tell Jemmeh, Smithsonian Institution excavations, Building I; (b) Tell Jemmeh, Building EG from Petrie's town of XXIInd Dynasty (adapted from Petrie, 1928: pl. IX); (c) Nimrud, NW palace (adapted from Mallowan, 1966: fig. 35); (d) Arslan Tash (adapted from Turner, 1968: pl. XVII, Rooms XXXII-XLII); (e) Zinjirli, upper palace (adapted from Frankfort, 1970: fig. 330); (f) Tell Shekh Hamad, House 4 (adapted from Pucci, 2008: fig. 3); (g) Nush-i Jan, the fort (adapted from Stronach and Roaf, 2007: fig. 4.1); (h) tomb structure from Nimrud (adapted from Hussein, 2008: fig. 12k).

The Iron IIB-C is also attested in Field III, Phase 3; Field I, Square KB, Phases 2-1; and Field II, Phases 3-2 with fragmentary building remains. Several of the installations termed by Petrie as "furnaces" and cleaned by the SI excavations (Field I FUR II and FUR III) probably also date to this period. Some interesting and important finds from this period include a bull's-head bronze weight from Field II, several scale weights (although not from stratigraphic contexts), and several ostraca in Hebrew script, one of them a name list mentioning both Hebrew/Semitic and Aegean or non-Semitic personal names (Naveh, 1985; chapter 32).

This latter find may indicate how the Philistine element was still identifiable during the end of the Iron Age (note, however, that the new reading by Misgav identifies fewer "Philistine" names than were suggested by Naveh). Similar contemporary evidence of the use of non-Semitic names in Iron II Philistia comes from ostraca from Ashdod, Tell es-Safi/Gath (Naveh, 1985; Maeir et al., 2008), and the royal inscription of Tel MiqneEkron (Gitin et al., 1997; see also a recent overview of the continuity of the Philistine culture during the Iron II in Maeir et al., 2013). On the other hand, such non-Semitic names appearing during the 8th and early 7th centuries BCE could reflect deportees brought by the Assyrians to Philistia (Oded, 1979:62-67).

Certain texts even refer to deportees brought by the Assyrians to a location near the "brook of Egypt," probably Tell Jemmeh (Franklin, 2001:258-259; Bagg, 2007:29-30). Evidence of Iranian and possibly Kassite names is mentioned ( Na 'aman and Zadok, 1988:40-42; Na'aman, 1993:109). Na'aman and Zadok (1988:36-42) suggested that the names appearing in two ostraca from Tell Jemmeh (see chapter 32, Figure 32.1a,b; Naveh, 1985:11-13) indicate the presence of deportees brought to the site from Iran and other provinces to Tell Jemmeh by Sargon II and employed there by the Assyrians. This was part of the Neo-Assyrian population change strategy in various parts of their empire, including the region of Philistia ( Na 'aman, 1993:108-109). Na'aman suggested that building techniques (such as rib vaulting or vaulting struts) attested at Iron II Tell Jemmeh were brought by deportees from the region of the Iranian plateau rather than by Neo-Assyrian architects ( Na 'aman, 2001:264-265; see also Stronach and Roaf, 2007:190). Indeed, there are certain similarities between the architecture of the Median Nush-i Jan in Iran (Figure 34.3) and Neo-Assyrian Jemmeh, and both sites are roughly contemporary (see chapter 8 ), yet whether any direct contacts existed between these two very distant regions is difficult to determine and, if so, whether they were Iranian in origin.


FIGURE 34.3. Map of Mesopotamia with sites mentioned in the text (chapters 8, 13, and 32).

## Relationships between the Neo-Assyrian Empire and Its Periphery

The Neo-Assyrian Empire in general and its influence in the Levant in particular have been studied and discussed in a large number of studies. The majority of these studies analyze the history, economy, structure, and ideology of this empire according to the textual data, mostly royal Assyrian inscriptions and annals (e.g., Cogan, 1974; Liverani, 1979, 1988, 1992; Postgate, 1979; Parker, 1997, 2003, 2006; Bedford, 2001; for the Levant, see, e.g., Bloom, 1988; Park Lee, 2003). Economic gain has been commonly accepted as the primary motivation for Assyrian territorial expansion. Liverani $(1988,1992)$ first suggested a model of the Neo-Assyrian Empire as a "network empire," whereas Bernbeck (2010) further compared this empire to the modern United States.

