Ashkelon 1

FINAL REPORTS OF THE LEON LEVY EXPEDITION TO ASHKELON

Series Editors
Lawrence E. Stager and J. David Schloen

THE LEON LEVY EXPEDITION TO ASHKELON

ASHKELON 1

Introduction and Overview
(1985–2006)

Edited by

Lawrence E. Stager, J. David Schloen, and Daniel M. Master

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Printed in China

Dedicated with affection and esteem to

Leon Levy and Shelby White

whose generous donation, long-term commitment, and encouragement

enabled us to uncover

so many portraits of the past buried in the sands of Ashkelon.

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PREFACE

IN THIS, the first of ten planned volumes of final reports covering Phase One (1985–2006) of the Leon Levy Expedition to Ashkelon, the authors provide a comprehensive overview of the first two decades of excavations. Topics covered include the location of Ashkelon in its natural and cultural setting as determined through land and marine surveys; the history of explorations and excavations; methods of collection and recording used by the Expedition; a stratigraphic overview of major architectural horizons, arranged by period and subperiods, presenting selected pottery and other artifacts used to determine the date of these horizons; inscriptions in Northwest Semitic, "Philistine," Greek, and Arabic as well as coins from the Persian and Hellenistic periods; synthetic pottery studies representative of the ceramic material found at the site; highlights of the human and faunal remains; and a sampling of the special finds that illuminate the arts and crafts of Ashkelon.

While the first two final report volumes were being prepared, the sad news of Mr. Leon Levy's death in 2003 came as a shock to us all. During the two decades I had known him, I had come to rely on his benevolence, sage counsel, and close personal friendship. We regarded Leon and his wife Shelby White as members of the excavation team. They came to Ashkelon during each summer session for a week or so to participate in the excavations, always accompanied by Professor Philip King and often by Lord Anthony and Lady Marcelle Quinton. Shelby and Marcelle headed straight for the trenches and continued to dig for most of their stay. Leon preferred to accompany me on the daily rounds from field to field, in order to get a look at the "big picture." Since Leon's death, Shelby has continued to offer enthusiastic support for the dig and its publications. It is our hope that the publication of the Expedition that bears Leon's name will not only make a great contribution to archaeology and history but also preserve the memory of his name for future generations.

The idea of excavating a major archaeological site in the Near East took shape in 1980, when Phil King, then president of the American Schools of Oriental Research, introduced me to Leon and Shelby, both of whom served as trustees of ASOR. Leon had discussed the idea of funding a long-term dig with Phil and let him know that he preferred to fund projects headed by individuals known for their creativity and excellence rather than to support a project or an institution in general. It was my good fortune that Phil had known me for some time as an academic, an archaeologist, and a friend and recommended me for the job.

The search for a site of suitable size and importance continued for the next three years. In 1983–1984, my family and I were living in Jerusalem while I was a fellow at the Institute for Advanced Study of the Hebrew University in Jerusalem. During that year, I decided to look for a site in Israel that might be worth investing much time, money, and the rest of my field career. Nearly every Shabbat I had lunch with Professor Benjamin Mazar, the doyen of Israeli archaeologists, biblical geographers, and historians— my good friend and mentor. We both shared a great interest in the Philistines. Our discussion turned to Ashkelon, a huge site of more than sixty hectares, which had barely been scratched by the British expedition of 1920–1921. From its location by the sea, it seemed clear that Ashkelon was the major seaport of the Philistines, as well as that of other peoples before and after them. Professor Mazar suggested that Ashkelon was the place to dig and I agreed. Mr. Levy liked the suggestion, especially since he and Shelby had long been interested in ancient seaports and caravan cities, where exotic goods and a mosaic of peoples intermingled. Much to my dismay, however, I learned that there were others competing to dig Ashkelon, a site that had been ignored by archaeologists for sixty years. Fortunately for us, Professor Mazar, the head of the Archaeological Council, shepherded our project through the licensing channels. From 1988 to 1998 the Expedition benefited greatly from the support and guidance we received from the late Amir Drori, director of the Israel Antiquities Authority. And today the Expedition continues to prosper under the directorship of Shuka Dorfman and the head of excavations and surveys, Dr. Gideon Avni.

In 1984, Professor Mazar introduced me to Moshe ("Musa") Shimoni, a highly respected citizen of Ashkelon, who for nearly two decades was our extraordinary majordomo, cutting through the municipal bureaucracy, protecting our interests and our bank account as if they were his own, and organizing the local labor. Although retired, he remains our trusted friend, with a welcome smile and a humorous story for every occasion. Musa and his wife Carmella, a nurse, always keep the welcome mat out for staff and volunteers who seek their help and hospitality.

Tackling a site with six millennia of occupation, sometimes extending over an area of sixty hectares or more, with some twenty-five settlements stacked one upon the other, meant that we had to have adequate

funding to excavate methodically and patiently through each archaeological horizon and to pay for site conservation and publication. In light of these conditions, Leon and Shelby recognized the need for a long-term commitment to the project. It was imperative that the excavations proceed every summer if we were to reach the Philistine and Canaanite levels. In fact, it took us a decade to reach the latest Philistine occupation over a broad area and another decade to expose most of the six Philistine phases down through the earliest.

With licensing and funding assured, I formulated in 1985 the following long-term goals of the project for the next twenty years:

1. To determine the archaeological sequence of the site, its size, and aspects of the city plan from the Bronze Age to Crusader times, with special emphasis on Canaanite (Bronze Age) and Philistine (Iron Age) Ashkelon.

2. To assess the role of maritime trade in the economy of this great seaport through an examination of its port facilities and nonperishable export-import merchandise.

3. To assess the role of its territorial hinterland in the city's economy through an archaeological and environmental survey of the surrounding landscape.

4. To determine those constants in the life of a seaport, independent of cultural contingencies, over *la longue durée* from ca. 3000 B.C. to A.D. 1500.

5. To test the "port power" hypothesis: namely, that import-export merchants, through knowledge of demand (and prices) in international markets and control of key seaports or caravan cities, influenced, but did not actually politically control, hinterland production, which might have been organized along very different networks of exchange than the market-controlled ports.

6. To discover evidence of the Philistine language(s) and writing system(s) during their six centuries of occupation.

7. To publish, as results warrant, a series of monographs on the archaeology of the site, its harbor, and its countryside. Ultimately, a historical synthesis, integrating data from archaeology and textual sources, would be produced.

8. To reconstruct or restore major monuments from various periods excavated at the site in order to enrich the physical and cultural landscape of the Ashkelon national park.

Originally, I had planned to publish a major volume on the progress of excavations every other year. That schedule proved unfeasible in light of our intensive annual excavations, although a few chapters in the present volume were originally written for that earlier abandoned series. Instead, staff members were encouraged to publish special reports in various journals, some of which are reprinted in this volume.

Piecemeal publication of partially excavated structures requires the reader to sort through several reports to put together a picture of the feature itself or the architectural horizon belonging to a particular period. In some of the worst cases, the fragmentation of evidence defies even the best efforts to put Humpty Dumpty together again. The downside of waiting for the complete, or nearly complete, recovery of a given feature or phase is that it delays publication; on the other hand, it provides a much sounder base of data on which to build reconstructions.

In the end, I decided to publish the excavations of Phase One as a series of final report volumes, each of which, with the exception of *Ashkelon 1*, is to be organized around a major period of occupation represented across the tell. *Ashkelon 2*, on the imported pottery of the Roman and Late Roman periods, will be published this year. The remaining volumes are now being researched and written with the aid of the mature computer database available to all staff and specialists. Dr. Richard Saley contributed our earliest computerized retrieval system in the 1980s. Since then, David Schloen, the associate director of the Expedition, and his spouse Sandra Schloen, have developed a series of improved computer programs that integrate archaeological data of all types. This puts at researchers' fingertips a complete digital archive of relevant information, including scans of thousands of pages of handwritten field notes; more than eleven thousand drawings of plans, sections, and artifacts; and more than ten thousand photographs.

This approach led us to maintain a full-time laboratory in Ashkelon throughout the year. I would like to thank lab directors Samuel Wolff, Abbas Alizadeh, Barbara Johnson, Todd Sanders, Tristan Barako, Tracy Alsberg, Benjamin Saidel, Ross Voss, and Wieslaw Wieckowski, who served so ably during Phase One of the project. Meanwhile, the associate directors of the Expedition have lightened the load of the director by assuming many oversight responsibilities, especially during the field seasons. First among them was Douglas Esse, a brilliant young field archaeologist, scholar, and best friend whose life was cut short by cancer in 1992. He was succeeded by associate directors Samuel Wolff, Abbas Alizadeh, Barbara Johnson, and David Schloen.

From 1986 until today, the Shulamit Gardens Hotel (now the Dan Gardens), located two kilometers from the tell, served as our home base, providing the staff and volunteers with room and board as well as classrooms for the field school and work rooms for the objects registry. Each year during Phase One, eighty to one hundred volunteers came from all over the world to learn archaeology in the field and in the classroom from a professional staff of thirty or more. Some enrolled in the Harvard Summer School and earned eight college credits. F. Patrick Kilcoyne was the director of the volunteer program from 1989 to 2000. Pat organized the field school and dealt daily with students' problems of all kinds, establishing a level of respect and rapport among them that endured through the most difficult times.

Harvard University sponsors the Leon Levy Expedition to Ashkelon. Boston College became a co-sponsor five years ago and Wheaton College in Illinois more recently.

Several people deserve special praise for their contributions to the production of this large and complex volume. First and foremost is David Schloen, who, using his outstanding editorial judgment and superior computer skills, labored for months editing the text and illustrations and placing them in their final format. Daniel Master, who became director of field excavations in 2007, inaugurating Phase Two of the Leon Levy Expedition, has checked the content of the various contributions and has refined and enhanced many of the illustrations. Michael Coogan, director of publications at the Harvard Semitic Museum, not only used his meticulous eye in copyediting but also provided sage editorial advice on all manner of substantive and technical matters. All of their contributions have greatly aided publisher James Eisenbraun in the final production of the volume.

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Concord, Massachusetts   January 2008

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All other photographs are credited individually where they appear.

ABBREVIATIONS

AA	*American Anthropologist*
AASOR	Annual of the American Schools of Oriental Research
ADAJ	*Annual of the Department of Antiquities of Jordan*
AJA	*American Journal of Archaeology*
AmAnt	*American Antiquity*
A.M.S.L.	above mean sea level
ANET ³	*Ancient Near Eastern Texts Relating to the Old Testament*, 3d ed. [= Pritchard 1969]
AOAT	Alter Orient und Altes Testament
AoF	*Altorientalische Forschungen*
ARA	*Annual Review of Anthropology*
BA	*Biblical Archaeologist*
BAR	*Biblical Archaeology Review*
BARIS	British Archaeological Reports, International Series
BASOR	*Bulletin of the American Schools of Oriental Research*
BASORSup	Bulletin of the American Schools of Oriental Research Supplement
BCH	*Bulletin de correspondance hellénique*
BCHSup	Bulletin de correspondance hellénique, Supplément
BMB	*Bulletin du Musée de Beyrouth*
BMC	*British Museum Catalogue*
B.P.	before present
BSA	*Annual of the British School at Athens*
BSASup	British School at Athens Supplementary volume
BSOAS	*Bulletin of the School of Oriental and African Studies*
BWANT	Beiträge zur Wissenschaft vom Alten und Neuen Testament
CA	*Current Anthropology*
CAD	*The Assyrian Dictionary of the Oriental Institute of the University of Chicago*
CAJ	*Cambridge Archaeological Journal*
CBQ	Catholic Biblical Quarterly
CCEM	Contributions to the Chronology of the Eastern Mediterranean
CIS	Corpus Inscriptionum Semiticarum
EA	el-Amarna text [as numbered in Knudtzon 1915]
EB	Early Bronze Age
EI	*Eretz-Israel*
ESI	*Excavations and Surveys in Israel*
Gk.	Greek
Heb.	Hebrew
HSM	Harvard Semitic Monographs
HSS	Harvard Semitic Studies
IAA	Israel Antiquities Authority
IDSFD	indoor suprafloor deposit
IEJ	*Israel Exploration Journal*
IGCH	*Inventory of Greek Coin Hoards* [= Thompson, Mørkholm, and Kraay 1973]
IJNA	*International Journal of Nautical Archaeology and Underwater Exploration*
INJ	*Israel Numismatic Journal*
JAOS	*Journal of the American Oriental Society*
JARCE	*Journal of the American Research Center in Egypt*
JAS	*Journal of Archaeological Science*
JCS	*Journal of Cuneiform Studies*
JESHO	*Journal of the Economic and Social History of the Orient*
JFA	*Journal of Field Archaeology*
JHS	*Journal of Hellenic Studies*
JNES	*Journal of Near Eastern Studies*
JRA	*Journal of Roman Archaeology*
JRASup	Journal of Roman Archaeology Supplementary Series
KAI	*Kanaanäische und aramäische Inschriften* [= Donner and Röllig 1966–69]
KTU	*Die keilalphabetischen Texte aus Ugarit* [= Dietrich, Loretz, and Sanmartín 1976]
LB	Late Bronze Age
LXX	Septuagint

MB	Middle Bronze Age
NC	*The Numismatic Chronicle*
NEA	*Near Eastern Archaeology*
NWS	Northwest Semitic
ODSFD	outdoor suprafloor deposit
OIC	Oriental Institute Communications
OIP	Oriental Institute Publications
OIS	Oriental Institute Seminars
OLA	Orientalia Lovaniensia Analecta
PEFQS	*Palestine Exploration Fund Quarterly Statement*
PEQ	*Palestine Exploration Quarterly* [continues *PEFQS*]
QDAP	*The Quarterly of the Department of Antiquities in Palestine*
RA	*Revue d'assyriologie et d'archéologie orientale*
RB	*Revue Biblique*
RCEA	*Répertoire chronologique d'épigraphie arabe* [= Combe, Sauvaget, and Wiet 1931–91]
RN	*Revue numismatique*
SAOC	Studies in Ancient Oriental Civilization
SAHL	Studies in the Archaeology and History of the Levant
SMEA	*Studi Micenei ed Egeo-Anatolici*
SNG	*Sylloge Nummorum Graecorum*
TA	*Tel Aviv*
Ug.	Ugaritic
UF	*Ugarit-Forschungen*
ZA	*Zeitschrift für Assyriologie und vorderasiatische Archäologie*
ZAW	*Zeitschrift für die alttestamentliche Wissenschaft*
ZDPV	*Zeitschrift des Deutschen Palästina-Vereins*
ZPE	*Zeitschrift für Papyrologie und Epigraphik*

Note that grid labels found on block plans (e.g.,) indicate the 10-meter squares within 100-meter grids (see the discussion of the grid system in chapter 11).

PART ONE

THE SITE AND ITS SURROUNDINGS

1. INTRODUCTION: ASHKELON AND ITS INHABITANTS

by Lawrence E. Stager and J. David Schloen

ASHKELON (classical "Askalon" or "Ascalon") sits on the Mediterranean coast 63 km south of Tel Aviv and 16 km north of Gaza (map ref. 107/119; see figure 1.2).[1] Astride fertile soil and fresh groundwater, the site is ideally suited for irrigation agriculture and maritime trade. Ashkelon was founded above an underground river that had once flowed on the surface into a great salt lake approximately 15 million years ago (see chapter 2 below on "Physical Enviroment"). In later prehistoric times, sands from what became the Nile Delta washed up and over the coastal plain of Palestine, forming at different times a series of north-south ridges of loosely cemented *kurkar* sandstone, the local bedrock. These sands buried the prehistoric river channel, which carries fresh water along its aquifer from the foothills to the east—the biblical "Shephelah"—to the beaches of Ashkelon.

The pressure of the subterranean fresh water flowing from the east prevents the sea from making the local groundwater brackish, as would otherwise happen along the shore. At the site of Ashkelon, dozens of ancient wells have been discovered which tap this water source at a depth not far below the modern surface (see chapter 6). The oldest well excavated at the site of ancient Ashkelon dates to ca. 1000 B.C., and no doubt many wells were dug there long before that. In the past, as today, the availability of abundant fresh water made Ashkelon a veritable oasis.

In 1921 the British archaeologist W. J. Phythian-Adams remarked on this feature of the site as follows:

> The sea coast of Palestine may be called one of the curiosities of the world. Its long, pitiless sweep from the Egyptian frontier to Carmel is familiar to all to whom this land is holy, and its chief characteristic is plain, so to speak, upon its face. It has no natural harbour. . . . On such a coast we have to ask ourselves why any one point rather than another should be selected as a port, and to this we shall probably find a ready answer. Primitive man in his search for fresh water over the parched plains of Philistia found it sometimes where he least expected it, on the seashore. One such oasis amongst the sand-dunes stands on the very brink of the Mediterranean some 12 miles north of Gaza. Its wells to this day can be counted by

scores. Here you will find palms and hedgerows, fields green with cultivation and bounteous with grateful shade. This Paradise is Askalon. [Phythian-Adams 1921a:76]

In contrast to Ashkelon, the other major cities of the southern coastal plain of Palestine were located several kilometers inland, along the main north-south road that ran parallel to the coast, about an hour's walk east of the shore (see figure 1.2). The road was situated some distance inland because shifting sand dunes made travel closer to the sea too difficult. Ashkelon was quite unusual in being situated directly on the water, ca. 5 km west of the main road.[2]

This road was a segment of the great highway connecting Egypt and Mesopotamia. It ran parallel to Mediterranean coast through northern Sinai, Philistia, and the Sharon Plain, before heading inland toward Damascus. It was the only all-weather route for travel through coastal Palestine, so it was used by armies and caravans throughout history (see Aharoni 1979: 45–54). It was used by the New Kingdom pharaohs of the Late Bronze Age, who maintained a major imperial administrative center at Gaza to govern Canaan. In 332 B.C. it was the route taken by Alexander the Great, who had to besiege and conquer Gaza before moving on to Egypt. The southern part of the coastal road was defended by the Cairo-based Fatimid dynasty of the medieval period, who maintained a major fort at Ashkelon to halt the Seljuk advance. More recently, it was the route of Napoleon's invasion of Palestine from Egypt in 1799, when he mounted his attack on the Ottoman empire.

At the site of Ashkelon, a semicircular arc of Middle Bronze Age earthworks, 2 km long and 40 m high in places, encloses ancient settlements that span 6,000 years, from the Chalcolithic period to the Mamluk era. At times (in the Middle Bronze II, Iron

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[1] The British kilometric grid (the "Palestine Grid") is used to indicate site locations in this volume. Three-digit coordinates such as 107/119 are accurate to the nearest kilometer.

[2] This road has been mistakenly identified by most modern scholars as the ancient *Via Maris*, but Anson Rainey (1981: 146–48) has shown that the term *Via Maris*, being the Latin translation of Hebrew *derek hayyām*, "Way of the Sea" (Isaiah 8:23 [Eng. 9:1]), refers to the road connecting Dan and Tyre (so also Dorsey 1991:49). The southern section of the international highway connecting Egypt with Canaan was probably called the "Horus Road" by the Egyptians and the "Road [to] the Land of the Philistines" (*derek ʾereṣ pᵉlištîm*; Exodus 13:17) by the Israelites.

I–II, Persian, Hellenistic, Roman, Byzantine, and Islamic periods) the inhabited area of the site was quite large in comparison to other cities in the region, attaining an area of 60 ha (150 acres), with perhaps as many as 15,000 inhabitants. Today the ruined ramparts of ancient Ashkelon enclose the Yigael Yadin National Park. The modern Israeli city of Ashkelon lies to the north and east of the site and has not encroached upon the ancient city.

The massive Middle Bronze Age earthen ramparts, constructed ca. 1800 B.C., were reused in subsequent periods as the basis for the city's fortifications, and so gave the city an enduring physical shape (figure 1.3). The stone towers and glacis of Ashkelon's medieval defenses (figure 1.1), which are still visible in places, follow the arc of these ramparts, built 3,000 years earlier. The medieval historian William, archbishop of Tyre, described the city's impressive fortifications near the end of its existence in the twelfth century A.D.:

> [Ascalon] lies upon the seacoast in the form of a semicircle, the chord or diameter of which extends along the shore, while the arc or bow lies on the land looking toward the east. The entire city rests in a basin, as it were, sloping to the sea and is surrounded on all sides by artificial mounds, upon which rise the walls with towers at frequent intervals. The whole is built of solid masonry, held together by cement which is harder than stone. The walls are wide, of goodly thickness and proportionate height. The city is furthermore encircled by outworks built with the same solidity and most carefully fortified. There are no springs within the confines of the walls, nor are there any near by, but wells, both without and within the city, furnish an abundant supply of fresh water fit for drinking. As a further precaution, the citizens had constructed within the town cisterns to receive the rain water.
>
> There are four gates in the circuit of the wall, strongly defended by lofty and massive towers. The first of these, facing east, is called the Greater gate and sometimes the gate of Jerusalem, because it faces toward the Holy City. It is surmounted by two very lofty towers which serve as a strong protection for the city below. In the barbican before this gate are three or four smaller gates through which one passes to the main entrance by various winding ways.
>
> The second gate faces west. It is called the Sea gate, because through it the people have egress to the sea. The third to the south looks toward the city of Gaza . . . whence also it takes its name. The fourth, with outlook toward the north, is called the gate of Jaffa from the neighboring city which lies on this same coast.

[Translated in William of Tyre 1943, vol. 2, p. 219; see also Pringle 1984a]

Figure 1.1: Artist's reconstruction of Ashkelon during the Crusader conquest in A.D. 1153
Courtesy of the National Geographic Society

Figure 1.2: Ashkelon in its geographical context on the southern Levantine coast
The site is located at 31° 40' N latitude, 34° 33' E longitude; 118.8–119.6 km N, 106.6–107.3 km E on the Palestine Grid.
Map courtesy of James Monson

Figure 1.3: Aerial photograph of the semicircular site of ancient Ashkelon, looking north
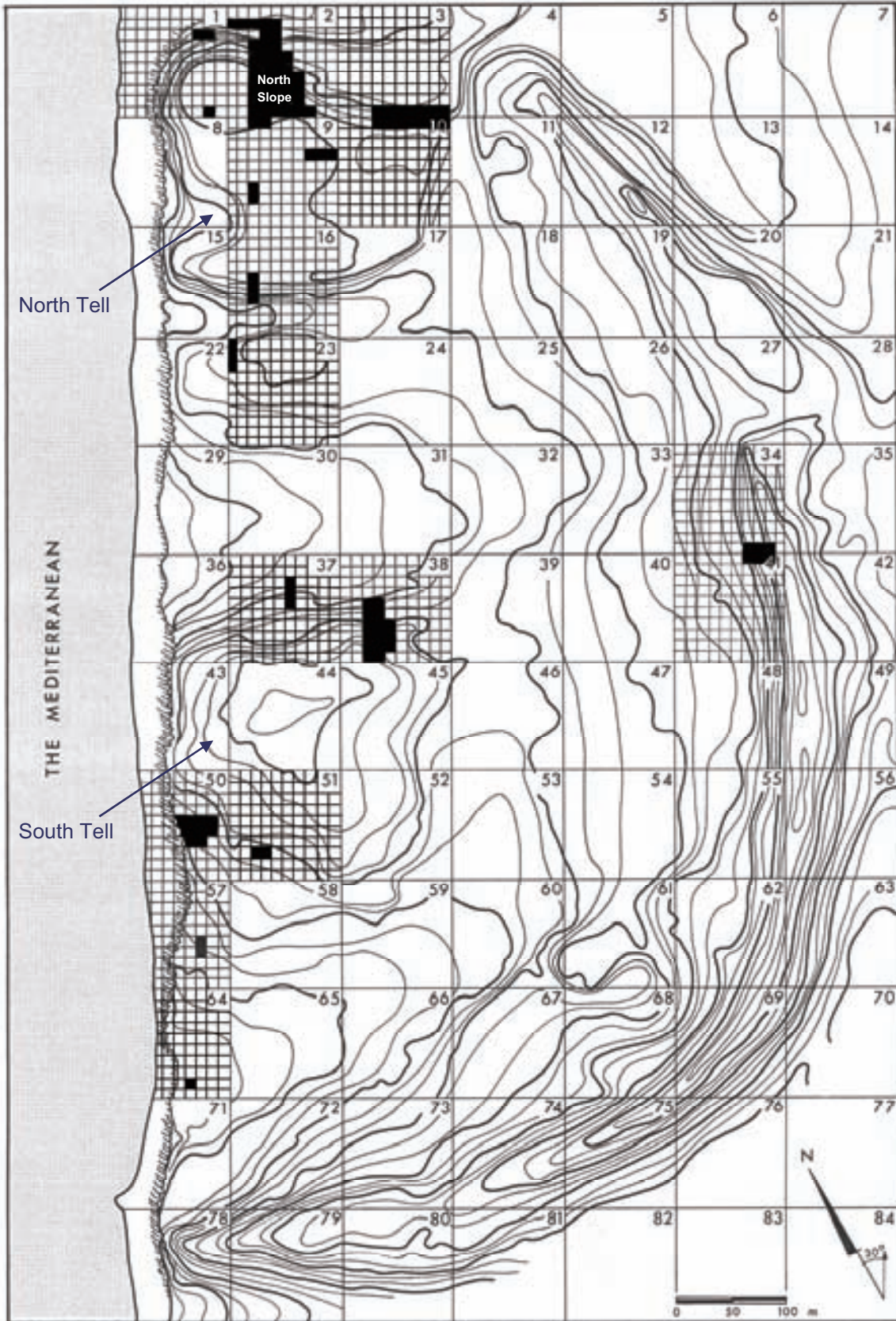*Courtesy of ROHR Productions Ltd.*

Figure 1.4: Topographic map of the site of Ashkelon showing grid system and excavated squares

The Name "Ashkelon" and the History of the City

In classical times Ashkelon lent its name to a special variety of onion (*caepa Ascalonia*) that was grown there and exported around the Mediterranean to many cities of the Roman empire (Strabo, *Geography* 16.2.29; Pliny, *Natural History* 19.32.101–7). The city's name thus comes into English in a rather unexpected way, in the words "scallion" and "shallot," via Old French *escaloigne*, from Vulgar Latin *escalonia*, a variant of *Ascalonia (caepa)*.

The Greek and Latin versions of the name (Ἀσκάλων and *Ascalon*) themselves preserve a very old Northwest Semitic toponym that is attested as early as the nineteenth and eighteenth centuries B.C. in the Middle Kingdom Egyptian Execration Texts, together with the names of three different rulers of the city, whom the Egyptians wished to curse.[3] This is the period when Ashkelon was being enlarged and fortified on a massive scale by its Amorite rulers, who were obviously viewed as a threat by the Egyptians.

At that time the city's name was probably pronounced *ʾAṯqalānu* by its inhabitants, and later *ʾAšqalōna*, after the consonants *ṯ* and *š* had merged in the coastal Canaanite dialect spoken in the region, and after the Canaanite vowel shift from *ā* to *ō* had taken effect.[4] The later version of the name was used by the city's Canaanite inhabitants during the Late Bronze Age, when they were under Egyptian rule. The toponym *Aš-qa-lu-na* (representing Canaanite *ʾAšqalōna*) is attested in cuneiform diplomatic correspondence of the Amarna period in the fourteenth century B.C.[5]

This name was retained even after Philistine invaders conquered the city in the twelfth century B.C., along with Gaza, Ashdod, Ekron, and Gath, forming a Philistine league of five cities, or "pentapolis," in southern coastal Palestine. Despite its Canaanite antecedents, Ashkelon was known as a Philistine city to the authors of the Hebrew Bible, whose version of the name (*ʾAšqᵉlôn*, in the later dialect of Hebrew represented in the Masoretic Text) has come into English via translations of the Old Testament.

The name "Ashkelon" is apparently related to the Semitic root *ṯ-q-l* (> Canaanite *š-q-l*), meaning "to weigh." The same root is reflected in the word "shekel" (Hebrew *šeqel*). It would thus have been an apt name for a populous commercial seaport, which Ashkelon was by the eighteenth century B.C., if not earlier. Indeed, a thriving Ashkelon—already perceived as a threat during the Middle Kingdom, as evidenced by the Execration Texts—probably contributed to the Canaanite takeover of Egypt during the Second Intermediate Period (ca. 1650–1550 B.C.), when "Hyksos" rulers of Levantine origin ruled the Nile Delta.

Like other cities in southern Canaan, Ashkelon seems to have suffered a decline in the aftermath of the "Hyksos expulsion" carried out by the Theban dynasty of New Kingdom rulers, based in Upper Egypt, who conquered Canaan in the sixteenth century B.C. Ashkelon remained under Egyptian suzerainty for the remainder of the Late Bronze Age, until ca. 1175 B.C. In the famous Amarna correspondence are preserved seven obsequious letters sent to the pharaoh by Yidya, vassal ruler of Ashkelon, in the mid-fourteenth century (EA 320–26), and one letter sent to Yidya by the pharaoh (EA 370). Most of Yidya's letters are formulaic protestations of loyalty that yield little historical information, but in EA 324 and 325 we learn that he obediently provided food, strong drink, oil, grain, straw, oxen, sheep, and goats for the pharaoh's troops; and on another occasion, Yidya confirms that he had sent 30 glass ingots to

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[3] See Sethe 1926:52f. [e23 and e24]; Posener 1940:65 [E2]; and translations in *ANET*³, p. 329, and Ritner 1997:51.

[4] The name of the city is written *iṯqꜣnw* in the Berlin execration texts, which corresponds to NWS *ʾAṯqalānu*. Note that in Egyptian transcriptions of Semitic names, "/*ṯ*/ is regularly rendered by Egyptian *s* ([s]), whereas /*š*/ is regularly transcribed by Egyptian *š* ([š])" (Hoch 1994:402). During the Eighteenth Dynasty, in particular, Egyptian *i* represented Semitic /ʾ/ and *ꜥ* represented /l/ (ibid., p. 432).

[5] See Moran 1992 (EA 320–26, 370). In a recently published Amarna-period letter sent from the king of Beirut to the king of Ugarit (Arnaud and Salvini 2000), there is a reference to "a man of the land of Ashkelon" (LÚ KUR *Aš-qa-la-ni*), who had robbed "the house of the harbormaster" (É UGULA KAR) in Beirut, and had then fled, first to Ugarit and then to Alašiya (Cyprus). The king of Beirut asked the king of Ugarit to seize the Ashkelonite upon his return to Ugarit, and to hand him over to his representative, who had been dispatched from Beirut to Ugarit. In this text, the syllabic writing of the name "Ashkelon" (with *la* instead of *lu*) indicates an *ā* vowel, rather than the *ō* vowel reflected in the writing *Aš-qa-lu-na* found in the seven Amarna letters

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sent to Egypt from Ashkelon itself. The editors of this text, who date it to the Amarna period (mid-fourteenth cent. B.C.) on linguistic grounds, are not sure whether this is archaic orthography used by a scribe at Beirut, or reflects a pronunciation of the name that was still current there (ibid., p. 8f.). Note also that the gentilic *ảṯqlny* is now attested in an unpublished Ugaritic text (RS 94.2392+:13) written at the end of the Late Bronze Age, in the late thirteenth or early twelfth century B.C. (Dennis Pardee, pers. comm.). Ugaritic continued to distinguish the phonemes *ṯ* and *š* in this period, unlike the Canaanite dialects that developed farther south along the Mediterranean coast.

Egypt as requested (EA 323)—presumably a local product, or one obtained through maritime trade.[6] A contrast to this picture of absolute fidelity is given in a letter to the pharaoh from ᶜAbdi-Ḫeba of Jerusalem (EA 287), who accuses Ashkelon and Gaza of provisioning the pharaoh's enemies.

In the late thirteenth century B.C., the cities of Ashkelon, Gezer, and Yanoam, together with a group called "Israel," rebelled against Pharaoh Merenptah, according to his inscription on the so-called Israel Stela (Lichtheim 1976:73–78). Merenptah, who ruled from 1213–1203 B.C. (von Beckerath 1997:190), recounts an invasion of Palestine to quell this revolt that took place sometime before the fifth year of his reign. A relief at Karnak, originally ascribed to Ramesses II but now properly redated to the reign of his son Merenptah, depicts Egyptian troops assaulting the city of Ashkelon, which is identified by name in the hieroglyphic legend (Stager 1985c). This relief shows Canaanites inside a fortified city or citadel set on a hill (presumably the massive earthen ramparts of the tell), praying for mercy.

The first Philistine inhabitants did not arrive at Ashkelon until 1175 B.C., when they joined other Sea Peoples in an attempted invasion of Egypt in the eighth year of Ramesses III (see Stager 1995 on "The Impact of the Sea Peoples in Canaan"). Several decades later the Onomasticon of Amenope (early eleventh century B.C.) lists Ashkelon as a Philistine city, together with Gaza and Ashdod. Ashkelon is mentioned in the Hebrew Bible as a member of the Philistine league of five cities, each ruled by a *seren* (Joshua 13:3; Judges 3:30; 16:30; 1 Samuel 5:1–6:18). The non-Semitic word *seren* was apparently the native Philistine term for a city ruler, and is perhaps related to the Greek term *tyrannos*, "tyrant," reflecting the Aegean origins of the Philistines.

According to Deuteronomistic tradition, Ashkelon was allotted to the tribe of Judah but not conquered (Judges 1:18 LXX). During the period of the Judges the exploits of the Israelite hero Samson took him to Gaza and Ashkelon. After the Philistines guessed his riddle, Samson paid off his bet by killing thirty men of Ashkelon and giving their clothes to their fellow Philistines (Judges 14:19).

The most famous biblical reference to Ashkelon is from David's elegy over the death of Saul and Jonathan, which begins: "Tell it not in Gath / Publish it not in the streets of Ashkelon / Lest the daughters of the Philistines rejoice" (2 Samuel 1:20). The

Hebrew word commonly translated "streets" (*ḥûṣôt*) can mean "bazaar" or "marketplace," so we may have an allusion here to the commercial prominence of the Philistines' major seaport (B. Mazar 1986a:67; 1986b:222, n. 32).

Ashkelon was an important city also in the period of the Neo-Assyrian empire in the eighth and seventh centuries B.C. Assyrian sources indicate that after the Assyrian monarch Tiglath-pileser III invaded Philistia in 734 B.C., Mitinti I, king of Ashkelon, acknowledged his suzerainty, but revolted shortly thereafter (*ANET*[3], p. 283). Mitinti was then replaced by his son Rukibtu, who headed a pro-Assyrian regime. Ashkelon remained loyal to Assyria until late in the eighth century B.C., when Ṣidqa usurped the throne in Ashkelon and joined Hezekiah, king of Judah, in an alliance against Assyria (*ANET*[3], p. 287f.). Together they deposed Padi, king of Ekron, who, like Mitinti of Ashdod and Ṣillibel of Gaza, had remained loyal to Assyria. In 701 B.C. Sennacherib brought an end to the rebellion and restored Padi to his throne. He deported Ṣidqa to Assyria, replacing him with Šarruludari, son of Rukibtu, the king who had earlier followed a pro-Assyrian policy. But Ashkelon lost and never regained a substantial part of its kingdom, which at one time included Joppa, Bnei-Brak, Azor, and Beth-Dagon. This coastal region (in the vicinity of modern Tel Aviv) was annexed to the directly administered Assyrian province of Dor in the north.

In the early seventh century B.C. Ashkelon was governed by Mitinti II, son of Ṣidqa, who served as a vassal of the Assyrian monarchs Esarhaddon and Ashurbanipal (*ANET*[3], p. 294). After the decline of the Assyrian empire in the west, first the Egyptians and then the Babylonians gained ascendancy. In 604 B.C. Nebuchadrezzar II of Babylon utterly destroyed the city of Ashkelon and took Aga, the last king of Philistine Ashkelon, into exile in Babylon. Babylonian records show that the exiled sons of Aga, some sailors, and various nobles of Ashkelon received rations from Nebuchadrezzar.

There is a story recounted by Herodotus that some Scythian soldiers robbed the temple of Heavenly Aphrodite at Ashkelon, "the most ancient of all the temples of this goddess; for the one in Cyprus, as the Cypriots themselves admit, was built in imitation of it" (*Histories* 1.105).[7] According to Herodotus, the

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[6] Note the presence of round glass ingots in the cargo of the Late Bronze Age Canaanite ship wrecked near Ulu Burun (G. Bass 1986).

[7] The cult of Heavenly Aphrodite (Ἀφροδίτη Οὐράνια) originated in the Near East, where the goddess was known as Hurrian Ishtar/Astarte. Her cult spread to the Levant, where she was worshiped as the "Queen of Heaven" in Judah, Phoenicia, Philistia, and Cyprus (Stager 2000). Pausanias writes that the Assyrians were the first to wor-

Scythian raid on Ashkelon occurred during the reign of the Egyptian pharaoh Psammetichus I (664–610 B.C.), while Ashkelon was still a Philistine city. The historicity of this event seems more plausible if we surmise that Scythians served as mercenaries along with Greeks and other foreigners in the Egyptian army, and that the cult of the Queen of Heaven had been introduced into Ashkelon by the Assyrians.

The site of Ashkelon was abandoned for several decades after the Babylonian conquest. Its name was not forgotten, however, and under the Persian empire Ashkelon was resettled in the late sixth century B.C. It became a "city of the Tyrians" and the headquarters of a Tyrian governor, according to the account of Pseudo-Scylax (*Periplus* 1.78), which dates to the late fourth century B.C. The Phoenicians curried favor with their Achaemenid overlords by providing them with naval power and wealth derived from far-flung maritime trade. Coastal cities as far south as Ashkelon grew rich from Phoenician commerce.

In later classical tradition, Ashkelon was known for its large lake sacred to the goddess Derketo or Atargatis (Diodorus Siculus 2.4.2–6). Mopsus, seer and hero of the Trojan War, reached Ashkelon and died there, according to the fifth-century B.C. Lydian historian Xanthos. After the conquest of the Persian empire by the Macedonians and the death of Alexander, Ashkelon was ruled first by the Ptolemies of Egypt, until ca. 198 B.C., and then by the Seleucids of Syria. The city retained its autonomy during the Maccabean period, although it was threatened (but not destroyed, as Ashdod was) by Jonathan the High Priest (1 Maccabees 10:84–87; 11:60).

During the Hellenistic period, some Phoenicians from Ashkelon lived abroad in Greek cities such as Piraeus, and in Thessaly, as shown by third-century B.C. inscriptions on marble stelae. The famous Letter of Aristeas (ca. 150 B.C.) mentions Ashkelon, along with Joppa, Gaza, and Ptolemais (Acco), as a harbor for maritime trade.

In the first century B.C. Ashkelon minted its own silver coins, which bore the emblem of the dove, symbol of Tyche-Astarte and symbol of the autonomous mint. The Greek inscription reads: "Of the people of Askalon, holy, city of asylum, autonomous." Among the most famous personages to have coins minted in their honor at Ashkelon was Cleopatra, queen of Egypt. Ashkelon not only had the most active mint in Palestine, but was also a banking

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ship Heavenly Aphrodite, followed by the Phoenicians of Ashkelon, and then by the Paphians of Cyprus (*Description of Greece* 1.14.7).

center—a certain Philostratus from Ashkelon gained fame as a prominent banker.

A number of men from Ashkelon were well known for their intellectual and political achievements. Antiochus of Ashkelon became head of the Academy in Athens, where he tried to reconcile the philosophies of Plato, Aristotle, and the Stoics. Dorotheus of Ashkelon compiled a lexicon of Attic Greek. According to Julius Africanus (cited in Eusebius, *Ecclesiastical History* 1.6.2; 1.7.11), Herod the Great was born in Ashkelon and his grandfather had been a hierodule in the temple of Apollo there. Josephus reports that when Herod became king, he bestowed great honors on his birthplace by building "baths and ornate fountains . . . with colonnades (*peristūla*) remarkable for their workmanship and size" (Josephus, *Jewish War* 1.422). He also built a palace in Ashkelon for Emperor Augustus. When Herod died, Augustus bestowed it upon Herod's sister, Salome (Josephus, *Jewish War* 2.98).

During the First Jewish Revolt of A.D. 66–70, Ashkelon defended itself against attacks from the Jewish rebels. In the period of the Mishnah and Talmud (2nd–5th cent. A.D.) the city was home to many Jews, even though the city lay outside the halakhic boundaries of the "Land of Israel." Talmudic sources refer to its market and gardens. Throughout the Roman period, Ashkelon and Gaza were famous for their international trade fairs and Ashkelon was a center of the wheat trade. It also produced henna, dates, onions, and other garden crops for export. The Severan dynasty of the early third century A.D. took an active interest in the city, reorganizing it according to the Roman plan, while at the same time encouraging the survival (and revival) of local Phoenician cults, such as the cult of the goddess Tanit.

In the Byzantine period, Ashkelon flourished as a major center of export for wine from the Holy Land (see chapter 25). It also became a port of call for Christian pilgrims, who came to view a famous well believed to have been dug by the biblical patriarch Abraham (Origen, *Contra Celsum* 4.44; Eusebius, *Onomasticon* 168). This is the "Puteus Pacis" of Antoninus Martyr (ca. A.D. 560) and the "Bīr Ibrahim" of the later Muslim writer Ibn Baṭṭūṭa. By A.D. 536, Ashkelon was the seat of a bishop.

Ashkelon was one of the last cities in Palestine to be taken by the Muslims, who occupied it in A.D. 640 (on the Islamic period at Ashkelon, see Hartmann and Lewis 1960 and chapter 22 below). According to various Muslim chroniclers, Ashkelon (Arabic ʿAsqalān), which they called the "Bride of Syria," became a beautiful and prosperous seaport once again. It was ruled by the Egypt-based Fatimid dynasty from the

late tenth century until 1153, when the Crusaders first captured the city. They held it until 1187, when, after his decisive victory at the Horns of Ḥiṭṭīn, the Muslim commander Saladin retook Ashkelon.

During the Third Crusade, led by Richard the Lionheart, the Crusaders once again occupied Ashkelon, in January 1192, but not before Saladin had reduced the city to rubble—an agonizing self-destruction recounted in several Arabic sources. Richard immediately refortified the city but then, by mutual agreement with Saladin, he dismantled his fortifications later the same year. In 1240 the Crusaders built a last redoubt at Ashkelon, holding it for a few years. Finally, in 1270, the Mamluk sultan Baybars utterly demolished the remnants of the city and filled in its harbor in order to prevent its reoccupation by the Crusaders, after which the site was never again inhabited.

2. PHYSICAL ENVIRONMENT

by Frank L. Koucky

ASHKELON is situated on the seashore in the southern part of the coastal plain that stretches inland from the Mediterranean Sea in present-day Israel. The northern coastal plain (the biblical "Plain of Sharon") lies north of Tel Aviv. In the south, the coastal plain gradually gives way to the arid Negev Desert. A northwest-to-southeast line drawn through Gaza would mark the approximate northern limit of the northern Negev. The southern coastal plain is bordered on the east by the foothills of the western highlands, often called by the biblical name "Shephelah." They are composed of outcroppings of chalk and limestone, forming linear hills, in contrast to the sandstones of the coastal plain.

Climate

The coastal plain has only 45 days of rain in a normal year, and these come in the wet season from November through May. Occasional thundershowers occur near the coast in other months. Because of its latitude, the coastal plain has 14 hours of sunlight in June and 10 hours in December. The Gaza region receives 260 mm of rainfall per year, but the amount of rainfall increases rapidly as one moves northward. Ashkelon receives 350 mm of rain on average, and Ashdod receives more than 400 mm per year. Most of the annual rainfall (more than 70 percent) occurs in the period from November through February; January is usually the wettest month.

The average temperature along the sea coast is 14° C in the coldest month (January) and 25° C in the warmest month (August). Frost is absent along the shoreline and very rare inland on the coastal plain.

Although no rainfall is expected from late June through September, dew is an important factor in this region. The dew adds only 33 mm of moisture per year, but it comes in the warmer, drier months when it is much needed. On some mornings, the whole coastal plain is clouded in a heavy fog which wets the plants. This fog quickly lifts and the ground rapidly dries as the sun warms the land, but plants thrive on the moisture absorbed through their leaves. The northern coastal plain experiences dew in as many as 250 days per year, while the southern coastal plain averages about 200 days of dew per year.

This generally pleasant weather pattern is broken only by off-track monsoons called *ḥamsīn*s. In both March-April and September-October the hot and dusty *ḥamsīn* winds blow in from the southwestern desert regions. They may last only a day, or for as long as a week, creating miserable conditions. These dust storms deposit less than a millimeter of dust over the region each year, but the repeated buildup of dust is considerable, forming a soil called "loess." The loess does not accumulate evenly but builds up in areas sheltered from the wind, such as the north-facing sides of valleys and the north and east sides of stone walls. The loess is also washed by the rain from the hilltops into the valleys, where it forms a thick, rich alluvium. The dust storms are thus not without an advantage, for the loess deposits that form as a result of them have particles of the size of silt which are rich in mineral nutrients, thus serving as a fertilizer and soil conditioner.

Although the rainfall is modest and restricted to a wet season, the climate is excellent for cereal farming and for fruit and citrus culture whenever cultivation can be supplemented with irrigation. Land that is not farmed and is not dominated by active sand dunes is covered by grass in the spring and early summer. Generally, the farming limit to the south on the coastal plain before the advent of mechanized farming was the Wadi Ḥesi (Nahal Shiqma), and the lands to the south of this wadi were used for grazing. The Negev Desert boundary is gradational to the coastal plain; the grass cover thins southward from the Wadi Ḥesi and the true desert starts south of Gaza (Orni and Efrat 1971:135–63).

According to Claude Conder, one of the authors of the monumental nineteenth-century *Survey of Western Palestine*, who had walked over most of the country:

> Ascalon is one of the most fertile spots in Palestine. The great walls, which are well described by William of Tyre as a bow with the string to the sea, enclose a space of five-eighths of a mile north and south, by three-eighths deep. The whole is filled with rich gardens, and no less than thirty-seven wells of sweet water exist within the walls, whilst on the north, as far as the village, other gardens and more wells are to be found. The whole season seemed more advanced in this sheltered nook than on the more exposed plain.