The Assyrian Empire was probably not initially a territorial or colonial type of an empire (the "oil stain" model) but a network empire. A network empire exerts it power in its periphery through various scattered "nodes" of power, "islands" of imperial control (as in buffer zones; Parker, 2003:552-553), and strongholds or controlled commercial centers (see, e.g., Parker, 1997), and military raids or campaigns are executed merely to maintain and strengthen these conditions (Liverani, 1988). The people under the empire's control usually do not gain any special status of citizenship or relations with the core society. It should be noted that Liverani suggested this model mainly for the earlier 9th century stage within Upper Mesopotamia, whereas for the later 8th-7th centuries BCE stage (namely, from the reign of Tiglath-pileser III onward, 744-630 BCE; Bedford, 2001: Period 2) a more traditionally territorial model is maintained (Liverani, 1988:92; see also Parpola, 2003:100). In this period the Assyrians apparently took measures by military activities to "provincialize" most of the western polities, mainly because the earlier network system failed to work and these polities (the "vassals" or "client" kings) often failed to deliver the tributes (e.g., Hallo and Simpson, 1998; Bedford, 2001:18-19).

Bernbeck (2010:146) lists six key elements of network empires:

1. An imperial center, located in a territorially controlled core zone
2. The hinterland of the imperial core
3. A periphery with more or less densely spaced nodes of a network
4. A hierarchy of these nodes that is based on specific functions
5. A system of network articulation that is highly efficient
6. Interstices in the network, the areas that the empire seeks to monitor

Although the regions of northern Mesopotamia could have been seen as provinces in the periphery of the Assyrian core state (Radner, 2006), the region of the Levant (or Syro-Palestine) was clearly outside Assyria, and the appointment of the polities of this region as vassals was clearly an extension of the Assyrian borders. The Neo-Assyrian royal texts often create a framework of ideological justification for this situation. It is during this period the Pax Assyriaca is assumed to have taken place, and
the term "Assyrians" in texts becomes a political rather than an ethnic term (Machinist, 1993:89; Parpola, 2004).

Herrmann (2011; after Eisenstadt, 1969, 1979) suggested two models regarding the relationship between the center of the Neo-Assyrian Empire and its periphery. The first is a rational model, consisting of the drainage of the periphery to the core or an economic maximization, as suggested by a "world systems" view ("core-periphery" model or bureaucratic empire model). The second is an irrational model: a "patrimonial" model (Eisenstadt, 1979) related to an ideological view represented in royal Assyrian texts, which suggest all provinces in Assyria are equal and that certain elements of the local society benefit from the Assyrian rule; these are bottom-up processes. This model may also be related to the Pax Assyriaca concept. The question is also whether the manifestation of these relationships differed between Assyrian direct provinces and the vassal kingdoms. In regard to archaeological evidence, according to Herrmann, a rational coreperiphery model would imply more factory and industrial production for export and taxes, possible reduction in small-scale household production, possible decrease in quality of domestic architecture, and replacement of domestic architecture by Assyrian administrative buildings. A patrimonial model would imply less change, more intensification in production, superficial reconstruction in architecture, mainly in palace areas, and continuity of households and their production. Herrmann presents an example from Zincirli Höyük (Herrmann, 2011:316-319), where a high degree of continuity between pre-Assyrian- and Assyrian-level households occurred. It is difficult to examine these options at Tell Jemmeh as the Iron IIC Assyrian structures were not dismantled.

There is evidence of various population changes and deportations conducted by the Assyrians in the Levant (e.g., Oded, 1979; Na'aman and Zadok, 1988; Na'aman, 1993, 1995), deporting large numbers of people from the Levant to Mesopotamia (including many from Philistia) and resettling peoples from northern Mesopotamia in their place. These deportees could have also been highly instrumental in the administration of the Assyrian Empire (Oded, 1979:81-91). However, the Assyrians probably did not impose their religion in the Levant (see Cogan, 1993, on Judah; see also Berlejung, 2011, 2012). Thus, apparently, the issue of the nature of the Neo-Assyrian presence and control in the southern Levant is a rather complicated one involving the local populations, deportee populations, and the Assyrian administration (see, e.g., Na'aman, 1993:104; Tadmor, 1966:91-92). Although in most studies only royal Assyrian inscriptions and annals are discussed, it is apparent that private and commercial documents, often mentioning the names of foreign deportees and their connections with the Neo-Assyrian administration, should also be examined, and these may even have greater importance for shedding light on this issue together with the archaeological evidence (see, e.g., Bernbeck, 2010:149).

## Neo-Assyrian Empire and the Philistines: Historical and Textual Evidence

The relationships between the Neo-Assyrian Empire and the local population and administration in Philistia during the
reigns of the various kings of Assyria were already addressed by Tadmor during the 1960s (Tadmor, 1966; see also Otzen, 1979:255-258) and subsequently by Na 'aman and others (e.g., Na'aman, 1979, 2004; Stern, 2001:102-129; Shai, 2006). These studies focused on the picture arising from the Neo-Assyrian texts and written records relating to this region. Neo-Assyrian texts relating to Philistia, which begin in Tiglath-pileser III's campaign in 734 BCE (especially against Mitinti, king of Ashkelon), indicate that the Philistines cities preserved a degree of independence under this rule as tribute-bearing states, notwithstanding the suppression of the various revolts by the Assyrian army. The trade between the Philistine cities, Gaza, Ashkelon, and Ashdod; the southern Egyptian delta; and the northern Phoenician ports, such as Byblos, Arvad, Tyre, and Sidon, probably attracted most of the Assyrian interest (Elat, 1978, 1990). Philistia was also an important region because of its geographic location on the Egyptian border; strengthening the hold in this region, both economically and militarily, enabled the Assyrians to limit the Egyptian influence in part of the Levant and in general ( Na 'aman, 1979:83-86).

During the reign of Sargon II there were several rebellions against Assyria, probably with some Egyptian support. During 722/721 BCE King Hanun of Gaza joined such a rebellion with other cities and was suppressed by Sargon in 720. The siege of Ekron by Sargon II is depicted on his palace walls at Khorsabad. In 712 BCE Yamani, probably a commoner, replaced the king of Ashdod and revolted against the Assyrians. Yamani is mentioned as a Greek, and the name is also reminiscent of the term Greek in Semitic languages, but he was more probably a Philistine from the local population of Ashdod. This revolt, although swiftly terminated by Sargon II, who destroyed the city in 712, leaving a basalt victory stele of which fragments were found in the excavation, reflects the relative power that Ashdod had in that time. Just a year earlier Sargon destroyed the city of Raphia south of Gaza and deported over 9,000 people from its region, including the king of Gaza (Na'aman, 1993:107, 2004:57). Asuhili, king of Arzâ, and his court were deported to Ashur by Esarhaddon (Oded, 1979:34,117).

After Sargon II's death in battle numerous rebellions broke out against the Assyrian administration, including at Ekron and Ashkelon. These were crushed by Sennacherib's well-known campaign to Philistia and Judah in 701 BCE. In the Sennacherib annals the Philistine cities of Ashdod and Ekron are mentioned; in the latter the Assyrian king reinstated the original King Padi after a local revolt (possibly supported by Judah). It thus seems that the Assyrians were more lenient with the Philistine cities, preserving their independence to some degree as a buffer zone between Assyria and Egypt (e.g., Tadmor, 1966:87; Otzen, 1979:255-256; see also a possibly similar treatment of southeastern Anatolia as a buffer zone by the Assyrian Empire, Parker, 2003, 2006). Moreover, in the Assyrian sources the cities of Philistia seem to be mentioned as independent states, each one with its own king. Ekron (amqar[r]una) and its king Ikausu are listed in the annals of Sargon II and Esarhaddon.

During the reign of Esarhaddon it seems that the Philistines were an important ally of Assyria such as in the war against the

Egyptians, yet the lenient policy toward the Philistine cities probably came to an end. Esarhaddon conducted three campaigns to Egypt and Philistia in 669, 671, and 674 BCE, and Tell Jemmeh, which was plundered during 679 BCE (according to a Babylonian chronicle), could have been particularly important in this context for the Assyrians because of to its geographic location. The town is mentioned in Esarhaddon texts (681-669 BCE) as " $[\mathrm{Ar}]$ zani which is on the Brook of Egypt ... I reached ... I destroyed" (BM K8523, 13 obverse, Pritchard, 1950:292). In sum, it seems as if the Assyrians treated each Philistine city in a special manner, depending on military, economic, and strategic interests.