Palms grow in numbers; the almond and lemon-trees, the tamarisk and prickly pear, olives and vines, with every kind of vegetable and corn, already in the ear, are flourishing throughout the extent of the gardens early in April. Only on the south the great waves of ever-encroaching sand have now surmounted the fortifications and swept over gardens once fruitful, threatening in time to make all one sandy desert, unless means can be found to arrest its progress. [Conder 1875:155]
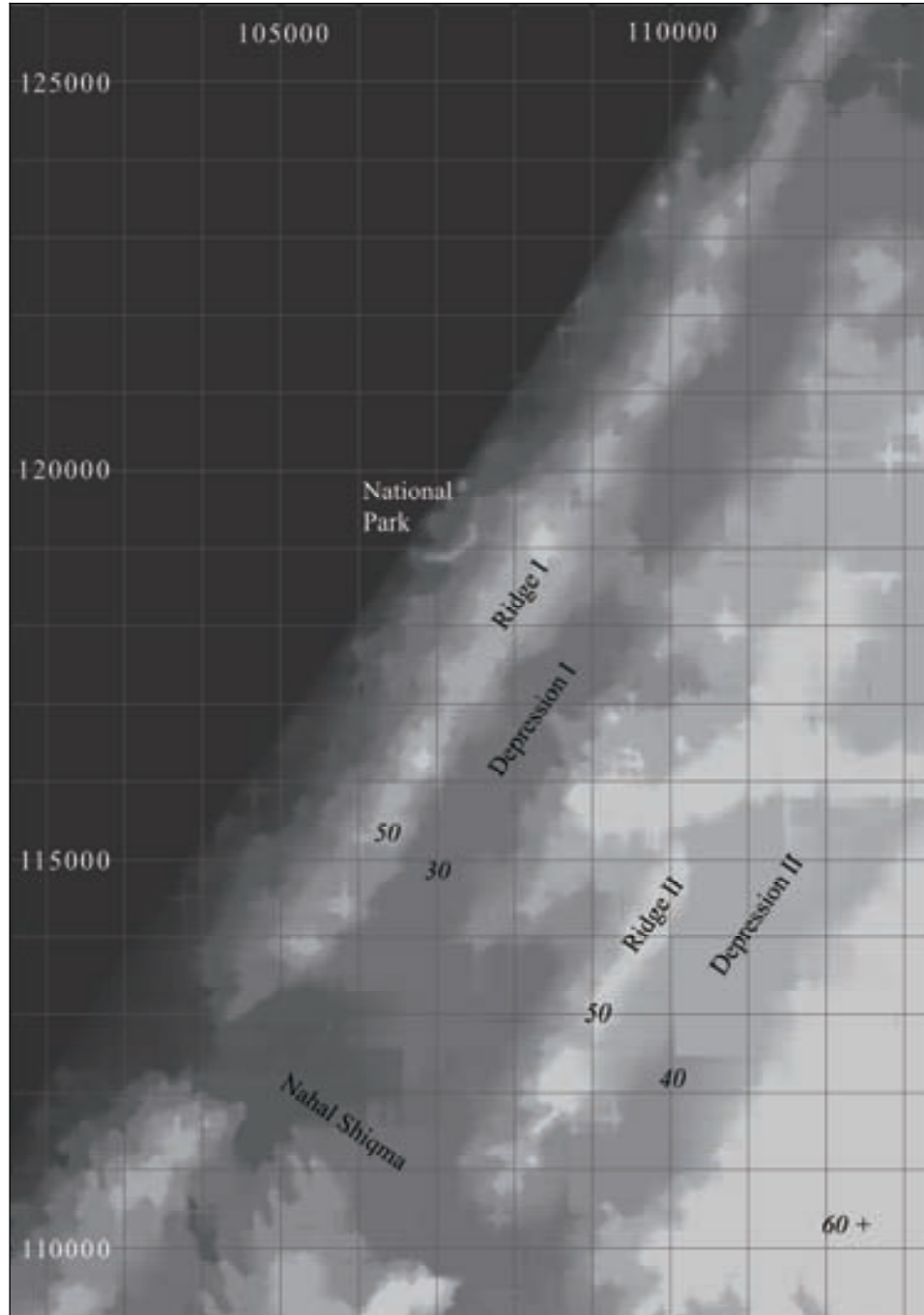

Figure 2.1: Topography of the Ashkelon region (the site is labeled as "National Park")

On this map, city names and cultural features are not shown except for the modern national park that is the site of ancient Ashkelon. Elevations of the various topographic features are indicated as "30," "40," "50," "60+" meters above sea level.

Topography and Soil Conditions

The southern coastal plain's main topographic feature is a series of ridges and valleys that run parallel to the present coastline. These are consolidated prehistoric sandbars that formed because of sea-level fluctuations during Quaternary times (the last two million years) as Nile Delta sands were swept counter-clockwise by the currents of the Mediterranean Sea.

A simplified topographic map of the Ashkelon region is presented in figure 2.1. Two of the sandstone ridges are shown in this map, labeled "Ridge I" and "Ridge II." Ridge I lies about 1.5 km from the seashore and rises 40–50 m above mean sea level. Ridge II is 5 km from the shore and is slightly higher than Ridge I, with elevations of 50–60 m. "Depression I" between these two ridges is generally near 30 m above sea level, while the floor of "Depression II" is about 10 m higher, with elevations of 40–45 m.

Windblown sand dunes and loose shifting sand currently cover most of Ridge I and the shore area west of that ridge. In contrast to this, Depression I, the protected region east of Ridge I, has a red loamy soil and is heavily farmed, except where it is now covered by the modern city. Much of the extensive dune buildup west of Ridge I has occurred since medieval times. Settlements dating to the late fourth millennium B.C. (EB I) have been found west of Ridge I, north of ancient Ashkelon. These are buried under sand dunes that are as much as 8 m thick and contain Byzantine and Islamic artifacts (Brandl and Gophna 1994; Baumgarten 1996; Braun and Gophna 1996; Golani 1997; Gophna 1997; Khalaily and Wallach 1998; Golani and Milevski 1999).

The spread of the sand dunes has obviously been an ongoing process. In the late nineteenth century, Conder and Kitchener (1883:233) reported that "the rate of progress [of the dune encroachment inland from the coast in the area around Ashkelon] is said to be a yard a year." Although the rate of encroachment might well have varied from one period to the next, it is fair to say that the dune coverage must have been less extensive in antiquity than it is today, especially in the Bronze and Iron Ages, with a corresponding increase in the area of fertile farmland close to the seashore, immediately around the city of Ashkelon.

Vegetation has stabilized the sands in some places along the northern part of Ridge I and along most of the length of Ridge II. The modern railway and highway are built on the crest of Ridge II, ca. 5 km from the seashore. They follow quite closely the ancient road that ran parallel to the seacoast. Because this road ran along a sandstone outcrop, there was no need to pave it; the sandstone drains rapidly and remains hard, permitting all-weather travel.

The ridges are composed of a weakly cemented type of sandstone known locally as *kurkar*. This sandstone forms a hard, resistant rock through a geological process called "case-hardening." The *kurkar*, when freshly exposed in a quarry or road cut, is a loosely cemented, friable sandstone. Fresh exposures can be easily cut and quarried. But this same rock, when repeatedly exposed to wetting, allows rainwater to dissolve minerals such as calcium carbonate and silicon dioxide that are contained in the rock. The mineralized water is later drawn to the surface by evaporation and the minerals are deposited there to form a surface cement which makes the rock quite hard and resistant. The longer the rock is exposed to alternating wet/dry conditions, the thicker is the surface cement. In antiquity, sandstone quarries were often underground where soft rock could be obtained. In many cases, these quarries subsequently became cisterns or tombs.

The Oasis of Ashkelon and Its Water Supply

In view of the long dry summers in which no rain falls on the southern coastal plain, a dependable water supply is necessary for the existence of any city in the area. Gaza, Ashkelon, and Ashdod were not located at the mouths of main rivers, so they had to depend on wells for water, tapping into the high water table characteristic of this region (see chapter 6 on "Water Wells" below). Because of such wells, these sites were true oases in which there was not only drinking water but also enough water to maintain extensive gardens and orchards. The availability of water attracted human settlement from an early date. Ram Gophna has summarized the geographical and ecological characteristics of this coastal region as follows:

> These characteristics include *kurkar* sandstone ridges with intervening troughs, *ḥamra* and alluvial soils, a high water-table, natural ponds and quagmires, a Mediterranean forest of kermes oak and terebinth, and a flora of wild-growing cereals, along with a fauna of wild birds and mammals. All these characteristics turned the coastal troughs into areas where foragers, hunters, fishermen and shepherds could subsist. [Gophna 1997:155]

In 1875, Conder counted 37 wells visible within the ruined city walls of ancient Ashkelon (Conder 1875:155). Each had a column next to it into which furrows were worn by ropes, with a capital or base nearby that was used to tie the cord. The rivers of the coastal plain are ephemeral and have surface flow for only a short period during the rainy season. The loess

and sand-rich soils of the coastal plain are very porous, so most water rapidly soaks into the ground.

To understand the hydrology of this area, it is important to be aware of the natural channels for groundwater movement. Geological evidence suggests that the main drainage patterns of Palestine were established and deeply incised in late Miocene times, ca. 15 million years B.P. This occurred when the continent of Africa moved against Europe, closing the Gibraltar inlet to the Mediterranean Sea, which caused the Mediterranean to evaporate and become a great salt lake. The deep salt basin allowed the streams that flowed into it to incise channels that were later covered (see figure 2.2).
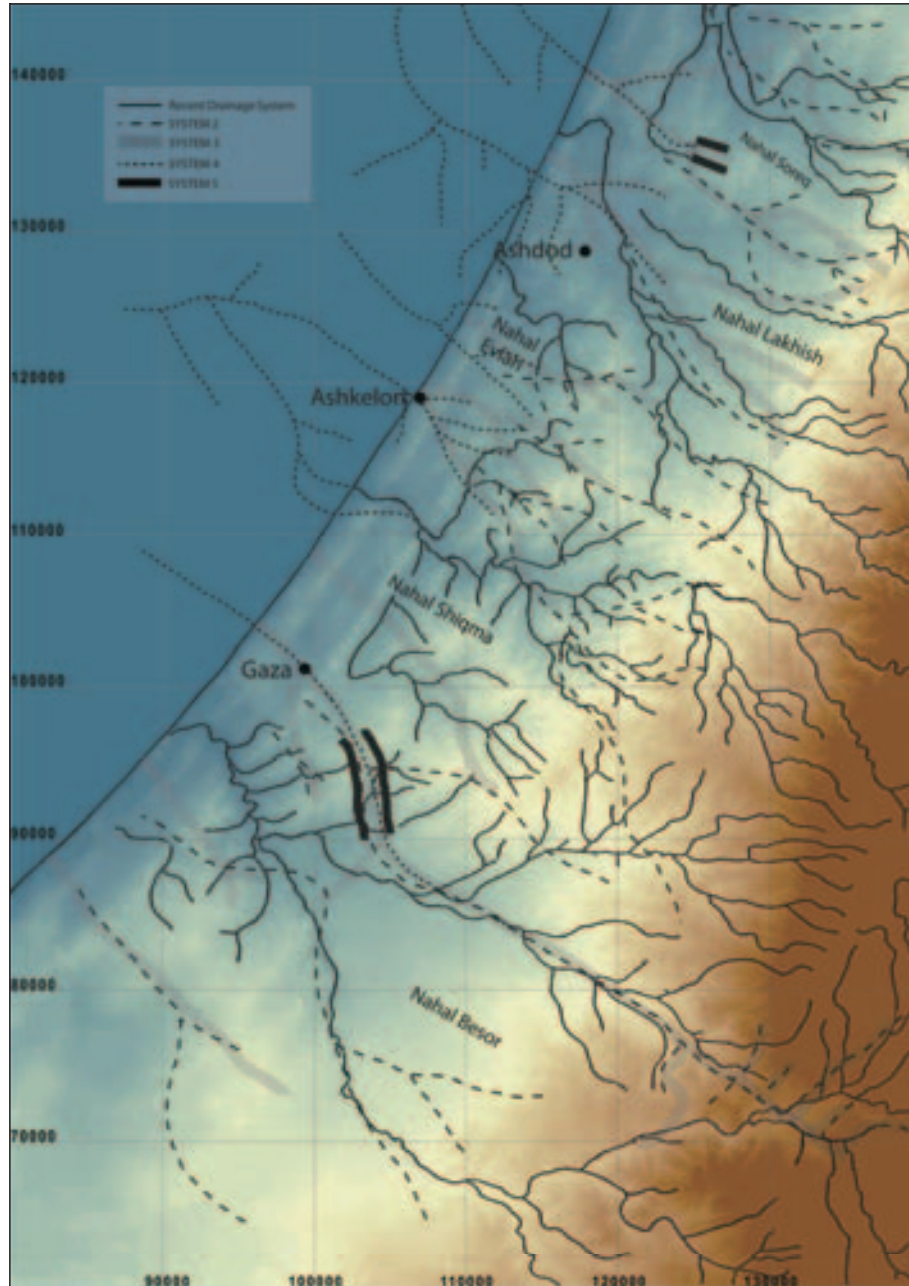
Figure 2.2: Drainage systems of the southern coastal plain (after Gvirtzman 1970)

This map shows the modern drainage systems as solid lines and earlier buried river channels as dashed or dotted lines and shaded regions. Note that in ancient times, Nahal Shiqma had a larger drainage basin than it does at present, taking in some of the water that is now in the Nahal Besor drainage.

The drainage pattern of the southern coastal plain was retained when the Gibraltar inlet reopened and the Mediterranean Sea again filled. During Pleistocene times (2 million to 10,000 years B.P.), the sea level fluctuated greatly as glaciers grew and retreated in the northern latitudes. It was during this time that the present Nile River came into existence and started building its delta. The delta sediments were swept eastward by the counterclockwise currents of the Mediterranean and much of the sediment was dumped in the southeastern corner of the Mediterranean basin, building the coastal plain of Palestine and burying the old river channels.

Although the ancient drainage channels of the coastal plain are now buried, they still provide a funnel system which drains the water that soaks into the plain. Every major city of the coastal plain was in fact built over a buried river channel that provided water for the inhabitants, as can be seen in the drainage system map above.

Even though the underground river systems provided a reliable supply of well water for these cities, it was necessary to supplement the water supply as a city's population grew, especially to compensate for a lack of water in years of low rainfall. Each city in the region did this by means of numerous cisterns that collected rain during the wet months. In most years, however, the numerous wells of these cities provided abundant water, not only for the human population but also for their animals and crops.

3. REGIONAL SETTLEMENT HISTORY

Early Maps and Records   *by Frank L. Koucky*

Figure 3.1 is a map of settlements and ruins in the vicinity of Ashkelon in the late Ottoman period. This map was published by Conder and Kitchener in their *Survey of Western Palestine* (1882: sheet 16; 1883: sheets 19, 20), which was sponsored by the Palestine Exploration Fund.

Documentation is also available from a period three hundred years earlier, in the various taxation censuses made by Ottoman officials in the sixteenth century A.D. The Palestine portions of these censuses have been edited and studied by Wolf-Dieter Hütteroth and Kamal Abdulfattah (1977). All of Palestine was in the province called *Wilāyat aš-Šām*, which was governed from Damascus (*Šām aš-Šarīf*). This province was subdivided into eight major administrative districts, each called a *liwā*ᵓ. The abandoned site of ancient Ashkelon (uninhabited since the thirteenth century) was in the *liwā*ᵓ of Gaza. The settlements in this district, and their sizes, are shown in figure 3.2 below.

It should be noted that almost all of the ruined and abandoned settlement sites ("khurbehs") noted by Conder and Kitchener in their survey were occupied in the sixteenth century, according to the Ottoman censuses. These ruins were related to silkworm farms that had failed when the bay trees became diseased. This indicates a substantial decrease in the size of the regional population from the sixteenth century until the end of the Ottoman period. The great antiquity of many of the Ottoman-era settlements in the Ashkelon area (mostly unexcavated at present) is demonstrated by their continuity with settlements of the Byzantine period, as shown in figure 3.3. This map contains names known and used until A.D. 640, as listed in Avi-Yonah's *Gazetteer of Roman Palestine* (1976a), and thus represents the settlement situation during the Byzantine period.

The ancient map called the "Peutinger Table" (*Tabula Peutingeriana*), a segment of which is reproduced below in figure 3.4, documents an even earlier settlement pattern in the early Roman period (see Bowersock 1983:164–86). In this map Ashkelon is shown as the principal city of the southern coastal plain. It stands at the crossroads of the main travel routes between Rincorura, Betogabri (later called Eleutheropolis), and Azotus (Canaanite and Philistine Ashdod). Its importance is indicated by the two-building vignette, drawn at Ashkelon as at other major sites. This vignette has been interpreted as representing a station in the *cursus publicus*, although it may indicate merely the presence of a detachment of troops (Bowersock 1983:174). On the portion of the map reproduced here, this vignette is drawn at Ashkelon, Caesarea, Jerusalem, Nablus (Neapolis), and Jericho.

The Peutinger map has been dated to the first century A.D., with later additions in the fourth century. This is indicated by the inclusion of Pompeii (destroyed in A.D. 79) and by the fact that Eleutheropolis is still called Betogabri (see Bowersock 1983: 168ff.). If this early Roman date is correct, it explains why Gaza is not shown, because Gaza was destroyed by Alexander Janneus in 96 B.C. and remained "Deserted Gaza" for a considerable period thereafter. It began to recover only in A.D. 56, when it was rebuilt by Gabinius, the proconsul of Syria (see Glucker 1987). Ashkelon was therefore the dominant city of the southern coastal plain during the first century A.D., as the Peutinger map shows.

Most of the large cities of the southern coastal plain were located several kilometers inland, on the main road that ran parallel to the coast, and each controlled a smaller port settlement on the shore; for example, Nea Gaza or Constantia Maiumas for Gaza, and Azotus Paralius for Azotus (Ashdod). But Ashkelon was itself a seaport; what it needed was a sister settlement on the main road to look after its military and commercial interests. The best candidate for this in the vicinity of Ashkelon is the pre-1948 Arab town of Majdal (el-Mejdel), which is located 5 km east of ancient Ashkelon, on the second *kurkar* ridge inland from the coast (Majdal is now the "Migdal" shopping district of modern Ashkelon). Nineteenth-century European travelers in the area observed that most of the small towns of the coastal plain were built of mudbrick, but that Majdal was built of stone. They concluded that the stone of Majdal had been robbed from the abandoned site of Ashkelon; but it is equally possible that the town of Majdal had a much longer history as an important outpost of Ashkelon.

This hypothesis is rendered more plausible if we recall that in the Hellenistic period (and presumably in earlier periods as well) the road between coastal cities was guarded by watchtowers. The best known of these is the Tower of Strato, where Herod the Great

Figure 3.1: Settlements in the Ashkelon region in the late nineteenth century A.D.
(from Conder and Kitchener 1882:sheet 16; 1883:sheets 19 and 20)
Scan courtesy of Todd Bolen

Table 1. Names of Settlements in the Ashkelon Region

Modern	Ottoman Period	Byzantine Period	Coordinates
National Park	ᶜAsqalān	Ascalon	107/119
————	Jura	Jagur	108/119
————	Hamame	Peleia	111/122
Mavgi'im	Barbara (Barbarith)	Barbarit	110/114
Karmiyya	Sarafia	Diocletianopolis	107/113
Zigim	————	Maiumas Hayil	116/108
Tel Beror	Bureir	Beror Hayil	116/108
————	Sherkiyeh (Sawafir)	Sapheir	122/123

Sources: Conder and Kitchener 1882; 1883; Avi-Yonah 1976a

later constructed the port city of Caesarea Maritima. It is quite likely that the residents of Ashkelon built a watchtower (Canaanite *magdalu*; Hebrew *migdāl*; Arabic *majdal*) by the road at an early date—probably as early as the Middle Bronze II period, when Ashkelon itself was so massively fortified—in order to control traffic through their region and to signal the city of approaching danger.

Unfortunately, it is not certain when Majdal was first occupied. The site is covered by the modern Israeli city and has not been thoroughly explored. But two Middle Bronze II cemeteries have been found there in recent years (or two separate portions of a larger cemetery), in the "North Migdal" district of the modern city, and it seems likely that there was a settlement associated with these cemeteries. One of the cemeteries was discovered when modern road building activity accidentally exposed ca. 40 burial pits hewn into the rock of the *kurkar* ridge (Gershuny 1996 [map ref. 1111/1203]). In another location, 33 burial pits were uncovered as part of a salvage excavation in advance of a construction project (Gershuny 1997 [map ref. 1101–13/1190–04]). In addition to skeletal remains, these burials contain Middle Bronze II assemblages very similar to those excavated in the

contemporaneous burial chambers carved into the *kurkar* cliff on the seashore at the site of Ashkelon itself, consisting of storejars, jugs, dipper juglets, bowls, bronze daggers, scarabs, and skeletal remains.

Joseph Offord (1920:27f.) long ago suggested that the account by Herodotus (2.159) of a major battle fought at "Magdolo" in southern Palestine by the Egyptian army under Pharaoh Necho—probably against the Neo-Babylonian army of Nebuchadrezzar in 601 B.C. (Rainey 2001:61)—actually took place at the site of Majdal on the main road near Ashkelon. This site may have been one of the "neighboring strongholds" near Ashkelon mentioned in a later context in 1 Maccabees 12:33, when the Hasmonean leader Simon campaigned in the area.

A final consideration is that Ashkelon is situated at a very low elevation, just above the beach, and its walls at their highest point would not have been much more than 40–50 m above sea level. Even with the highest possible tower, the occupants of the city could not easily have seen invaders approaching 5 km away along the main road. As early as 1800 B.C., then, when the huge ramparts surrounding the site were built, the city would have needed at least one eastern watchtower on that road.
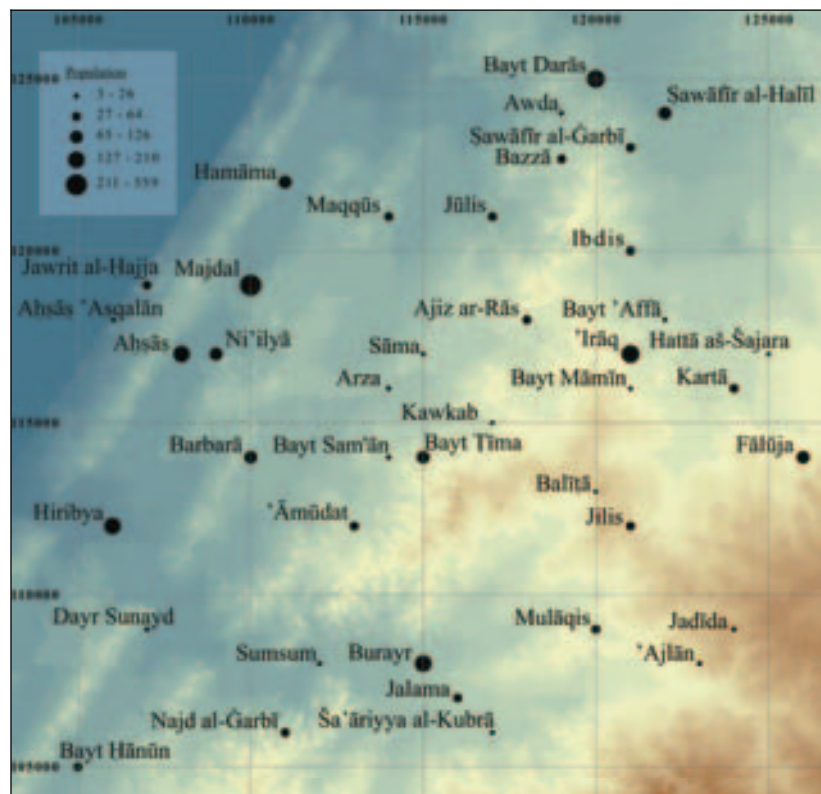

Figure 3.2: Settlements in the Ashkelon region in the late sixteenth century A.D.
(after Hütteroth and Abdulfattah 1977)
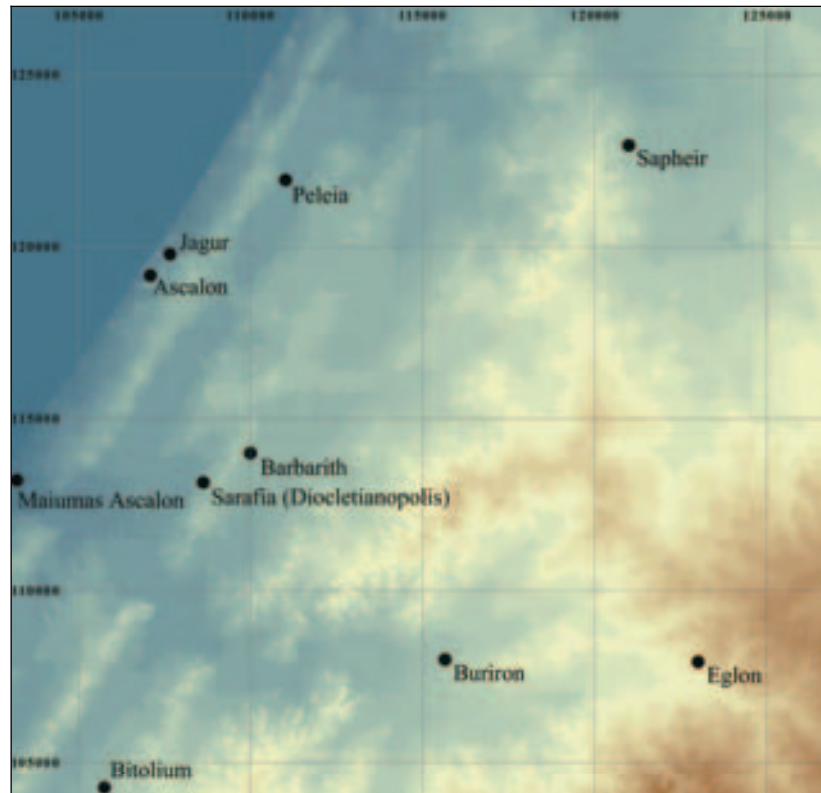
Figure 3.3: Settlements in the Ashkelon region in the Byzantine period (after Avi-Yonah 1976a)

Figure 3.4: Settlements in the Ashkelon region in the Roman period, as shown in the Peutinger map
(*Tabula Peutingeriana*, Segment IX)

Regional Archaeological Survey *by Mitchell Allen*

THE Ashkelon Regional Archaeological Survey was conducted from 1986 to 1990. This project was directed by Mitchell Allen under the auspices of the Leon Levy Expedition to Ashkelon and under permit from the Israel Antiquities Authority (IAA). The area to the southeast of modern Ashkelon (Map 92 on the IAA national grid) was surveyed, completing a full-coverage survey of the Ashkelon and Ashdod area that was begun in the early 1970s by the Israel Department of Antiquities (now the IAA). The final report of the current survey will be published as part of the IAA's Survey Report series, as will the reports of the other surveys in the Ashkelon and Ashdod areas. The goals, methods, and results of the survey are presented here. This is also the first attempt at synthesis, to the extent possible, of what we know about the rural region around ancient Ashkelon, based on these surveys and other available data.

GOALS OF THE SURVEY

Documentation of Settlement History

Archaeological surveys have a history that goes back almost two centuries in Palestine, starting with the reconnaissance work of early nineteenth-century European travelers to the Levant. In the last few decades, after almost a century of heavy reliance on systematic excavation, regional surveys have regained their importance. Site survey is now recognized as the chief method for understanding changes in settlement pattern, for tracing trade routes, for analyzing regional economic systems, and for placing ancient peoples in their ecological setting.

The systematic full-coverage survey has been the survey method of choice in Israeli archaeology because of the intense popular interest in archaeology, the density of sites, access to the full landscape, and a manageable geographical scope. Survey work is taking place in every part of the country, as is demonstrated by the Archaeological Survey of Israel publication series, which has several dozen volumes in print or in preparation. A national database of archaeological sites has been developed by the IAA, consisting of thousands of identified sites, in order to provide data for scholars and legal protection for ancient sites.

As a result of this intensive survey work, Israel easily qualifies as having the most extensively documented archaeological history of any country in the world. The Ashkelon survey was conducted as part of this overall effort to preserve and record the historical and archaeological sites in the country.

Our survey discovered 144 sites in the 100 km^2 of the survey area, the area of Map 92 on the IAA grid (map ref. 110–120/110–120; see figure 3.5 below and the appendix at the end of this chapter). Edge effects allowed us to identify and document another 6 sites not formally in the survey zone (these sites will be included in the final survey report). We found a few Mousterian and other Paleolithic sites, no confirmed Neolithic habitation, a few Chalcolithic sites, and very sparse remains from the 2,500 years of the Bronze Age and the early Iron Age (ca. 3500–1000 B.C.). Settlement density increased beginning with the Iron II period (1000–600 B.C.) and reached an apex in the Byzantine period (fifth to seventh centuries A.D.), as it did elsewhere in the country. The number of settlements declined again, slowly at first in the Early Islamic period (A.D. 650–1000), but at an increasing rate thereafter, until only a handful of settlements remained during late medieval and Ottoman times. These findings conform well to the results of other surveys in other parts of the southern coastal plain of Palestine.

Table 2.
Chronological Distribution of Sites in Map 92 Area

| *Period*	*No. of sites*	*Possible sites*	*Total*
Acheulian	1	0	1
Mousterian	3	2	5
Other Paleolithic	9	1	10
Neolithic	0	1	1
Chalcolithic	2	2	4
Early Bronze	0	0	0
Middle Bronze	1	1	2
Late Bronze	1	0	1
Other Bronze/Iron	1	4	5
Iron I	2	0	2
Iron II	4	6	10
Persian	10	3	13
Persian/Hellenistic	1	0	1
Hellenistic	8	17	25
Hellenistic/Roman	10	1	11
Roman	41	16	57
Byzantine	136	1	137
Early Islamic	76	7	83
Crusader and Mamluk	29	9	38
Ottoman	18	2	20
Modern	73	2	75
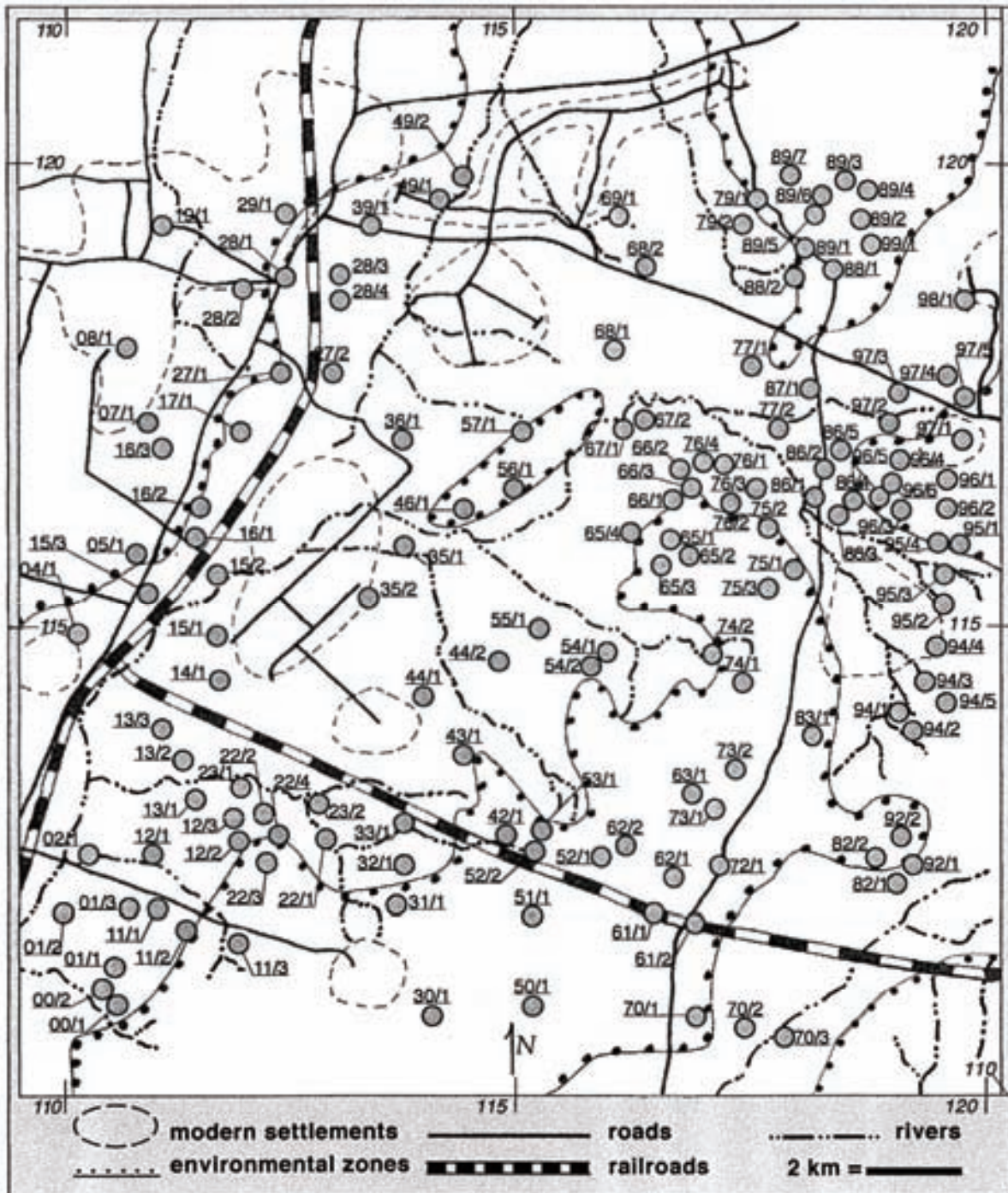
Figure 3.5: Sites discovered by the Ashkelon Regional Archaeological Survey

Providing a Regional Context

This survey project is part of the overall multi-disciplinary effort of the Leon Levy Expedition to Ashkelon. Since the 1970s, many other excavation projects in Israel have also added a survey component (e.g., Portugali 1982; Ben Tor et al. 1981), in order to situate urban sites within their regional settings. The offshore underwater surveys directed by Avner Raban and Shelley Wachsmann, which are reported below in chapter 4, constitute another important aspect of the Leon Levy Expedition's survey work. Moreover, rapid urban development in the modern city of Ashkelon has prompted a number of salvage excavations undertaken by the IAA, which have further illuminated the regional environment of the ancient city. The results of the various salvage excavations in the Ashkelon area are summarized below in chapter 9.

Testing Settlement Models

Survey work is ideal for testing diachronic models of regional settlement. Different patterns of rural development leave cartographically distinct imprints on the landscape, often allowing the researcher to pinpoint social, political, economic, and cultural factors that produced a particular configuration of sites (Hodder and Orton 1976).

An "organic" model of rural development has been in vogue since the advent of the New Archaeology in the 1960s. This model proposes that premodern settlement patterns are generally the result of an interacting set of ecological variables affecting agricultural productivity and population growth in a continuous feedback model (see Trigger 1989:303ff.). Borrowing from the Central Place Theory developed by economic geographers, archaeologists who subscribe to this model characterize the resulting settlement pattern as a series of concentric bands of smaller sites around an urban center (Lloyd and Dicken 1977; King 1984; Hodder and Orton 1976). Each band of settlements grows progressively poorer and smaller as the distance from the center increases. According to this model, the number and extent of these outlying settlements permit excavators of urban sites to determine urban population size and growth by estimating the size of the supporting rural population available to feed the urban inhabitants.

This organic model of rural settlement does not fit what we know about Ashkelon and its hinterland. Textual sources dating as far back as the second millennium B.C. indicate that the settlement system of the southern coastal plain did not develop organically according to its own internal economic dynamics but was greatly affected by external military and political factors. This area was a staging ground for invasions of Egypt from the north, and in many periods it was the base for Egyptian activities in Western Asia. The need for increased agricultural production during periods of external control in order to support military and administrative activity in the region and to provide tribute would have necessitated rural intensification, either under direct imperial administration or indirectly through local elites.

In theory, this situation should be reflected in a nonorganic settlement pattern that shows the rapid development of a large number of fairly uniform small sites, with regularly spaced regional centers to collect, store, and transship rural products to the external political core. This "uniform" model of rural settlement provides an alternative to the "organic" model, which assumes a high degree of local autonomy, both economic and political.

A third model of rural development emphasizes the location of Ashkelon as a nexus between major land and sea routes. Ashkelon lies near the main land route from Mesopotamia to Egypt. As a seaport, it provided access to Mediterranean trade. It was also a terminus of caravan routes from the Negev and Arabia. Ashkelon's geographical position would have made its "access resources" of critical value to the competing empires who wished to dominate the region (Allen 1997). There are hints of this as early as the fourth millennium B.C., from Early Bronze I sites near Ashkelon that have yielded archaeobotanical evidence of olive oil production—a traditional Palestinian export—and of imported cedar wood (Gophna and Liphschitz 1996; Gophna 1997). Spatially, an "access resources" settlement pattern would be more linear, with significant sites strung out along the major trade routes and few other rural settlements in evidence.

All three models of settlement are based upon the assumption of an undifferentiated landscape. In the real world of the southern coastal plain each of these three spatial patterns is influenced by the geomorphology, climatic conditions, soils, availability of water, and other environmental constraints, as well as by unique historical factors such as political alliances, plagues, and warfare. Based on the results of the regional survey, the Bronze and Iron Age settlement patterns tend to support the "access resources" model, while later classical and Islamic period settlements fit a more "organic" model. These conclusions are demonstrated below.

RESEARCH DESIGN

To test these models, the area of Map 92 of the national grid of the IAA (a 10 × 10-km area to the east and southeast of modern Ashkelon) was surveyed in a full-coverage systematic fashion. The survey work was conducted by the writer over three one-month seasons in the period from 1988 to 1990, assisted by a team of up to six volunteers. This was done to round out the picture of the Ashkelon hinterland, complementing the full-coverage surveys of IAA Maps 87, 88, and 91 to the north and west of Map 92 that were completed by Ariel Berman in the early 1970s (Berman 1975).

After three decades of intensive focus on surveys in Americanist archaeology, it is largely accepted that no single survey method is best. Rather, the best research strategy is one geared to the research objectives of the project. It is also generally agreed that a multistage, multimethod approach works best, allowing for the most flexibility to adjust to conditions in the field so as to maximize recovery of necessary information (see Redman 1973; 1987; Ammerman 1981). Michael Schiffer, in particular, recommends three stages for any survey project: (1) background studies; (2) reconnaissance; and (3) intensive survey (Schiffer et al. 1978).

Background Studies

Before entering the field, information on sites previously known to exist in the region (both Map 92 and the rest of the Ashkelon hinterland) was gathered in a preliminary visit in 1986, and known site locations were plotted on Israeli Geographical Survey (IGS) maps (a 1980 set of 1:50,000 maps and a 1964 set of 1:20,000 maps). Data were collected from the following sources:

1. Publications of early travels (e.g., Guérin 1869), formal surveys (Conder and Kitchener 1882; 1883; Lamdan et al. 1977; Gophna 1974; Berman 1975), and excavations (e.g., Garstang 1921a,b,c; 1922; 1924; Phythian-Adams 1921a,b; 1923).

2. Unpublished IAA files and inspector reports from the post-1948 and British Mandate periods, including information on 20 sites in the national historical register (Yalqut Ha-Pirsumim).

3. Secondary analyses of historical and geographical documents (such as Avi Yonah 1976; Hütteroth and Abdulfattah 1977; Dorsey 1990).

4. Unpublished materials from the Berman survey, kindly made available by the surveyor and IAA.

5. Discussions with archaeologists who have worked in the area (I am particularly indebted to Ariel Berman, Ram Gophna, Ya'akov Huster, and Yehuda Dagan).

The survey also obtained the necessary permissions to conduct its work from the Israeli government and from as many of the landowners as practical.[8] Logistical arrangements for the field season were made and preliminary reconnaissance in the area was done.

Intensive Full-Coverage Survey

Between 1988 and 1990, in three one-month periods, the survey team undertook a full-coverage, site-based survey of the defined area. Full-coverage survey was used to minimize sampling bias (Hole 1980), to allow for counterintuitive settlement patterns (Parson 1990: 17), and to provide data comparable to a large number of similar surveys taking place elsewhere in Israel.[9] Team members typically walked in a "skirmish line," with 30–40 m between each volunteer.[10] When sites were encountered, the team would attempt to define the parameters of artifact concentration, locate them on IGS maps, examine the natural environment around them, photograph the sites, draw a sketch map of key features, and collect diagnostic sherds and other types of material culture for later analysis. In these more intensive searches for diagnostic artifacts, team members would typically be spread no further than 5 m apart.

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[8] The region is dotted with *moshavim*, Israeli collective settlements in which individual parcels of land are privately owned. It was not possible in all cases to determine who owned which parcel, and often only the agricultural administrator for the *moshav* was contacted. Permission was asked of all the region's kibbutzes, in which all land is collectively owned and farmed. The cooperation and assistance provided by kibbutz members of Sde Yoav, Gevaram, Negba, and Yad Mordechai, including pointing out locally known sites and regularly extricating the survey vehicle from the mud, is greatly appreciated.

[9] Defined by Kowalewski and Fish (1990:262) as "the examination of large, contiguous blocks of terrain systematically, at a level of intensity commensurate with the research questions being asked."

[10] The 30–50 m spread seems to be a common one for looking for sites of some complexity (Parsons 1990:11). If all survey team members are competent at their job (which cannot always be assumed), no site larger than 0.1 ha should go undetected.

Larger multiperiod sites were often divided according to natural physical subdivisions or artificial sectors. Separate sherd collections were taken in each subdivision in an attempt to gauge, however roughly, the size of the site during different periods. Unfortunately, this method of subdividing sites was rarely helpful in identifying intrasite variability. Information collected for each site matches that required by IAA surveys to allow for the aggregation of data between survey projects.

Obstacles to discovery of sites are legion, including lack of site obtrusiveness (most are not visible from a distance), obstructions to visibility (sites covered by urbanization, alluviation, crops, or sand), areas inaccessible to researchers (military or industrial zones), and the multiperiod nature of many of the sites.

We generally found our December–January fieldwork season to be ideal for optimizing visibility, a crucial component of success (Ammerman 1981). Fields containing grain, cotton, or vegetables in the spring and summer months were fallow during the winter, the fields had been recently plowed, and the first rains had washed away dust layers that might have obscured artifacts on the surface. Obstructions to visibility in most of the survey zone were therefore rare. Still, some parts of the region were covered by modern development, sand, or thick underbrush. All sites had been disturbed by millennia of stone-robbing and field-plowing, to such an extent that only a few of the sites contained any visible architectural remains. Most "sites" could only be defined as such through the density of artifacts and/or scattering of stones on the landscape. Quarrying, bulldozer activity, and other modern excavations were further obstacles to recovering earlier patterns of settlement. In addition, approximately 10% of the survey area was inaccessible to us for various reasons. All of these problems are common to survey work (Schiffer et al. 1978; Ammerman 1981; Redman and Watson 1970; Johnson 1977). Though the use of full-coverage survey techniques minimizes these problems, repeated surveys would likely turn up additional small sites.[11]

Reassessment of Previous Work

We attempted to return to some of the hundreds of the sites located by Ariel Berman in order to assess Berman's data in light of the criteria used by the current Ashkelon survey, to confirm his observations, and to gather additional data on site location, size, function, and material culture. Only a few sites were actually relocated and their dating confirmed. Several others, for example, those located next to the southern entrance road to modern Ashkelon in the coastal dune zone just west of the Map 92 area, were sought but not found.[12] Attempted visits to other Berman sites were not successful because of difficulty of access or their location in restricted military zones.

Assessing Nonsite Land Use

A phenomenon of the coastal plain of Palestine, which has also been noted elsewhere (Wilkinson 1982), is the use of organic soil from tells to fertilize agricultural land. The inevitable mixing of artifacts with dung and other organic materials means that there is a light scatter of sherds over the entire agricultural zone. This appears to be true of the Ashkelon region, given the light scatter of sherds everywhere on the landscape. Thus one step of the design was to attempt to assess the baseline sherd "noise" levels. Several vectors were plotted through the region and sherds collected in 2 × 2 m squares at regular intervals. Few of these collection points were devoid of pottery. Thus our definition of a site and our estimate of its boundaries were dependent on an assessment of sherd and/or stone density against a variable background. Generally, there was agreement among survey team members concerning what was to be called a site, although there was enough variability in background noise from area to area that no formal yardsticks could be adopted.

This method of testing for nonsite artifact density also helped determine land use of sites in previous eras (Dunnell and Dancey 1983; D. Thomas 1975). It was especially useful in studying the settlement pattern of the Byzantine period. Furthermore, the paucity of Bronze and Iron Age sites was matched by an absence of artifacts from those periods between sites.

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[11] It has been argued that subsurface remains might not be reflected on the surface, but at least one experimental project in Georgia discovered that transects with a backhoe disclosed only one substantial residential site not uncovered using traditional surface survey methods in a survey that had discovered 1,300 other sites (Fish and Gresham 1990: 157). Still, a brief return to the Map 92 area in 1992 to check some of the data added three additional small sites to the corpus.

[12] Berman lists these sites as "patches" of pottery, i.e., low areas in the dunes where sherds collect. He himself doubts that they are sites (pers. comm.). Having covered some of the same territory looking for his sites, it is not surprising that they were not relocated. Shifting dune sands in the two decades between his survey and ours, and the rapid urban development of this industrial area of modern Ashkelon, make replicating Berman's work extremely difficult.

No more than a small handful of sherds of possible Bronze or Iron Age date were discovered in the survey region between identified sites. The exception to this was the scattering of Bronze and Iron Age pottery around Tel Obed. Originally, this was given a separate site number (field site number 103), but it was later merged with site 104 (01/3) when it became apparent that the ceramic scatter was simply the result of downslope movement of sherds off the tell.

Assessing Environmental Impacts on Site Visibility

The survey turned up fewer than 10 sites that clearly date to the Bronze or Iron Ages. This absence of evidence in what was always assumed to have been a heavily settled, wealthy region is puzzling. The vexing question that haunted the project was whether these sites do indeed exist but were buried by later alluviation. Arlene Rosen's (1986b) work near Lachish points to extensive alluviation in the Byzantine period that may serve to conceal earlier settlements. We attempted to assess this possibility for the Ashkelon region through an examination of modern wadi banks, irrigation ditches, and other excavations for signs of subsurface layers. We also examined the slopes of the *kurkar* ridges, which are areas of erosion rather than deposition, for indications of earlier sites that might have drifted downslope. Most *kurkar* ridges had been eroded to bare bedrock with taluses of soil and the densest collections of human artifacts on their lower slopes. But even there no evidence of early occupation was found. Regular offsite collection of sherds and other artifacts in various subregions during the survey also turned up no evidence of the "missing" Bronze and Iron Ages.