## Evidence of Neo-Assyrian Influence in Philistia and the Southern Levant

An important example of a Neo-Assyrian post in Philistia is a site just north of Tel Ashdod ("Ashdod-Ad Halom"), where a salvage excavation of the Israel Antiquities Authority (KoganZehavi, 2005, 2006, 2007) revealed a large administrative structure built on a massive brick podium. This structure, dated to the late 8th century BCE, was probably an Assyrian palace and/ or administrative center. This is apparent according to both its architectural plan, the courtyard surrounded by elongated rooms and the brick podium, and the appearance of special features of the Sargonite standard cubit for bricks, brick flooring, and a bathroom. The erection of this Assyrian center was probably connected to the subduing of the Yamani revolt at Ashdod by Sargon II and should be seen in the context of the establishment of Ashdod as an Assyrian province (Radner, 2006). Notably, this site has not yet yielded any significant amount of Assyrian-style pottery.

Additional evidence of Neo-Assyrian presence or influence at Philistia includes the relevant levels at Tel Sera' and Tell Ruqeish, also possibly yielding Assyrian-style architecture and some Assyrian-style pottery (Oren, 1993a, 1993b, 1993c, 1993d). A fort at coastal Tell Qudadi on the Yarkon River was also suggested as Neo-Assyrian (Fantalkin and Tal, 2009). At Philistine Tel Miqne-Ekron the 7th century palace-temple complex (Building 650), concentrating the massive olive oil industry of the region, possibly shows Neo-Assyrian architectural characteristics (e.g., Gitin, 1995, 1998). Note that in the 8th century BCE Assyrian pottery or influence does not appear at Tell es-Safi/ Gath (A. M. Maeir, Bar Ilan University, personal communication), which was then influenced by Judah and outside the Philistine territory.

Generally, there seem to be more Neo-Assyrian characteristics in the material culture of southern Israel (except the territory of Judah) than in the north. The Edomite culture of southern Israel and Jordan also shows, especially in architecture and pottery, certain Assyrian characteristics or influences during the 7th century BCE (Na'aman, 2001:267-270; Thareani-Sussely and Na'aman, 2006). This phenomenon is interesting since the northern part of Israel was a proper Assyrian province, with seemingly stronger connection to the empire's centers (e.g., Stern, 2001:42-57), whereas the south was divided between various vassal kingdoms (Judah, various Philistine cities, Edom) paying
tribute to the Assyrian monarchs (later, after 712 BCE , Ashdod became a province as well; Radner, 2006).

The special interest the Assyrians had in this specific area, especially the region of Gaza (and Edom), probably relates to controlling the Incense Route to the east and the route to Egypt (see, e.g., Na'aman, 2001:263). Possibly, the evidence from Philistia reflects both the special status this region had for the Assyrian Empire, in relation to the Incense Route to the east and the route to Egypt, as well the usage of Assyrian cultural elements and power symbols by the late Philistine elites (and possibly by other local ethnic groups). Such usage may have substantiated the authority of such elites (e.g., Parpola, 2003, 2004) in addition to aiding in differentiating them from other political ethnic groups in the region, such as the Judahites.

Other examples of the Neo-Assyrian presence or influence in Levantine centers have been discussed in the past (Figure 34.1; see, e.g., Reich, 1975, 1992; Bloom, 1988; Kogan-Zehavi, 2007; see Table 34.1), with examples from Megiddo, Strata III-II (also with a podium, Lamon and Shipton, 1939: fig. 89, Buildings 1052, 1369, section A-B), Dor (Gilboa, 1996), Ayelet Hashaher (Reich, 1993:183, fig. 11), Hazor Area B (Reich, 1993: fig. 12), Rehov (Mazar and Ahituv, 2011), Tell Abu Salima (Petrie and Ellis, 1937; Reich 1993), Balakhiyah in Gaza (Humbert and Sadeq, 2000:105-120), and Busayra (Bennet, 1982). The site of Gezer yielded several "Assyrianized" seals and was also suggested to be an Assyrian center (Ornan et al., 2013:21).