While it is possible that there are Bronze and Iron Age sites not discovered by the survey that could be uncovered through resurveying the area, the writer is persuaded that the absence of any significant amount of Bronze and Iron Age rural settlement is real. Particularly convincing is the fact that the largest of the few Bronze or Iron Age sites we have identified, Tel Obed, sits in the floodplain in the lowest part of the survey zone, an area that has presumably suffered the heaviest alluviation. If there was indeed no Bronze or Iron Age settlement in the hinterland of Ashkelon, the explanation needs to be sought in political, economic, or ecological factors, and not blamed on the limitations of surface survey techniques.

Analysis of Artifacts

Analysis of ceramics was done in the field by the survey team with the assistance of the ceramists of the Leon Levy Expedition and other archaeologists in Israel and the United States.[13] Because many artifacts were subject to postdepositional movement through agricultural activity and to degradation due to weathering and plowing, detailed analysis of artifacts was often difficult. The paucity of remains from some periods, the damaged nature of the sherds, the variable hardness of some kinds of ceramics over others, and the eclectic nature of survey sherd collections, often left us with few diagnostic indicators for specific periods. For this reason, the presence of specific periods at some of the sites is only tentatively suggested. An attempt has been made to be inclusive, rather than exclusive, in identifying the presence of an archaeological horizon at a site, often on the basis of only one or two sherds in a collection of several hundred.

The best example of this is ꜥIjjis er-Ras (site 88/1), a large site on which our survey collected samples at least three times, finding no sherds earlier than the Persian period. Yet local kibbutzniks were able to show us some Iron II sherds they had found at the site. Further survey or excavation work may be needed to confirm or disconfirm the presence of an occupational horizon in such cases. Because of the method used in calculating the number of sites, it is likely that the number of sites attributed to specific periods in table 2 is overstated.

Our ceramic analysis adopted the categories of familiar typological studies. For Bronze Age and Iron Age I sherds, Ruth Amiran's (1969) standard volume on pre-Persian Palestinian pottery was consulted. The Ashkelon Regional Survey had a particular interest in Iron Age II materials and made extensive use of the careful typology of late Iron Age pottery from Gezer developed by Seymour Gitin (1990). Persian-period materials were analyzed according to Ephraim Stern's (1982) typology. Most diagnostic pieces identified as "Persian-period" were white-ware mortaria bases and rims, although some of these mortaria should probably now be dated to the late Iron II period.

Ware identifications of sherds from the Hellenistic and Roman periods depended largely on imported vessels because many of the locally produced cooking pots, jars, and bowls are difficult to use as chronological indicators. Distinctive "Eastern Sigillata A" body sherds (Gunneweg et al. 1983) and the occasional rim were the main indicators of these two

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[13] Assistance in identifying pottery came from Lawrence Stager, Barbara Johnson, Charles Adelman, Joëlle Cohen, Seymour Gitin, and Israel Finkelstein, to all of whom I am deeply grateful.

periods. Imported amphoras were also helpful in refining the chronology of sites for these periods.

Byzantine-period sherds were the easiest to identify. So-called Gaza jars appeared everywhere in great quantities. Fine wares from Egypt, Cyprus, and Anatolia were also very common and were analyzed according to the typology of Hayes (1972). Most Byzantine sites had one or both types of Gaza jars, some Palestinian baggy jar fragments, the occasional cooking pot, pieces of wide-rimmed basins, and several rims of "Late Roman C" ware, usually Forms 3 and 10. Many of the local Byzantine-period forms (e.g., large rolled-rim basins) continued into the early Islamic period and were accompanied by white wares of the types known from Khirbet al-Mafjar (Whitcomb 1988; Schaefer 1989).

Few early Islamic glazed-ware sherds were found. Red-ware sherds glazed in yellow and green were our key diagnostic indicators for the medieval Crusader and Mamluk periods.

As for the postmedieval period, rural pottery styles since the fifteenth century A.D. have not been carefully studied until quite recently, so a diverse array of pottery found by the survey was identified simply as "Ottoman." Among the indicators of this period are ceramic pipe bowls, the pseudo-Early Bronze ware described below, and other pottery styles found on sites identified as "khirbehs" by nineteenth-century European travelers.

"Modern" wares (late Ottoman and post-Ottoman) generally consisted of the familiar black pottery known from the Gaza area which is found at many sites, most of which are known to have been inhabited in recent times. Recognizing that the use of gray and black wares predates the past two centuries, it was often possible to isolate earlier forms of this pottery.

Prehistoric and historical-period lithics were analyzed by Steven Rosen of Ben Gurion University (Rosen 1997).

RESULTS OF THE ASHKELON REGIONAL SURVEY

Physical Environment

As has been discussed above in chapter 2, the geomorphology of the rural Ashkelon region is shaped by a series of longitudinal ridges of *kurkar* sandstone that run roughly southwest to northeast between the foothills of the central highlands (the "Shephelah") and the present coastline. These ridges were formed by Pleistocene marine ingressions (Issar 1968). Two of these ridges run through the survey area. Between these ridges are low-lying areas of reddish *ḥamra*

soils and black organic soils, remnants of the swamps that were present earlier in this century (Orni and Efrat 1971:435). Cutting through the southern part of the Ashkelon area is the Nahal Shiqma (Wadi Ḥesi), a dry riverbed consisting of fertile alluvial soil.

Along the coast, covering earlier geological formations, are sand dunes of varying ages, some prehistoric and others formed as recently as the twentieth century A.D. Overlying parts of the survey region near the coast is the modern Israeli city of Ashkelon, whose development has destroyed or covered some ancient sites. The interior of the Ashkelon region, however, is agricultural land at present, intensively cultivated by local farmers.

The survey region of Map 92 (figure 3.6) includes sections of modern Ashkelon in the northwest, sand dunes in the southwest corner, low hills covered with scrub brush overlooking the Nahal Shiqma riverbed in the south, and two *kurkar* ridges and several spurs (usually denuded of any topsoil) running northeast to southwest that separate small wadis cutting through *ḥamra* and black soils and draining into the Nahal Shiqma riverbed to the south or Nahal Hodiya to the north. Nine modern Israeli agricultural settlements occupy the survey zone. Seven Arab villages occupied this area until 1948, all of which were bulldozed in the 1950s.

Paleolithic, Neolithic, and Chalcolithic Sites

Most of the 19 Paleolithic, Neolithic, and Chalcolithic sites lie in the southeastern part of the survey zone and along the spine of the easternmost *kurkar* ridge, at the highest elevations of the survey area. There are as many as 5 Mousterian sites, notably site 62/2, which has a very dense collection of flakes and detritus.

An additional 8 Lower Paleolithic sites were discovered by the survey of Lamdan et al. (1977:199) in the hilly area of Map 92 southwest of Gevaram, but our survey was unable to find any of these sites. An Acheulean hand ax was discovered at site 63/1, Levallois cores at sites 42/1, 52/2, and 53/1, and an Epipaleolithic bladelet core at site 44/1.

No clearly identifiable Neolithic sites were found and only two sites produced Chalcolithic remains: site 01/3 (Tel Obed) in the southwest, and site 89/6 in the northeast, a site located next to a perpetual spring. Hand axes were found at both of these sites but without recognizable Chalcolithic pottery. This is not the limit of pre-Bronze Age settlement, however, for the survey noted regular finds of lithic detritus and flakes along the southern hills and eastern *kurkar* ridge of the survey area in its nonsite collections.
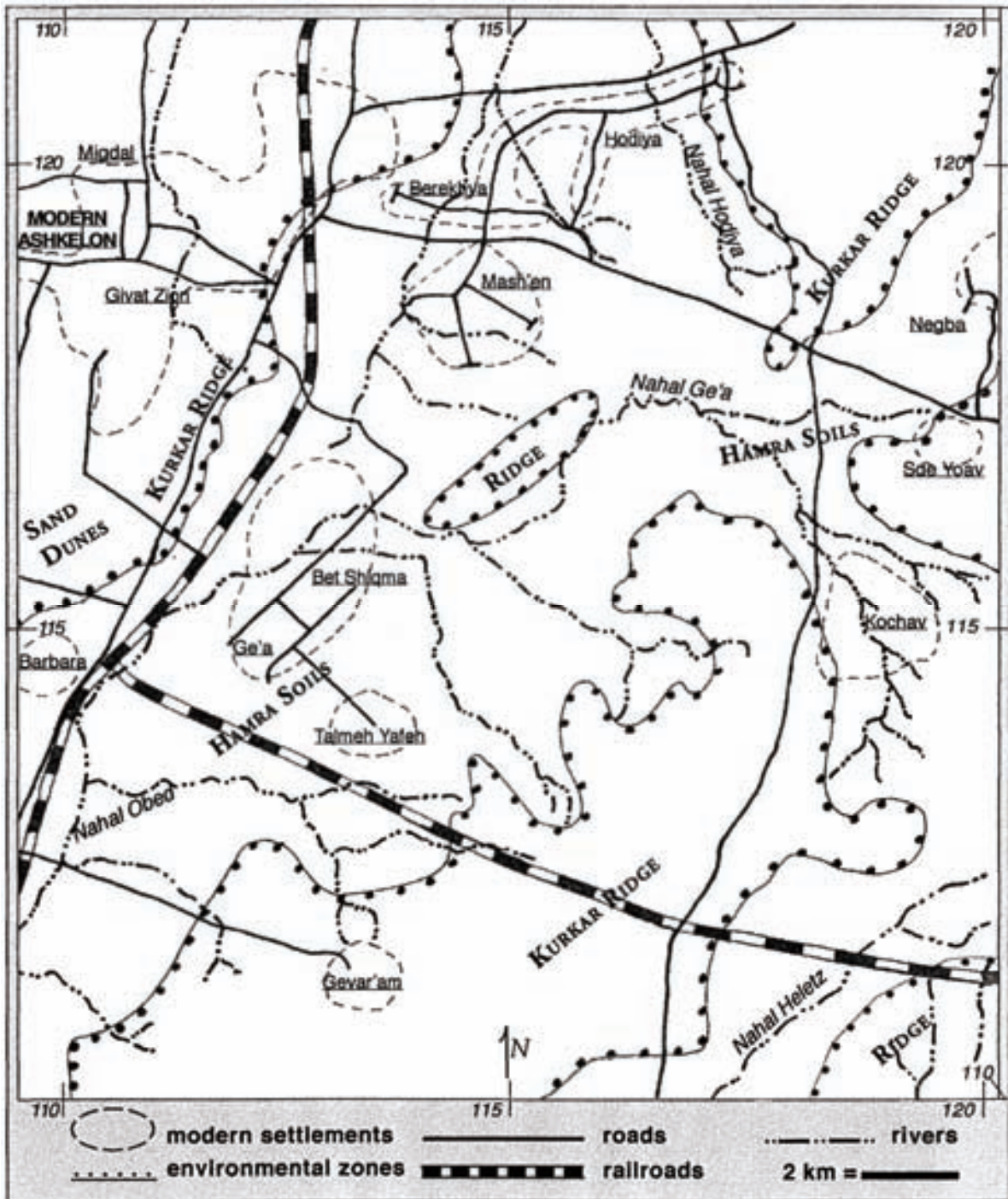
Figure 3.6: The physical environment in the IAA Map 92 survey zone
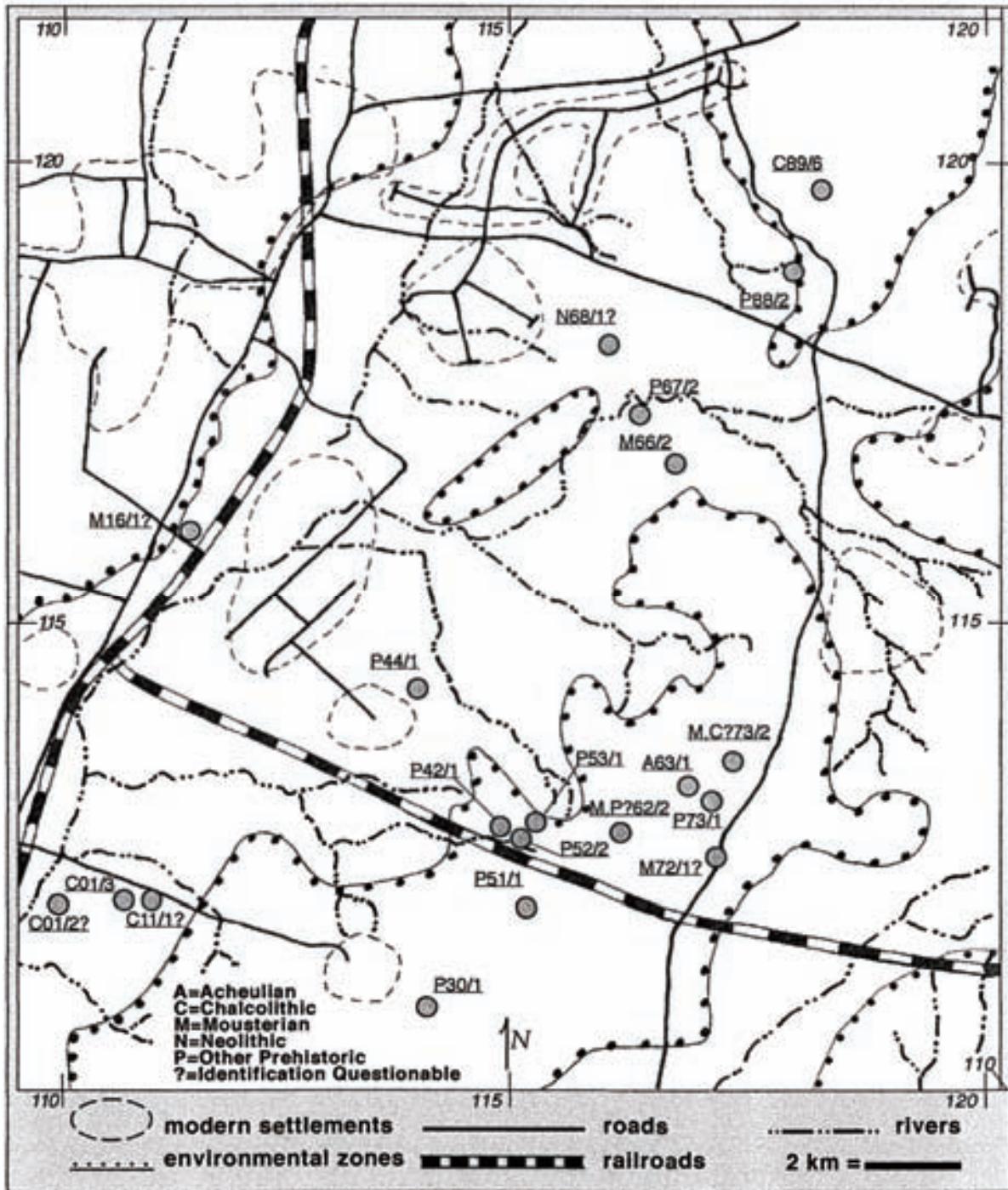
Figure 3.7: Prehistoric sites discovered in the IAA Map 92 survey zone

Figure 3.8: Collection of flints from prehistoric site 92-62/2

In contrast, Berman's survey located 5 Neolithic and 16 Chalcolithic sites at the mouth of Nahal Shiqma and 5 additional Chalcolithic sites in the coastal dune area within 1–2 km of the seacoast. No other prehistoric sites are noted in Berman's field reports. Chalcolithic occupation is also attested at the tell of Ashkelon (Stager 1993:105), and an important Neolithic site was excavated on the coast ca. 1.5 km to the north of the tell (Perrot 1955; Perrot and Gopher 1996; Garfinkel 1999).

The Lamdan survey, however, identified more than 100 Paleolithic sites along Nahal Shiqma, where Paleolithic settlement in the region seems to have clustered. That survey found very few identifiable Neolithic settlements, but there was ample evidence of Chalcolithic settlement near the coastline, mainly at the mouth of Nahal Shiqma and inland in the vicinity of Tell el-Ḥesi and Tel Nagila (Lamdan et al. 1977:67–69). As is the case for the Bronze and Iron Ages, the data from the Berman survey, the Lamdan survey, and our survey show that the area between the coast and the Tell el-Ḥesi area was devoid, or almost devoid, of Neolithic and Chalcolithic settlements.

Bronze Age and Iron I Sites (ca. 3500–1000 B.C.)

Three Bronze/Iron I sites were discovered by the survey, and 5 other sites have ceramic remains that might indicate Bronze/Iron I habitation. None of these sites are single-period sites; all have at least a significant overlay from the Byzantine period. Two other Middle Bronze Age sites have been located by others. These are MB II cemeteries known from salvage excavations, one discovered at Kibbutz Negba (site 98/1; Barry Gonen, pers. comm.) and one in the Migdal district of modern Ashkelon (Gershuny 1996; 1997). No MB habitation sites from this period have been identified, however. It is tempting to think that the cemetery at site 98/1 is indicative of a settlement at ᶜIjjis er-Ras (88/1), but we have no evidence from that site of Bronze Age occupation. The Migdal cemetery might be related to ancient Ashkelon, as might another MB IIB cemetery uncovered by bulldozers in the dunes of the Barnea district of modern Ashkelon (Israel 1995a), just to the north of the site excavated by Gershuny.

Of the sites we surveyed, only Tel Obed (01/3) has produced enough material from different Bronze/Iron Age periods to be clearly identified as a settlement. At that site, the sherd scatter covers 16 ha, although the actual size of the site is probably considerably smaller. The estimated size of the nearby Ottoman-period village of Beit Jirja (360 people in 1.5–2 ha; Hütteroth and Abdulfattah 1977) is a reasonable gauge of the Bronze/Iron Age population at Tel Obed.

The multiperiod site of Khirbet Irza (46/1) yielded several nondiagnostic sherds in Bronze and Iron Age fabrics, like those at several other possible Bronze/Iron Age sites. The Iron I period is represented by a bowl rim from site 01/3 and a cooking pot rim from site 89/6. Not a single sherd of painted Philistine pottery was found in four years of surveying.
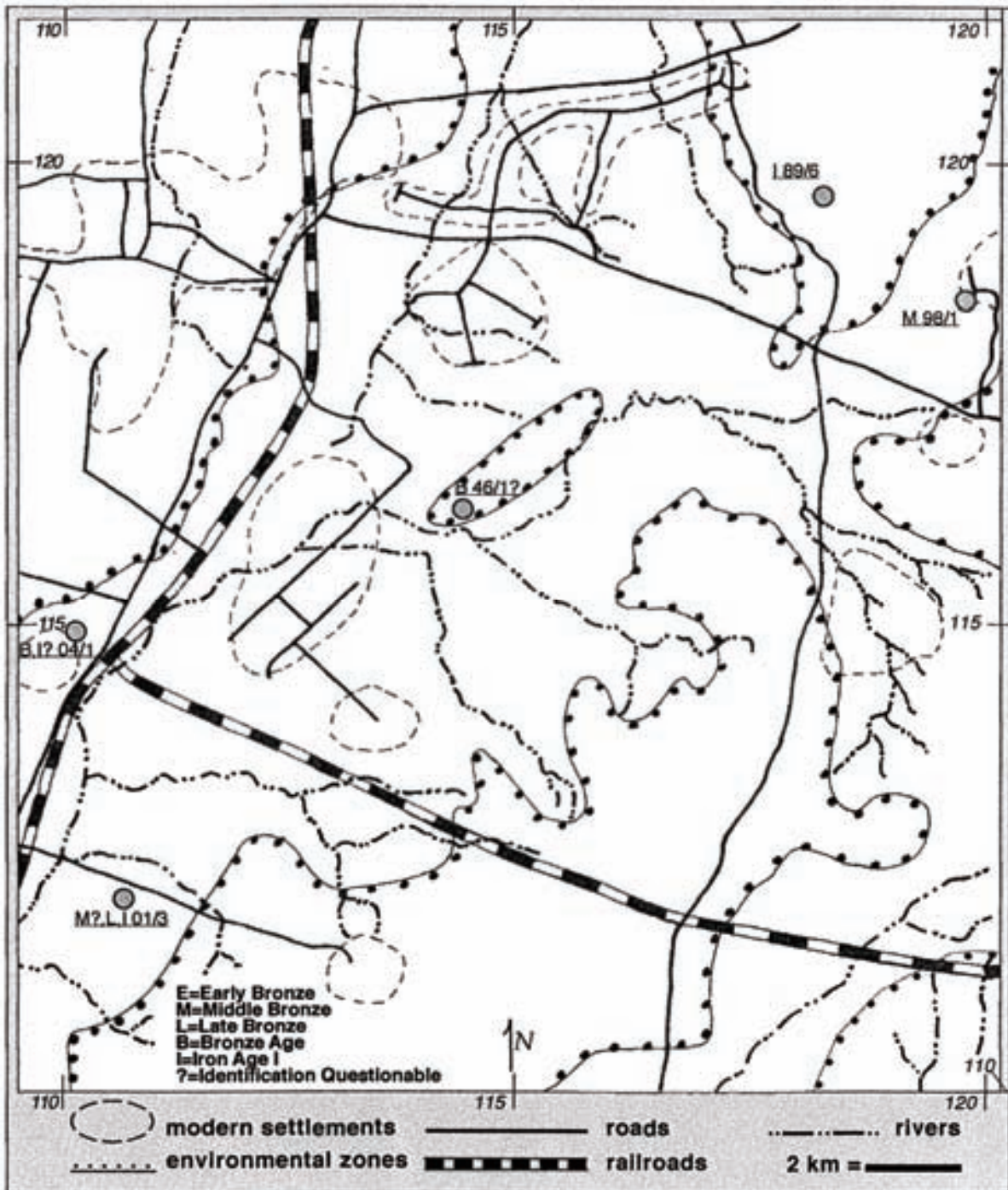
Figure 3.9: Sites of the Bronze Age and Iron Age I discovered in the IAA Map 92 survey zone

Figure 3.10: Tel Obed (site 92-01/3), viewed from the north, is only a low rise in cotton fields

Figure 3.11: The multiperiod site of Khirbet Irza (92-46/1), heavily damaged by quarrying, with 1–3 m of cultural debris above *kurkar* bedrock

The paucity of Bronze and Iron Age remains east of the modern Tel Aviv–Gaza road is consistent with the area Berman surveyed directly to the north of our survey region. In that quadrangle (Map 88), no Bronze Age or Iron II sites were found east of the main road, and only one Iron I site was found. No Early Bronze and only four Middle or Late Bronze Age sites, including Tel Poran (Gophna 1992), were found along the line of the modern highway. Several other Late Bronze Age sites were identified along the coast north of Ashkelon and south of Ashdod.

The survey by Lamdan et al. (1977) of Nahal Shiqma directly to the south of our survey region turned up no inland Bronze or Iron Age sites. Unpublished survey work there (Map 96) has produced only two Late Bronze Age sites (Ya'akov Huster, pers. comm.). One must go east to the area around Tell el-Ḥesi and Tel Nagila before one finds more Bronze/ Iron I sites (Lamdan et al. 1977:70–72).

The cause of this lack of settlement is unclear. While it is possible that there are sites buried by alluviation which are undiscovered by any of the regional surveys, that possibility is remote. More likely, the area was wooded or swampy during the Bronze and Iron Ages and inhospitable for settlement. No serious efforts were made to tame this vertical strip, in my opinon, because of the insignificance of east-west contact compared to the importance of the north-south route parallel to the coast.

No Early Bronze Age remains are known from any of the survey projects, but recent development activity in the coastal dune area north of modern Ashkelon has unearthed several EB I sites (see Brandl and Gophna 1994; Yekutieli and Gophna 1994; Baumgarten 1996; Braun and Gophna 1996; Golani 1997; Gophna 1997; Khalaily and Wallach 1998; Golani and Milevski 1999; Gophna, Golani, et al. 2004). There was also settlement at the tell of Ashkelon in EB I–III (Stager 1993:105). A 4-ha MB I (EB IV) settlement was recently discovered in the Barnea district 4.5 km northeast of the tell (Israel 1995a). Although the coastal zone was continuously inhabited, it is evident that rural settlement along this part of the coastal plain was relatively sparse until the Iron II period.

Iron II Sites (ca. 1000–600 B.C.)

The distribution of sites east of the coastal road changes little during the Iron II period. In Map 92 there is evidence of occupation at only 4 sites (01/1, 01/3, 46/1, and 88/1) and slight evidence for 6 others. Our survey found hundreds of Iron II sherds at Tel Obed (01/3), which was clearly a well-established settlement. There is a disproportionate number of jar rims in the corpus of pottery, possibly pointing to the importance of that site for transshipment of goods to Egypt.[14] The large site of ᶜIjjis er-Ras (88/1) produced no Iron II artifacts during the survey, but Iron II occupation there is demonstrated by finds made by local kibbutzniks.[15] Site 01/1 has a few clearly Iron II sherds scattered over an area that was a rock quarry. It was probably a satellite of Tel Obed in the Iron II period. A small number of Iron II sherds were identified at Khirbet Irza (46/1) as well. Single sherds were found at half a dozen other Map 92 sites.

Only 2 small sites were found by Berman in the approximately 50 km^2 of Map 88 located east of the main north-south road. But along this road and toward the coast the number of sites identified in the Berman survey increases from 5 to more than 50. Many of these sites are simple patches of sherds among the coastal dunes and may not be actual settlements. But the sheer volume of increase in sherd coverage between the two periods should indicate some significant population increase, though we may not know exactly where the sites are located.

Fifteen of Berman's 54 sites are located at the southernmost edge of his Map 91 survey area, south of Nahal Shiqma and north of the Gaza Strip border, in an area of sand dunes. One site (91-22/1) is described as a low tell located on the coast near the wadi mouth with substantial ceramic remains. Four or five other sites in this area represent "patches" of pottery that may not be sites. The remainder are small (less than 1 ha) but contain Iron Age pottery, often mixed with pottery from later periods. Storejars and holemouth jars are predominant in the pottery mix. Several sites have walls that may represent Iron Age structures, or later ones. Another site in this vicinity, located on the main road at the Yad Mordechai junction, was revisited by our survey (field site number 119), and the presence of Iron II occupation was confirmed.

A set of 3 sites surveyed by Berman are located at Sakhnat Muhammad Mahmud, a low *kurkar* cliff overlooking the coast midway between the mouth of Nahal Shiqma and the site of ancient Ashkelon. These are probably three sections of one fairly large site (4 ha). An overlay of Persian, Hellenistic, Roman, and Byzantine remains makes it difficult to determine the extent of the Iron Age site without excavating it. Sakhnat Muhammad Mahmud may have

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[14] This may be due to Assyrian invasions of Egypt under Esarhaddon (Allen 1997), or later Egyptian economic influence after the withdrawal of the Assyrians (Stager 1996a).

[15] With thanks to Kibbutz Negba member Barry Gonen for providing these sherds to the survey.

served some maritime defensive or economic function in the Iron Age.

Another 12 of Berman's sites are located in the sand dunes 2–3 km to the southeast of Ashkelon. Some of these are probably nonsite "patches" of sherds, but the concentration of them in this area means that there was probably at least one Iron Age settlement here—presumably an agricultural settlement or settlements related to the tell. Although finds in the dunes are always serendipitous, it is surprising that there is no group of comparable sites to the east or north of ancient Ashkelon. Following Central Place Theory, one would expect a ring of satellite sites around the main urban center. Here, then, is further evidence of the lack of a substantial rural hinterland of settlements related to ancient Ashkelon.

As mentioned elsewhere in this study, a number of sites from other periods have been located in Afridar, Barnea, and other districts of modern Ashkelon that lie near the coast, north of the ancient city; but these sites have almost invariably been uncovered by bulldozers under several meters of sand and so are undetectable by surface survey techniques. We examined only a small part of the dune area in our work, the area around Givat Zion, an older district of modern Ashkelon just south of the downtown Migdal district.

A few Iron Age sherds were found, but not in sufficient quantity to fit our definition of a site.

Farther north, one Iron II site from the Berman survey is located along the coast between Ashkelon and Ashdod-Yam. Another 9 are scattered in the dunes to the west and south of ancient Ashdod, presumably a scatter of rural satellites related to that urban center. Over 90% of the rural Iron Age occupation uncovered by the Berman survey is thus located in a 5 km-wide band between the main north-south road and the coast.

In summary, Berman's survey shows a substantial increase in the number of sites along the coastal strip between Nahal Shiqma and Ashdod during the Iron II period. Our knowledge of these sites is limited, however, because of the nature of survey data. Some of the demographic increase may be related to agricultural intensification while some may result from new foundations of sites along the coast, either for maritime trade or for defensive purposes. A significant amount might be connected with servicing the main trade routes between Assyria and Egypt. There seems to have been little or no agricultural development away from the coastal zone and not much east-west interaction between the coast and the highlands in this period.

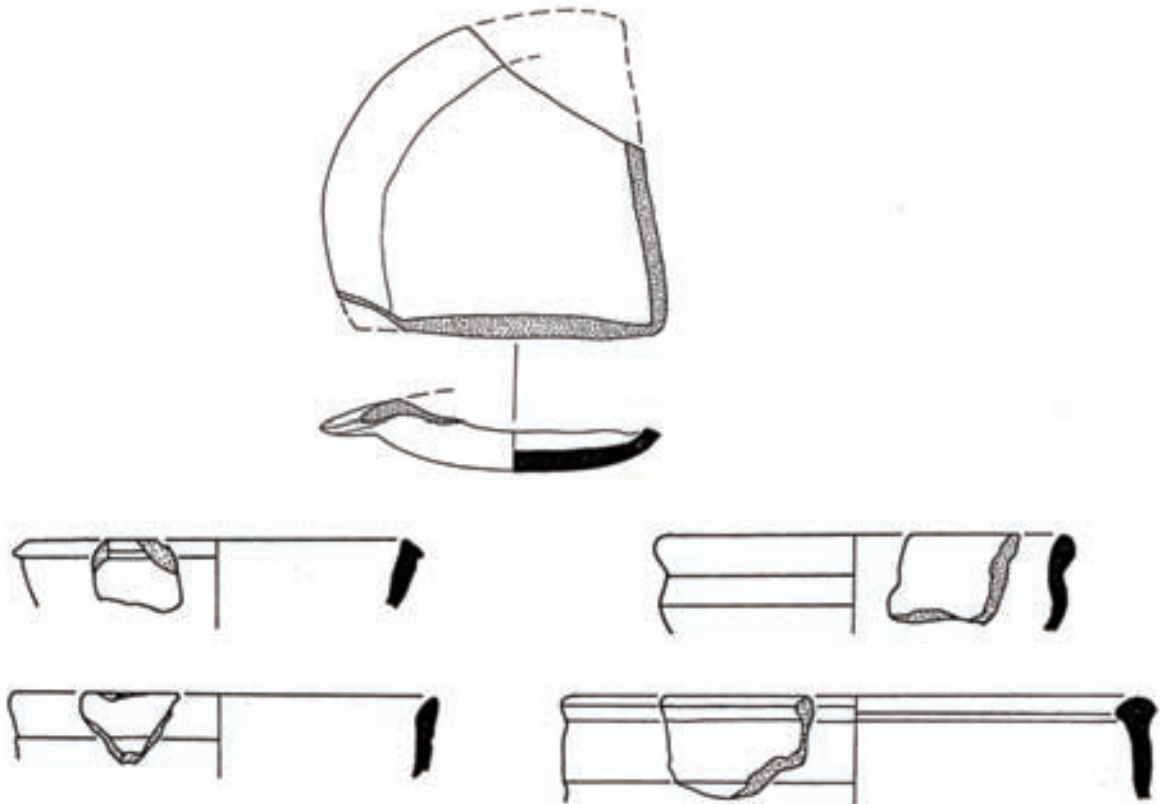*Figure 3.12:* Late Bronze Age lamp (top) and Iron Age bowls from Tel Obed, site 92-01/3 (scale 2:5)
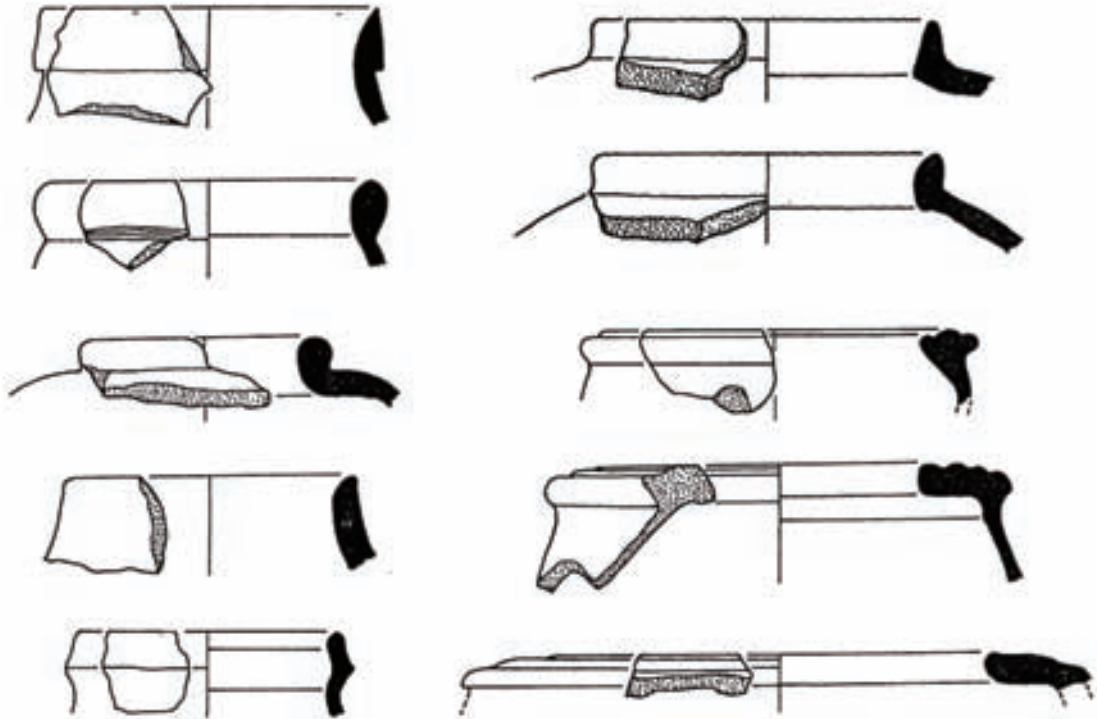
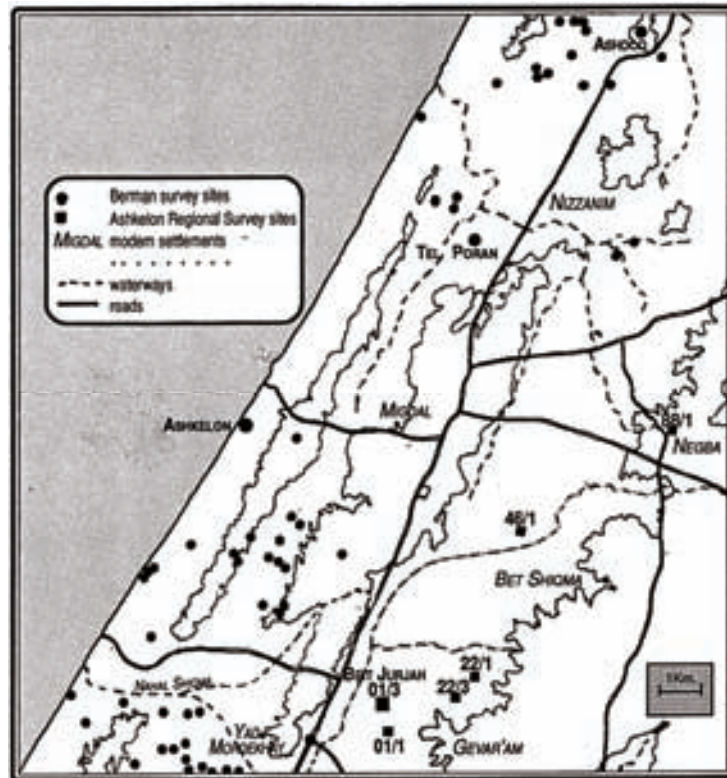*Figure 3.13:* Iron Age II (seventh-century) jar and cooking pot rims from Tel Obed, site 92-01/3 (scale 2:5)

Figure 3.14: The coastal zone from Ashkelon to Ashdod showing distribution of sites in Iron Age II
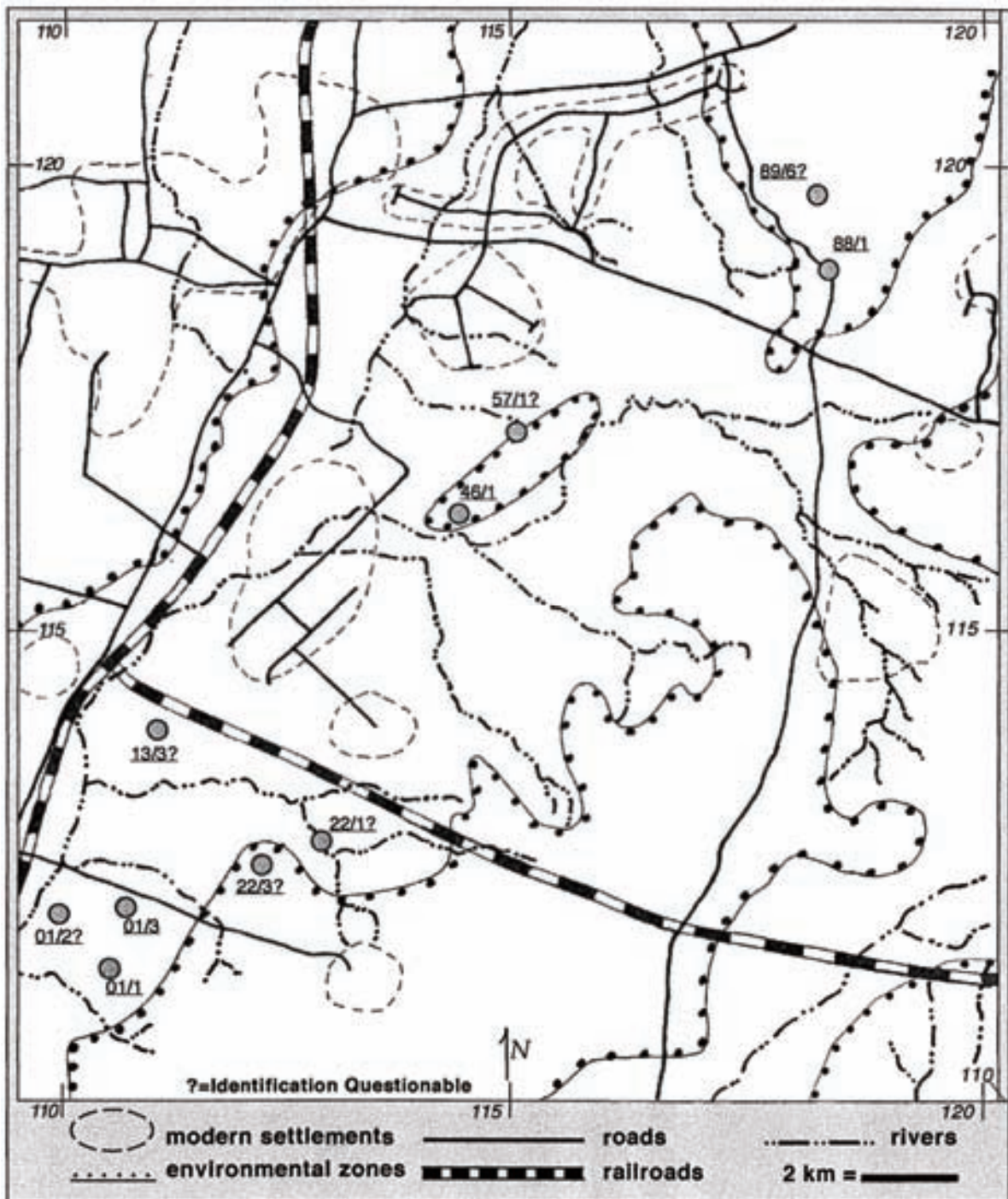
Figure 3.15: Sites of the Iron Age II discovered in the IAA Map 92 survey zone

The Location of Ancient Roads

The locations of the Bronze and Iron Age sites on Map 92 are noteworthy in terms of their implications concerning ancient roads in the region. It has generally been assumed that the Iron Age version of the main north-south road either went along the east side of the second inland *kurkar* ridge, like the present-day Tel Aviv–Gaza road and its nineteenth-century predecessors (see Koucky's discussion of "Early Maps and Records" above), or else turned toward the coast to include the city of Ashkelon (Dorsey 1991:60, 196). But the existence of two Iron II sites slightly farther east (Tel Obed and Khirbet Irza), and of Tel Poran farther north toward Ashdod, coupled with the absence of sites along the eastern edge of the *kurkar* ridge abutting the modern road, raises the question of whether the road actually lay farther east.

Similarly, the location of possible sites 22/1, 22/3, 75/1, and 89/6 between Tel Obed (01/3) and ᶜIjjis er-Ras (88/1) along the western edge of the third *kurkar* ridge raises the possibility that an Iron II route ran from Gaza and Ashkelon toward Ekron and the Shephelah. There is less evidence of the existence of this road in the Bronze Age.

Within the area of the Berman survey, there are surprisingly few sites along the assumed route of the main north-south road during the Bronze and Iron Ages. In addition to Tel Poran, only 3 other small sites (Map 88, site 68/2; Map 91, sites 95/3 and 80/1) are located within a kilometer of the current Tel Aviv–Gaza route. The existence of a cluster of sites in the dunes to the northeast of Ashkelon (Map 88, sites 24/4, 25/6, 24/5) and to the southeast (Map 91, sites 86/3, 86/4, 76/2, 75/3, 75/4, 75/5, 74/7, 74/8, 73/1) could indicate that the main road did not bypass the city but turned toward the coast and went through the city. But neither Tel Poran nor Tel Obed, two of the larger sites, lie on this route. There are no survey sites located in the bed of Nahal Shiqma either, a logical east-west route, although this may be an artifact of twenty-five centuries of alluvial deposition.

The survey evidence thus makes one wonder whether the current Tel Aviv–Gaza road lies on the ancient highway through the southern coastal plain. But there is no convincing proof for either alternative route: a road turning toward the coast and passing through ancient Ashkelon, or a road 1 km east of the modern road passing through Tel Poran, Khirbet Irza, and Tel Obed.

Support for the "Access Resources" Model

The absence of a rural hinterland of dependent settlements to the east and the lack of a regular scatter of sites radiating from urban Ashkelon points to the conclusion that Iron Age settlements in the region were concentrated along the coast. In view of the importance of the region as a thoroughfare, both by land and by sea, rather than a breadbasket, there is some support here for the "access resources" settlement model discussed above.

Sites of the Persian, Hellenistic, and Roman Periods (ca. 600 B.C.–A.D. 400)

The increase in the density of settlement that began in the Iron II period continued during the following millennium. There was an expansion of the few settlements known from the Bronze and Iron Ages. Both ᶜIjjis er-Ras and Tel Obed seem to have increased in size, with remains of the Persian, Hellenistic, and Roman periods now found at small sites around them.

A series of sites sprang up along what is now the Tel Aviv–Gaza highway, along the eastern spur of the westernmost *kurkar* ridge. Another row of sites developed along the western slope of the easternmost *kurkar* ridge of Map 92, encompassing sites like Khirbet Beit Samᵓan (43/1), Beit Tima (54/1), and Khirbet Qimas (76/1), all of which were more extensively occupied at later times. The beginnings of a third southwest-to-northeast string of sites occurs slightly later along the east side of this same ridge, including major sites such as Khirbet Nogga (70/1), Khirbet Simbis (82/1), and Khirbet Melita (field site number 338)—the last just outside the survey area.

The lowlands between these linear sets of sites remained generally undeveloped. The existence of three parallel lines may indicate a continued emphasis on northeast-to-southwest communication and transportation patterns, or it may indicate that the most useful locations for agricultural settlements were along the sides of the *kurkar* ridges. The former explanation corresponds well to our knowledge of the geopolitics of the first millennia B.C. and A.D., when Palestine was a waystation connecting Egypt to Syria, and beyond to imperial centers of the successive Persian, Hellenistic, and Roman empires. This fits our "access resources" settlement pattern model, as did the Iron II evidence.