Table 34.1 lists some of the main Neo-Assyrian architectural and ceramic evidence from the Levant (for a description, see also chapter 8). It seems that the Assyrian elements appear in various forms. Some sites have Assyrian forts or palace built within them (Megiddo, Haror, Miqne?), and in some cases the Assyrian structure lies apart from the tell overlooking it (Ashdod-Ad

Halom, Ayelet Ha-Shahar-Hazor). The possible series of sites with evidence of Neo-Assyrian building activities along the southern Mediterranean coast of Israel (Rishon Le-Zion, Ashdod Ad-Halom, Tell Jemmeh, Tel Sera', Ruqeish) is also noteworthy (see Na 'aman, 2001:260-266). It was suggested that this entire region (from Ashdod down to El-'Arish in northern Sinai) was under the control of Gaza during this period (Oren, 1993d; however, see Na'aman, 2004:61-68). Moreover, in most cases the Assyrian architectural elements are not followed by large quantities of Assyrian-style pottery or other material culture of Assyrian characteristics. There seems to be no model here, or the reality reflects a complicated situation where local considerations are combined with the Neo-Assyrian ones.

## Nature of Assyrian Presence at Tell Jemmeh

Since the SI excavations at Field IV came to light, it was quite widely agreed that the architectural and ceramic evidence at the site indicate that it was the seat of the Assyrian military governor of the area at least or even a larger major Assyrian center (see, e.g., Van Beek, 1973, 1983, 1993a; Na'aman, 1979, 2001:264; Naveh, 1985; Na'aman and Zadok, 1988:37). It should be noted that the Assyrian term bēl pāhete, usually translated as "governor," implying an official administrative figure with a fixed status and set of responsibilities, could be translated rather as "commander" or "person in charge," implying a more flexible, informal, and ad hoc type of position or figure (Bernbeck, 2010:151). Furthermore, the term governor could have applied in Assyrian eyes to a provincial governor as well as to a vassal king (Bedford, 2001:23).

The appearance of the Neo-Assyrian elements in the public building at Tell Jemmeh raises several questions regarding the

TABLE 34.1. Main examples of clear Neo-Assyrian architectural elements in the Levant (after Kogan-Zehavi, 2007: table 3).

| Site | Elements recovered | Location | Quantity of Assyrian-style pottery | Suggested dating, century BCE |
| :---: | :---: | :---: | :---: | :---: |
| Jemmeh | Brick arches, courtyard plan? | On the tell | High | Early 7th |
| Ad Halom | Palace/fort on podium, courtyard plan, Sargonic bricks, bath | North of the tell (Ashdod) | Very low | Late 8th |
| Sera' | Fort on podium | Tell edges | Low | 7th? |
| Haror | Fort on podium | On the tell | Unknown | 8th? |
| Rishon Le-Zion | Fort on podium | Near beach | Unknown | 8th-7th |
| Miqne-Ekron | Courtyard plan | On the tell | Low | Late 7th |
| Tel el-Hesi | None |  | Moderate | 8th-7th |
| Busayrah | Palace on podium | On the tell | Low-moderate | 7th |
| Abu Salima | Fort on podium | Near beach | Unknown | 7th? |
| Megiddo | Palaces on stone podium, courtyard plan, bath | On the tell | Low | 8th-7th |
| Hazor | Courtyard plan | On the tell | Very low | 7th |
| Ayelet Hashahar | Assyrian palace plan, no podium | Outside the tell (Hazor) | Unknown | Late 8th |
| Tel Dor | Unknown |  | Moderate | 8th |

function and significance of these remains; the nature of the Assyrian presence and/or influence at the site, in Philistia in particular, and generally in the southern Levant; and the nature of the relationships the Neo-Assyrian Empire created between its core and periphery.

It seems that the Assyrians had a special interest in Gaza, even more than Ashdod (see Na'aman, 2004). As Cogan notes (1993:407), "after the conquest of Gaza in 734 BCE and the ensuing deportations, Tiglath-pileser reinstalled Hanun, the city's former king, who, having failed to find refuge in Egypt, pledged once again his loyalty to Tiglath-pileser. Gaza was proclaimed an 'Assyrian customs station' (bit kari ga Assur), a sign that a permanent Assyrian presence was to be stationed in the region. That we are dealing with a political status beyond regular vassaldom but not yet full incorporation as a province is clear. ... even after Hanun's rebellion against Sargon, little more than a decade later, Gaza maintained its special status." The Neo-Assyrian related remains at Tell Jemmeh should be probably seen in light of this special attention to the Gaza region.

It was suggested also according to the faunal evidence from the site that the Iron IIC witnessed a change in the economy, namely, the sharp relative rise in sheep and goat remains, reflecting a possibly intensified production of products related to these animals as wool, skins, etc. (Wapnish, 1981a, 1996; see chapter 33); there are also no pig bones from this period. This phenomenon can be compared to that at other regional sites such as Ashkelon and Tel Miqne-Ekron, which also prospered during this period. Recently, however, Faust has strongly criticized the concept of Pax Assyriaca and the bottom-up model (see above) in both Philistia and Judah during the 7th century BCE (e.g., Faust, 2011; Faust and Weiss, 2011) and undermined the Assyrian role as a "positive" catalyst for prosperity in the region of Philistia (such as at Ekron and Ashkelon), as some scholars suggested (e.g., Elat, 1990; Na'aman, 1995:114, 2001, 2003; Gitin, 1995, 1997). Accordingly, the prosperity in Philistia during the 7th century BCE is attributed to the flourishing Mediterranean trade and the opening of new markets in the west, led by the Phoenicians. This trend was suggested also for the prosperity of Ashkelon during this period (e.g., Master, 2003).

In regard to the 679 BCE campaign of Esarhaddon to Arzâ (Tell Jemmeh), a problem may arise: where is the destruction layer related to this campaign? One would expect a destruction of Phase 5 (or Phase 6?) remains, yet this is not evident on the ground. Possibly, the meaning of "plundering" was not destruction of the structures. Alternatively, the lower Phase 6 structures were destroyed and then immediately rebuilt in Phase 5. The question is also whether the Assyrian-related structures at Tell Jemmeh where built by the Esarhaddon administration following the campaign or before, as part of the Assyrian efforts to strengthen their hold against Egypt or in relation to other causes or events.

It can be suggested that factors other than the Neo-Assyrian administrative interests also influenced these manifestations of material culture. Assyrian-style pottery could have been adapted by the local late Philistine elite, who had strong ties to the Assyrians (or who possibly wished to be identified as Assyrian citizens;
see, e.g., Parpola, 2004:10, 14-15), in order to manifest their superiority and strength (such elites were used by the Assyrians to promote their interests; see, e.g., Parpola, 2003:101-102). The use of the Assyrian palace plan at Philistine Ekron, and possibly at Jemmeh, could have been for similar reasons and also was employed as a power symbol. As noted, the connections between the late Philistine and Neo-Assyrian cultural elements seen in Philistia and especially at Tell Jemmeh are not surprising. It seems that this site reflects a combination of several elements: a late Philistine city that was important for the cultural and trade axis between the Negev and the southeast and the Gaza coast. In fact, during the final part of the Iron Age the site might have had stronger connections to the Negev than to the Philistine coast. The pottery and material culture of the site during the end of the Iron Age clearly testify to this in addition to differences between the finds from Ashkelon and Tell Jemmeh. On the other hand, the strategic position of the site on the border with Egypt also played an important role, especially in light of the military campaigns of Assyria into Egypt in this period. It has been noticed in the past that the Neo-Assyrian-style forts or palaces, located in various sites in the Assyrian Empire, were probably built and/ or maintained by the local vassal kingdoms in many cases rather than having the actual presence of Neo-Assyrian administrators, governors, or military personnel in place (e.g., Parker, 1997; Fantalkin and Tal, 2009). However, clearly, any Neo-Assyrian presence, influence, or interest in this site is primarily associated with its strategic geographic location. Moreover, this Assyrian influence fits well the data from other sites in southern Israel.

The Assyrian army may have stopped at the site or near it for various amounts of time during the early 7th century, especially in relation to Esarhaddon's campaigns against Egypt. This reality arises from the texts; for example, in a query to the sun god, Esarhaddon presents his worries that when he camps with his troops near the city of Ashkelon (the "district of Ashkelon"), the troops of the Egyptians will wage war against him (Starr, 1990:97: no. 82). The Assyrians may not have been interested in building an administrative center of their own in the heart of a Canaanite (or Philistine) city, especially as this was not a longterm center of an Assyrian province, but rather a strategic military and commercial outpost. Even the army on its campaigns was stationed outside the cities. Thus, if the Assyrians would have continued to control this area through a tribute-bearing local vassal kingdom, the structures at Tell Jemmeh may reflect local administrative buildings built under the inspiration of the Neo-Assyrian centers by the local (Philistine?) elites.