The results of Berman's survey are slightly different. Berman identified fewer sites of the Persian and Hellenistic periods than of the late Iron Age, and these sites were confined to a 5 km-wide strip along the coast. According to Berman's survey, a boom in settlement took place during the Roman period, but even then the area east of the main road contained no more than five sites.
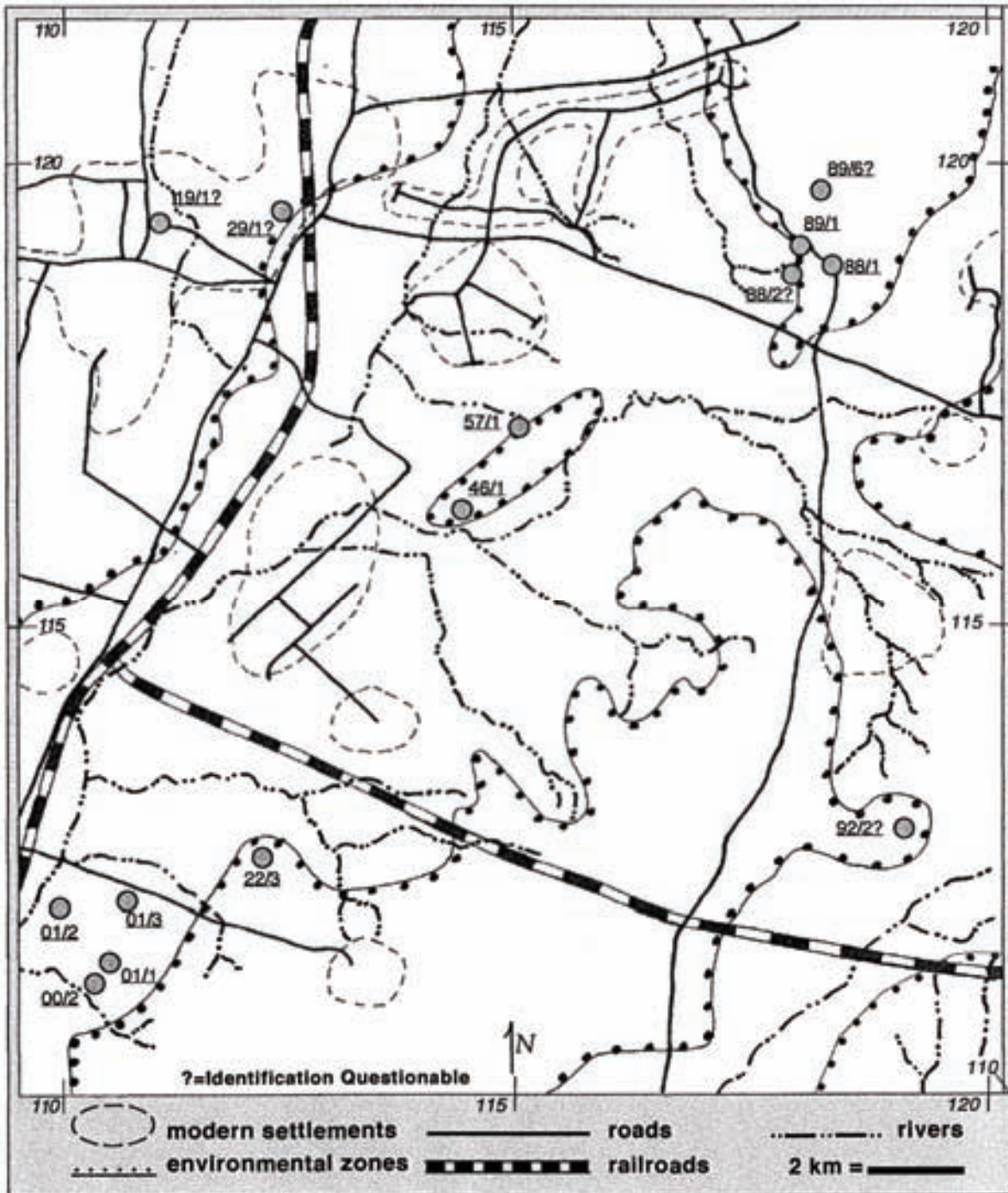
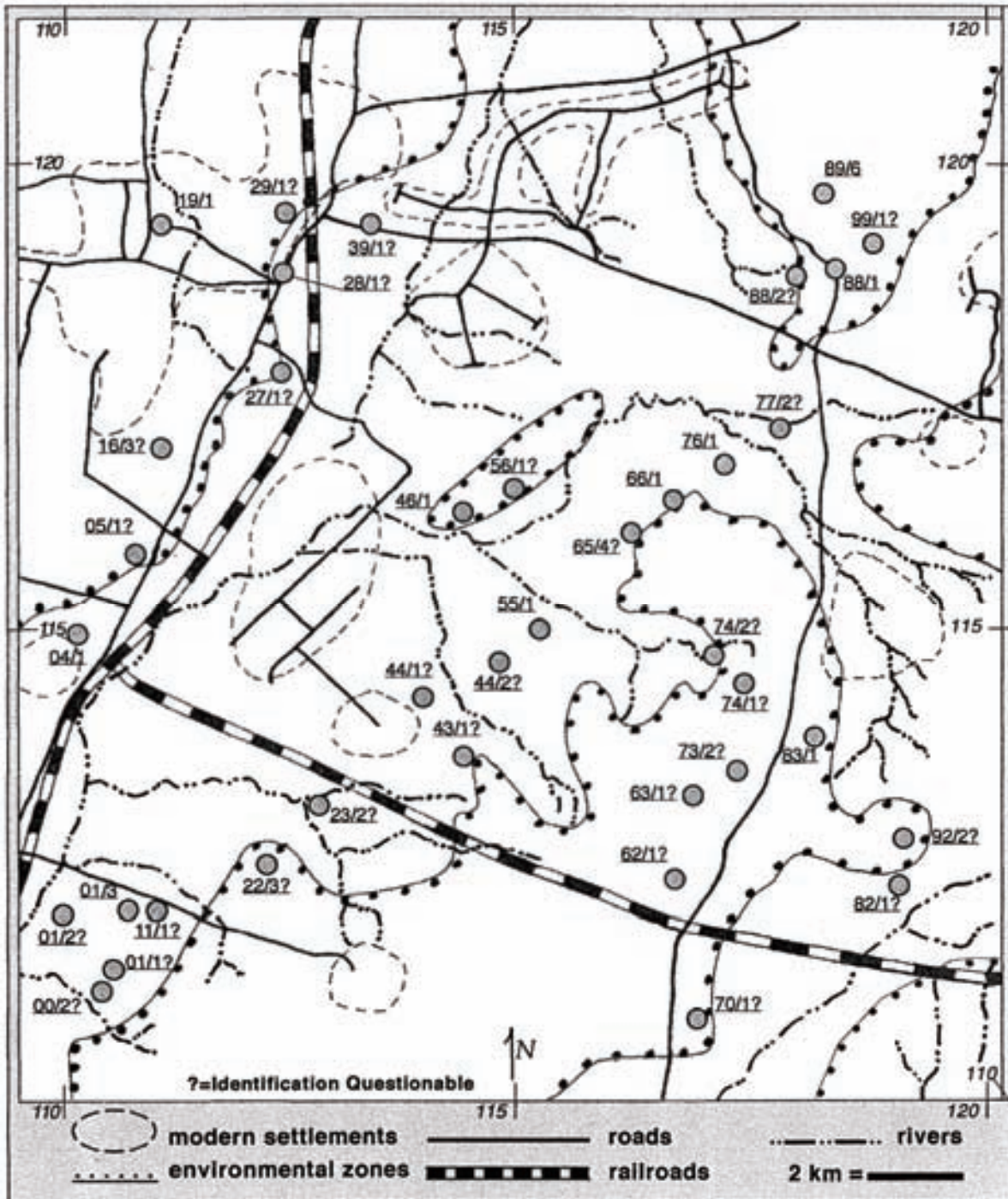*Figure 3.16:* Sites of the Persian period discovered in the IAA Map 92 survey zone

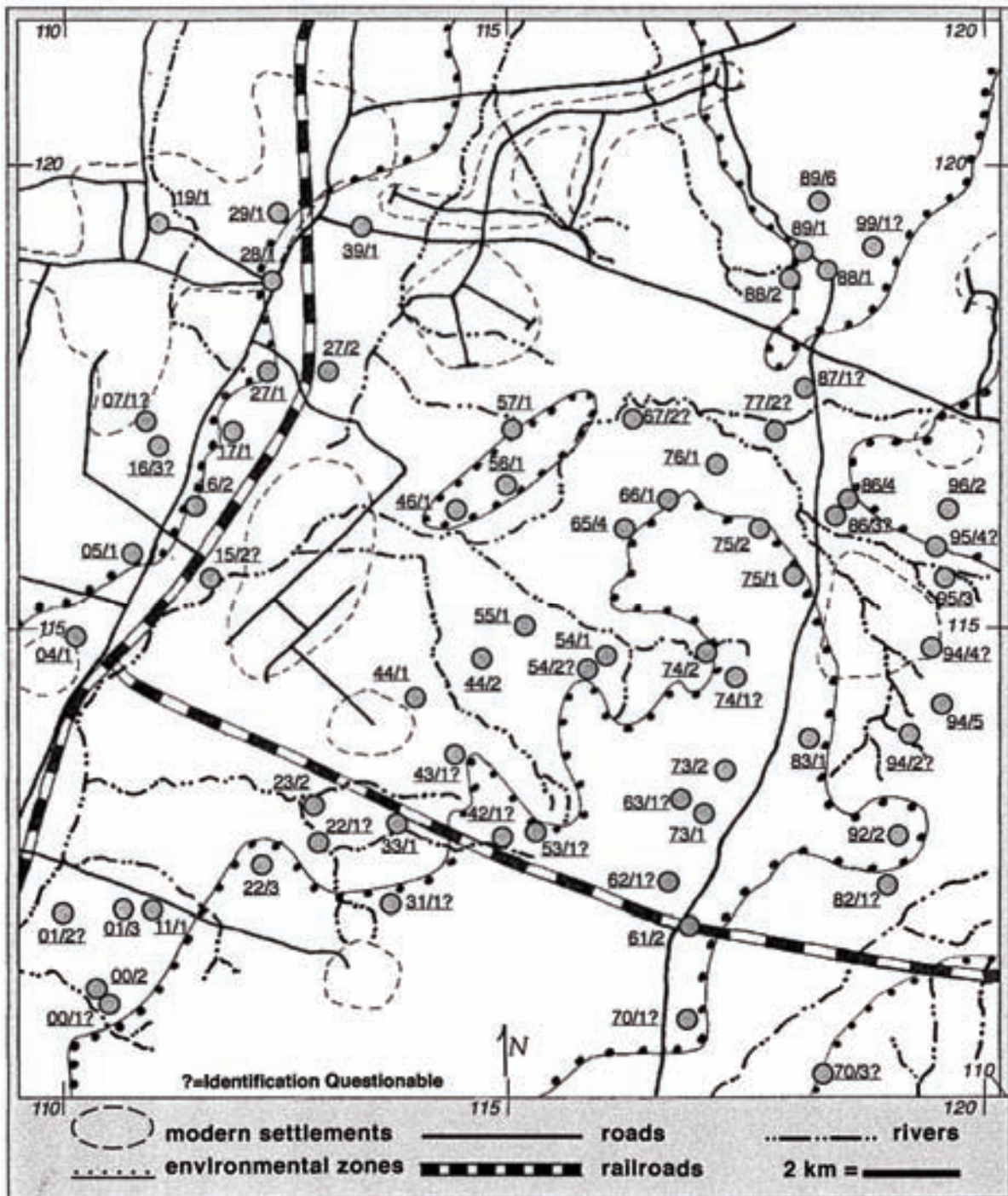*Figure 3.17:* Sites of the Hellenistic period discovered in the IAA Map 92 survey zone

Figure 3.18: Sites of the Roman period discovered in the IAA Map 92 survey zone

Sites of the Byzantine Period (ca. A.D. 400–640)

Settlement density in the Ashkelon area reached its peak in the Byzantine period, as it did in the rest of Palestine. Almost all sites identified by our survey have some evidence of Byzantine-period occupation. Such sites are located in all environmental zones of the survey area, including the highest ridges, bottomland along the wadis, and the coastal sand dunes.

This site configuration is particularly noteworthy because it may be possible to pinpoint the different functional elements of the settlement pattern based on the data collected by our survey. Wine exports in this period from the Gaza–Ashkelon region are well documented (see chapter 25 below). This wine was shipped in distinctive ceramic containers, commonly called "Gaza jars" (Blakely 1988). Ann Killebrew has identified two basic shapes: a taller jar with a pointed base (Type A) and a shorter jar with a rounded bottom (Type B). These two jar types were called the *gazition* and the *askalōnion*, respectively, reflecting their association with the cities of Gaza and Ashkelon (Mayerson 1992). Both types, plus a variant form, were found in the survey area.

The survey identified at least a dozen sites in which large numbers of fragments of these Gaza jars were found in association with ceramic slag, kiln wasters, baked bricks, and other byproducts of ceramic production. These kiln sites are almost always located near, but not in, the major Byzantine sites. Almost all are on the banks of wadis, where water, fine clay, and reeds for fuel were available in abundance.

These characteristics mirror the results obtained by Jerome Schaefer (1989) in his stratified random sample survey near Tell Jemmeh, in which he found that 40% of the sites contained some kiln materials. Elsewhere on the coastal plain there are other documented instances of kilns for making Gaza jars: at Ashdod (Dothan and Freedman 1967:33), Ashkelon-Barnea (Israel 1995a), Tel Mefalsim, and Tel Irit (Israel 1995b), and at dozens of other sites between Ashdod and Nahal Besor.[16]

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[16] Yigael Israel (1995b), in his hunt for pottery workshops in 1991, found many of the larger kiln sites, although, as demonstrated here, there were many smaller kilns in operation as well. At Mefalsim and Irit, for example, huge mounds of misfired Gaza jars can be seen from the road. It is interesting to note that Israel's survey found production centers for only Type A jars. Of the kilns in the Map 92 area, some produced only Type A jars and some contained both types. None produced only Type B jars, even though that was the most common jar found at the tell of Ashkelon (Johnson and Stager 1995).

The wine itself was probably made in the many presses evident in the area. One such press was excavated by the Israel Antiquities Authority at ʿIjjis er-Ras, and another was excavated in the Wadi Ḥammama in modern Ashkelon (Fabian, Naḥshoni, and Ein Gedy 1995).

Similar winepresses have been excavated elsewhere in the country (see, e.g., Kidishian et al. 1988–1989; Roll and Ayalon 1981; Hirschfeld 1983; Mazor 1981; Ayalon 1984; Rahmani 1991). Elements of such presses (notably plastered walls, often with layers of body sherds embedded, and roughly cut limestone mosaic flooring) have been uncovered at other survey sites. From these elements, we can identify at least four, and possibly as many as nine, other wineries. Excavation is required to confirm these identifications.

The survey also found many small sites of Byzantine date that were probably farmsteads. These are primarily concentrated in the hilly areas, which were largely unoccupied in previous periods. The artifactual samples from these sites typically consist of a small scatter of limestone cobbles, a few Late Roman C fineware pieces, Gaza jar fragments, and cooking pot rims. Often the remains of a well are located nearby. The Late Roman C fine ware pieces uniformly appear to be Forms 3 and 10, which dates these sites to the fifth to seventh centuries A.D. (Hayes 1972). The uniformity of the remains suggests that the sites were functionally similar.

Several more elaborate rural domestic establishments of up to 1 ha in size, labeled "villas" by the survey, were also discovered. These sites were among the first to be located in the wadi bottoms. Material culture collections from these sites contained larger amounts of imported tableware and smatterings of either large marble tiles or small colored limestone tesserae for mosaic flooring. It is possible that some of these sites were monastic settlements or churches, like those Schaefer found near Tell Jemmeh (Schaefer 1979), but without excavation it is impossible to determine their exact functions. Similar structures have been excavated elsewhere on the coastal plain. One recently dug estate, at Khirbet Mansur el-Aqab near Caesarea, had its own winepress and wine cellar (Hirschfeld and Birger-Calderon 1991).

Larger industrial sites also dot the landscape. These seem to have contained a variety of structures, often including a winepress and/or kiln, together with indicators of other industrial activity, such as pieces of olive presses and other unidentifiable fragments of industrial stone. Many of these sites also contain evidence of domestic habitation, for example, marble

floor tiles and ceramic fineware fragments. There are approximately 8–10 of these sites in the survey zone.

A sizable industrial complex was discovered in the Barnea district of modern Ashkelon that has three winepresses, an olive press, storehouses, a bathhouse, fishponds, and a large double-cylinder ceramic kiln (Israel 1993; 1995a). This seems to be a larger version of some of the industrial areas found elsewhere in the Map 92 region.

In addition, there are several extensive sites that probably served as regional centers for collecting and shipping the wine. Most impressive is ᶜIjjis er-Ras, which expanded to more than 20 ha in this period and had several satellite sites on neighboring hills.

Taken together, these sites point to a complex system of producing and shipping wine. Some production was done at isolated farms, some in large industrial complexes, some at monasteries, and some in urban environments. The system can be fully understood only with excavation at some of these sites. In general, it may be said that the land was fully utilized in this period, with probably the densest population in the Ashkelon region of any premodern period. And the distribution of sites denotes a change in settlement pattern, from one in which the coastal plain was used primarily for communication between north and south to one in which sites were evenly spaced in an organic model of settlement.
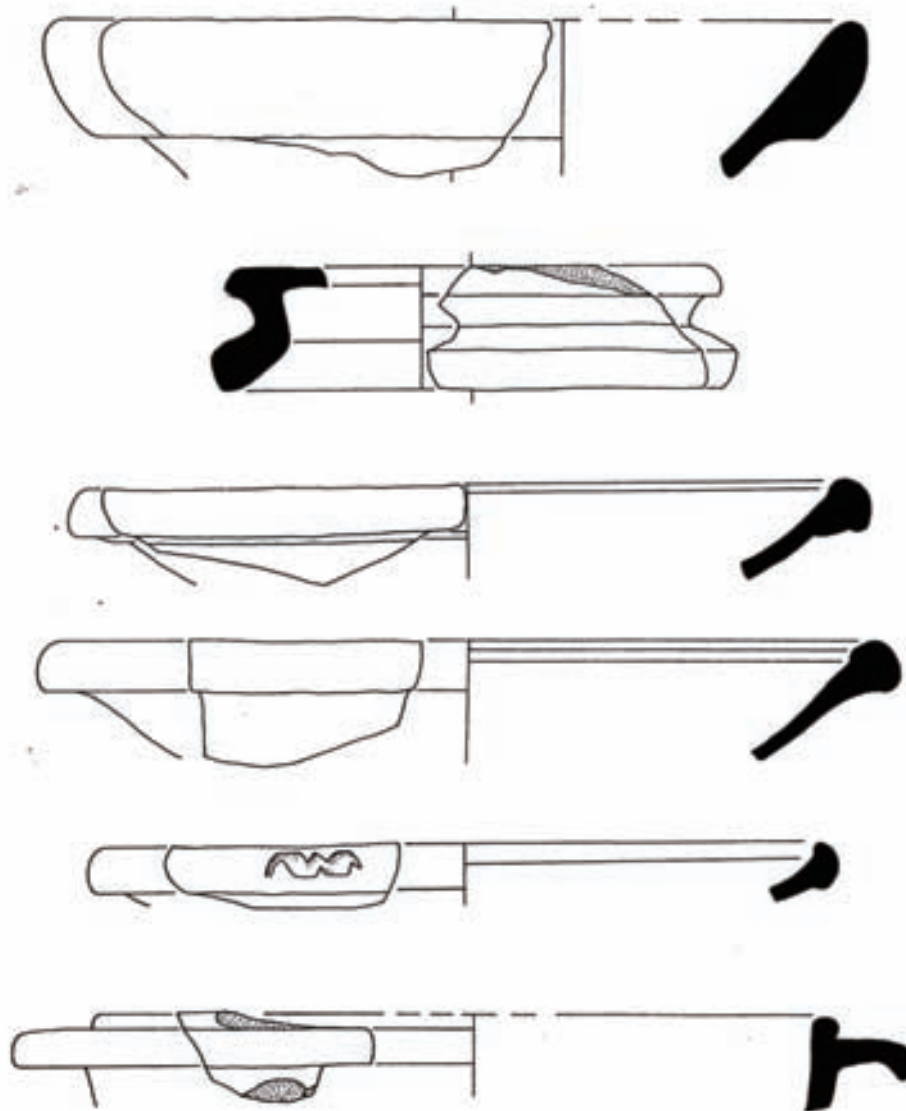
Figure 3.19: Mortaria of the Persian period and Byzantine fineware from Khirbet Irza, site 92-46/1 (scale 2:5)
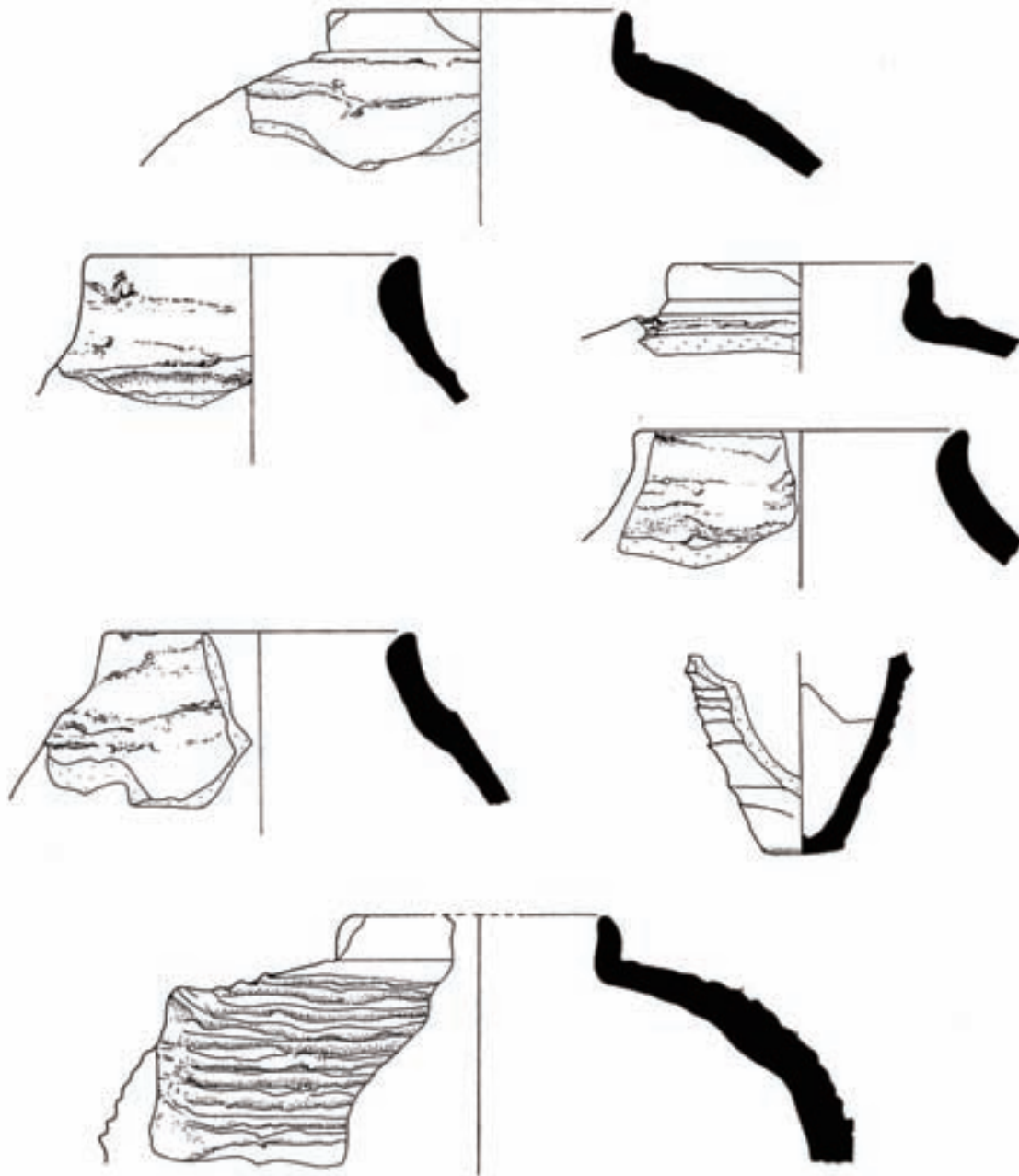
Figure 3.20: "Gaza jars" of the Byzantine period from site 92-16/3 (scale 2:5)
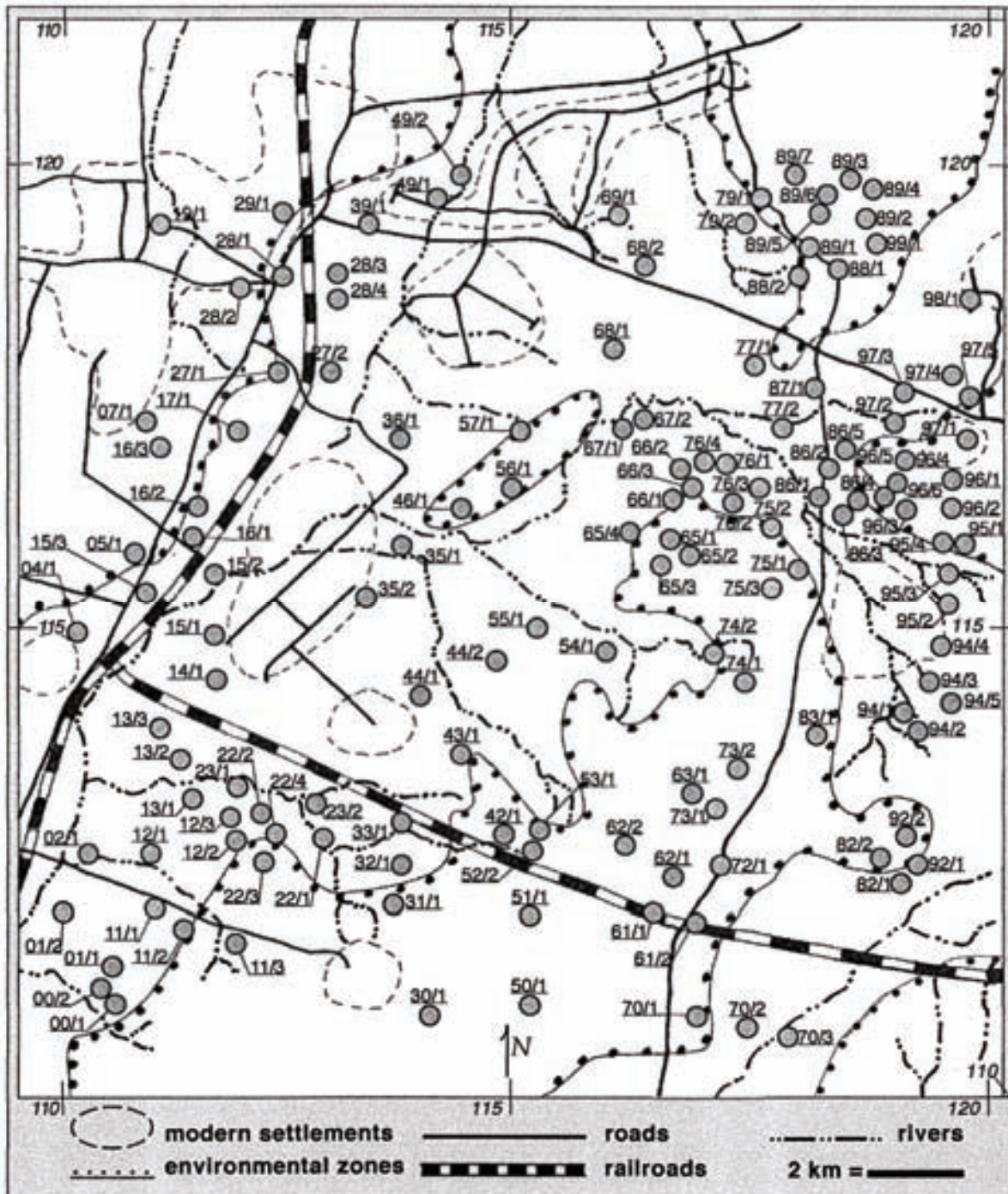
Figure 3.21: Sites of the Byzantine ("Late Roman") period discovered in the IAA Map 92 survey zone
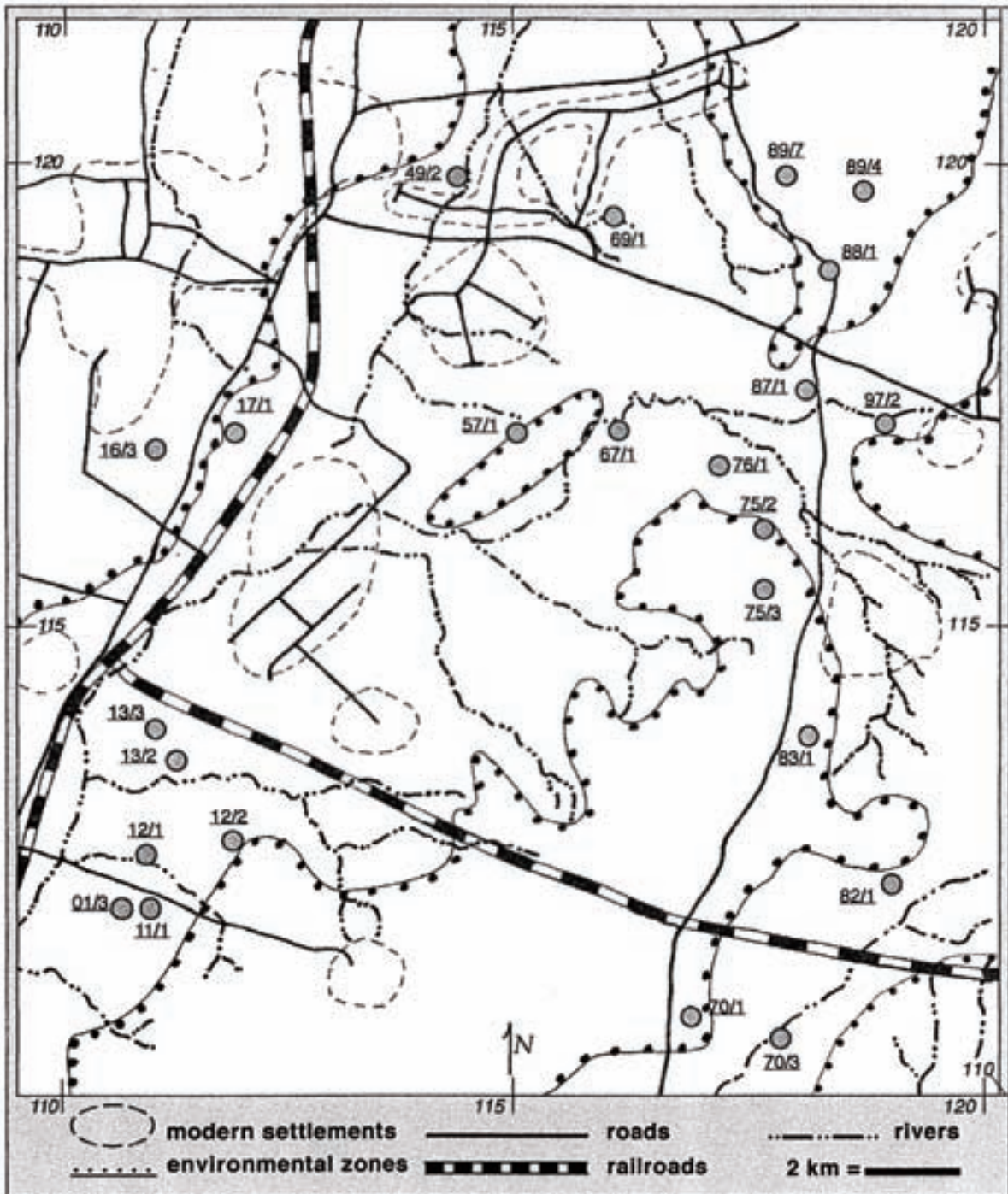
Figure 3.22: Industrial sites of the Byzantine ("Late Roman") period
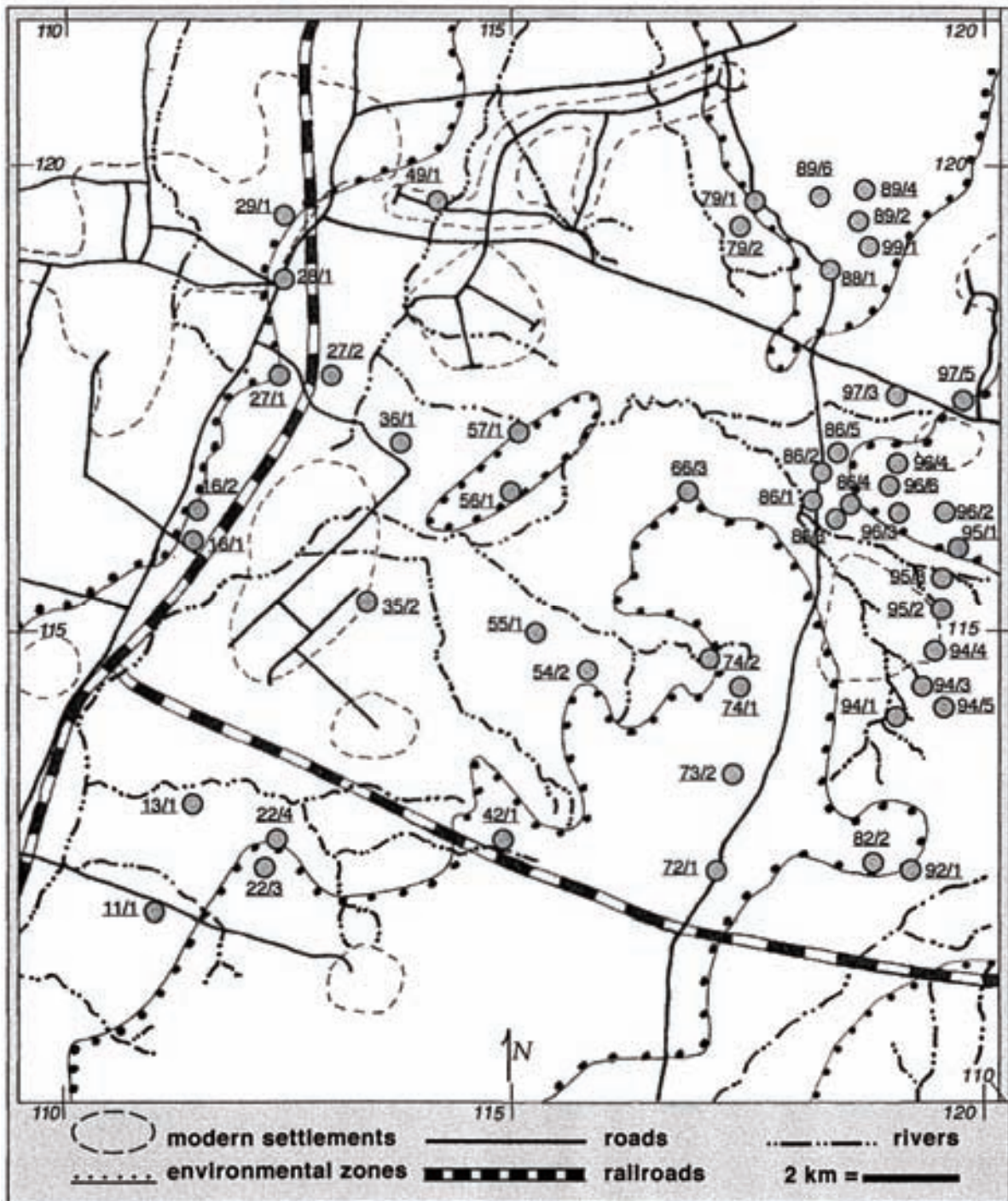
Figure 3.23: Settlement sites of the Byzantine ("Late Roman") period

Figure 3.24: Dense collection of Gaza jar fragments, burnt brick, and ceramic slag indicates a kiln site (92-12/2)

Figure 3.25: An excavated wine press of the Byzantine period at ʿIjjis er-Ras, site 92-88/1

Figure 3.26: Scattering of stones with small collection of ceramics indicates a Byzantine "farmstead" (92-96/5)

Figure 3.27: Many farm sites of the Byzantine period are accompanied by remains of wells like this one, which was exposed by bulldozer action (site 92-11/3)

Figure 3.28: A typical survey collection from a farm site of the Byzantine period (92-96/1), including a few Gaza jar handles and rims, several pieces of fineware, and cooking pot fragments

Figure 3.29: Dense collection of stone, ceramics, and other debris indicates an industrial site of the Byzantine period (site 92-83/1)

Sites of the Early Islamic, Crusader, and Mamluk
   Periods (A.D. 640–1517)

Although the density of settlement decreased somewhat in the early Islamic period from its Byzantine peak, this is the second most densely settled period in the survey area. Most sites were continuations of their Byzantine predecessors. There was a sharp decrease, however, beginning in the eleventh century A.D. No more than 30–35 late medieval sites, generally identified by the presence of twelfth- and thirteenth-century green and yellow glazed red wares, have been located.

   Most densely occupied in this era are the line of the main north-south road and the western and eastern slopes of the eastern *kurkar* ridge. Marginal areas were abandoned, as were most of the lowest-lying sites. It is unclear whether this was a result of socioeconomic factors or the result of a less hospitable lowland environment. Khirbet Qimas (76/1) is noteworthy for its large twelfth- and thirteenth-century occupation; it is probably the Crusader site of Camsa (Prawer 1959). Other Crusader sites with identifiable material remains from this period include Amouhde (22/1), Algie (15/1), Casale Episcopie (57/1), and Heleiquat (61/1, 61/2).

Sites of the Ottoman and British Mandate Periods
(A.D. 1517–1948)

The number of sites shrank further in early modern times. As was noted in the previous section on "Early Maps and Records," Hütteroth and Abdulfattah (1977) cite Ottoman taxation data which can be used to estimate the population in the Map 92 survey area during the sixteenth century A.D. Eleven villages in this area were part of the *liwāʾ* of Gaza, containing about 900 families or approximately 5,000 people, about half of whom lived in the town of Majdal (el-Mejdel). The most commonly taxed items were wheat, barley, fruits, and vegetables. These settlements were no longer clustered along the main north-south road, as in earlier periods, but were more evenly distributed, although the larger settlements were still located on the flanks of the *kurkar* ridges (e.g., Majdal, Barbara, Beit Tima, and ᶜIjjis er-Ras).

   Nineteenth-century Western travelers and surveyors report only seven villages and a few isolated farms, ruined sites (*khirbeh*s), and holy places in the region (Conder and Kitchener 1883). Beit Tima in the east (54/1) and Majdal in the west (19/1) were the major settlements at that time. Except for Majdal, which is incorporated into modern Ashkelon, these villages and towns were demolished after the war of 1948, though a few structures and tombs remain standing and many of their orchards were preserved. Inspection of these sites usually yields architectural elements and artifacts that can be dated as early as the Roman period, although it is not clear how many of these were in secondary rather than primary use.

   One interesting discovery in these Arab settlement sites was what at first appeared to be ample amounts of Early Bronze Age pottery, hand made in a coarse, micaceous ware with heavy burnishing. Vessel forms include holemouth jars and everted-rim jars with flat bases. Many of these jars have what appear to be ledge handles. It was only after three seasons of work and many consultations with other archaeologists that it became apparent that this corpus of "pseudo-EB" materials was produced in the relatively recent past and not in the Early Bronze Age.