However, the fact that the administrative structures of Field IV, Phase 5 are abandoned by the mid-7th century BCE, several decades before the destruction of all the main Philistine cities (ca. 600 BCE ), strengthens the connection of this building phase to the Neo-Assyrian rather than the local Philistine administration. The site was also probably not destroyed violently during the Assyrian period. Moreover, Tell Jemmeh was not a major Philistine city and was therefore not likely to be an important administrative center of the late Philistines during this period. The structures from Tell Jemmeh and the Assyrian-style pottery found inside them seem to have been "planted" within the town
of Tell Jemmeh for a rather short duration of time by some foreign element, apparently, the Assyrians. The fact that Tell Jemmeh was a center of production for this ware for a very restricted period of time may indicate more extensive Assyrian influences resulting from the presence of Assyrian personnel, armies, and/ or deportees relocated at the site. The strategic position of the site on the border with Egypt played an important role in light of the military campaigns of Assyria into Egypt, especially in the days of Esarhaddon.

Today, it seems likely that Tell Jemmeh did experience, at least for a short period of several decades, a foreign presence related to the Neo-Assyrian Empire. This probably happened over the course of the early 7th century BCE, maybe during the reign of Esarhaddon. We still do not have enough data to determine whether the nature of the Neo-Assyrian presence at Tell Jemmeh was of an administrative, military, or commercial nature or any combination of those.

## PERSIAN PERIOD AND BEYOND

What happened at Tell Jemmeh between the end of the usage of the Assyrian buildings (the early 7th century BCE) and the Persian period (the late 6th to 4th centuries BCE) is somewhat unclear. This supposed gap, which includes the late 7th and 6th centuries BCE, or the final Iron IIC and the Babylonian period, can possibly be filled by Level A-B of Petrie's excavations, which included a massive fort, and also possibly by scattered remains in Field IV (Phase 4?) of the SI excavations. The problem is that the local pottery of the 7 th and 6 th centuries is similar, and thus, it is difficult to pinpoint this phase typologically. Some of the imported ceramic finds, such as the East Greek oinochoai ("Wild Goat" style) and Ionian cups (chapter 14, Figure 14.1, Cat. Nos. 1-47), found in unclear contexts indicate that the site was settled and active during this period as well. However, according to the typological dating of the Greek imports from the site, there might have been a certain break in occupation of activity during the 6th century BCE since the earliest Attic pottery is dated to ca. 500 BCE (chapter 14).

The Persian period is the most damaged period at the site (because of erosion). Although large areas were excavated from this period, apart from the granaries themselves, which were used to store grain, little can be said about the architecture of this period. For this reason, although vast amounts of pottery and other finds were found from this period, both in Petrie's and the SI excavations, hardly any of the vessels or other objects come from well-defined architectural units. Petrie reported at least nine rounded granaries, and they seem to include two types: large ones with an inner supporting wall or buttress and smaller ones without it. In the SI excavation one complete granary (of the first type) was excavated in Field IV (Phases 4-3), and a fragment of another was excavated in Field III, Phase 2. Field IV may have had another later Persian period phase (Phase 2), and Persian period remains come from Field II as well (Phase 1).

Apparently, the granaries were scattered all around the site and may have been used for large-scale storage, possibly for the
army, in relation to campaigns to Egypt. Petrie suggested that the site was a garrison for the Persian army storing supplies on the road to Egypt (Petrie, 1928:8-9). Similar contemporary granaries were discovered in regional sites such as Tel Sera' and in northern Sinai. Possibly, the many three-bladed arrowheads (common in Persia) found at the site could support such a suggestion. Another option, which may complement or replace Petrie's suggestion, is that this accumulation of cereals related to the site being a commercial center or emporium during this period. Clearly, this is not a domestic scale of storage. Some ostraca in Aramaic script dated to this period (two were found in the Field III granary; chapter 32) seem to allude to commercial activates, mentioning terms like sacks and measurements, grain, millet, vineyards, and wool. During the Persian period Tell Jemmeh was probably an important regional commercial center where marketing of various agricultural products was conducted. The archaeological results show in particular large-scale storage of grains in circular granaries. Ostraca note various commodities, wine, and wool, but grains as a commodity are not explicitly mentioned. The fact that other commodities appear may indicate other goods were traded for the grains, whereas grains were marketed in large quantities but may have not been mentioned in the dockets. Possibly, the grain jars were marked differently, perhaps by a single inscribed shin or trident symbol, as seen on many marked sherds (chapter 19, Figure 19.3e-m), probably standing for barley (seora in Hebrew). Names appearing include Hebrew ones as well as terms and names with Arabian affinities; also found in the granary area is a jar sherd with a south Arabian script sign (Figure 30.4f).