   The results of Berman's survey for this period match those of our survey. The dense settlement pattern of the early Islamic period disappeared in the wake of a sharp drop in population during later medieval times, and the regional population declined even further during the period of Ottoman rule. In Berman's survey area (IAA Maps 87, 88, and 91), as in our Map 92 area, the reduced population was more evenly distributed across the region, no longer being concentrated along the coastal strip or the main road. This indicates an "organic" settlement pattern, quite unlike that of the Iron Age or classical periods.
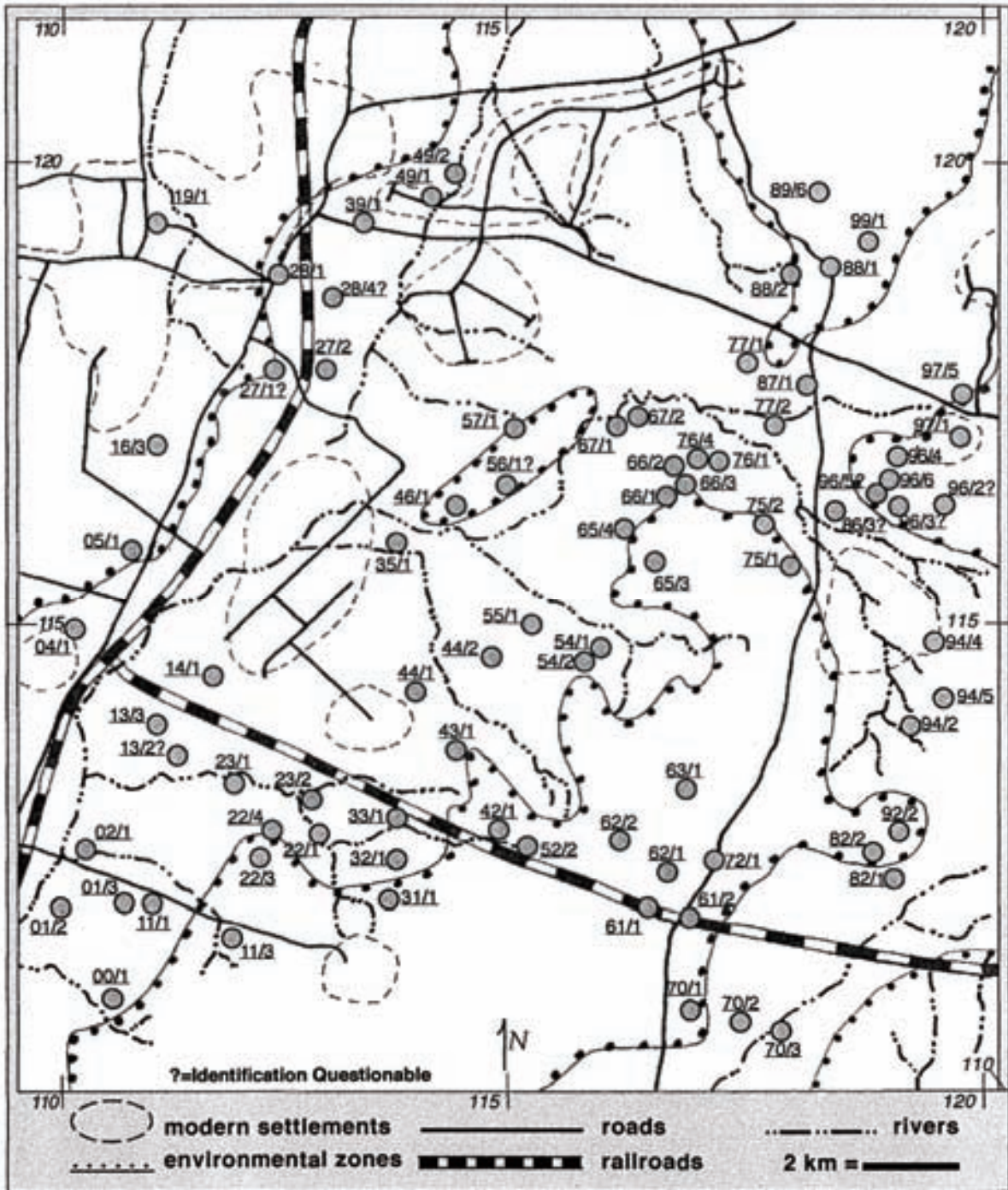
Figure 3.30: Sites of the early Islamic period discovered in the IAA Map 92 survey zone
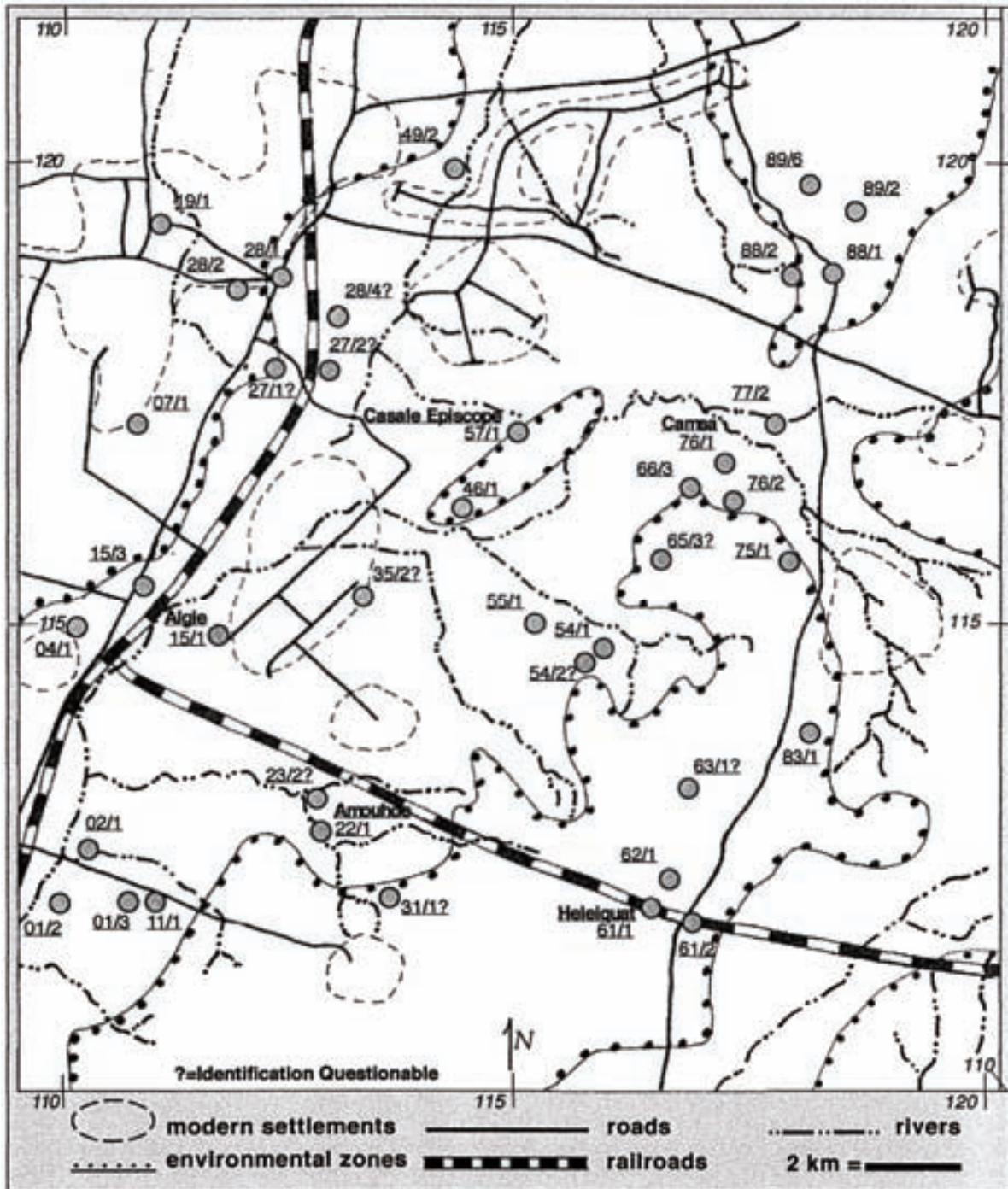
Figure 3.31: Sites of the Crusader and Mamluk periods discovered in the IAA Map 92 survey zone
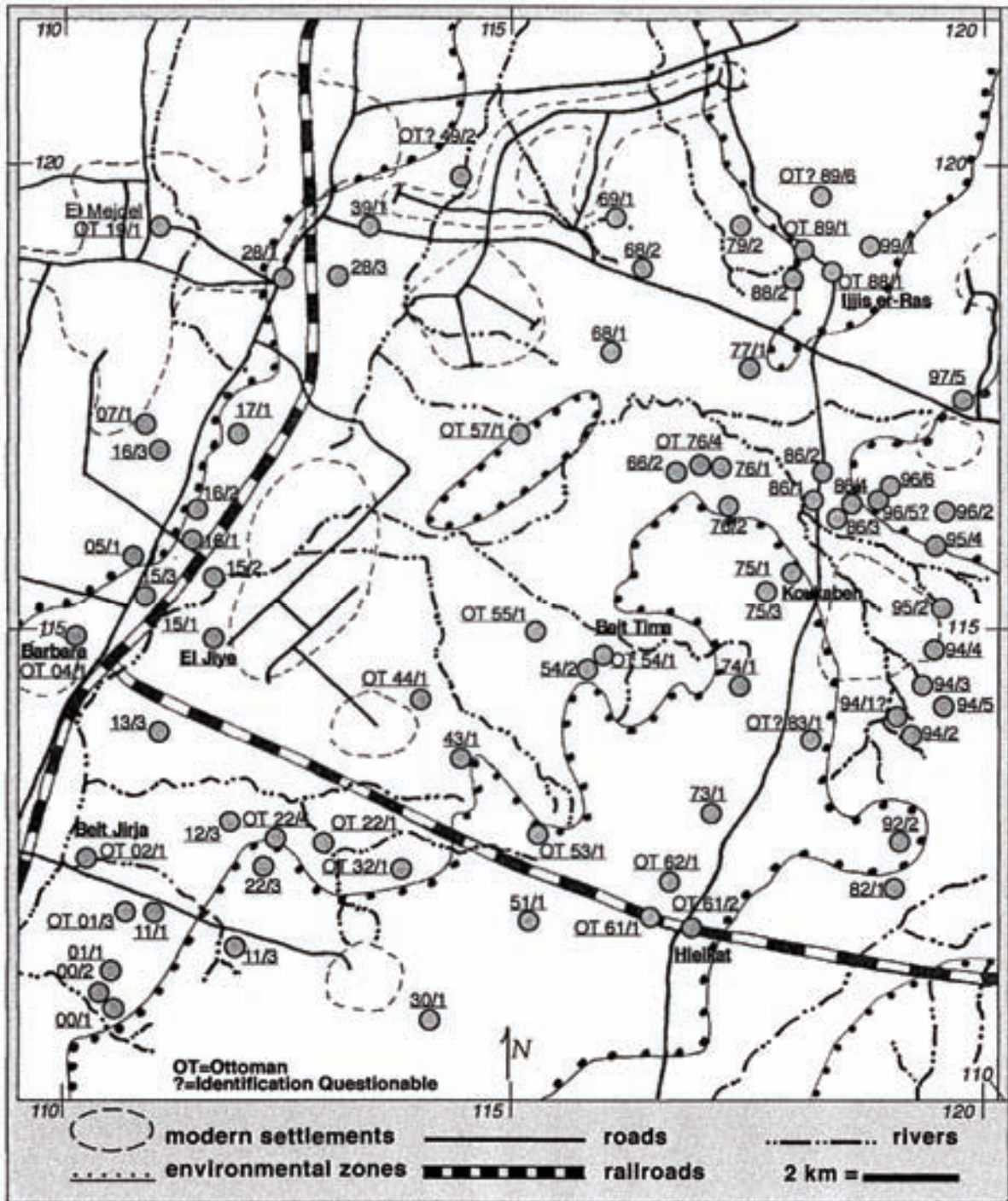
Figure 3.32: Sites of the Ottoman and post-Ottoman periods discovered in the IAA Map 92 survey zone
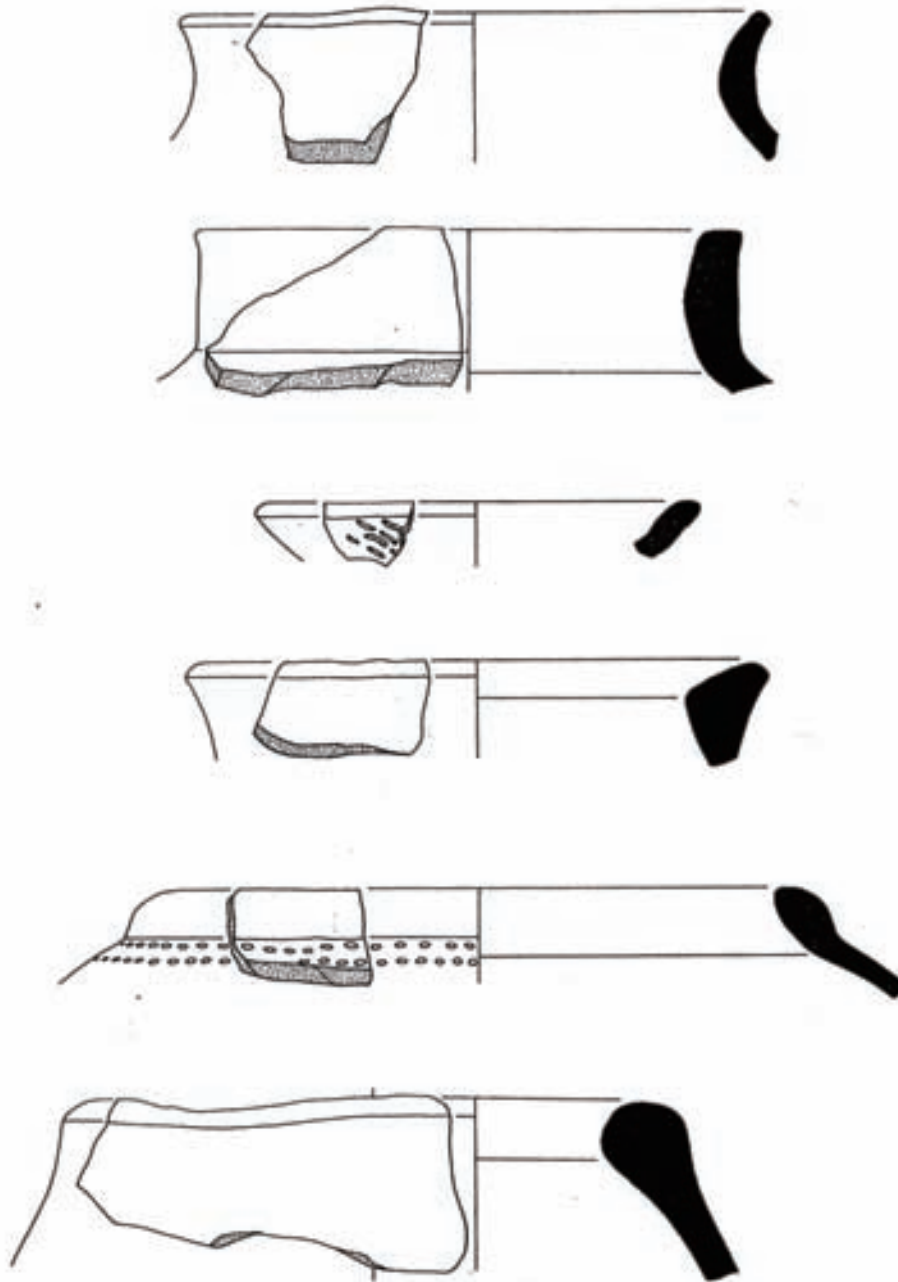
Figure 3.33: Pseudo-EB jar rims from sites of the Ottoman period (scale 2:5)
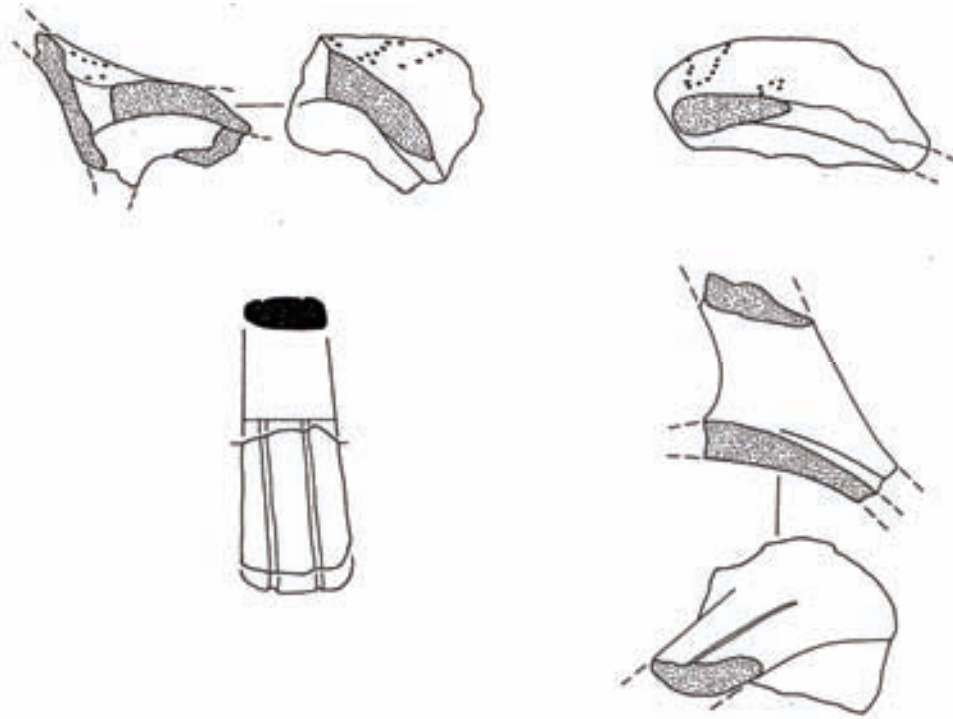
Figure 3.34: Handles and ledge handles of Pseudo-EB ware (scale 2:5)

Figure 3.35: The Arab town of Beit Tima (site 92-54/1) was heavily bulldozed after 1948 and little remains
except for parts of a mosque on the summit of the site

Figure 3.36: A mosque in the Arab town of Majdal (el-Mejdel), site 92-19/1, which is now within the modern Israeli city of Ashkelon, ca. 5 kilometers east of the site of ancient Ashkelon

REGIONAL ANALYSIS

Environmental Determinants

In most periods in the Ashkelon region, human habitation was concentrated along the edges of the *kurkar* ridges, which seem to have been regarded as the best locations for settlement sites. Although this may have arisen from the fact that the southern coastal plain was primarily used for its access resources, it may also have stemmed from the environmental fact that the lowlands between the ridges were swampy or forested (e.g., with sycamore forests; see Carmi et al. 1994), or because agricultural soils were better in low-lying districts, causing settlements to be situated on the poorer soils of the ridges to avoid encroaching on valuable farmland.

It is unlikely that environmental conditions changed significantly between the Chalcolithic period and the Byzantine period (Rosen 1986a), or between the Byzantine period and modern times. Occupation of the lowlands seems to have taken place primarily in the middle centuries of the first millennium A.D., but the extent to which this was stimulated by population pressure or by better environment conditions is unknown on the basis of the survey data. It was in this period, the Byzantine era, that the materials

needed for large-scale wine-jar production (fine clay, water, and kindling) were sought in large quantities near wadi beds, which may have triggered an expansion of habitation into this previously unoccupied environmental zone. With the demise of the wine industry, this environmental zone was the first to be abandoned.

Local Agricultural Products

Very little can be said about the products produced in the Ashkelon region based on the configuration of settlements, although the concentration of settlements along the coast suggests that the crops grown there thrived in sandy soils. Ethnographic and historical sources, combined with data from archaeological excavations in the area and at Ashkelon itself, provide better evidence of local food production.

Not surprisingly, there is evidence in various periods of olive and grape cultivation in the Ashkelon area (see Gophna and Liphschitz 1996; Stager 1985c; 1996a; 1996b; Johnson and Stager 1995). Barley, wheat, dates, pomegranates, almonds, honey, and other fruits and vegetables are known to have been produced in this region in Ottoman times (see Hütteroth and Abdulfattah 1977), although the date of first cultivation of some of these crops is uncertain.

Perrot and Gopher (1996:165) believe that grain cultivation began as early as the sixth millennium B.C.

Among animal products, fish were obviously an important source of nourishment along the coast beginning in prehistoric times. Sheep, goats, and cattle were domesticated in the Neolithic period and are part of the faunal assemblage at Ashkelon in all phases excavated to date (see Perrot and Gopher 1996:165 on Neolithic sheep-herding in the area). Domesticated camels enter the picture on a significant scale in the first millennium B.C. (Wapnish 1981), and pigs were also raised in certain periods (Hesse and Wapnish 1996).

In light of the "access resources" model of settlement that the present author has proposed for the region in the Bronze and Iron Ages (Mitchell 1997), and in view of evidence discussed by Gitin (1995) and, for the Byzantine period, by Johnson and Stager (1995), it is likely that agricultural production was concentrated on a few crops, such as olive oil and wine, to be used for tribute and trade, and shipped by sea or along the coastal road. The lack of neighboring rural sites that might have been dedicated to local grain production is puzzling, but this can be explained if the city of Ashkelon relied on grain shipments by sea, or from the northern Negev in certain periods, in conjunction with the caravan trade in South Arabian spices.

Population

Our survey has yielded no evidence of the historically attested ethnic transformations in the region, although the distinctive cultural and political impact of Greek and Roman rule is apparent, as it is elsewhere in the Near East. There is no evidence of foreign trading colonies in the Map 92 area. There may be some indication of Byzantine monastic life, but excavation is required to determine whether some of our "villas" were in fact monasteries. The continuity in settlement pattern, and to a large extent in material culture, between the Byzantine and early Islamic periods gives little hint of the major cultural and political changes we know took place then on the basis of textual sources. Nor can we easily identify Crusaders in medieval assemblages. In short, while the evidence of the surveys can detect broad environmental and economic shifts in the rural landscape, the survey evidence provides little assistance in linking the archaeological record to the historical record.

CONCLUSION

Archaeological surveys are not the last word in understanding the regional landscape of this corner the ancient world. Rather, they suggest broad diachronic patterns of settlement and raise questions to be answered through excavation and historical research. In particular, our survey, even taken in conjunction with other complementary surveys and extensive excavation at the site of Ashkelon, has raised more questions than it answers. Most significantly, we now know that Ashkelon had a very limited rural hinterland of related settlements for most of its history. This result is surprising because recent excavations at the urban site of Ashkelon have shown that the city reached its full size of 60 ha already in the Middle Bronze Age, far earlier than earlier researchers had imagined (Stager 1993). In the Bronze and Iron Ages it was not a small 5-ha site, as the British excavators of the 1920s had assumed (Garstang 1921a; 1921b; 1922; 1924).

The answers to these questions, of course, lie in additional archaeological work at Ashkelon itself, at some of its satellite sites, and at other urban sites of the Canaanite and Philistine periods such as Gaza and Tell eṣ-Ṣāfi (probably Philistine Gath), as well as in additional survey work on the southern coastal plain. These excavations will give us a better picture of the settlement history in this part of ancient Palestine.

APPENDIX

Catalogue of IAA Map 92 Sites Located by the Ashkelon Regional Archaeological Survey

Abbreviations:

Ach	Acheulian	Iron	Iron Age
Mou	Mousterian	Pers	Persian
Paleo	other Paleolithic	Hell	Hellenistic
Neo	Neolithic	Rom	Roman
Chalco	Chalcolithic	Byz	Byzantine
EB	Early Bronze Age	EI	Early Islamic
MB	Middle Bronze Age	Med	Medieval (Crusader and Mamluk periods)
LB	Late Bronze Age	Ott	Ottoman
Bronze	indeterminate Bronze Age	Mod	Modern (late Ottoman and Mandate periods)

Site	*Nos.*	*Name*	*Coordinates*	*Periods*
00/1	87005, 105	Beit Jirja Tumulus I	1107/1107	Byz, Mod

Tumulus of stones on hill with few material remains.

00/2	87007, 107	Beit Jirja Tumulus II	1108/1106	Pers, Hell/Rom, Byz, Mod

Three tumuli of stone adjacent to recent military installations.
Light ceramic scatter.

01/1	87008, 108	Beit Jirja Quarry	1106/1110	Iron2, Pers, Hell?, Rom, Byz, EI, Mod

Sandstone quarry with light scatter of ceramics.
Kurkar retaining wall on hillslope.

01/2	87002, 102	Khirbet Beit Lejus	1101/1118	Iron2?, Pers, Hell/Rom, Byz, EI, Med, Ott, Mod

Recent three-room stone structure, *maqam*, and several cisterns.
Ceramic scatter in fields.

01/3	87003–4, 103–4	Tel Obed	1106/1116	Chalco, MB2, LB, Iron1, Iron2, Pers, Hell, Rom, Byz, EI, Med, Ott, Mod

Mound of ashy soil containing a dense scatter of ceramics.
Burnt brick, kiln wasters, and other material culture also present.

02/1	87014, 114	Beit Jirja	1104/1125	Byz, EI, Med, Ott, Mod

Remains of recent Arab village with no complete structures standing.

04/1	87044, 144	Barbara	1103/1148	LB/Iron1?, Hell, Rom, Byz, EI, Med, Ott, Mod

Remains of recent Arab village adjacent to modern Israeli settlement of Mavqiyim.
Sherd scatter and occasional building fragments. Village schoolhouse preserved.

05/1	89059, 359	Barbara North	1108/1158	Hell?, Rom, Byz, EI, Mod

Modest scatter of ceramics within orchard.

07/1	89061, 361	Givat Zion Orchards	1109/1175	Rom?, Byz, Med, Mod

Modest scatter of ceramics and other materials within orchard.

08/1	89027, 327	Givat Zion	1108/1183	?

Moderate scatter of ceramics at southeast end of modern Ashkelon.

11/1	87010, 110	er-Rasm	1111/1119	Chalco?, Bronze/Iron?, Hell?, Rom, Byz, EI, Med, Mod

Dense scatter of ceramics on hillslope.

11/2	87011, 111	er-Rasm Well I	1116/1116	Byz

Complete bell-shaped cistern with light ceramic scatter nearby.

11/3	87012, 112	er-Rasm Well 2	1119/1115	Byz, EI, Mod

Broken bell-shaped cistern with extensive ceramic scatter nearby.

Site	Nos.	Name	Coordinates	Periods
12/1	87009, 109	er-Rasm Kiln I	1110/1123	Byz

Dense scatter of ceramics, burnt brick, kiln wasters, and slag.

| **12/2** | 87022, 122 | er-Rasm Kiln 2 | 1119/1127 | Byz |

Dense scatter of ceramics, burnt brick, kiln wasters, and slag.

| **12/3** | 87023, 123 | Nahal Obed 3 | 1120/1128 | Byz, Mod |

Ruins of recent house with ceramic scatter nearby.

| **13/1** | 87017, 117 | Nahal Obed 1 | 1117/1131 | Byz |

Moderate ceramic and stone scatter in open field.

| **13/2** | 87018, 118 | Nahal Obed 2 | 1116/1135 | Byz, EI? |

Moderate ceramic scatter in open field.

| **13/3** | 401 | Barbara East | 1111/1139 | Iron?, Byz, EI, Mod |

Moderate ceramic scatter in open field. Recent cistern.

| **14/1** | 88003, 203 | Gaia Villa | 1118/1143 | Byz, EI |

Dense scatter of ceramics and other material culture in field.

| **15/1** | 404 | el-Jiye | 1117/1152 | Mod |

Remains of recent Arab village adjacent to modern Israeli settlement.

| **15/2** | 87020, 120 | el-Jiye North | 1118/1157 | Rom?, Byz, Mod |

Light scatter of ceramics in field.

| **15/3** | 88002, 202 | el-Jiye West | 1111/1155 | Byz, Med, Mod |

Light scatter of ceramics in orchard.

| **16/1** | 88004, 204 | Sabahiya | 1114/1160 | Mou?, Byz, Mod |

Small, dense scatter of ceramics in field.

| **16/2** | 88005, 205 | el-Qasali | 1115/1163 | Rom, Byz, Mod |

Moderate scatter of ceramics in orchard.

| **16/3** | 89060, 360 | Na'alia East | 1111/1169 | Hell/Rom, Byz, EI, Mod |

Large settlement on crest of low hill. Remains of foundations of two buildings and stone cistern.
Dense scatter of ceramics, stone, and other material.

| **17/1** | 88006, 206 | Bar Tzur Farm | 1119/1171 | Rom, Byz, Mod |

Dense scatter of ceramics, kiln bricks, slag, and wasters in fields and orchards.
Foundations of British military camp.

| **19/1** | 89028, 328 | Majdal (el-Mejdel) | 1118/1198 | Pers, Hell, Rom, Byz, EI, Med, Ott, Mod |

Remains of Arab town, now the downtown district of Migdal in the modern Israeli city of Ashkelon.
Standing or converted structures include two mosques, wells, and a cemetery.

| **22/1** | 87015, 115 | Khirbet Amuda | 1129/1127 | Iron2?, Rom?, Byz, EI, Med, Ott, Mod |

Remains of recent Arab village with no standing structures.
Dense coverage of ceramics and other material culture.

| **22/2** | 87021, 121 | Nahal Obed Cisterns | 1122/1126 | Byz |

Two bell-shaped cisterns with attached installations.
Light ceramic scatter nearby.

| **22/3** | 87026, 126 | ez-Zeitun | 1125/1121 | Iron2?, Hell?, Rom, Byz, EI, Med, Mod |

Fragmentary foundation of building surrounded by dense scatter of ceramics.

| **22/4** | 87027, 127 | Khirbet Amuda South | 1127/1123 | Byz, EI, Mod |

Dense scatter of ceramics on hillslope.

Site	*Nos.*	*Name*	*Coordinates*	*Periods*
23/1	87006, 106	Gevaram Kiln	1121/1133	Byz

Very dense scatter of ceramics, stone, kiln bricks, wasters, and slag.
Fragments of stone walls.

| **23/2** | 87029, 129 | Nahal Obed 4 | 1128/1131 | Byz |

Moderate scatter of ceramics in wadi.

| **27/1** | 88007, 207 | Khirbet Abu Fatun? | 1125/1179 | Hell?, Rom, Byz, EI?, Med? |

Moderate scatter of ceramics in orchard.

| **27/2** | 88008, 208 | Khirbet Abu Fatun East | 1129/1178 | Rom, Byz, EI, Med? |

Moderate scatter of ceramics in orchard.

| **28/1** | 88009, 209 | Tsomet Ashkelon 1 | 1124/1188 | Hell?, Rom, Byz, EI, Med, Mod |

Moderate scatter of ceramics in orchard.

| **28/2** | 89063, 363 | Tsomet Ashkelon 2 | 1121/1187 | Med |

Reconstructed water station at the entrance to the Arab town of Majdal.

| **28/3** | 403 | Mash'en Road | 1129/1188 | Byz, Mod |

Raised roadbed of limestone.

| **28/4** | 402 | Mash'en | 1129/1186 | Byz, EI?, Med? |

Dense scatter of ceramics and kiln materials in orchard.

| **29/1** | 89062, 362 | Tsomet Berekhya 1 | 1125/1195 | Pers?, Hell?, Rom, Byz |

Dense scatter of ceramics.

| **30/1** | 89051, 351 | Gevaram South | 1139/1108 | Paleo, Byz, Mod |

Fragmentary foundation of small building.
Light scatter of ceramics and flint nearby.

| **31/1** | 87032, 132 | Wadi Amuda 1 | 1137/1119 | Rom?, Byz, EI, Med? |

Light scatter of ceramics along wadi.

| **32/1** | 87031, 131 | Khirbet Amuda Cisterns | 1137/1124 | Byz, EI |

Two preserved bell-shaped cisterns with ceramic scatter nearby.

| **33/1** | 87016, 116 | Khirbet Amuda East | 1136/1130 | Rom, Byz, EI |

Dense scatter of ceramics and limestone cobbles on hillslope.
One visible stone wall fragment.

| **35/1** | 88011, 211 | Khirbet Irze South | 1138/1159 | Byz |

Light scatter of ceramics in field.

| **35/2** | 88012, 212 | Beit Shiqma Villa | 1135/1155 | Byz, EI, Med? |

Dense scatter of ceramics, stone, and marble in field.

| **36/1** | 88010, 210 | Beit Shiqma North | 1136/1168 | Byz |

Moderate scatter of ceramics and other material culture in field.

| **39/1** | 89050, 350 | Khirbet er-Rasm(?) | 1133/1195 | Hell?, Rom, Byz, EI, Mod |

Dense scatter of ceramics, stone, and tesserae in field.

| **42/1** | 87030, 130 | Wadi Umm et-Tire Cistern | 1149/1128 | Paleo, Rom?, Byz, EI |

Bell-shaped cistern and ceramic scatter nearby.

| **43/1** | 87036, 136 | Telma Yafeh Coop Site | 1145/1135 | Hell/Rom, Byz, EI, Mod |

Dense scatter of ceramics and limestone cobbles in orchard.

| **44/1** | 87041, 141 | Telma Yafeh Orchard Site | 1140/1143 | Hell?, Rom, Byz, EI, Ott |

Moderate scatter of ceramics and other material culture in orchard.

Site	Nos.	Name	Coordinates	Periods
44/2	87037, 137	Khirbet Beit Sam'an	1148/1147	Hell?, Rom, Byz, EI

Dense scatter of ceramics, marble tiles, tesserae, and other material culture on hill slope.

46/1	87033, 133	Khirbet Irza	1144/1162	MB?, Iron2, Pers, Hell, Rom, Byz, EI, Med, Ott, Mod

Large, multiperiod site. Dense scatter of ceramics.
Traces of stone walls. Pits and a bell-shaped cistern.

49/1	89048, 348	Khirbet el-Bire South	1141/1197	Byz,EI

Moderate scatter of ceramics, tesserae, and other material in field.

49/2	89049, 349	Khirbet el-Bire	1145/1198	Byz, EI, Med, Ott?, Mod

Dense scatter of ceramics, tesserae, ceramic slag, kiln wasters, and stone cobbles in field.

50/1	89058, 358	Lapidot Site	1152/1109	Byz

Dense scatter of limestone cobbles with light scatter of ceramics.

51/1	89057, 357	Wadi Amuda 2	1150/1119	Paleo, Byz, Mod

Light scatter of ceramics and flint along wadi.

52/1	88042, 242	Tell el-Hawa	1157/1126	?

Light scatter of ceramics and sandstone on hilltop.

52/2	87035, 135	Wadi Umm et-Tire 1	1151/1128	Paleo, Byz, EI

Light scatter of ceramics and flint on slope of deep wadi.

53/1	87034, 134	Wadi Umm et-Tire 2	1152/1130	Paleo, Rom?, Byz, Mod

Light scatter of ceramics and flint along wadi.

54/1	87040, 140	Beit Tima	1157/1148	Rom, Byz, EI, Med, Ott, Mod

Remains of large Arab town, badly disturbed.
Parts of two stories of mosque and fragments of other buildings.
Dense scatter of ceramics, stone, metal and other material culture.

54/2	87042, 142	Beit Tima South	1155/1145	Rom?, Byz?, EI, Med?, Mod

Scatter of ceramics and limestone on hillslope.

55/1	87039, 139	Khirbet Beit Sam'an North	1151/1151	Hell, Rom, Byz, EI, Med, Ott, Mod

Dense scatter of ceramics, marble, and tesserae in field.

56/1	88013, 213	Khirbet Irza East	1151/1165	Hell/Rom, Rom, Byz, EI?

Moderate scatter of ceramics in field.

57/1	87024, 124	Khirbet Sama/Nabi Sama	1154/1173	Iron2?, Pers, Rom, Byz, EI, Med, Ott, Mod

Dense scattering of ceramics, building stone, and other material culture over hillslope.
Location of a *maqam* that is no longer preserved.

61/1	88043, 243	Hleikat West	1165/1119	Byz, EI, Med, Ott, Mod

Part of recent Arab village; no structures preserved.
Dense scatter of stone, metal, concrete, glass, and ceramics.

61/2	88044, 244	Hleikat East	1168/1118	Rom, Byz, EI, Med, Ott, Mod

Part of recent Arab village; no structures preserved.
Dense scatter of stone, metal, concrete, glass, and ceramics.

62/1	88040, 240	Tariq Beit Tima	1166/1124	Hell/Rom, Byz, EI, Med, Ott, Mod

Part of recent Arab village.
Dense scatter of stone, glass, and concrete, with modest ceramic scatter.

62/2	88041, 241	Tell el-Hawa North	1161/1127	Mou, Paleo, Byz, EI

Dense scatter of flint with few ceramics on hillslope.

Site	*Nos.*	*Name*	*Coordinates*	*Periods*
63/1	88037, 237	Khirbet Daldum?	1168/1132	Ach, Hell/Rom?, Byz, EI, Med?

Dense scatter of limestone, large tesserae, marble, ceramics, and other material culture on hillslope.

| **65/1** | 88017, 217 | Karin esh-Shami | 1166/1158 | Byz |

Light scatter of ceramics on hillslope.

| **65/2** | 88018, 218 | Karin esh-Shami East | 1168/1156 | Byz |

Dense scatter of stone with light ceramic scatter on hillslope.

| **65/3** | 88019, 219 | Karin esh-Shami South | 1164/1155 | Byz, EI, Med? |

Dense scatter of ceramics, stone, tesserae, and other material culture on hillslope.

| **65/4** | 88023, 223 | Karin esh-Shami West | 1161/1159 | Hell?, Rom, Byz, EI |

Dense scatter of stone with light ceramic scatter on hillslope.

| **66/1** | 88024, 224 | Khor Breish | 1165/1163 | Hell?, Rom, Byz, EI |

Dense scatter of stone and ceramics. Bell-shaped cistern.

| **66/2** | 88025, 225 | Khirbet Qemas West 1 | 1168/1166 | Mou, Byz, EI, |

Dense scatter of stone with light ceramic scatter on hillslope.

| **66/3** | 88027, 227 | Khirbet Qemas West 2 | 1167/1163 | Byz, EI, Med |

Moderate scatter of ceramics with light stone scatter on hillslope.

| **67/1** | 88028, 228 | Wadi Qemas 1 | 1160/1172 | Byz, EI |

Dense scatter of ceramics, burnt brick, and slag along wadi.

| **67/2** | 88029, 229 | Wadi Qemas 2 | 1163/1175 | Paleo, Rom?, Byz, EI |

Light scatter of ceramics and flint along wadi.

| **68/1** | 88034, 234 | Karsane | 1162/1181 | Neo?, Byz, Mod |

Light scatter of ceramics and flint with several dense scatters of stone.

| **68/2** | 89046, 346 | Batan el-Qarad 1 | 1165/1189 | Byz, Mod |

Stone wall fragments with light scatter of ceramics in orchard.

| **69/1** | 89047, 347 | Batan el-Qarad 2 | 1162/1195 | Byz, Mod |

Scatter of stone and tesserae with light scatter of ceramics.

| **70/1** | 89056, 356 | Khirbet Nogga/el-Mahzuq | 1172/1108 | Hell?, Rom?, Byz, EI |

Dense scatter of ceramics, stone, marble, and tesserae in orchard. Stone basin.

| **70/2** | 89055, 355 | Nahal Heletz Site | 1175/1106 | Byz, EI |

Light scatter of stone and ceramics. Large stone pillars.

| **70/3** | 89054, 354 | Heletz | 1178/1105 | Rom?, Byz, EI |

Dense scatter of stone, tesserae and ceramics in field and orchard.

| **72/1** | 88036, 236 | Kharm el-Kharrub 1 | 1171/1125 | Mou?, Byz, EI, Mod |

Very dense scatter of stone and light scatter of ceramics.

| **73/1** | 88039, 239 | Kharm el-Kharrub 2 | 1173/1130 | Paleo, Rom, Byz |

Light scatter of flint and ceramics along wadi.

| **73/2** | 88038, 238 | Kharm el-Kharrub 3 | 1173/1132 | Mou, Chalco?, Hell?, Rom, Byz |

Dense scatter of stone with occasional dense scatters of ceramics, tesserae, and marble on hillslope.

| **74/1** | 88014, 214 | Wadi Tima 1 | 1174/1142 | Hell/Rom, Byz, Mod |

Dense concentration of limestone and moderate concentration of ceramics along hillslope.

| **74/2** | 88015, 215 | Wadi Tima 2 | 1170/1146 | Hell?, Rom, Byz |

Dense concentration of sandstone and moderate concentration of ceramics along wadi.

Site	Nos.	Name	Coordinates	Periods
75/1	87043, 143	Koukabeh	1179/1155	Iron?, Rom, Byz, EI, Med, Mod

Remains of recent Arab village; no standing structures.
Scatter of stone, metal, glass, concrete, and ceramics.

75/2	87045, 145	Koukabeh North	1178/1159	Rom, Byz, EI

Dense scatter of limestone and ceramics on hillslope.

75/3	88016, 216	Koukabeh South	1178/1152	Byz, Mod

Dense scatter of ceramics, sandstone, and kiln debris on hillslope.

76/1	88033, 233	Khirbet Qimas (Kemas)	1174/1164	Hell?, Rom, Byz, EI, Med, Ott, Mod

Extensive multiperiod site. Dense scatter of ceramics, stone, marble, glass, and other materials.
Bell-shaped cistern.

76/2	88031, 231	Abu Fatun?	1174/1162	Byz, EI, Med, Mod

Moderate concentration of sandstone and ceramics on hillslope.

76/3	88032, 232	Khirbet Qimas East	1176/1163	Byz, Mod

Moderate scatter of ceramics, tesserae, and marble on hillslope.

76/4	88026, 226	Khirbet Qimas West 3	1170/1165	Byz, EI, Mod

Moderate scatter of ceramics and limestone on hillslope.

77/1	87025, 125	ᶜIjjis er-Ras Southwest	1178/1179	Byz, EI, Mod

Recent concrete structures and debris. Scatter of ceramics, stone, and tesserae on hillslope.

77/2	88030, 230	Nahal Gaia 1	1178/1173	Hell/Rom, Byz, EI, Med

Light scatter of ceramics, tesserae, and stone along wadi.

79/1	89043, 343	Abu Anabe 1	1175/1195	Byz

Large number of limestone cobbles with light ceramic scatter along wadi.

79/2	89044, 344	Abu Anabe 2	1176/1197	Byz,Mod

Dense scatter of limestone cobbles with light ceramic scatter on hillslope.

82/1	89041, 341	Khirbet Simbis	1188/1120	Hell/Rom, Byz, EI, Mod

Dense concentration of stone, ceramics, kiln materials, and other material culture in field.
Two bell-shaped cisterns.

82/2	89040, 340	Khirbet Simbis North	1189/1125?	Byz, EI

Moderate scatter of stone and ceramics on hillslope.

83/1	88045, 245	ed-Dude	1183/1136	Hell, Rom, Byz, EI, Med, Ott?, Mod

Dense concentration of ceramics, stone, kiln materials, and other materials.
Four bell-shaped cisterns.

86/1	89010, 310	el-Hdeibe 1	1182/1163	Byz, Mod

Moderate/light scatter of limestone and ceramics in field.

86/2	89011, 311	el-Hdeibe 2	1184/1166	Byz, Mod

Dense scatter of limestone with light ceramic scatter on hillslope.

86/3	89012, 312	el-Hdeibe 3	1185/1161	Rom?, Byz, EI?

Light scatter of limestone and ceramics in field.

86/4	89013, 313	el-Hdeibe 4	1188/1163	Rom, Byz, Mod

Dense scatter of limestone and light scatter of ceramics on hillslope.

86/5	89014, 314	el-Hdeibe 5	1188/1168	Byz, EI

Scatter of limestone with light scatter of ceramics on hillslope.

87/1	89025, 325	Nahal Gaia 2	1182/1177	Rom?, Byz, EI

Dense scatter of stone, ceramics, kiln materials, and other materials along wadi.

Site	Nos.	Name	Coordinates	Periods
88/1	87001, 191	ᶜIjjis er-Ras	1184/1187	Iron2, Pers, Hell, Rom, Byz, EI, Med, Ott, Mod
	Major multiperiod site with dense scatter of ceramics, stone, and other material culture on hillslope. Excavated tomb and winepress. Bell-shaped cisterns, other wall fragments.			
88/2	89045, 345	ᶜIjjis er-Ras West	1180/1189	Paleo, Pers/Hell, Rom, Byz, EI, Med, Mod
	Dense scatter of limestone and ceramics on hillslope.			
89/1	88001, 201	ᶜIjjis er-Ras North	1182/1192	Pers, Rom, Byz, EI, Med, Ott, Mod
	Moderate scatter of ceramics on hillslope.			
89/2	89032, 332	Nahal Hodiya 1	1189/1195	Byz, Med
	Moderate scatter of sherds and limestone on hillslope. Two bell-shaped cisterns. Cave?			
89/3	89033, 333	el-Farsh 1	1187/1199	Byz
	Two dense scatterings of limestone with light ceramic scatter.			
89/4	89034, 334	el-Farsh 2	1189/1197	Byz
	Dense scatter of ceramics, cut and uncut stone, tesserae, glass and other material culture.			
89/5	89035, 335	Nahal Hodiya 2	1186/1196	Byz
	Four terrace walls on hillslope. Light ceramic scatter.			
89/6	89036, 336	el-Farsh 3	1186/1197	Chalco, Iron1, Iron2?, Pers?, Hell, Rom, Byz, EI, Ott?, Mod
	Dense scatter of limestone and ceramics with marble, tesserae, and flints on hillslope. Spring.			
89/7	89037, 337	Nahal Hodiya 3	1181/1199	Byz
	Scatter of ceramics and stone along wadi. Vertical standing stones in wadi bed.			
92/1	89042, 342	Khirbit Simbis 3	1190/1122	Byz
	Stone structure with scatter of ceramics nearby.			
92/2	89039, 339	Khirbit Simbis 4	1191/1125	Pers?, Hell?, Rom, Byz, EI, Mod
	Dense scatters of stone with scatter of ceramics, tesserae, worked stone blocks, and marble in wadi bed.			
94/1	89001, 301	Kochav Cistern	1192/1143	Byz, Mod?
	Bell-shaped cistern with light ceramic scatter nearby.			
94/2	89002, 302	Kochav South 1	1194/1140	Rom?, Byz, EI, Mod
	Light scatter of ceramics in orchard.			
94/3	89003, 303	Kochav South 2	1195/1145	Byz, EI, Mod
	Scatter of sandstone and limestone with light scatter of ceramics.			
94/4	89004, 304	Kaukaba Cemetery	1195/1149	Rom, Byz, EI, Mod
	Remains of recent Arab village near dense scatter of stone and light scatter of ceramics.			
94/5	89005, 305	Kochav South 3	1198/1143	Rom, Byz, EI, Mod
	Moderate scatter of ceramics in orchard.			
95/1	89019, 319	Wad es-Sahra 1	1199/1159	Byz
	Dense scatter of limestone with moderate scatter of ceramics.			
95/2	89007, 307	Wad es-Sahra 2	1196/1153	Byz, Mod
	Moderate scatter of limestone with light scatter of ceramics.			
95/3	89008, 308	Wad es-Sahra 3	1196/1155	Rom?, Byz
	Dense scatter of limestone with light scatter of ceramics.			
95/4	89009, 309	Kaukaba Quarry	1194/1159	Rom?, Byz, Mod
	Sandstone quarry and possibly cistern.			

Site	Nos.	Name	Coordinates	Periods
96/1	89016, 316	Sde Yoav Quarry	1198/1166	Byz, Mod

Sandstone quarry.

96/2	89017, 317	Wad el-Gharbi 1	1198/1164	Rom, Byz, EI?, Mod

Dense scatter of limestone with moderate scatter of ceramics.

96/3	89018, 318	Wad el-Gharbi 2	1193/1164	Byz, EI?

Dense scatter of limestone with light scatter of ceramics.

96/4	89021, 321	Wad el-Gharbi 3	1194/1168	Byz, EI

Dense scatter of limestone with light scatter of ceramics on hillslope.

96/5	89022, 322	Wad el-Gharbi 4	1191/1165	Byz, EI?, Mod?

Dense scatter of limestone and ceramics on hillslope.

96/6	89023, 323	Wad el-Gharbi 5	1192/1168	Byz, EI, Mod

Light scatter of limestone and ceramics on hillslope.

97/1	89020, 320	Sde Yoav East	1199/1170	Byz, EI

Scatter of limestone with light scatter of ceramics at edge of kibbutz.

97/2	89024, 324	Sde Yoav West	1193/1172	Byz

Dense scatter of limestone with moderate scatter of ceramics and tesserae.

97/3	89026, 326	Sde Yoav North	1194/1175	Byz

Dense scatter of limestone with light scatter of ceramics.
Fragments of bell-shaped cistern.

97/4	89029, 329	Mezudat Yoav North	1198/1176	Byz

Dense scatter of limestone and ceramics.

97/5	89030, 330	Ay Sidim	1199/1175	Byz, EI, Mod

Light scatter of limestone and ceramics in field.

98/1	———	Negba	1199/1189	MB2

Tombs discovered by kibbutz members.

99/1	89031, 331	el-Farsh 4	1190/1193	Hell/Rom, Byz, EI, Mod

Moderate scatter of limestone with dense scatter of ceramics.

4. OFFSHORE UNDERWATER SURVEYS

Underwater Survey, 1985–1987   *by Avner Raban and Yossi Tur-Caspa*

A N offshore survey was conducted in three seasons of fieldwork in 1985, 1986, and 1987 by the Centre for Maritime Studies of the University of Haifa on behalf of the Leon Levy Expedition to Ashkelon. One of the main goals of this survey was to determine, if possible, the location of the ancient harbor. Ashkelon was an important seaport for thousands of years, from the Middle Bronze Age (if not earlier) until the medieval period. There is some evidence of a Crusader-era anchorage near the southwest corner of the site, but unfortunately no Bronze or Iron Age harbor facility was found, although the central depression between the two mounds that make up the site (the "North Tell" and "South Tell"; see figure 1.4) might have been flooded in pre-Hellenistic times and perhaps served as an inner harbor. In many periods, perhaps, the city made do without a sheltered harbor, using small craft to load and unload ships anchored offshore in open water. However dangerous this may have been for the ships and their crews, this appears to have been the practice in the medieval period, and perhaps in other periods as well. After praising Ashkelon's fortifications and abundant fresh water, the twelfth-century historian William of Tyre remarks that: "Ascalon is at a disadvantage, however, from the fact that its location admits of neither a port nor any other safe harborage for ships. The shore is very sandy, and the violent winds make the surrounding sea so tempestuous that it is generally feared by all who approach it except in very calm weather" (William of Tyre 1943, vol. 2:219).

FIRST SEASON: APRIL, MAY, AND SEPTEMBER 1985

The near-shore sea bottom off Ashkelon was surveyed by divers of the Undersea Exploration Society in the late 1960s under the scientific supervision of Dr. Avner Raban of the Center for Maritime Studies of the University of Haifa. During those surveys, many finds were salvaged from the sea bottom, most of which are now in the archaeological collection of Kibbutz Nahal Oze. Those finds include stone anchors and lead components of Hellenistic and Roman-period composite anchors; Persian, Hellenistic, Roman, and Byzantine-period amphoras and other clay vessels; and some granite and marble Roman-period columns.

In preparation for the 1985 season, a full-scale study of all available documentary material was car-

ried out. We examined aerial photographs of the site and its shoreline and made a comparative plan of the alternating sand coverage and the exposed rocky bottom in different seasons of the year under various sea conditions. In addition, all available textual evidence concerning ancient maritime activities and past discoveries along the seashore was studied. After this initial investigation, we carried out a thorough bathymetric survey, including an accurate plotting of sand coverage and rocky exposure.

For the purposes of the underwater survey, the mapping grid imposed on the site of Ashkelon by the Leon Levy Expedition, with 100-m grid squares numbered 1–84 from northwest to southeast (see chapter 11 on the grid system), was extended seaward in mirror fashion, with a series of 100-m grid squares numbered 101–160 from northeast to southwest (see figure 4.1 below).

Bathymetric Survey

Detailed maps of the sea bottom near Ashkelon were made in 1985, covering the area from the base of the *kurkar* cliff, across the beach, and out into the sea as far as 500 m from the waterline. This survey was carried out for us by the technical staff of the Israel Oceanographic Institute. They used a digital echosounder (Raytheon DSS 6000, 11 KHz), a subbottom profiler (ORE on 3.5 KHz), and an EPC recorder linked to a computerized Motorola Miniranger with 15-second pulse. The transponders of the Miniranger were located on both ends of the ancient city wall and the surveying instruments were carried on a small outboard motor boat which crisscrossed the survey area, following a preplotted computerized course at 25-m intervals.

Two maps were generated using a computerized digital plotter and completed by the draftsmen of the Israel Oceanographic Institute. During the second half of September 1985, we added manually collected data pertaining to the bathymetric and sub-bottom characteristics of the near shore and the coastal strip. The result is: (1) a map of the bathymetric contour lines of the sea bottom and the coastal strip up to the foot of the *kurkar* cliff that forms the western edge of the site of Ashkelon, with isobaths every 0.25 m (shown below in figure 4.2); and (2) a map of the rocky features, both on the sea bottom and on shore, whether sand-covered or exposed (shown below in figure 4.3).
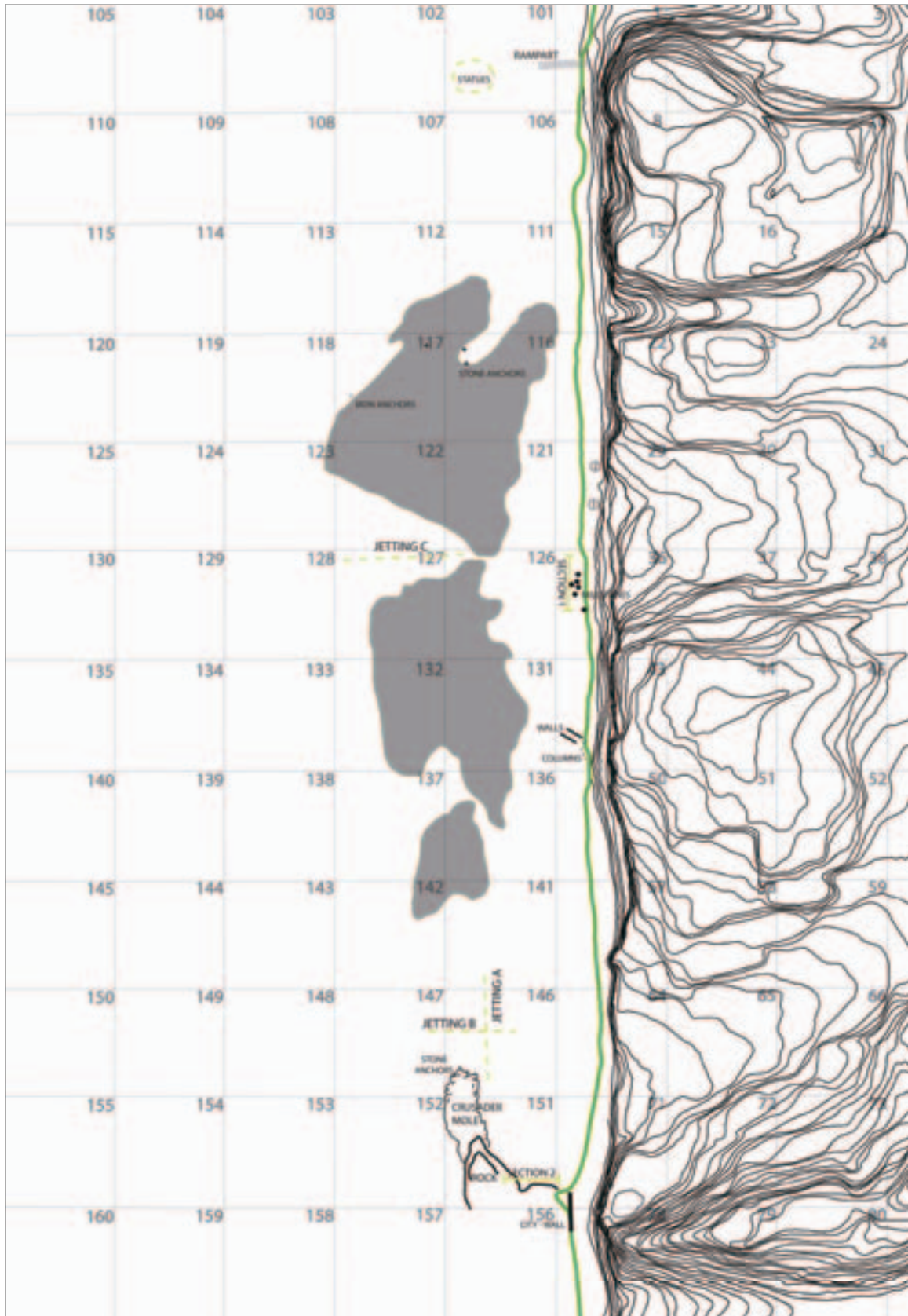
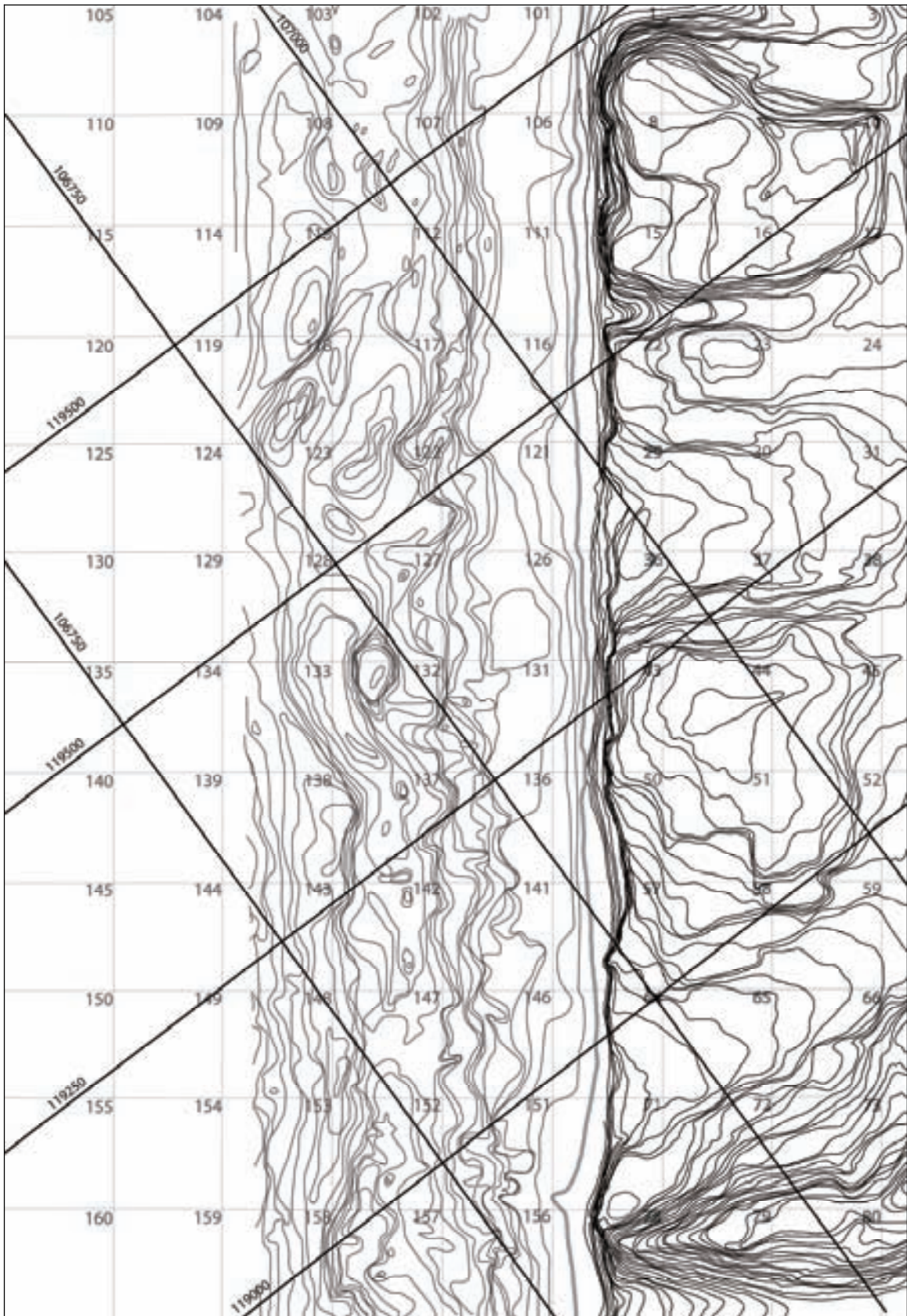*Figure 4.1:* Map of the offshore areas surveyed west of the site of Ashkelon, with grid system

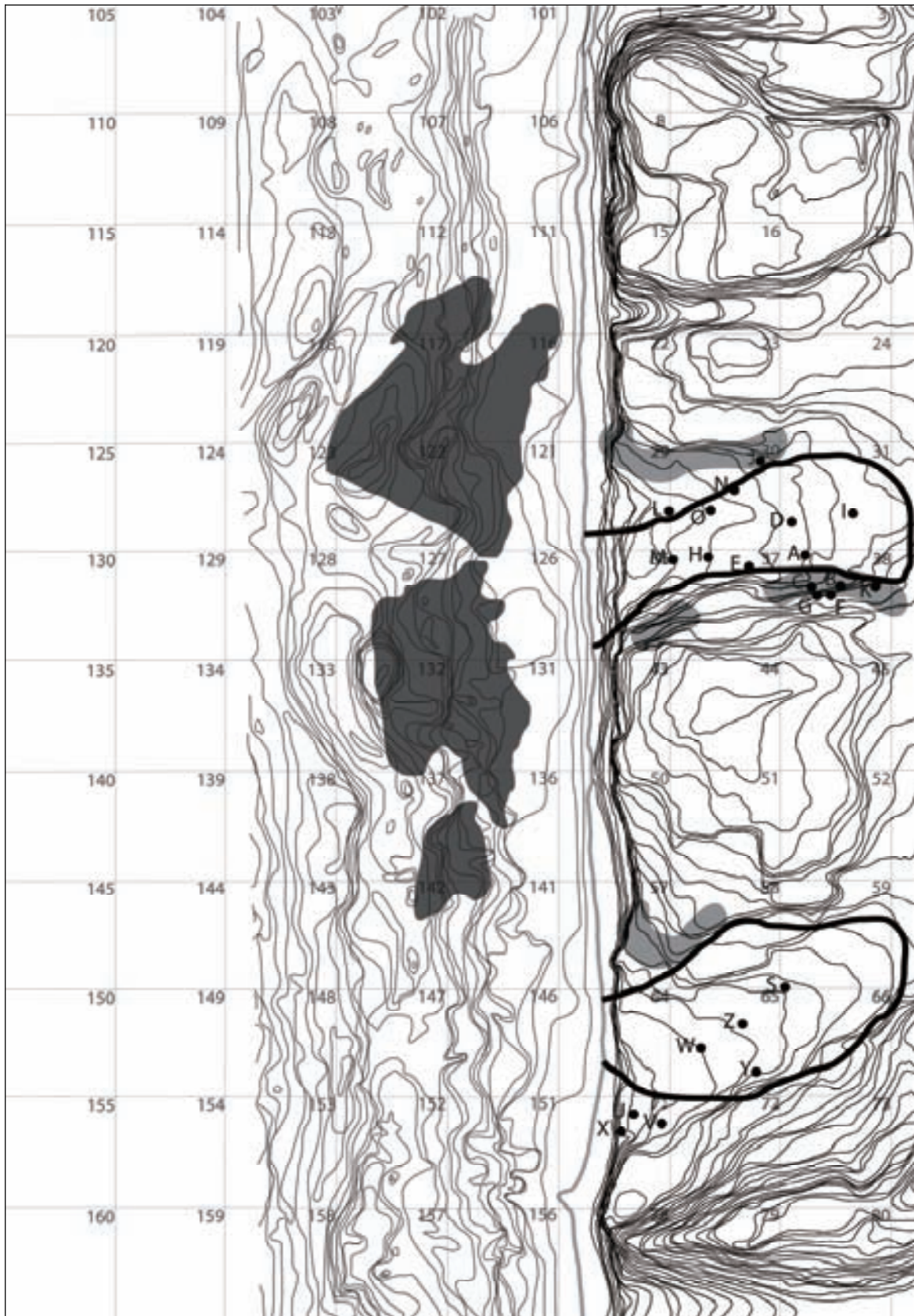*Figure 4.2:* Bathymetric map of the sea bottom near Ashkelon

Figure 4.3: Rocky features on the sea bottom near Ashkelon, including abraded platforms (in dark gray)

Manual Survey

A manual survey was carried out by the staff of the Centre for Maritime Studies with the assistance of some twenty students of the Department of History of Maritime Civilizations of the University of Haifa, in order to complement the electronic bathymetric survey of the seabed. The manual survey covered the near-shore sea bottom from the waterline to a depth of 1.5 m, and on land along the entire width of the beach, from the waterline to the foot of the cliff. Elevations were taken at 25-m intervals along the entire length of the beach west of the site and at right angles to it. The team also carried out three additional investigations to explore different aspects of the shore area:

1. *Coastal Cliff Face.* The face of the coastal cliff was surveyed and drawn, with an attempt to distinguish the natural bedrock from the accumulated debris on it. In addition, an archaeological survey was carried out to indicate the successive occupational levels which are now exposed along the west scarp of the coastal cliff (see figure 4.4).

2. *Small-Scale Sections.* Two small-scale sections were made with a mechanical backhoe at the midsection of the beach in Grid 29 (marked ① and ② on figure 4.1 above; the section drawings are shown in figures 4.6 and 4.7). The backhoe dug just below the present sea level and an additional probe was made in these sections using a water jet.

3. *Delineation of Offshore Sub-bottom.* In order to delineate more accurately the offshore sub-bottom, three lines of water-jet probes were carried out in areas that were selected after examining aerial photos and the ORE data (see the dotted lines labeled Jetting A, B, and C on figure 4.1).

Underwater Visual Survey

In late May, early June, and mid-September 1985, an underwater visual survey was carried out by the staff of the Centre for Maritime Studies and some Israeli volunteers. Most of the sea bottom along the site and as far as 300 m offshore was inspected, and some of the more interesting features were further surveyed and plotted. The quality of this underwater visual survey depended on the transparency of the water and the amount of sand coverage at the time. Some of the apparently artificial submerged structures visible in May and June were totally buried under the sand in

September. On the other hand, the September survey discovered features that were not visible earlier in the summer.

Results of the Geomorphological Survey

The remote-sensing gear had some limitations as far as distinguishing between actual bedrock and what might be partially encrusted debris produced by wave action. The visual underwater survey is much more reliable in this regard.

Our initial interpretation of the plotted data suggests that most of the sea bottom west of the site has a rocky component, too shallow and too regular to provide a natural, protected haven for ships, if present land-sea relations were the same in the past. Yet there are two areas where the rocky sub-bottom is deeper or not yet clearly plotted.

The first deep area is off the midsection of the site, west of the present public beach. There one can detect a geomorphological hollow both in the sea and on land. On land this topographic low divides the tell of Ashkelon into two separate mounds, called the "North Tell" and the "South Tell" by the Leon Levy Expedition (see the topographic plan in figure 1.4). In recent times, the low ground between the North and South Tells was used extensively for gardening and for irrigated orchards, taking advantage of the relatively shallow water table. This recent land use has added considerably to the original surface, and the accumulated soil is now in most of this area some 3–5 m above the older wind-accumulated sand dunes. At the present stage of the research, it appears as though the Late Bronze Age levels on the south side of this depression are just above the sand dunes, or even partially covered by them, so it is tempting to probe through the sand in order to get some datable samples from within and under these deposits.

The series of water-jet probes that were carried out west of this central topographic depression to delineate the offshore sub-bottom (figure 4.1, Jetting C in Grids 126 and 127) have helped to detect a hard surface, sloping westward from 4.1 m to about 6.8 m below the present mean sea level. Furthermore, the sections made by a mechanical backhoe in Grid 29, on the beach between the two areas where the rocky sub-bottom is deeper, produced the following results:

Section 1 (figure 4.6) has typical components of present-day beach processes, such as wave-carried sand, shingle, shells, and poorly cemented beach-rock, down to about one meter below mean sea level. Below these deposits is a thin layer of dark gray sand mixed with some clay. Such material might indicate
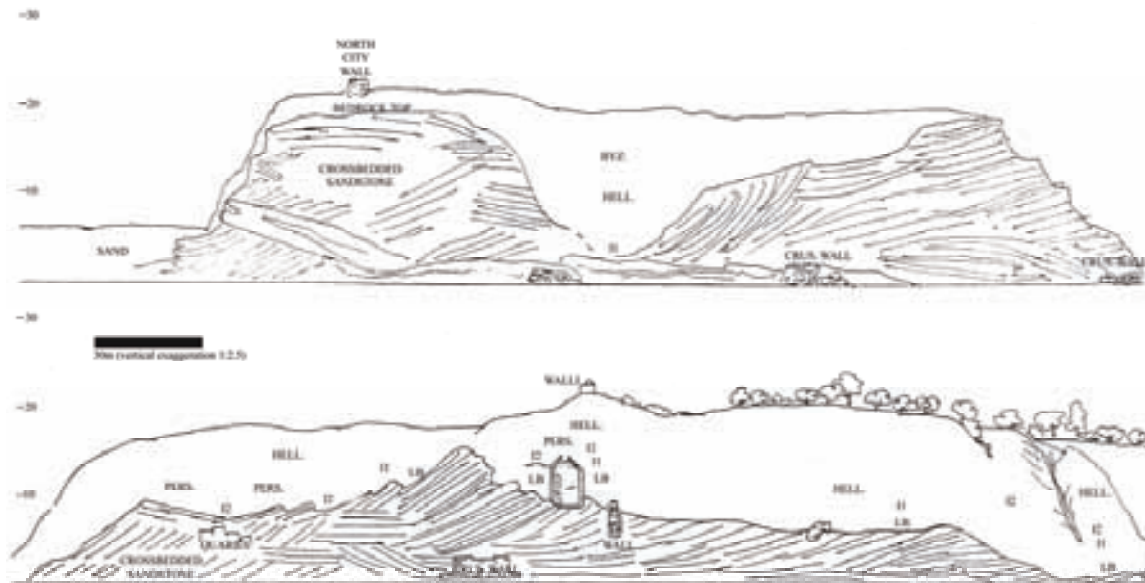
Figure 4.4a: Schematic drawing of the coastal cliff bordering the site of Ashkelon, showing the main rocky features and the findspots and dates of pottery (continued on facing page)

sedimentation that occurred when wave energy was much weaker than at present, perhaps within semi-enclosed bodies of water. Samples were taken for study at the sedimentological labs of Haifa University. A few small, nondatable potsherds found at this level suggest that this deposition occurred within the last few thousand years. Below this level and down to the bottom of the trench (about 1.5 m below mean sea level) were interbedded layers of yellowish oxidized sand and grayish brown clay that appear to have come from human occupational debris. A water-jet probe at the bottom of this section penetrated to an additional depth of over 4 m without hitting any rocky layer.

Section 2 (figure 4.7) was cut at the northwestern side of the coastal depression from the foot of the North Tell westward. The trench went down through layers of recently deposited sand and debris, down to a rather level bedrock at an elevation just below presen sea level. This rocky exposure gently slopes westward, and at that point a rubble structure was revealed. This seems to be a retaining wall or a sea wall of either Roman or Byzantine date. Both sections indicate that earlier archaeological layers are to be looked for in this area at an elevation well below the present sea level.

It is possible that a hinge or fault line runs along the west edge of the land site at the present base of the coastal cliff, with some tectonic uplifting of the tell to the east of it. The alternative is that the ground west of this supposed fault line has subsided.

The second deep area or geomorphological hollow is off the southernmost part of the land site opposite the remains of the Crusader-period sea wall. Two lines of jet probings were made across this deeper sea bottom below the sea wall. The first (figure 4.1, Jetting A in Grid 146), running from north to south, has a rocky sub-bottom in a receding depth from 3.5 m down to the south end of the line. The crossing line of water-jet probes (Jetting B) revealed a rocky sub-bottom of generally level character at 4.2–4.5 m below mean sea level, with a sudden drop to a depth of 6.5 m and more at the west end of the line.

A visual survey by divers has shown that the rocky bottom at the southwest side of this opening is at least partially artificial, with a rubble rampart covering the natural features. This rampart in some places rises over 2 m above the nearby sea bottom. Its debris covers an area of more than 80 × 30 m in Grid 151 (see figures 4.8–4.13). The existence of Roman columns in secondary use forming what seems to be the base of the southwest end of a Crusader-period pier (figure 4.13), between the present shore and the south base of the rubble rampart, might suggest that these two features were parts of the same complex. If this is the case, we must infer a rise in sea level of at least one meter from the Crusader era to the present. There are many other indications of a lower sea level in the medieval period, not only from other near-shore remnants at Ashkelon but also from most of the other coastal sites of the period in Israel.
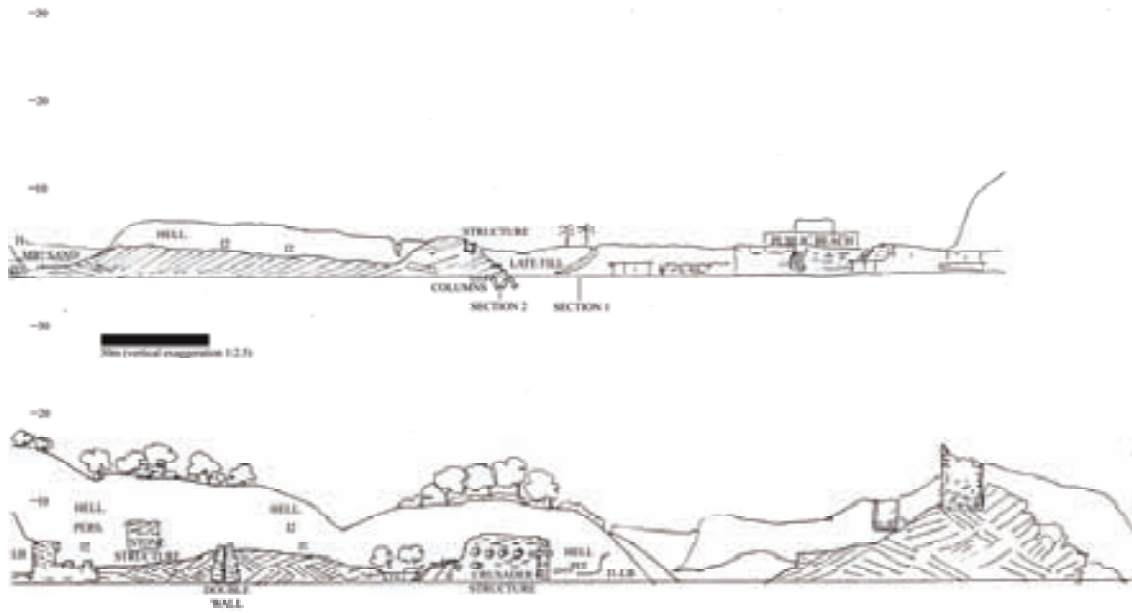
Figure 4.4b: Schematic drawing of the coastal cliff bordering the site of Ashkelon, showing the main rocky features and the findspots and dates of pottery (continued from facing page)

Figure 4.5: View from the shore toward the presumed location of the Crusader-period anchorage; the submerged rampart is visible as a dark patch under the water
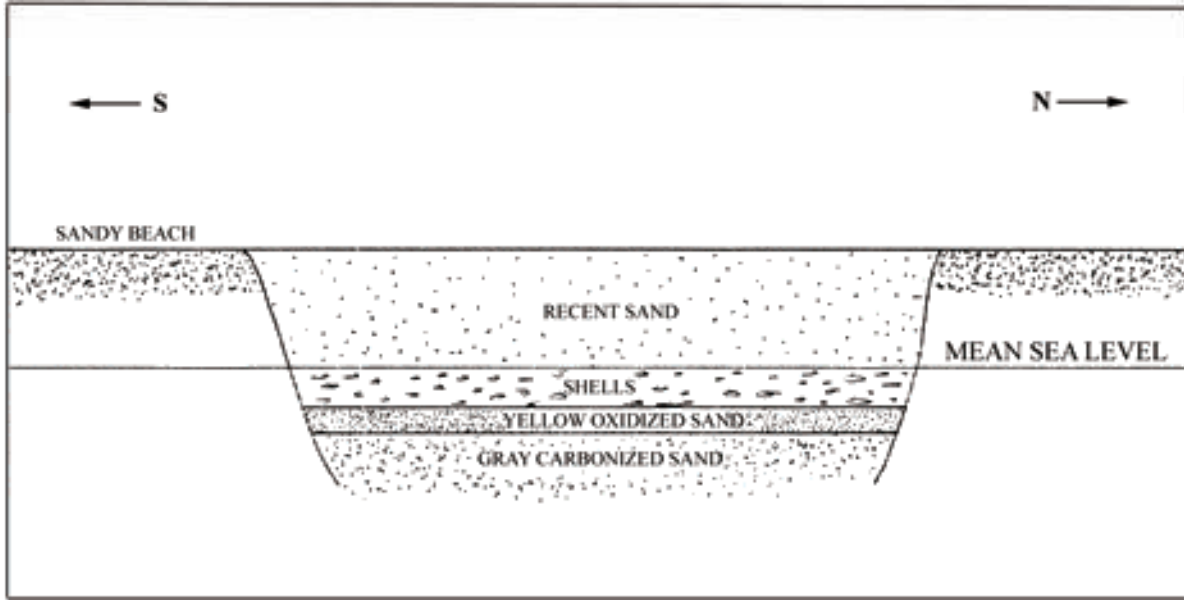
Figure 4.6: Section 1 (north-south) cut into the beach west of the site of Ashkelon
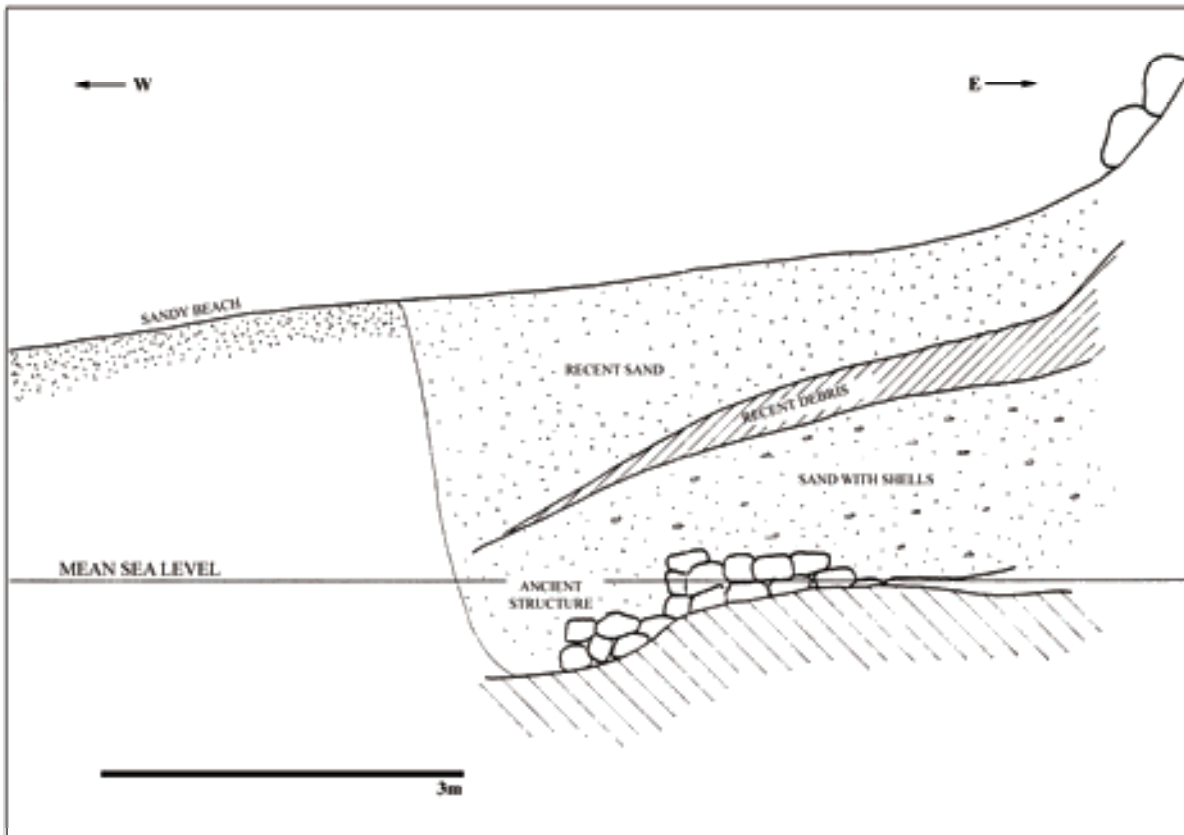
Figure 4.7: Section 2 (east-west) cut into the beach west of the site of Ashkelon

Figure 4.8: Western slope of submerged rampart

Figure 4.9: Close-up view of submerged rampart

Figure 4.10: Eastern slope of submerged rampart

Figure 4.11: Northern tip of submerged rampart

Figure 4.12: Bedrock at southern edge of rampart
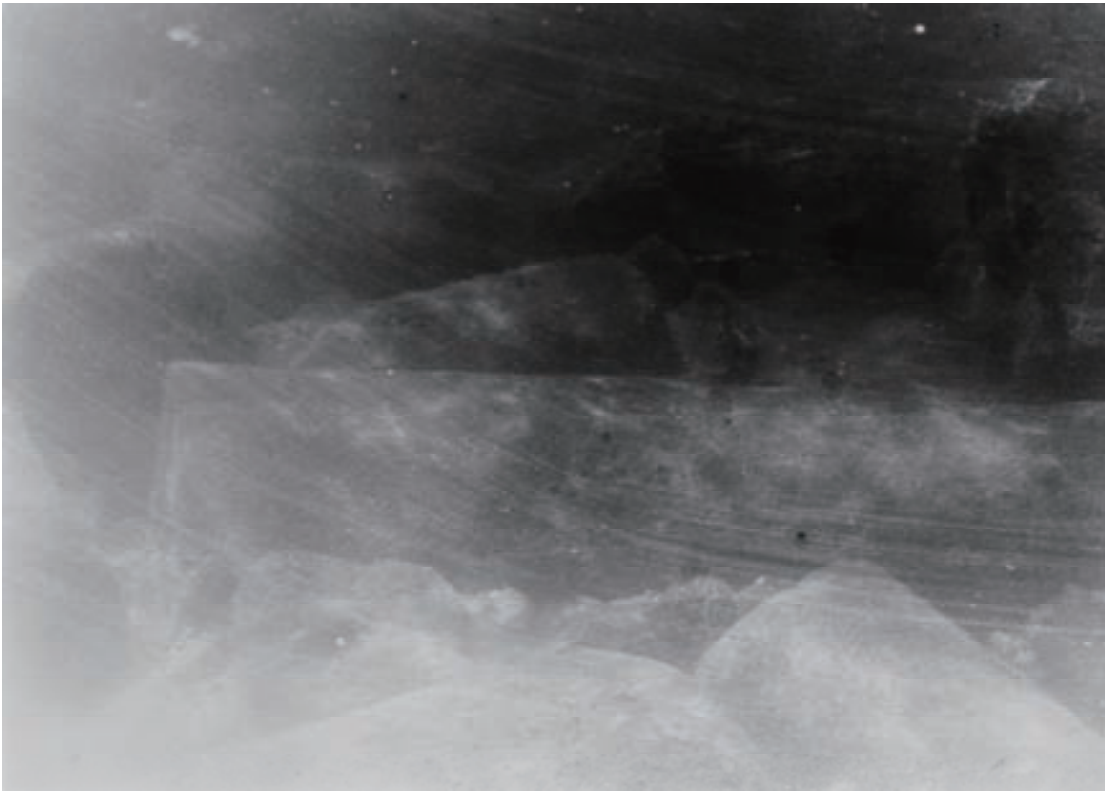
Figure 4.13: Reused columns at end of Crusader pier

Figure 4.14: Plan of reused columns at the base of the Crusader-era pier, lying on sand near the southwestern corner of the site of Ashkelon (Grids 71 and 151)

Figure 4.15: Upper part of Hellenistic amphora *in situ* in Area A, Grid 123

Results of the Archaeological Survey

The land survey was carried out along the beach and on top of the rocky exposures of the tell. Most of the archaeological remains on the beach are now under the sand, but some have become partially exposed in varying degrees. These are mainly lines of walls made of rubble bonded with large quantities of hydraulic cement. Although these walls have not yet been accurately surveyed, it seems that they are, for the most part, the remnants of the western line of Crusader-period fortifications along the sea. Further investigation should include some soundings in order to determine the exact elevation of the base of various segments of these walls.

The tentative results of the survey along the top of the cliff are shown above in figure 4.4. It seems that the North Tell consists mainly of debris from relatively recent periods of occupation—pottery of the Byzantine period dominates the ceramic finds. Yet there are also some Hellenistic remains, some sherds of the early Iron Age, and a few that may date to the Middle Bronze IIA period.

The South Tell has on most of its western upper face mainly Hellenistic sherds, with abundant Persian-period remains below on the northern side and at the south end of the site. In most of the mid-section there is a succession of occupation levels, from the Late Bronze Age through to the Iron Age, with Hellenistic layers on top of them everywhere.

The underwater survey was carried out near the shoreline and at selected areas as far offshore as 300–400 m. Of the archaeological remains found in the sea, only a few broken pottery vessels and some stone anchors have been salvaged. The remainder are still *in situ* on the sea bottom. The following is a summary of the principal finds and their provenience.

In **Area A** (see figure 4.1) the rocky sea bottom and its nearby sandy areas were systematically surveyed and some broken amphoras collected. Most of the pottery in this area is of Roman-Byzantine date and of seaborne commercial types (e.g., the jar shown above in figure 4.15).

At least five stone anchors were located, most of them on the lee side of the surveyed zone (see figures 4.17 and 4.18). Farther west there were half a dozen iron anchors and parts of composite lead and wood anchors (figure 4.18). The composite anchors can be confidently dated to the third to first centuries B.C. Of the iron anchors in figure 4.18, IRA-04 is of late Roman date, IRA-03 is Byzantine, and IRA-06 is a medieval Islamic type which came into use just before the Crusader period (and is still in use today). Other iron anchors were found partially broken or covered with heavy marine encrustation. Two of them are medieval or later in date (IRA-01 and 02) and one (IRA-05) is probably Byzantine.

Five of the better preserved stone anchors were recovered and drawn. Their dating is more problematic due to the fact that such anchors were in use for thousands of years without clear typological changes. SA-01 (shown in figure 4.16) probably dates to the Late Bronze Age; SA-02 and SA-03 can be tentatively dated to the Iron Age, probably not later than 600 B.C.

During the survey of the submerged rampart in Grid 151, eight additional stone anchors were located. Three that were in proximity to one another were lifted (see figure 4.19). They seem to be of Phoenician type; that is, with rectangular pierced holes, datable to the ninth or eighth century B.C. Of the others still in the sea, at least one is of Bronze Age type (figure 4.20). An additional three-hole stone anchor of Phoenician type was salvaged from the sea bottom at the north part of the site.

Area B (see figure 4.1) is the sea bottom southwest of the public beach. Although nothing important was found on the rocky bottom or in the area around it, many stone artifacts were located on the lee side in shallow waters, just beyond the present waterline. The main discovery is a cargo of dismantled olive oil presses. There are several dozen millstones made of basalt and other stone objects from oil presses, scattered over an area of about 50 × 20 m along the beach (figures 4.21–25). The typology of these artifacts suggests the Roman period, but such millstones were in use all through the Byzantine and early Islamic eras.

Some 150 m south of this cargo and in shallows near the shore are some Roman columns and two parallel walls in 1.5 m of water (figures 4.26–28). Unfortunately, they were covered by sand when we came back to survey them in September. The two walls are oriented north-south, lying obliquely to the present coastline. They are some 10 m apart, built of rubble courses, and there are remnants of what might have been a rubble floor next to the western one. No potsherds were found in context with them, so their date is unknown.

During the last day of our underwater survey in September, the area west of the northernmost part of the site was surveyed. There we had traced during the winter a pier or rampart made of Roman columns (in secondary use) which is a submerged continuation of the northern city wall of the Crusader period. In September we found most of these columns buried under the sand. Yet the sea bottom farther west had much less sandy coverage than usual. There, some 80–110

m offshore, in a depth of 3–5 m and on a very irregular rocky sea bottom, we discovered what appears to be a cargo of architectural fragments and other heavy stone-made items. There are marble and porphyritic columns, at least two of which have typical Egyptian papyrus capitals. Other stones, of various sizes, are flat slabs with one semicircular end opposite a squared one. They appear to be stelae.

All of these artifacts are much eroded on their upper sides and cemented to the sea bottom. We were able to remove only one item: the headless statue of a life-size male figure done in typical Egyptian style with the left leg striding forward and the arms held down along the hips (see figures 4.29 and 4.30). This statue probably dates to the Iron Age; it is described in more detail below in chapter 33.

SA-01   **SA-02**   **SA-03**

0   50 cm
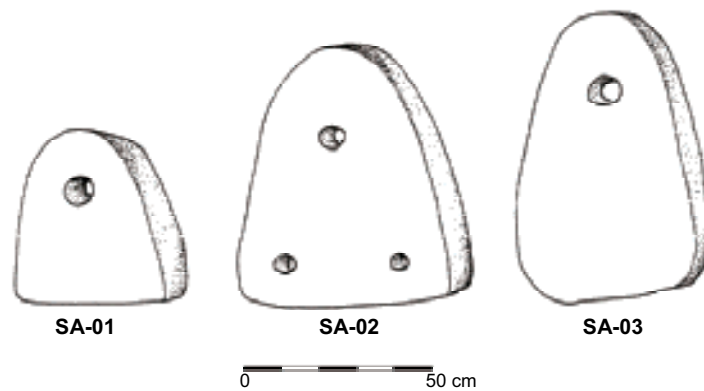
Figure 4.16: Stone anchors (SA-01, SA-02, SA-03) from Area A, Grid 116

Figure 4.17: Stone anchor SA-01 *in situ* on the sea bottom in Area A, Grid 116
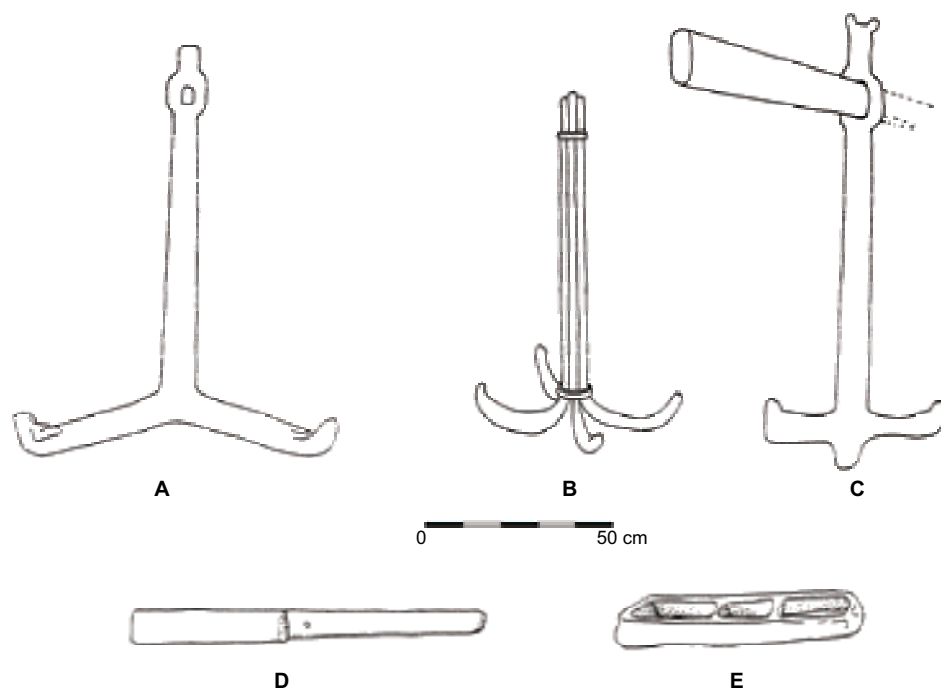
Figure 4.18: Iron anchors and composite lead-and-wood anchors from Area A, Grid 117

A Byzantine iron anchor (IRA-03). **B** Medieval(?) grapnel iron anchor (IRA-06). **C** Roman iron anchor (IRA-04). **D** Lead stock of a composite lead-and-wood anchor (Hellenistic–Roman?). **E** Lead ensemble piece of a composite lead-and-wood anchor (Hellenistic–Roman).

Figure 4.19: Three stone anchors (SA-08, SA-09, SA-10) from Grid 147
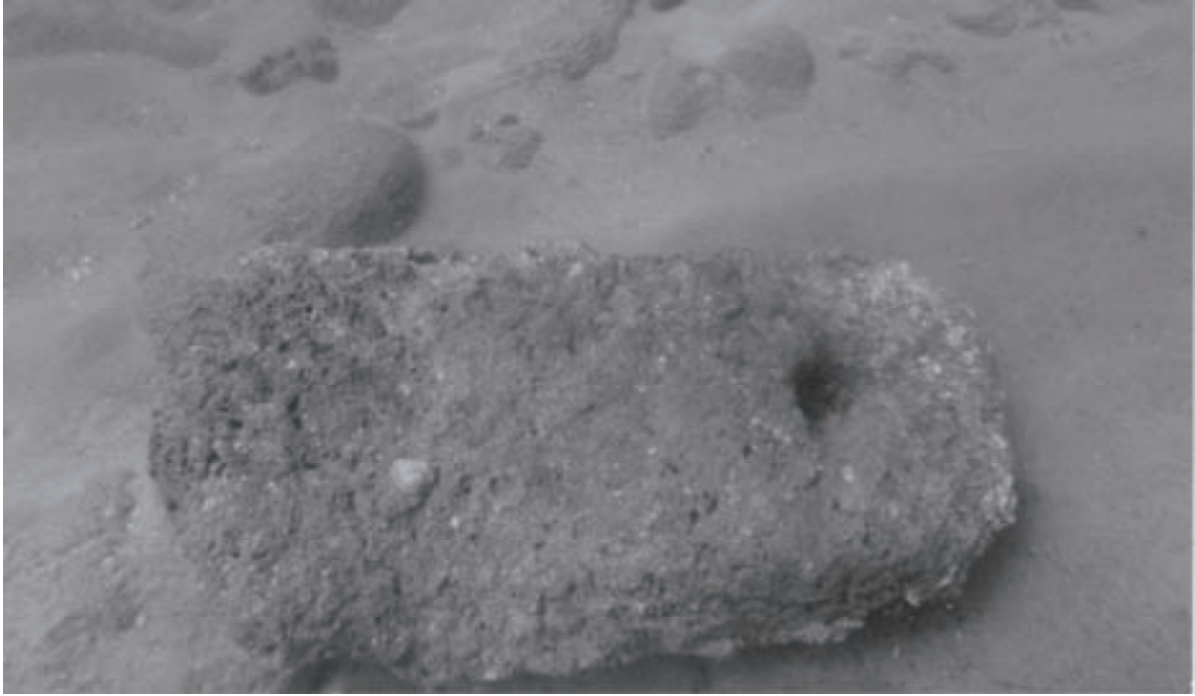
Figure 4.20: Stone anchor SA-07 *in situ* on the sea bottom in Grid 152

Figures 4.21–24: Olive-press components *in situ* on the sea bottom in Grid 36
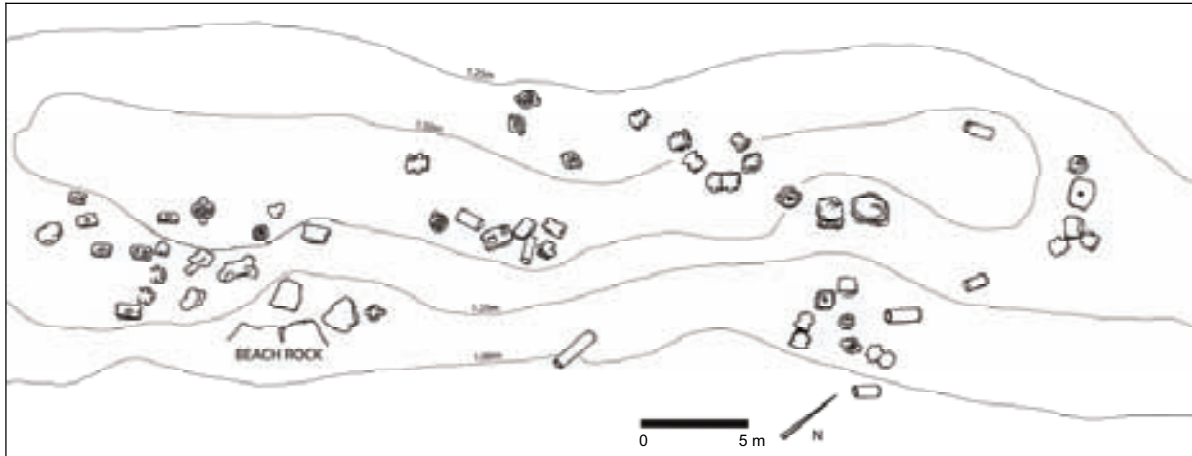
Figure 4.25: Plan showing millstones and other olive-press components lying offshore in Grid 36

Figure 4.26: A Roman column lying in shallow water in Grid 43

Figure 4.27: A rubble wall(?) just offshore in Grid 43

Figure 4.28: Parallel rubble wall with adjacent floor(?) in Grid 43
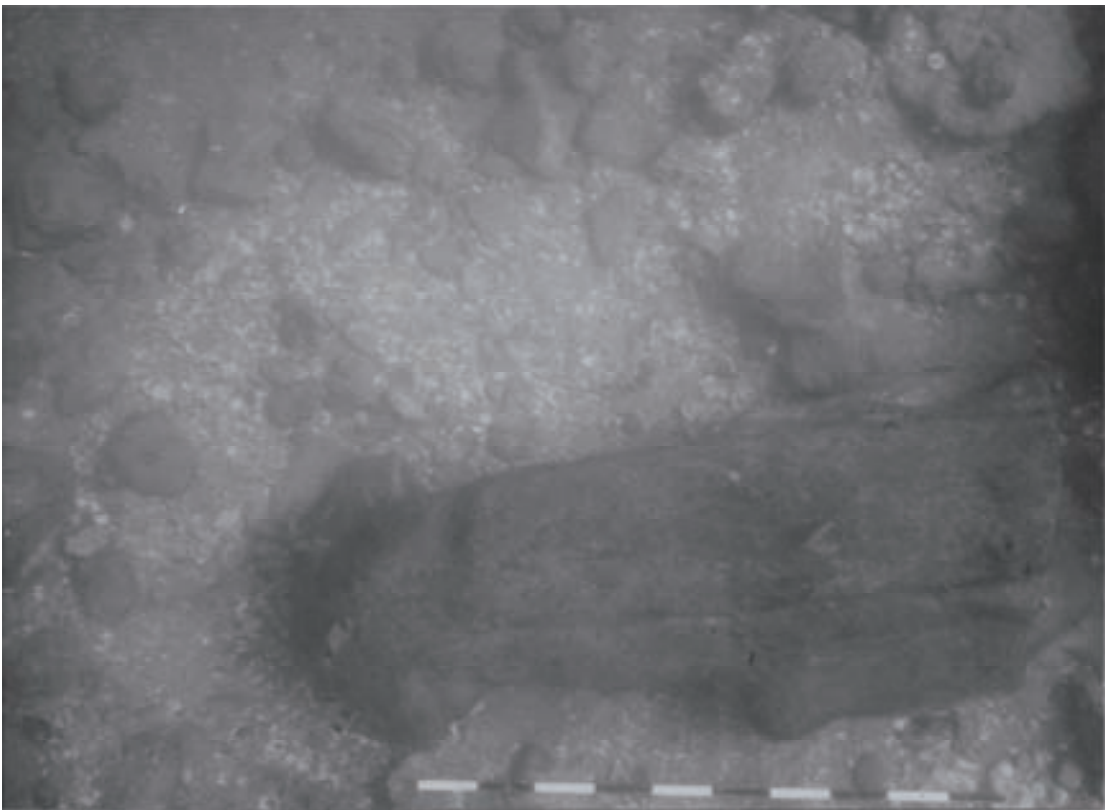
Figures 4.29 and 4.30: Lower half of life-size Egyptian-style statue, *in situ* on the sea bottom in Grid 101

The 1986 season at Ashkelon was disappointing for underwater work. After a calm winter with almost no storms, the sand coverage over most of the beach and on the inshore sea bottom increased by as much as one meter along the north half of the tell. It was thus impractical to continue any survey and research work in the area where the Egyptian-style statue was found in September 1985. An underwater survey along other areas of the sea bottom proved uninformative for the same reason. The completion of the geomorphological survey therefore became the main aim of our 1986 season. The underwater survey was postponed until a better sea-floor exposure might occur. In order to take advantage of any temporary exposure that might arise, we visited the site once a month to conduct a snorkeling and scuba diving survey.