As noted, a large amount of pottery was recovered from this period, including dozens of reconstructed vessels. Most were jars and probably contained grains or liquids; some were probably imported according to their form (possibly some of these contained Aegean-produced wine). During this period the site imported the so-called East Greek products, closed table vessels, banded bowls, and the contents of a very few transport amphorae, and Attic table wares (chapter 14). Other special finds include plaque and other figurines, decorated limestone altars or incense burners (chapter 23), iron tools, scarabs, amulets, and glass vessels. Camel bones found at the site (Wapnish, 1981a, 1981b; chapter 33) also most likely relate to this period and further testify to the commercial importance of the site for caravans and its connections to Arabia during this period. A couple of camel clay figurines (chapter 17), probably from this period, can be linked to this phenomenon as well.

Later periods at the site are represented mainly by ceramic evidence. The early Hellenistic period (4th-early 3rd centuries BCE) is possibly represented by Phase 2 in Field IV, but this is a fragmentary and ill-defined phase. Moreover, there is a sharp decrease of imports at the site during this period, and most 4th-2nd century BCE Greek imported wares are lacking. Generally, the Hellenistic remains at the site are scanty at best; all the identified coins (see chapter 29) also date to the very early part of this period, i.e., Alexander the Great's time. A handful of Byzantine sheds were found, and in Field IV a layer of pits (Phase 1) is clearly dated to the Crusader-Mamluk period.

A better representation of the Byzantine and Mamluk periods was reported from the lower city of Jemmeh just south of the tell (Schaefer, 1989). Coins from these periods are also attested (chapter 30).

## SUMMARY

During nearly 1,400 years Tell Jemmeh was occupied almost continuously. In all that time the site seemed to have been an important settlement that illustrated both a local developed and sophisticated culture, integrated in the local cultural background of its region, and strong evidence of connections to other regions and cultures. The location of the site at the crossing of important ancient routes explains this reality. It thus attracted the attention of the Canaanites, Egyptians, Philistines, Assyrian, and possibly other ethnic and cultural groups. The site was never
cut off from its surroundings. This nature of the site was even stronger in the later periods when external powers probably used it to control and exploit these trade routes. The excavations at Tell Jemmeh have not answered all possible archaeological questions that could arise from this project, but a profusion of new information now illuminates our vision of the region of the Levant in ancient times and now shows how this settlement served as a meeting point between cultures, from near and far.

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REFERENCES should be in alphabetical order, and in chronological order for same-author entries. Each reference should be cited at least once in main text. Complete bibliographic information must be included in all citations (e.g., author/editor, title, subtitle, edition, volume, issue, pages, figures). For books, place of publication and publisher are required. For journals, use the parentheses system for volume(number):pagination [e.g., "10(2):5-9"]. Do not use "et al."; all authors/ editors should be included in reference citations. In titles, capitalize first word, last word, first word after colon, and all other words except articles, conjunctions, and prepositions. Examples of the most common types of citations are provided in the SISP Manuscript Preparation and Author Style Guide.

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[^0]:    ${ }^{\mathrm{a}}$ Incomplete decade.

[^1]:    ${ }^{\text {a }}$ In examples where the profile was not sufficiently preserved the nature of the handles is unknown.
    ${ }^{\mathrm{b}}$ The rims of these jars are similar but are differentiated by their base; thus, some of the JR1 examples could be JR2.

[^2]:    1. I thank Elena Kogan-Zehavi for suggesting this idea to me.
[^3]:    ${ }^{a}$ Denotes something unclear in excavation notes.

[^4]:    ${ }^{\text {a }}$ Sherds from Box 547, "general site," were included in the main field, Field IV.

[^5]:    ${ }^{\mathrm{a}}$ This item is discussed in Chapter 3.

[^6]:    1. We thank Yftah Shalev for providing us information on this type.