The May 1985 survey of the sea bottom and the beach beside the site and as far as 500 m offshore was carried out using an ORE sub-bottom profiler and recording echosounder, complemented by a visual survey by divers and subsurface profiling of the beach and shallow waters with manual water-jet probes. As mentioned above, two detailed maps were made from the computerized data collected during these combined surveys:

1. A bathymetric map with isobaths every 0.25 m, shown above in figure 4.2.

2. A sub-bottom map showing the topography of the rocky formations only, shown above in figure 4.3.

The first map is a topographically correct representation of the data of the survey, but the second is more helpful for the visual underwater survey and for detecting ancient coastlines, sea levels, and recent tectonic activities. The ORE survey was limited to the demarcation of consolidated (rocky) and nonconsolidated (mostly sand) layers. The distinction between natural bedrock and agglomerated or conglomerated debris must be made visually by divers who have some training in detecting such features.

A Possible Submerged Coastline

Abrasive shelves are natural to a few coasts in the southeastern and southwestern Mediterranean. A combination of water temperature suitable for the *vermetides*, weather arid enough for evaporation of dissolved rocks, a coastal ridge of sandstone type (aeolianite), and an abundance of wave-carried sand and tideless waters facilitates the creation of rocky platforms horizontally leveled to the intertidal eleva-

tion. Being partially organogenic, these platforms are rapidly eroded and decomposed, offsetting (lower or higher) their natural level, which can change according to alterations in the land-sea relation. Thus, while abrasive shelves are prominent features along the coast at present sea level, it is rare to find traces of submerged or uplifted ones.

Yet the visual underwater survey that was carried out during late August and early September 1986 seems to verify what might be deduced from the sub-bottom maps; that is, that many rocky exposures now underwater west of the site of Ashkelon were leveled at some time in the past. Characteristic of such a leveled surface is its nonconformity with the dip of the interbedded and crossbedded aeolianites. Moreover, careful study of these leveled surfaces shows that their elevation is almost always 3.5–4.5 m below present sea level. These features indicate remnants of a now submerged coastline.

In a few cases, it appears that some man-made building materials have become conglomerated to the natural bedrock of the abraded platform. Full confirmation of this would be proof that the submergence took place after the site was already settled. It is important to note in this regard that not a single artifact has so far been found in the sea near Ashkelon that can be securely dated earlier than the seventh or eighth century B.C. (the one stone anchor, SA-01, discussed above, that was thought to be from the Late Bronze Age might well be dated much later). This absence of pre-first millennium B.C. artifacts gives a *terminus post quem* for the submergence of the coastline. In addition, the relatively well preserved state of the abraded platforms suggests that their submergence was sudden and not gradual.

The topographic map of rocky formations west of Ashkelon, shown above in figure 4.3, indicates what might be another deeper coastline at about 7–8 m below the present sea level west of the southern part of the site (see figure 4.31 below). This submerged coastline, if such it is, may well have formed the western edge of a drowned valley, draining both Wadi Ibrahim and Wadi Wassit, in the low-lying area in the middle of the site of Ashkelon, under what is now the main parking lot of the national park. Unfortunately, a detailed survey of the bottom of this submerged valley is hampered by the heavy fill of sand which now silts it up almost completely.

There are indications of a third, almost horizontal, rocky platform at the base of the parking lot and along the sides of other now-filled geomorphological hollows on land. This "uplifted" horizon (ca. 4 m A.M.S.L.) is more complicated in structure and topography and is far from being fully understood.
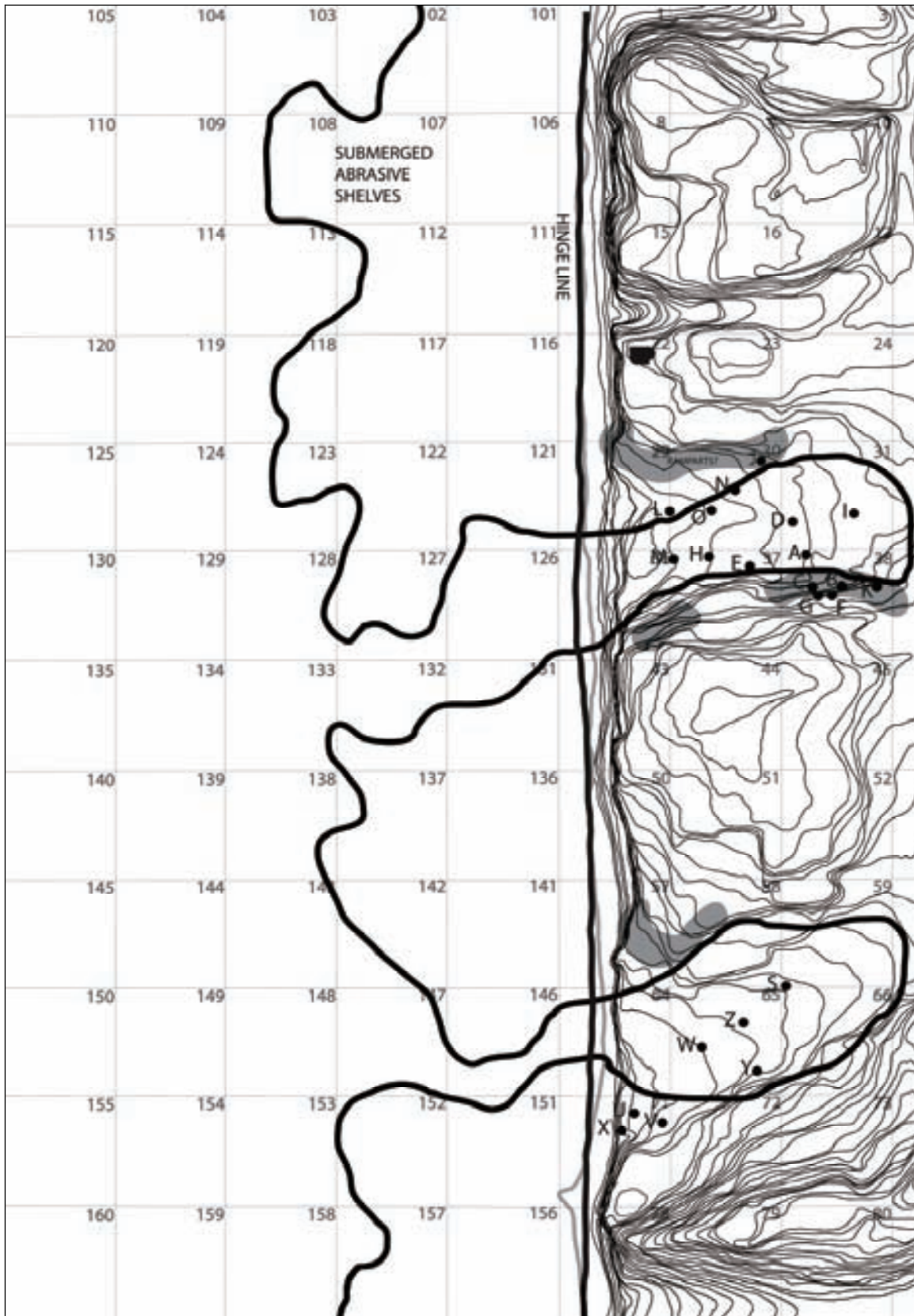
Figure 4.31: Tentative reconstruction of the coastline of Ashkelon prior to the fifth century B.C.

Two Kurkar Types

The study of the coastal cliff revealed two types of bedrock. The lower is a typical crossbedded aeolianite (fossil dune) whose surface forms eroded slopes. The topographic hollows of this rocky formation were later filled by rather coarse sand, which is now partially calcified. It is a different type of *kurkar*, which seems to have a leveled surface at an elevation of 4–6 m A.M.S.L.

While the basically horizontal top of this *kurkar* can be easily distinguished at the exposure of the cliff north of the present-day public beach, it is more difficult to detect in core samples. The material from those probes is still being studied, and although it seems that there are some potsherds within the later *kurkar*, this needs verification. The problem is to find a conclusive method of isolating and distinguishing this *kurkar* from overlying less consolidated sand. Our initial impression is that the later *kurkar* is of historical date, probably from the third millennium B.C. If this is the case, one might posit a rising sea with the marine transgression peaking some time toward the end of the third millennium.

The later *kurkar*, or "recent sandstone," which is characterized by its uniform texture of coarse sand with random inclusions of carbonates and no inter-bedding, is not found underwater. Furthermore, it contains very few seashells. In some core samples it was found to be superimposed by a less consolidated but similar type of material mixed with pottery from as late as the Hellenistic period.

Core Samples on Land

In order to reconstruct the ancient topography of the site, a series of core holes were drilled in selected areas. The cores were made using a truck-mounted drill with a 40-cm-diameter bit, wide enough for salvaging pottery samples but unsuitable for taking clean, fine core samples or for drilling through waterlogged, nonconsolidated layers of sand (see figure 4.39). For that reason, most of the core holes reached no deeper than just below the water table. Careful records of alternating stratigraphic layers and their elevations were made during the drilling process, and samples of sediments and pottery sherds were collected from the various strata in each hole. The column sections of the seven groups of cores are presented below in figures 4.32–38.

Cores were drilled in three different areas of the site, each of which seems to be a recently filled natural topographic hollow. The main goal was to discover whether these hollows had been flooded by

the sea at some point since the site was first settled, and if so, for how long.

1. The Parking Area: Core Groups I–V

This low, rather flat area divides the site into two separate mounds (called here the "North Tell" and "South Tell"). It extends over 200 m east-west from the beach landward, and about 100 m from north to south. In recent centuries the area was extensively terraced for gardens and orchards. Fifteen cores were drilled here in Grids 30, 31, and 37 (Cores A–E and H–K) and in nearby excavated areas in Grid 38 (Cores F and G).

At the southern end of the hollow, next to the excavated area, the "recent sandstone" is up to 2 m above M.S.L., and in two cases it seems to contain pottery sherds (Cores C, E). In three places (Cores C, F, G) it seems that there is a loam rampart on top of the *kurkar*, at elevations of 6.4–3.2 m (Core C), 7.5–4.7 m (Core F), and 6.0–2.8 m (Core G). LB II sherds were found on top of the rampart and some MB II pottery was found in it (Core F) or underneath it, at 3.7 m A.M.S.L. (Core G). On top of the rampart—and elsewhere away from it, on top of a layer of dunal sand—there is a layer of interbedded mud and sand, a seasonal fill not produced by human intervention. Above this characteristic layer the sediments are more sandy, of aeolian type, mixed with Persian and Hellenistic pottery sherds. There is no clear stratigraphy between the sherds of the two historical periods and it seems that they accumulated in the hollow during or soon after the later phase of the Hellenistic era. The topographic base for these sherds is at 0.6 m A.M.S.L. on the northern side of the parking lot (Core L), 2.2 m on the west (Core M), and 0.8 m on the southwest (Core E), directly above the LB II levels at 10 m A.M.S.L. (Core F). At the foot of the rampart they are at 4 m (Core B), they are absent from the center of the hollow (Cores J, D, N, O), and at they are at 6.25 m at the southern end (Core K). On the northeast side of the hollow (Core N) at the same stratigraphic level are waterworn LB II/Iron I sherds, 5–4 m A.M.S.L. The distinction between the Roman and Byzantine levels is not clear at any location in the area, nor is there a clear transition from Byzantine to Islamic levels. The general impression is that this was a zone of dark garden soil with some buildings of heavily mortared sandstone scattered about, from sometime in the Roman era until postmedieval times.

The main part of the parking lot seems to be situated on top of a rather even, gradually seaward-sloping surface of "recent sandstone," dissected by a

northward flowing ravine that was already there in the Hellenistic era. The base of this ravine is only 2 m A.M.S.L. at the southern end of the parking lot, some 300 m from the present shoreline (Core K), flowing north-northwest, dropping to 1 m A.M.S.L. at the northern end, some 90 m from the shore (Core L). The discovery of evidence for this buried ravine, the rampart, and the finding of an MB II sherd in Core F at 3 m A.M.S.L. might indicate that the ravine predates the Middle Bronze Age.

2. The Southern Hollow (Wadi Ibrahim): Core Group VI

Seven probes were made along a long, narrow hollow which leads from Bir Ibrahim westward to the sea, a distance of some 350 m. This hollow appears to have been more than 100 m wide originally, but recent land reclamation carried out by the Parks Authority has disguised its earlier features. The line of probes started near the shore next to the upper end of the road descending to the beach (Core X) and ended 200 m inland (Core S). Six holes were made along this line, and one (Core Y), was made farther south, at the foot of the inner slope of the city.

Only the last core (Core Y) reached "bedrock." Core X, the one closest to the sea, recovered some LB II and Iron I sherds from a level of dark mud more than 2 m below M.S.L. A Persian-period brick structure rose from just this level to about 1 m below M.S.L. (Cores X, U). Further inland, Persian-period sherds were found at -1 m (Core V), 1 m (Core W), 1.8 m (Core Z), and 4.6 m (Core S) A.M.S.L. On the southern slope (Core Y), Persian-period sherds were found directly on top of the *kurkar*, at about 4 m A.M.S.L. All the samples contained layers of sand mixed with some clay, shells, broken brick structures, and a very few heavily eroded sherds, possibly of the Persian period. Only the eastern core (Core S) went through a stone structure (at 2.0 m A.M.S.L.) and a mudbrick structure (1.0 m A.M.S.L.), both dating to the late Iron Age. At the bottom of Core S, around mean sea level in sandy layers, there were some LB II and Iron I sherds.

Based on these data, it seems that until at least the fifth century B.C. there was a topographic hollow in this area, open to the sea, which, according to its present relative level, reached as far as 200 m inland (see the tentative reconstruction of the coastline, as it might have appeared before 500 B.C., in figure 4.31).

It is also clear that there were LB II and Iron I structures next to the western (seaward) opening of this inlet, and probably all around it. For the time being, this is the most likely spot in which to seek the Canaanite and Philistine inner harbor of Ashkelon.

3. Grid 120: Core Group VII

The discovery of Hellenistic-period burials near the shore a few hundred meters south of the main site (in Grid 120) prompted a survey of a third hollowed area. This low ground is among the dunes some 200–300 m south and beyond the walled area of Ashkelon. Remnants of orchards and groves indicate recent cultivation using shallow ground water for irrigation. In this area there are also rectangular hollows artificially cleared in the dunal sand for *muatsi*s.

The first hole was drilled in the easternmost of these old *muatsi*s, almost 700 m inland from the shore, elevation 7.6 m A.M.S.L. Most of the stratigraphic sequence there indicates human use of the land, probably for agricultural purposes in view of the fact that the soil is rich in clay and organic residues. The main part of the section contains Hellenistic pottery, with Roman and Byzantine sherds higher in the sequence. The Hellenistic phase is more sandy, however, or even dunal, suggesting that this area was not used for agriculture during that period.

The second core was made about 100 m farther southwest, to the south of the recently made road. The main part of this section, from its top 6.2–2.5 m A.M.S.L., consists of alternate coastal depositions (sand and shells) and Byzantine occupational debris (more clayey with more pottery sherds). What appears to be "recent sandstone" rises 1.2 m A.M.S.L.

The third hole was drilled along the road some 300 m farther west (350 m from the shore). It has a section much like that in the first hole yet more clayey. There are two dunal interbedded fills: one between the Islamic and Byzantine phases (6.7–5.7 m A.M.S.L.) and one in the late Roman phase (3.9–1.9 m A.M.S.L.). Roman (and some Hellenistic) sherds are to be found all the way down to the present sea level within layers of heavy mud, loam, and sandy clay. It seems that the area was inundated by fresh or brackish water. In later times, a watercourse may have been open to the sea in this spot, which perhaps served as an anchorage or a landing area for small vessels used to load and unload larger ships offshore.

GROUP I

Figure 4.32: Column sections of core holes drilled in the site (Group I)
Scale on left indicates meters above mean sea level.

GROUP II

Figure 4.33: Column sections of core holes drilled in the site (Group II)
Scale on left indicates meters above mean sea level.

Figure 4.34: Column sections of core holes drilled in the site (Group III)
Scale on left indicates meters above mean sea level.

Figure 4.35: Column sections of core holes drilled in the site (Group IV)
Scale on left indicates meters above mean sea level.

Figure 4.36: Column sections of core holes drilled in the site (Group V)
Scale on left indicates meters above mean sea level.

Figure 4.37: Column sections of core holes drilled in the site (Group VI)
Scale on left indicates meters above mean sea level.

GROUP VII

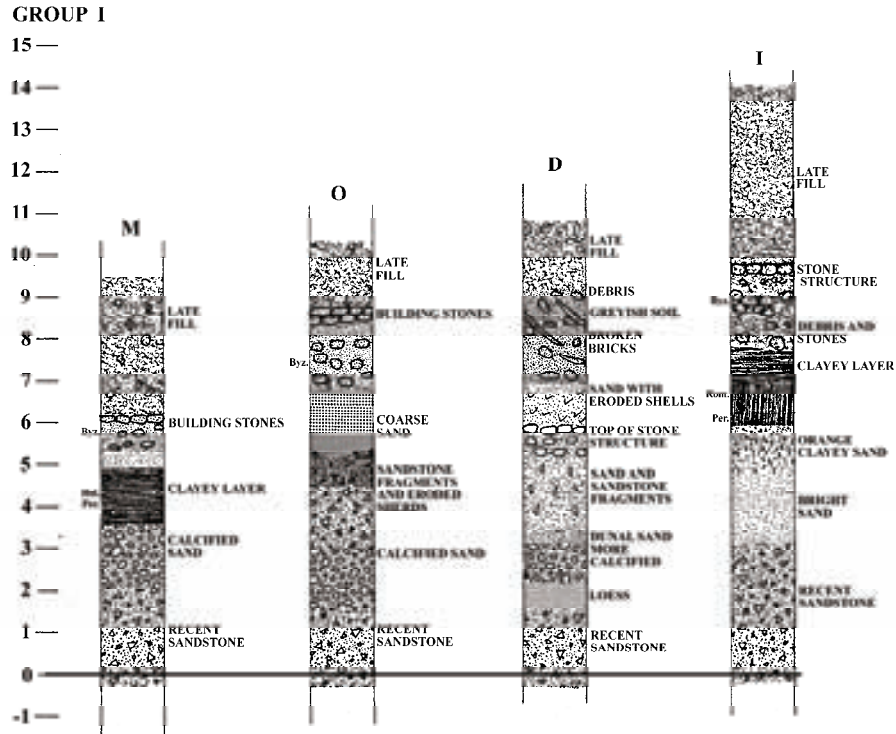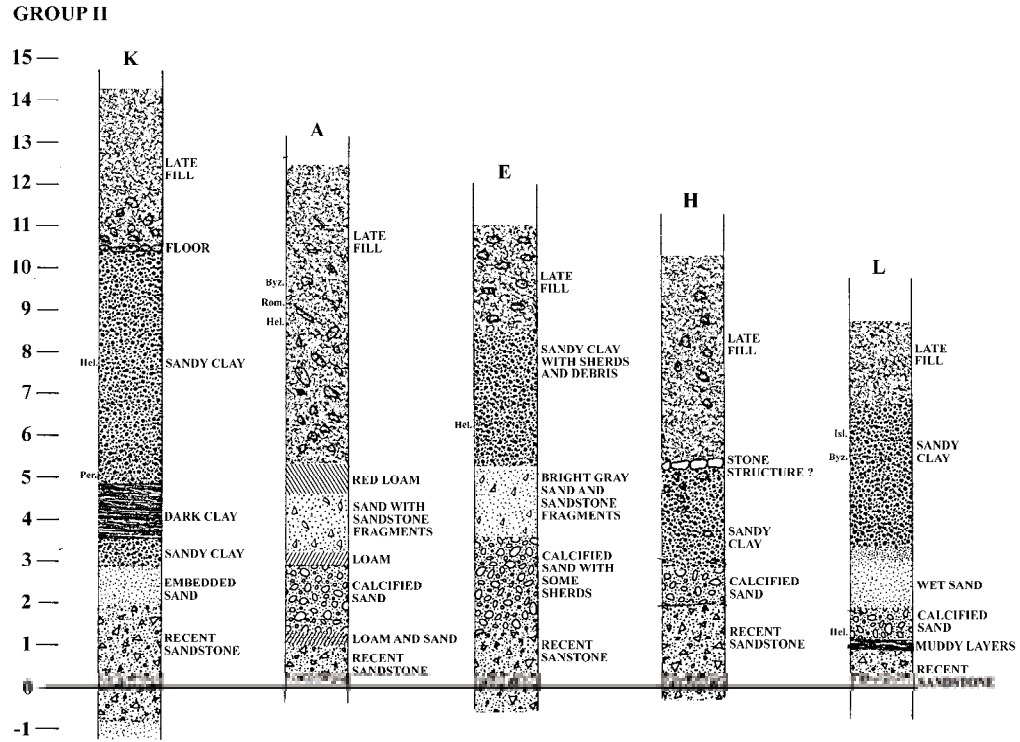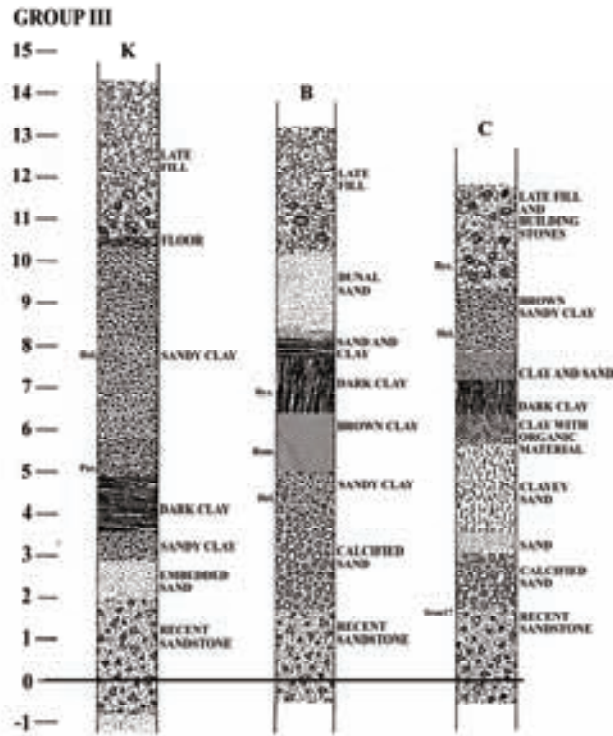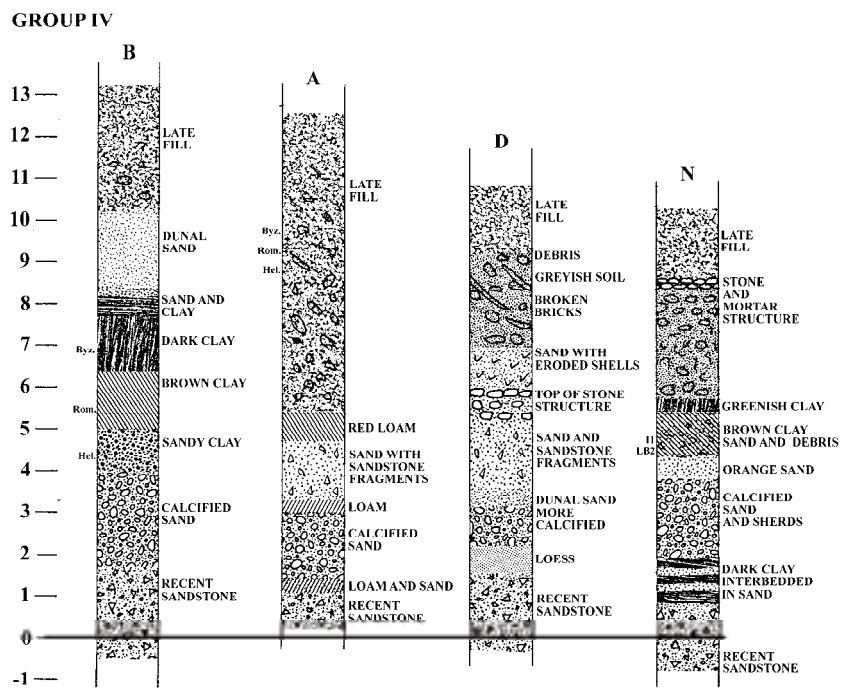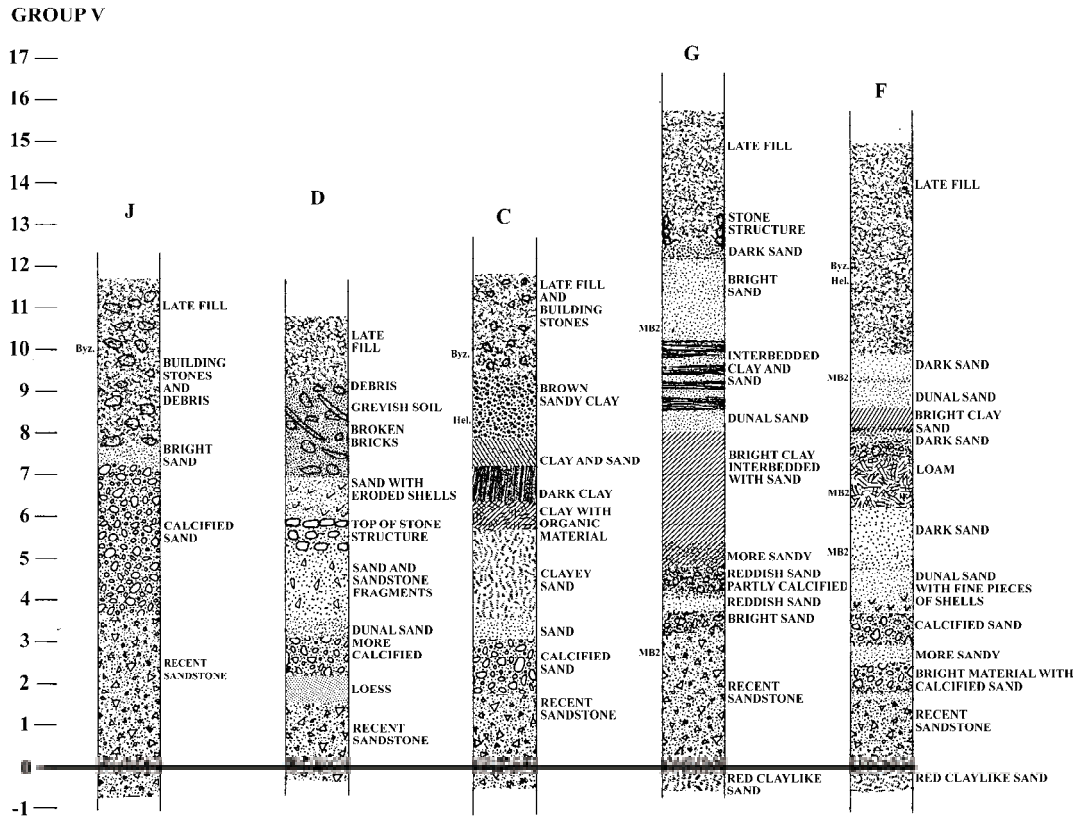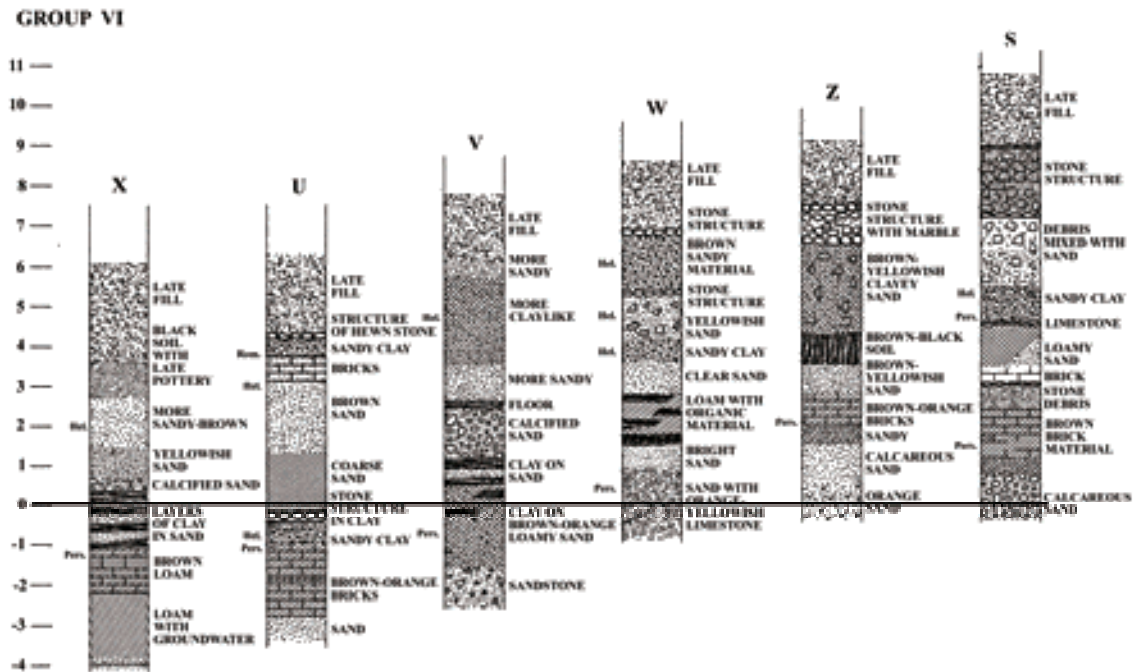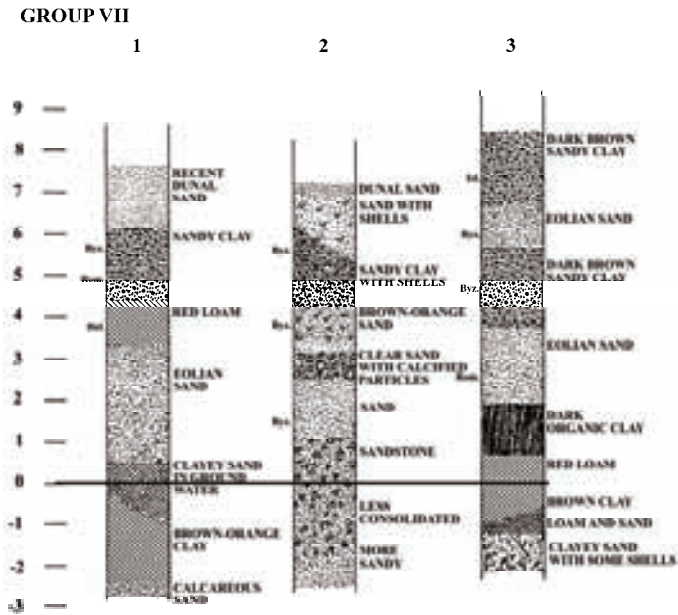*Figure 4.38:* Column sections of core holes drilled in the site (Group VII)
Scale on left indicates meters above mean sea level.

Figure 4.39: Equipment used for drilling core holes

The 1986 Underwater Survey

In 1986 the underwater survey was expanded to the area west of the Hellenistic burials south of the tell (Grid 120) and to the vicinity of the drowned valley west of the outlet of the Wadi Ibrahim. A nice collection of broken amphorae and other pottery was salvaged, all of which dated to the Persian period and later. We can infer from these finds that maritime activity at Ashkelon was not confined to the present limits of the site, at least since the Hellenistic era, but extended much farther to the south and to the north. This suggests moorings and anchorages in open waters rather than a well-protected harbor.

Summary

The data gathered during 1986 give us the first notion of the paleotopography of Ashkelon and the nearby shore. There are indications that it was quite different from the present topography; circumstantial evidence suggests changing land-sea relations in antiquity. Further study of the exact nature of these changes is necessary before we can determine whether there have been recent tectonic movements, what caused the differences in type and volume of sedimentation, and what was the exact configuration in the coastline in successive historical periods. More specifically, further research should involve:

1. Calibrating and dating the offset abrasive shelves.

2. Searching for material evidence of maritime activity and marine installations at Ashkelon prior to the Persian period in deeper water away from the present coastline.

3. Investigating the oldest man-made structures visible on the shore, which are located next to the opening of Wadi Ibrahim above the present beach.

4. Detecting the configuration and character of the bedrock and the human occupation just on top of it at the northwest corner of the parking lot and the nearby coastal cliff.

5. Continuing the underwater survey when the sea surge creates new exposures of the sea bottom, in order to complete the study of the "Statue's Wreck" in Area C and other potential shipwreck sites.

6. Collecting faunal remains from the land and sea as indicative data for better establishing ancient land-sea relations.

7. Fully processing the available samples of pottery sherd and sediments through various laboratory studies in order to extract as much relevant information as can be gained from them.

THIRD SEASON: 1987

The 1987 season of underwater work off Ashkelon was a brief one, lasting only one week. The wave-borne sand on the sea bottom had again covered most of the interesting submerged features, both natural and manmade. This was true for most of the inshore shallows along the site and also for the sea bottom further away, except for the area opposite the northern extremity of the site (Area C). For this reason, underwater work was carried out only in this area, from which the large Egyptian-style statue was recovered in 1985.

Area C is a rocky exposure some 50–100 m offshore. The actual bedrock is of leveled (abraded) crossbedded *kurkar* (aeolianite) at about 4.5–3.8 m below sea level. From that base there are some residual outcrops that rise as high as 2.3–3.2 m below sea level. Among those outcrops there are many large stone blocks and architectural features. There are rectangular blocks of marble, some of which are well over 2 × 1 × 1 m in size and weigh several tons. There are also marble and granite column drums of considerable size. Other blocks are made of either limestone or sandstone and a few are made of basalt. An area of about 50 × 50 m is littered with building materials. Other items are stela-like stone pillars of various sizes and shapes.

Wave action, shifting sand, and marine fauna have caused extensive distortion of the original shape of the architectural members. Marble columns and architraves have been eroded by moving sand down to about half their original breadth, at the elevation of an average sandy floor; or else covered with additional encrustations of marine fauna up to 20–30 cm thick. The basalt stelae are less eroded, but in many cases are covered by marine encrustations, to the extent of becoming agglomerated to the original rocky outcrops.

It seems as though Area C is a place where one or more cargoes of building material was jettisoned, presumably when the vessel or vessels carrying it capsized. The earlier stelae might date as far back as the Middle Bronze Age, but the columns and the marble slabs are to be dated to the Roman or Byzantine periods.

In this area there were also a dozen stone anchors of various sizes and shapes. Some of the smaller pierced stone anchors (fishermens' anchors or net

weights) are probably quite recent in date. But the larger, better constructed stone anchors with two or three holes are clearly of ancient date.

The area was plotted by buoys and base lines, thus it was possible to complete a detailed survey of most of the better-defined artificial items. After the survey was completed, a dozen stelae, marble blocks, and column drums were dug out of the surrounding marine conglomerate and five were lifted and carried ashore. All of the stone anchors, except two which were too heavy to be lifted to the boat, were taken out as well.

The following is a list of the salvaged items, some of which are plotted below on figure 4.40:

Stelae (on none of these were found any inscribed features)

1. Basalt stela; rectangular base 50 × 50 cm; length 1.35 m.
2. Basalt stela like no. 1, but more eroded; base 48 × 30 cm and 47 cm high; total length 1.50 m.
3. Limestone pillar; base 40 × 40 cm; length 1.36 m.
4. Limestone stela or column drum; diameter 40 cm; length 1.10 m. A marble slab, badly eroded, lies at its lower side, measuring 1.6 × 0.6 m with a thickness > 30 cm.
5. Sandstone slab; base 40 × 55 cm; length 2.27 m.

Anchors

6. Dome-shaped rectangular stone of small size; base 18 cm; length 32 cm; thickness 11 cm; there is a single rectangular hole near the base.
7. Pierced stone disc; diameter 28 cm; thickness 10 cm.
8. Pierced stone disc; diameter 38 cm; thickness 20 cm.
9. Rounded stone with thick base and thin top, with single hole near the top; diameter 26 cm; prob. a recent Arab weight.
10. Double-hole rectangular stone anchor; 46 × 30 × 15 cm; probably one of a chain of anchors.
11. Flat pierced stone disc with a single hole; diameter 50 cm; thickness 3 cm at the edges.
12. Dome-shaped stone with single hole; 50 × 32 × 9 cm.
13. Irregular trapezoid-shaped stone with single hole; base width 51 cm; top width 32 cm; length 65 cm.
14. Double-hole rectangular stone, 41 × 29 × 10 cm.
15. Three-holed stone anchor, 55 × 30 × 12 cm. Salvaged from the sea opposite the public beach.
16. Irregular hemispheric single-holed anchor; base 47 cm; length 38 cm; thickness 10 cm.
17. Single-hole rectangular stone; 50 × 37 × 22 cm.
18. Iron anchor of late Roman shape; length 1.75 m; length of teeth is 50 cm.

Pottery

19. Neck of a trumpet-shaped Phoenician jug; preserved height 10 cm; mouth diameter 6 cm.
20. Part of an Iron II jar consisting of a shoulder, handle, and part of the body; preserved height 16 cm.
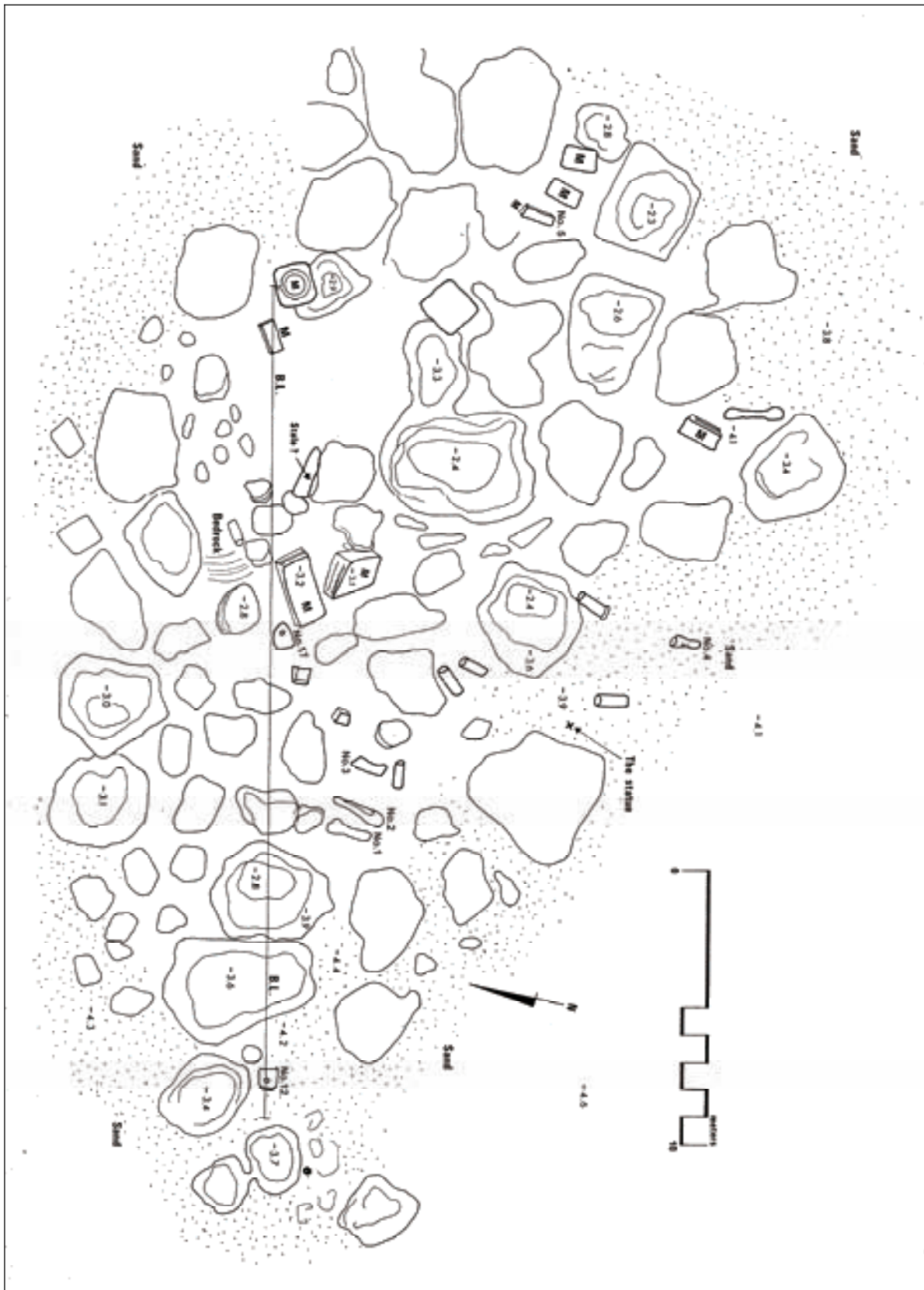21. Similar part of 5th-century B.C. Phoenician jar.

Figure 4.40: Findspots of stelae, anchors, and pottery retrieved from Area C (**M** indicates a marble stela)

Underwater Survey, 1996–1997 *by Shelley Wachsmann*

IN 1996 and 1997 a sidescan-sonar and diving survey was conducted in the Mediterranean Sea opposite the site of ancient Ashkelon, in the hope of locating a Bronze or Iron Age shipwreck. This was a combined project of the Institute of Nautical Archaeology (INA) at Texas A&M University, the Leon Levy Expedition to Ashkelon, and Haifa University's Recanati Centre for Maritime Studies (CMS). The 1996–1997 underwater survey was intended to supplement the detailed underwater survey directed by Avner Raban in 1985–1987, focusing in particular on the search for ancient shipwrecks, and making use of side-scan sonar to detect seabed anomalies that might represent shipwrecks.

A brief pilot survey using side-scan sonar was carried out in 1996. This revealed several interesting anomalies that called for further investigation, namely, visual examination by divers. A larger-scale project was therefore mounted in the autumn of 1997. A rectangle along the coastline ca. 10 × 5 km in size defined the maximum limits of the seabed search area (see figure 4.43). The 1997 expedition used the *Edval*, a 17-m motor sailing ship out of Haifa, as a base of operations (figure 4.41). A CMS Zodiac rubber boat served for diver retrieval and safety operations (figure 4.42).

The first part of the 1997 survey, from November 6th to 12th, consisted of a side-scan sonar search to a depth of 40 m. Jon Jolly of Jon Jolly, Inc., in Seattle, supplied and oversaw use of the Imagenex side-scan unit. Tony Petrillo served as navigator. The project employed INA's Trimble Differential GPS system. We recorded over 180 anomalies during the sonar survey (see the "Catalogue of Anomalies" below). Prior to initiating diving, we spent a week correlating these data.

During the second part of the survey, from November 18th to December 3rd, we carried out 76 dives to examine 65 anomalies, for a total diver bottom-time of 61 hours. The anomalies varied in depth from 4 to 37 m. Divers used either air or Nitrox, based on their dive profiles. Indeed, this project is noteworthy as being the first INA expedition ever to employ Nitrox.

The sea bottom, from the waterline to about 30 m below sea level, consists of sand, occasionally mixed with small bits of clay. Beyond 30 m, and to our maximum diving depth, however, the divers found that the seabed is covered by a very soft, almost gelatinous mud that, when disturbed, caused sudden and dramatic loss of visibility. Ridges of underwater *kurkar* reefs were found in several places.

Logistically, the project was virtually problem-free. Diver safety was a major concern, for at times we were diving to significant depths, up to 5 km from the coast, and occasionally in almost complete darkness. Despite this, we did not encounter a single diving-related problem. Our worst logistical problem was the breakdown of a SyQuest hard drive that resulted in the loss of some computer information.

On the other hand, the survey was disappointing archaeologically, because all of the anomalies that were examined by the project's divers proved to be either oddly shaped rocks or modern debris, with the exception of two modern shipwrecks. We raised a few broken pieces of pottery and a small stone anchor, the latter from near the tell of Ashkelon.

During the 1996 survey, the sonar detected a rock formation close to the tell whose shape suggested human activity in the form of artifical cuts (figure 4.44). This raised hopes that we had discovered Ashkelon's ancient harbor, which has long been sought by the Leon Levy Expedition. Although this particular rock formation was buried under sand at the time of the 1997 survey, its immediate vicinity was examined by divers, who determined that it was a natural formation (figure 4.45). Thus Ashkelon's harbor remains undiscovered.

Conclusions

There can be little doubt that there are ancient shipwrecks in the survey area, but if so, they are now buried so deeply under sea-bottom sediments that they are not detectable by sonar. This conclusion is supported by a recurring phenomenon in the area that has been noted by Ehud Galili (pers. comm.), former head of the Israel Antiquities Authority Marine Branch. According to Galili, local divers report finding amphoras of various periods lying intermingled on the western side of some of the *kurkar* reefs. Galili deduces, quite plausibly, that these amphoras were pulled from seabed sediments by trawler nets. Once free of these sediments, underwater currents push the amphoras shoreward, like tumbleweed, until the *kurkar* reefs stop them (see now also Galili et al. 2000).

To find shipwrecks in this type of coastal seabed is not feasible at the present time, even with the latest side-scan sonar. One may hope in the future for a three-dimensional bottom-penetrating sonar, or some

other form of electronic sensor that could sweep large areas of the subsurface seabed.

[EDITORS' NOTE: See also the discussion of Ehud Galili's underwater surveys, conducted near Ashkelon from 1992 to 1997, at the end of chapter 9 below.]

Figure 4.41: The *Edval* research vessel used in the 1997 offshore survey

Figure 4.42: Dive safety remained a constant concern; industrial buoys served as reference points from which tethered divers conducted circular survey patterns.
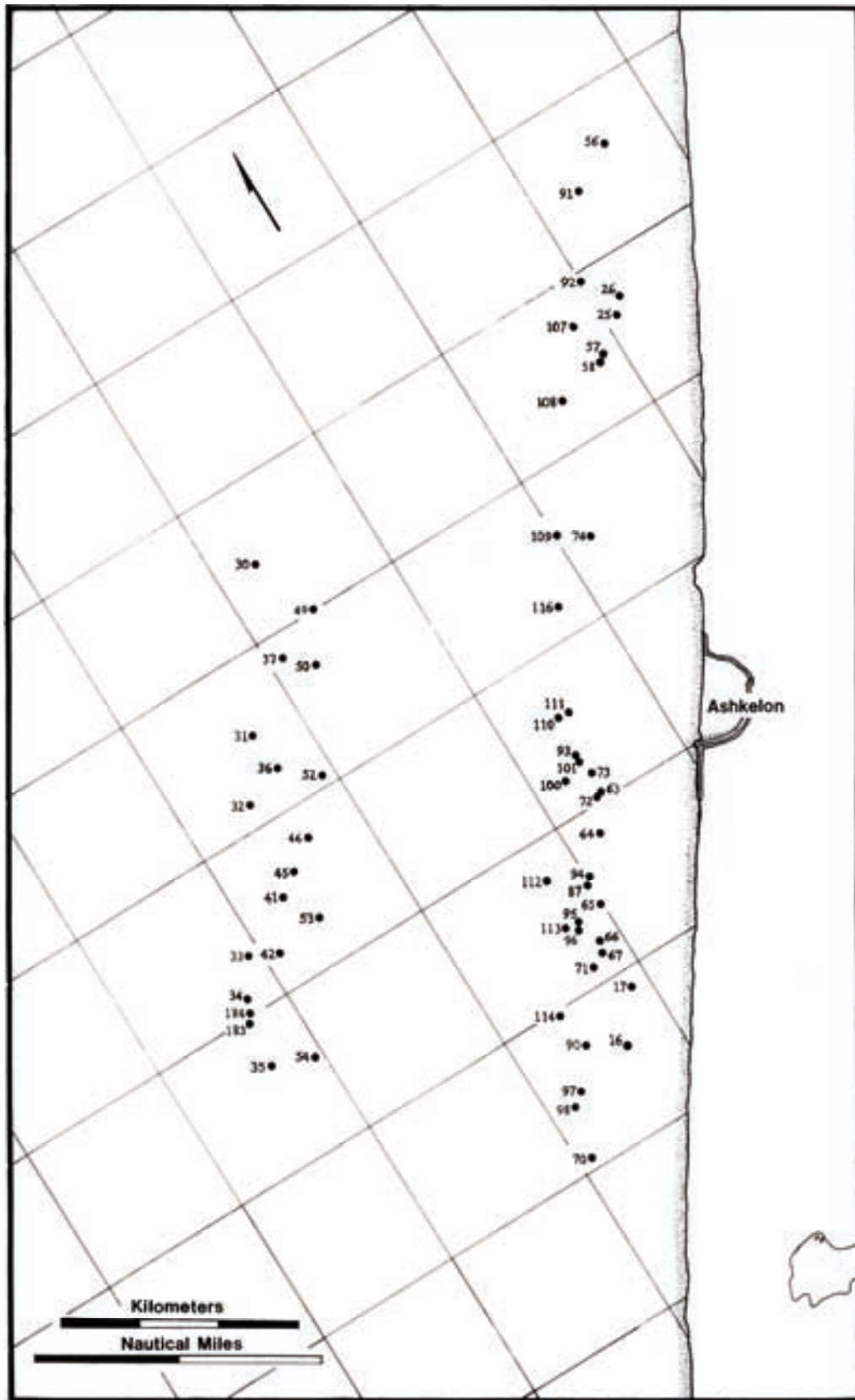
Figure 4.43: Map of sea bottom anomalies investigated by the 1996–1997 offshore survey
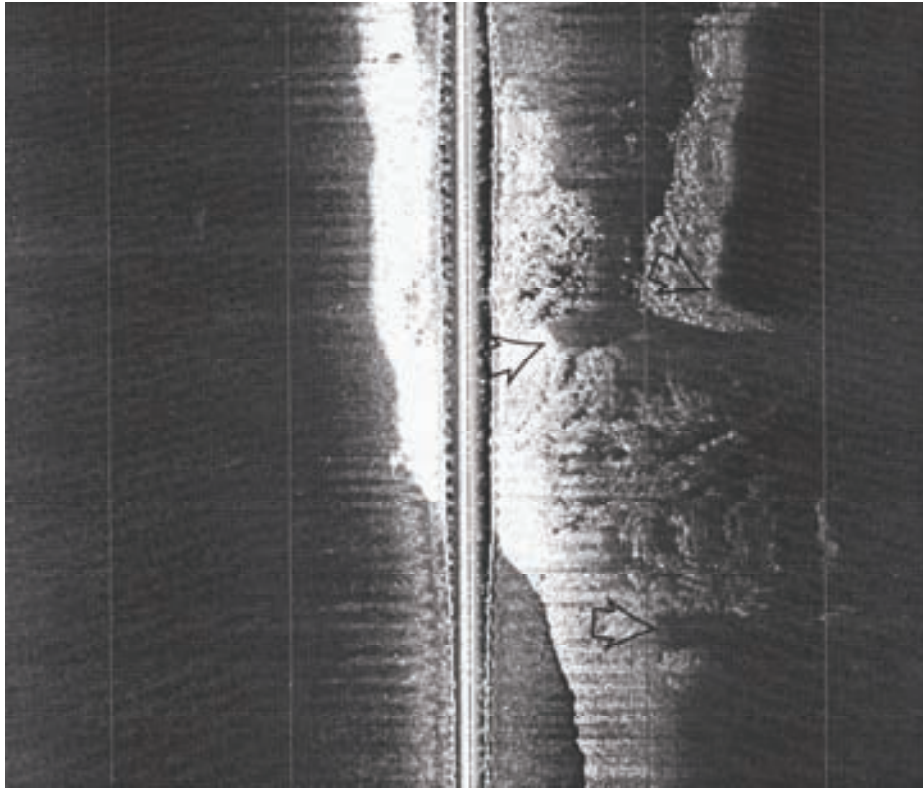
Figure 4.44: Sonar image showing possible artificial cuts made in the underwater *kurkar* ridge near Ashkelon

Figure 4.45: Visual examination by divers showed the apparent cutting to be a natural formation

5. SITE FORMATION

by Arlene Miller Rosen

ASHKELON, like many other Near Eastern sites, is a multiperiod ruin mound or "tell." Tell formation at a site of the size and longevity of Ashkelon is without question a very complex process. Large tells are formed over thousands of years as human constructional activity is countered by episodes of collapse, erosion, pitting, and natural sediment deposition (see Butzer 1982 and Rosen 1986a for general discussions of tell formation processes). Sometimes construction and collapse are mutually exclusive phases, but often they occur simultaneously, forming a jigsaw puzzle of different interlocking sediment types.

When a geoarchaeologist attempts to reconstruct the process of tell formation at a particular site, an important task is to recognize recurrent processes such as widespread building activity or the formation of extensive wind-blown deposits. In this case, it is useful to have large exposures to differentiate between localized and site-wide phenomena. The extensive exposure along the eroded sea cliff on the western side of the site of Ashkelon is of great benefit in studying tell formation there. Although a large portion of this cliff is mantled by colluvium, there are many clean exposures which reveal some of the earliest sediments at the site. Sample sections along the cliff were cleaned, described, and dated, allowing some preliminary conclusions about early tell formation history. This report will concentrate more on the natural than the cultural aspects of tell formation because the human activities which led to site expansion are discussed in considerable detail elsewhere.

Sediment Descriptions

The Ashkelon sea cliff (ASC) sections are described below. Sections were selected for description when they contained a sediment sequence datable to the earlier occupation levels. Spatial and stratigraphic relationships between them are illustrated in figures 5.1 and 5.2.

ASC-1

Unit 1: Tell sediment; lower boundary abrupt and irregular.

Unit 2: 100 cm thick, top of unit at ca. 6.20 m A.M.S.L.; water-deposited crossbedded sand and clay; dips down 9 degrees (North 13 degrees West) and 5 degrees (North 75 degrees East); lower boundary abrupt and irregular. *Context:* Channel deposit.

Unit 3: 70 cm thick; brown (7.5 YR 5/4, dry) sandy silt with massive structure; contains ca. 15% carbonate nodules. *Context:* Pleistocene (?) paleosol, equivalent to ASC-8, Unit 3.

Unit 4: Natural *kurkar*.

ASC-3

Unit 1: Tell sediment with Persian-period cultural material near the base; lower boundary irregular and abrupt.

Unit 2: 17 cm thick; light yellowish brown (10 YR 6/4, dry) fluvial sand and silt with thin (1–3 cm) dark grayish brown (10 YR 4/2, dry) clay lens above. Channel width approximately 1 m; sands are bedded toward the outer margins of the channel with massive structure in the center. Sands contain one sherd (possibly LB); lower boundary abrupt and irregular. *Context:* Small fluvial channel that probably resulted from a major flood event.

Unit 3: 63 cm thick; yellowish brown (10 YR 5/4, dry) silty sand with massive structure; includes 5% carbonate nodules (up to 0.5 cm diameter), crushed snail shells, 1-mm sherds, 1% charcoal fragments; lower boundary wavy and graded. *Context:* Alluvial (?) sand with cultural components.

Unit 4: 55 cm thick; ca. 3.25 m A.M.S.L.; brown (10 YR 5/3, dry) sandy silt and clay with massive structures at the top and laminated bedding in the bottom 30 cm; contains sherds (Chalcolithic, including a cornet base), *kurkar* fragments, land-snail shells and fragments, small charcoal pieces. *Context:* Chalcolithic alluvium, possibly backswamp and levee deposits.

Unit 5: 150 cm thick; yellowish brown (10 YR 5/4, dry) sandy silt paleosol with 10% carbonate nodules and orange oxidation streaks. *Context:* Pleistocene paleosol.

ASC-4

Unit 1: Tell sediment.

Unit 2: 40 cm thick; pale brown (10 YR 6/3, dry) laminated sand with grayish brown (10 YR 5/2, dry) clay lenses (equivalent in lithology to Unit 2 in ASC-3 and ASC-5); contains burned brick and a sherd; lower boundary abrupt and slightly wavy. *Context:* Historic period fluvial deposit.

Unit 3: 60 cm thick; top of unit is 9.85 m A.M.S.L.; yellow (10 YR 7/6, dry) sand with inclusions of *kurkar*, crushed land-snail shells, and very weathered Chalcolithic/EB sherds. *Context:* Chalcolithic/EB alluvial(?) sands.

ASC-5

Unit 1: Tell sediment composed of sand and *kurkar* fill; recemented, with occasional sherds; lower boundary smooth and abrupt. *Context:* Cultural debris associated with the medieval wall.

Unit 2: 100 cm thick, yellow (10 YR 7/6, dry) laminated water-laid deposits composed of bedded sands interspersed with clay lamina; cut-and-fill structures; includes crushed land-snail fragments, ripped-up clasts, one sherd and a secondary carbonate nodule horizon in the upper 25 cm; lower boundary abrupt and smooth. *Context:* Fluvial deposit, ca. 9.5 m above the present-day level.

Unit 3: 150 cm thick, yellowish brown (10 YR 5/4, dry) truncated sandy silt with 20% 2-cm carbonate nodules; includes some crushed snail shells; massive structure, lower boundary irregular and abrupt. *Context:* Dune sand.

Unit 4: Natural *kurkar*.

ASC-6

Unit 1: Tell sediment containing EB II sherds.

Unit 2: Upper boundary 6.05 m A.M.S.L.; dark brown (7.5 YR 4/4, dry) paleosol B-horizon on poorly sorted silty sand; blocky to columnar soil structure; contains carbonate flecks, Mn and oxidation stains. *Context:* Pre-EB paleosol.

ASC-7

Unit 1: Tell sediment; lower boundary abrupt and sloping down to the south.

Unit 2: 50–100 cm thick, upper boundary at 4.65 m A.M.S.L.; brown (10 YR 5/4, dry) medium to fine sandy soil with ca. 70% diffused carbonate concentrations in lower 50 cm; includes crushed snail shells; massive structure. *Context:* Pleistocene(?) paleosol.

Unit 3: Natural *kurkar*.

ASC-8

Unit 1: Tell sediment.

Unit 2: 40 cm thick, top of unit at 6.20 m A.M.S.L.; very pale brown (10 YR 7/4, dry) moderately well-sorted laminated fluvial sands alternating with occupation debris between sand episodes; includes brick collapse and sherds (LB). *Context:* Episodic runoff and channel flow dated to the LB.

Unit 3: 100 cm thick; brown (7.5 YR 5/4, dry), poorly sorted silty sand paleosol with carbonate flecks and 15% nodules (up to 2 cm in diameter), occasional crushed snail shells; blocky structure; abrupt irregular lower boundary.

Unit 4: 170-cm-thick exposure of natural *kurkar*.

Discussion

The bedrock underlying the site is the Pleistocene aeolianite known locally as *kurkar*. The topography of the *kurkar* is very irregular and shows many signs of dissection by ancient wadis (seasonal watercourses) draining to the sea. Above this are two distinct Pleistocene paleosols. The lowermost is a yellowish soil with a relatively smooth topography. This is not described above because it did not appear in the individual sections selected for description, but its stratigraphic relationship is illustrated below in figure 5.1. Above this is a reddish-brown Pleistocene paleosol (called *ḥamra*) with well-developed soil structure and secondary carbonates. The surface of this soil was markedly eroded and dissected by small channel cuts. Although there was no datable material within the *ḥamra*, its stratigraphic position beneath the Chalcolithic unit suggests that it may be the Epipalaeolithic "Netanya Ḥamra" defined by A. Horowitz (1979).

The next depositional phase occurs in the Chalcolithic period. This is dated in the sea-cliff section (ASC-3) by coarse-tempered sherds including a cornet base. The depositional context is alluvial. The sherds found within it testify to a Chalcolithic occupation in the vicinity. The sediments of this period are composed of bedded sands, sandy silts, and clayey mud. Similar deposits containing Chalcolithic/EB pottery were also seen in exposures south of the tell. These present a landscape picture which was depositional rather than erosional, consisting of wide, slow-moving streams and muddy backswamps. This is in keeping with evidence from similarly dated sediments upstream in Nahal Shiqma, Nahal Adorayim, and Nahal Lachish that suggests a moist period of increased wadi alluviation in the Chalcolithic and early EB periods (Goldberg and Rosen 1987; Rosen 1986c; Rosen 1989). If this is correct, it is reasonable to assume that the actual Chalcolithic settlement at Ashkelon would have been on higher ground.

The next stratigraphic phase consists of sporadic occurrences of dune sand containing MB II pottery. This was identified in Grid 38 (lower) as well as in a core from the base of the northern slope of the "South Tell." This unit does not exist as such in any of the ASC sections, with the possible exception of ASC-3, Unit 3. Here a sandy alluvial unit with cultural debris is sandwiched between a clear LB level above and a well-established Chalcolithic unit below, or else Unit 3 is simply an upper phase of the Chalcolithic

deposit, since its character is alluvial rather than dunal.

The succeeding unit is unusual and not easily explained. It consists of a number of exposures of bedded fine-grained fluvial deposits containing exclusively Late Bronze Age pottery (see figure 5.2). It probably reflects a phase of widespread flooding that seems to have affected most of the site. The runoff from the flooding formed channels to the sea and these deposits now appear in the sea cliff along almost the entire length of the site (figure 5.1). It is not clear whether this represents a single flood event or several phases of flooding. It cannot as yet be linked with an abandonment of the site until such evidence comes to light from future excavations. It does, however, imply the absence (or disrepair) of a sea-wall, permitting the water to run off to the sea-channels rather than ponding within a closed city. If, as at other sites in Canaan, the Middle Bronze Age fortifications were left unrepaired during the Late Bronze Age (presumably as a matter of Egyptian imperial policy), the sea-wall would have been the first to erode as a result of storms and wave action. This unit is covered by ashy occupation deposits.

The final readily identifiable incursion of natural sediment comes at the period of transition between Persian and Hellenistic rule at Ashkelon. Here there appears to be a widespread deposition of water-laid sand, possibly reworked from dune sand. This facies occurs in both Grid 38 (lower) and Grid 50. Again, it is unclear if this is related to an interval of abandonment in which streets and courtyards filled with natural deposits of sand, or resulted from a single catastrophic flood.

Conclusion

In this discussion of tell formation at Ashkelon an attempt has been made to give a general description of the major sediment phases that contributed to the physical bulk of the tell and also provide clues to past environments in the vicinity. This endeavor has necessarily been limited by the availability of naturally exposed sections. Future research on this subject will be able to take advantage of more vertical and horizontal exposures within the tell as the archaeological excavations progress.
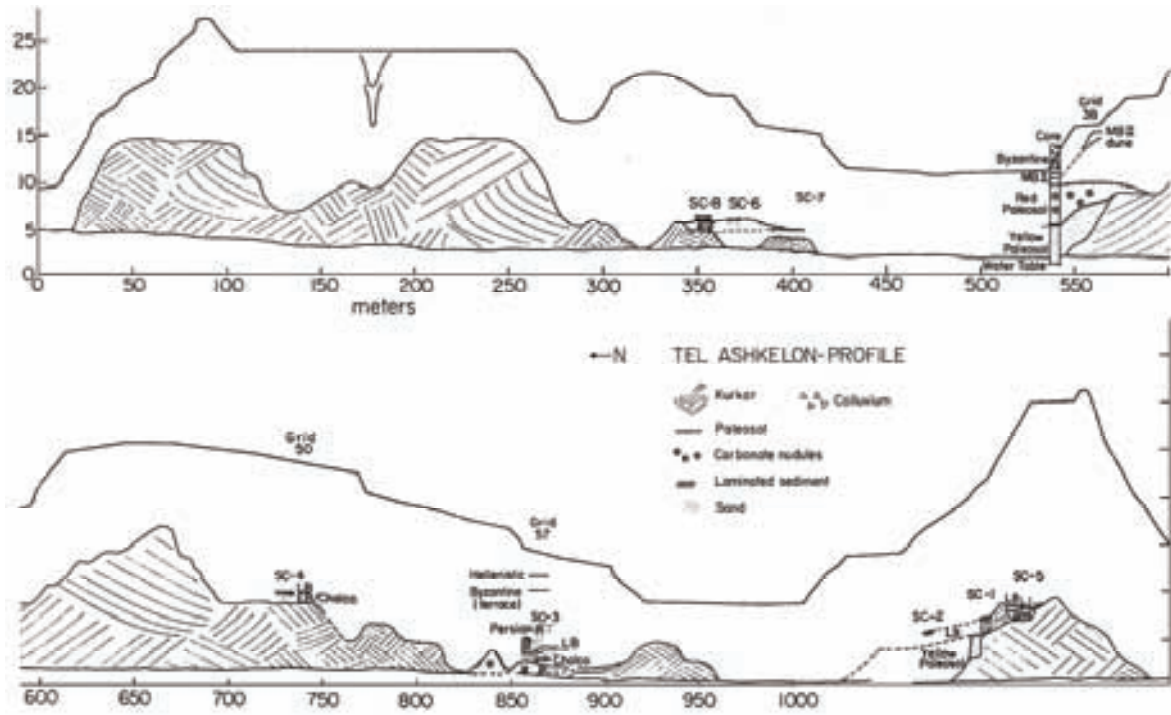
Figure 5.1: Longitudinal profile of the Ashkelon sea cliff (ASC) showing the locations of the sections
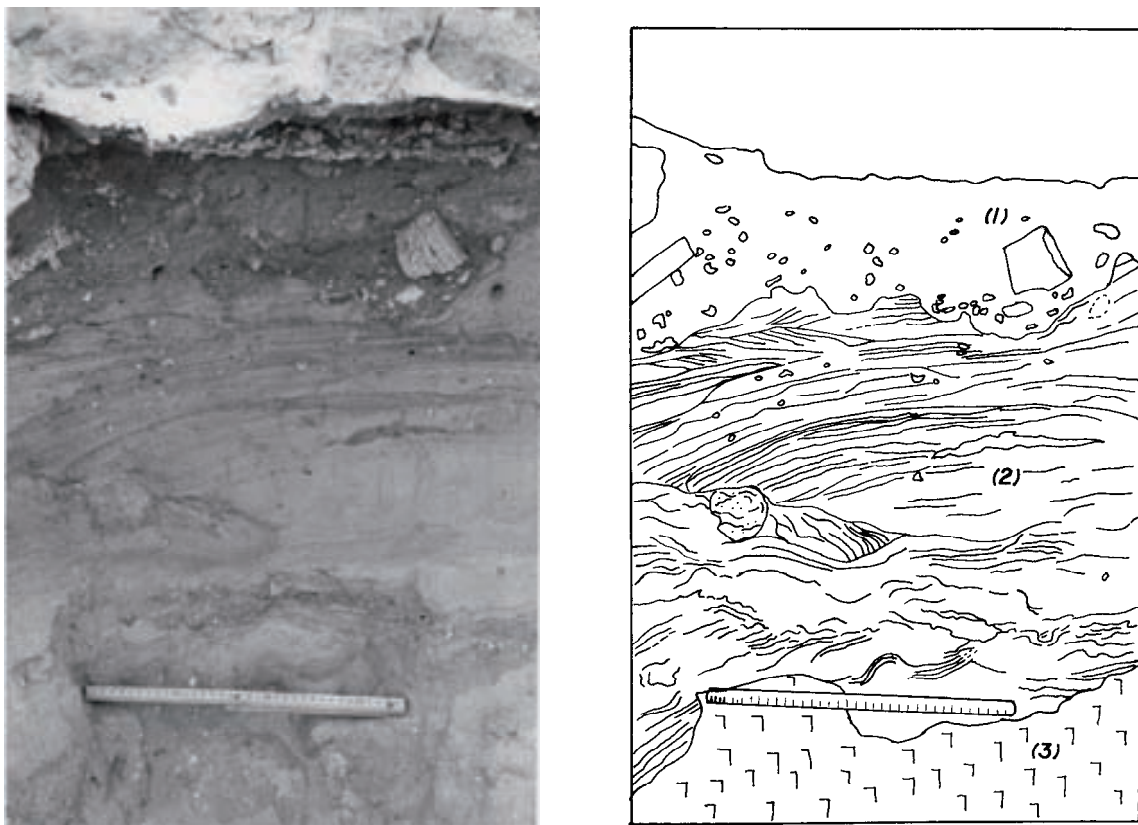
Figure 5.2: Unit 2 from ASC-5 showing bedded fine-grained fluvial sediments, dated to the Late Bronze Age

6. WATER WELLS

The Wells of Ashkelon   *by Ya'akov Nir*

ANCIENT Ashkelon was famous for its water re-sources, as has already been noted in chapters 1 and 2. In the twelfth century A.D., William of Tyre (1943, vol. 2:219) wrote that there were no springs in or around Ashkelon, but wells provided an abundant supply of potable water, and there were also some cisterns in which rainwater was stored.

Regional Hydrology and Tectonic Activity

The hydrogeological position of the site, located at the terminus of the groundwater flow from the coastal plain to the sea, enables one to reach the water table quite easily very close to sea level. The Pleistocene groundwater table of the coastal plain drains from the western watershed of the central highlands to the Mediterranean Sea, which controls local groundwater levels. Every change in sea level is directly reflected in the groundwater level. The average gradient of the water table in the coastal plain is about 1 in 1,000 (Kafri and Arad 1978). Because tides in this part of the Mediterranean typically have an amplitude of no more than 30–40 cm, with annual fluctuations of up to 70 cm, the groundwater level can be predicted whenever sea level is known. Sea level changes during the past 6,000 years have not been of significant size (less than ±2 m); thus changes in the groundwater level in ancient wells of more than ca. 1.5 m would not be expected.

The wells excavated at Ashkelon are located within a short distance of the present shoreline, which is in most cases within a few tens of meters (or, at most, 100 m) inland from the ancient shoreline that existed during the lifespan of the excavated wells (Nir 1973; 1984). To understand the hydrological situation in antiquity, it is necessary to calculate the normal existing groundwater level (or, more pre-cisely, the theoretical level as it would be if it were unaffected by the overpumping that has occurred in the twentieth century) in order to compare this level with the ancient water levels detected in the wells. The technical limitations which prevented digging below the water table in ancient times, on the one hand, and the high productivity of the groundwater in the Ashkelon area, on the other, enable us to estimate

that the groundwater column that accumulated in ancient wells was only 50–70 cm deep. This allows us to determine with a fair degree of accuracy the groundwater level that existed at the time each well was dug, to within ca. 50 cm. For this reason, any difference of more than 2 m detected between the ancient groundwater level and the present (theo-retical) groundwater level during the past 6,000 years (when sea level did not fluctuate by more than 2 m) probably indicates vertical tectonic events rather than eustatic sea level changes.

By integrating the data from various ancient wells at Ashkelon and elsewhere along the coastal plain, we arrive at the conclusion that this region has been tectonically stable over the past four millennia (Nir 1997). Such vertical tectonic stability, which has been noted previously (Nir and Eldar-Nir 1987), contradicts previous theories that suggested tectonic movements of relatively large magnitude during the past few millennia.

Construction and Use of Wells

There can be no doubt that early human settlers in the Ashkelon area exploited fresh groundwater at sea level, either from springs or through shallow digging. Although the site of Ashkelon was inhabited already in the Early Bronze Age, the earliest known well is much later in date. It is a Philistine well, located in the southwest part of the tell about 25–30 m from the present shoreline (Well 73 in the catalogue of wells below in the next section).

We can assume that until the technique of digging wells was adopted in the maritime regions of Pales-tine, people consumed water drawn from seasonal or permanent bodies of water (mostly swamps) that formed in the elongated valleys east of the coastal *kurkar* ridge. This readily available natural water source would have provided the population with water of fair quality in sufficient quantity. In later periods, when the demand for better quality and more convenient water sources arose, people started to dig and construct water wells (see Nir and Eldar-Nir 1987; 1988).

The number of wells which have been drilled through the site of Ashkelon in various periods is so

high that it could be called the "perforated" tell. Since the nineteenth century, surveys and excavations at the site have discovered ancient wells in a very dense pattern (see the plan and catalogue below).

These wells were built with dressed *kurkar* stones (the local soft bedrock), which in later periods were cemented together. This method of construction enabled safe maintenance of the wells and easy hauling of the fresh water. The large number of ancient wells discovered at Ashkelon and their even distribution throughout the site suggests that every large household or cluster of related households had its own private water source.

Much less fresh water was used per capita in premodern times than in the modern industrial period. The usual rate of drawing water from the wells of Ashkelon probably did not exceed 3 m^3 per hour per well, when done by hand, or 7 m^3 per hour with the use of animal power (Avitsur 1976). But this amount of water would have been more than sufficient for the needs of ancient Ashkelon's inhabitants, both for drinking and for irrigation of crops. Irrigation water is required in this region mostly between April and November, when there is little or no rainfall. An average water expenditure of 2,000–2,500 m^3 per ha per season was probably sufficient for most crops.

Unfortunately, we do not know how much land was irrigated in and around the site in ancient times. This obviously depended on the density of human habitation on the tell and on the economic arrangements that prevailed in a given period. Estimates of the total size of the irrigated areas at the site in the Ottoman period, when the tell was uninhabited, are on the order of 30–35 ha. This fertile, irrigated land was farmed by the Arab residents of the nearby village of Jura.

As Egon Lass's survey has shown (see the next section), there were at least 51 wells in use at the site in recent centuries. Those in operation until 1948 were later preserved by the Israeli National Parks Authority. The British Mandate Geological Advisor's unpublished map from the late 1940s also shows about 50 operating wells in the same area. Thus each well supplied irrigation water for an average area of about 0.6–0.7 ha of cultivated land. The total annual water requirement for the irrigation of the whole site in the Ottoman period would have been ca. 70,000–90,000 m^3.

In order to haul this quantity of water from 50 wells one must draw an average quantity of ca. 7–9 m^3 per day per well during the dry season, which lasts about 200 days. This is a reasonable figure, for that quantity can easily be drawn with traditional hauling equipment. In recent times the bigger farms introduced more advanced equipment, but most water-drawing from the site was carried out by simple methods as late as the British Mandate period. Moreover, because the total quantity drawn was not large, there was no problem of salinization caused by overpumping.

Although the paleotopography of the tell is not fully known, it seems that during its history most of the site was higher than 10 m above sea level. The height of the site has risen greatly as a result of human activity. Two-thirds of the wells surveyed by Lass were dug from elevations of 18–27 m A.M.S.L. (note that because the site is close to the sea, the water table is practically at sea level, therefore the top elevation of a well equals its depth). One-third of the wells were dug from a lower elevation of ca. 10–17 m A.M.S.L. Moreover, it is likely that many of these 51 recent wells were located in the same places as more ancient wells, which had been repaired or reused. Additional ancient wells will no doubt be discovered in the course of excavation, although they are likely to be shallower, less well constructed, and located at lower elevations, closer to sea level.

The reservoirs in which well water was stored had to be high enough to supply water through gravity flow to the areas to be irrigated. This explains why most of the wells are not situated at the lowest elevations, closer to the groundwater level, which would have minimized the effort required to dig them, but were dug from the highest elevations.

The operating lifespan of the wells of Ashkelon cannot be determined with precision. Wells are in need of periodic maintenance involving cleaning, repairs, and so forth. But we can assume that a well that was built using cemented dressed stones and was periodically maintained could have operated for hundreds of years. This is especially true in periods when no major wars or abandonments occurred.

In April 1875 the Palestine Exploration Fund survey found 37 wells, "each some 3 feet [in] diameter, and in some cases over 50 feet in depth. By each is a cemented reservoir, and a wooden roller for the rope. Marble shafts have been used up for fixing the ropes" (Conder and Kitchener 1883:237). This description conforms to the appearance of the surviving wells at the site, as described below in Lass's catalogue.

Survey of Water Wells   *by Egon H. E. Lass*

I N 1986 and l987 a survey of wells was conducted at Ashkelon. It was initiated by Ya'akov Nir under the auspices of the Leon Levy Expedition and the National Parks Authority and was carried out by the present author.[17] The survey included the entire area encircled by the medieval fortifications, of which remnants can still be seen. Fifty-one wells are visible on the modern surface of the site (figure 6.1), all of them presumably of relatively recent date, or at least still in use in the first half of the twentieth century.

The most common type of well has a round shaft built of dressed *kurkar* stones with no preserved superstructure of any kind; a total of 25 of the 51 recent wells are of this type. There are also 3 wells with square shafts, and 9 with shafts that are square in one part and round in another.

Six well-shafts had large grooves on either side to accommodate a bucket chain; one of these (no. 46) had two arches, one on either side, which formed a north-south rectangle at the top of the shaft. Nos. 28 and 34 had a square shaft built beyond the curve of their round walls (keyhole shaped), and in no. 10, four arches were built into the shaft, forming a square. The top courses of six wells were stepped back. Thirteen of the wells had a pillar fragment built into one of their walls into which rope-marks had been worn. Twenty-nine of the wells were associated with a pool.

Wellhouses were found over 7 of the wells; 3 of them still had bucket chains hanging down the shaft. All of the wellhouses were arched and had flat roofs into which two openings were built for a bucket-chain. The chain was draped over a wheel that was built onto the top of the roof (see figure 6.2).

In the winter of 1986, the wooden superstructure of Well 46 was reconstructed to show how the bucket-chain would have been utilized. This reconstruction approximated the design of actual wells of the early twentieth century in use in the coastal region of Palestine. These are described in considerable detail by Gustaf Dalman, in volume 2 of his book *Arbeit und Sitte in Palästina* (see figure 6.2):

> The type of well-wheel used near Jaffa, *er-Ramle*, *Ğilğūlie*, and Beersheba to lift groundwater for purposes of irrigation, is usually called a *sāqie*, "irrigation-mechanism," or ᶜ*öddet el-baijāra*, "implement of the *baijāra*"—the latter because *baijāra* is the description of land watered by a well (*bīr*). Here ani-

mals, especially donkeys, occasionally replaced by women, are the motive force.

The rotation mechanism consists of a vertical axis which, by means of a peg, rests with its bottom end in the hole of a wooden footing built into the floor, and with its upper end by means of a second peg in the opening of a long horizontal beam that is supported at both ends by pillars. In the middle of this axis the draft-pole is inserted, which serves to activate the mechanism and to which the draft animals are harnessed. Up higher, just below the crossbeam, the axis carries a horizontally situated wooden wheel that has upward pointing pegs on its hoop. These hoops engage a vertically situated double wheel, the two parts of which are connected by wooden pegs.

The horizontal axis of this wheel rests with one end on the above mentioned crossbeam, with the other end on the built-up well opening that stands opposite the middle of the beam, both ends fixed with iron pegs, which proceed at three different angles in order to form a transition from the horizontal axis into the foundation mounted on top of the crossbeam and on the rim of the well, such that the end of the axis is situated over the center of this foundation. Upon this axis the lifting mechanism is found, comprised of a small wheel over the laterally positioned pegs, from which run two long loops of cable that carry between them shallow boxes. The boxes, which are open at one end, fill up with water when they dip into the depths of the well as a result of the turning of the wheel, and they let it flow out when they come back up again as a result of continued turning of the wheel.

The downpouring water is diverted from the axis of the wheel by way of ridges that end in the drain beneath. This drain can reach into the area of the cables and their boxes, because the cables run on the laterally free-standing pegs fixed to the simple wheel, not over a double wheel. It finally leads the water into an elevated pool, the position of which allows for the accumulation of a large reserve of water, which, according to need, may then be drained from the base of the pool into the irrigation system that extends from it.

The pulling donkey runs between two drag-ropes which, by means of a "balance," hang together with the drawing pole and are tied in front of the donkey's collar to two small boards. The guide rope is, no doubt, often tied to the turning wheel. Since the donkey must walk in a circle, a blindfold shuts its eyes.

[Dalman 1932:225f., translated by Egon Lass (retaining Dalman's transliterations of Arabic terms).]

Eight of the 51 wells found in the surface survey were of this type. At one of these (no. 22) the superstructure had been completely removed.

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[17] I wish to thank Dov Meron for allowing me the use of his camera for photographing the wells.
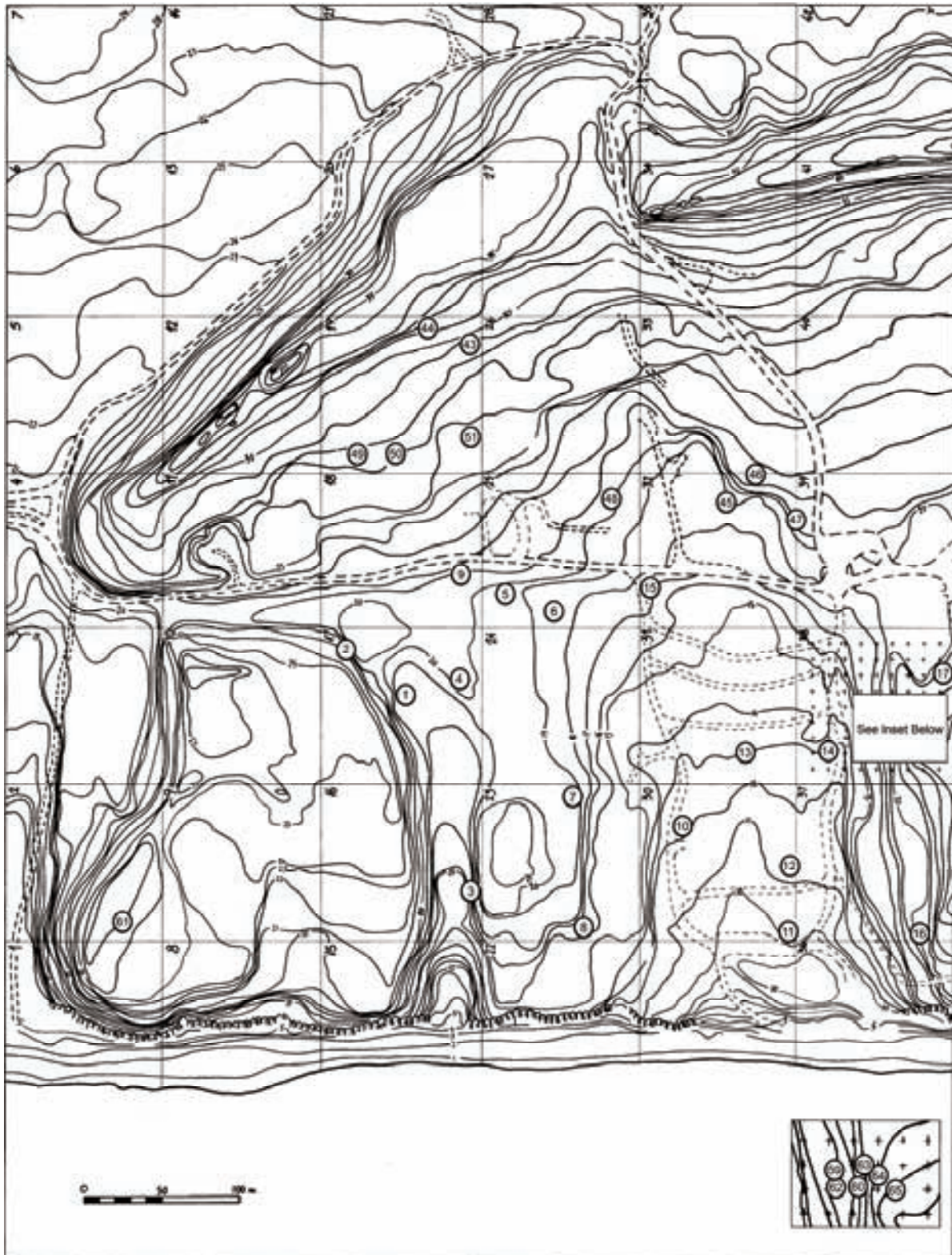
Figure 6.1a: Plan of the site of Ashkelon showing locations of wells surveyed or excavated
(continued on facing page)
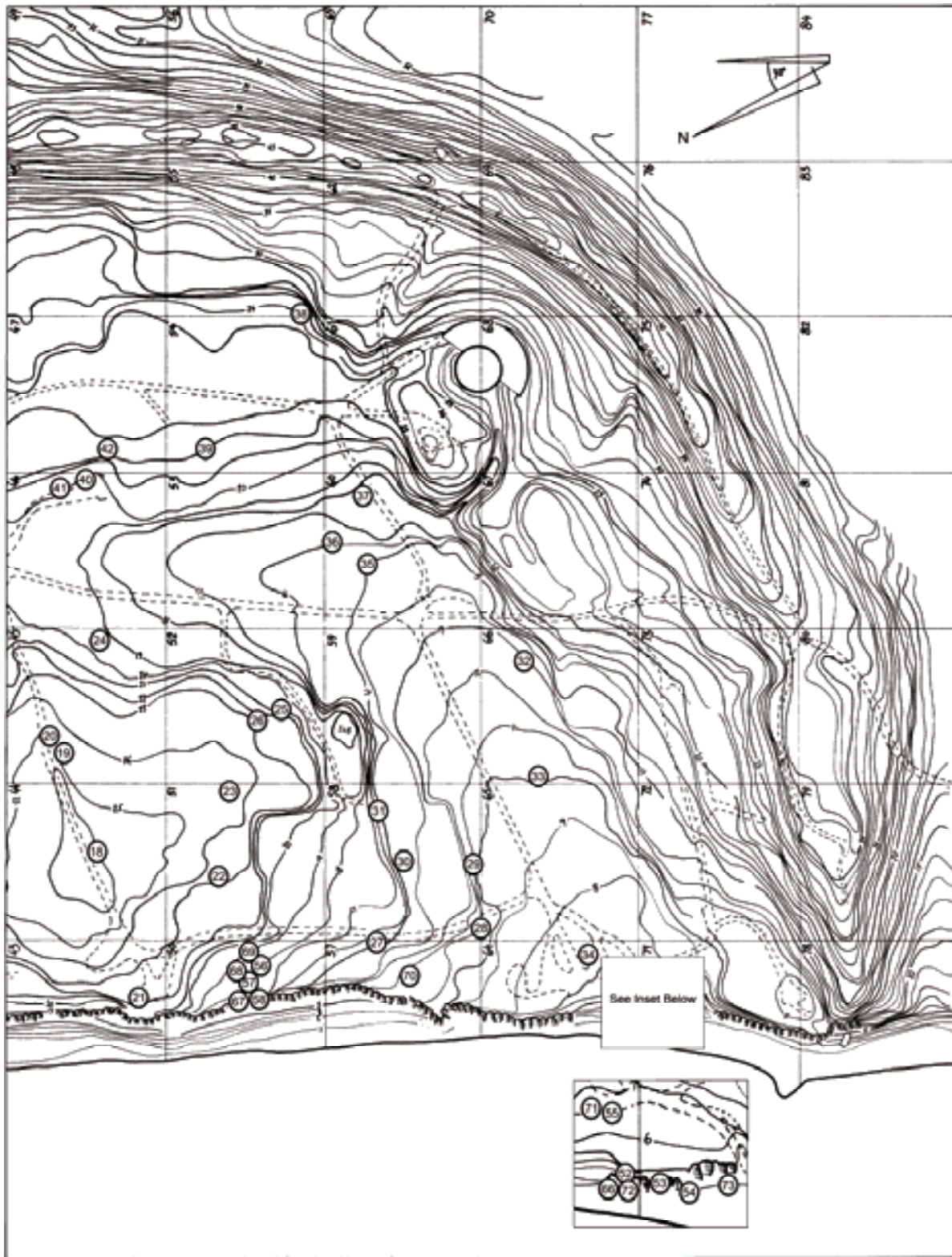
Figure 6.1b: Plan of the site of Ashkelon showing locations of wells surveyed or excavated
(continued from facing page)

Figure 6.2: Coastal Palestinian well-wheel mechanism in use in the early twentieth century
(Dalman 1932:photo 47)

In addition to the 51 wells encountered in the surface survey, 22 ancient wells have been found during the excavations of the Leon Levy Expedition (listed in the catalogue below as nos. 52–73). All but one of these have simple round shafts built of dressed *kurkar* stones. The exception is Well 55, which has a round shaft in which the upper six courses were built square.

Most of the excavated wells appear to have been constructed in the Byzantine period, judging by the style of construction and the pottery found in the debris that fills them. But they have not all been fully excavated, so it is possible that some were dug in earlier periods. Additional wells will no doubt be discovered in the course of future excavations.

Catalogue of Wells

1
Date surveyed: 10/25/1986
Coordinates: 108274/119440
Grid 17
Depth: 17.98 m
Top elevation: 18 m A.M.S.L.
Diameter
 External: 1.97 m
 Internal: 1.00 m
Photo no.: 1.2 (view to E)

Description: Rounded shaft built of dressed *kurkar* stones, completely covered by brush. An iron grate had been placed over the opening. To the west is a square structure of which one 15-cm course is preserved above ground. To the east the shaft continues upward six additional courses, 1.35 m in height from the top of the well, destroyed on both sides. On top of this lies a broken pillar segment.
Superstructure: None preserved.
Surroundings: A few meters to the east is a dead palm tree. The well itself seems to be built into a house to the east of it. Directly to the north runs the 20 m A.M.S.L. contour line, held by walls that may have been in part houses and in part retaining walls.

2
Date surveyed: 10/25/1986
Coordinates: 108317/119447
Grid 17
Depth: 19.45 m
Top elevation: 21 m
Diameter
 External: not determinable
 Internal: 1.0 m
Photo no.: 1.3 (view to NE)

Description: Rounded shaft built of dressed *kurkar* stones, partially covered and surrounded by brush. Iron grate present. The north face of the shaft is plastered, the rest is not. East side slightly destroyed. In the south face a 78-cm long straight stone with deep rope marks.
Superstructure: The north face rises six courses (ca. 1.20 m) over top of well; it is broken on both sides and may be part of a structure now obscured by brush and earth. Some collapse has taken place, lying on the grate itself. The south side of the shaft is slightly below ground level, which curves greatly down to it.
Surroundings: Approximately 2.5 m to the southeast of the shaft is an east-west plastered bench which disappears under the brush that surrounds a thorn tree. A slope rises to north into which the well is integrated; it rises from the 20 to the 22 m A.M.S.L. contour line.

3
Date surveyed: 10/25/1986
Coordinates: 108140/119475
Grid 16
Depth: 2.20 m
Top elevation: 17–18 m
Diameter
 External: not determinable
 Internal: 1.47 m
Photo no.: 1.4 (view to S)

Description: Round shaft, built into a slope from about 16–18 m A.M.S.L. The well has been eroded with the slope, so the top is gone. The upper part is dressed *kurkar* stone, apparently plastered on the east side. The lower part is chiseled into *kurkar*. No grate is present.
Superstructure: None preserved.
Surroundings: A straight east-west line of *kurkar* bedrock descends as a kind of moat-like wall, forming the south side of a wadi-like depression. A square hole in this wall connects to the north face of the well. The wall itself is ca. 1.25 m to the north of the well, dropping down from it.

4
Date surveyed: 10/26/1986
Coordinates: 108252/119405
Grid 17
Depth: 18.60 m
Top elevation: 20 m
Diameter
 External: 2.05 m
 Internal: 0.96 m
Photo no.: 1.5 (view to E)

Description: Rounded shaft built of dressed *kurkar* stones. The top course contains longer straight stones in the north and south walls, the north one of marble. The top course on the east side is a small pillar segment with slight rope marks on it. This makes the top of the well more or less square. A grate is present. There is one 12-cm high course of square construction around well.
Superstructure: None preserved.
Surroundings: A pool (3.5 m × 2.90 m and 60 cm deep) lies directly north of the well, and to the north of the pool are some walls of a house. Coming to this pool from the west is a small aqueduct, which eventually branches out, one branch going straight west, the other south. The well is located 8 m northeast of a palm tree.

5 Date surveyed: 10/26/1986
    Coordinates: 108285/119351
                    Grid 25
    Depth: 19.87 m
    Top elevation: not measured
    Diameter
     External: 2.08 m
     Internal: 0.90 m
    Photo no.:   1.6 (view to W)

Description: Rounded shaft built of dressed *kurkar* stones. The upper course of the north wall is a pillar fragment; the upper course of the east wall is a pillar fragment split through its length with the flat side up. No rope marks. Grate present. The well is completely overgrown with brush. Cement of square construction around well is approximately 10 cm above surface in places.
Superstructure: None preserved.
Surroundings: A pool (2.60 × 3.00 m and 46 cm deep) lies south of well. Some walls, possibly the remains of a house, lie north of well.

6 Date surveyed: 10/26/1986
    Coordinates: 108253/119327
                    Grid 25
    Depth: 18.35 m
    Top elevation: 18 m
    Diameter
     External: not determinable
     Internal: 0.86 × 0.84 m
    Photo no.:   1.7 (view to W)

Description: Square-built shaft of dressed *kurkar* stones. Upper course of north wall is a pillar fragment with slight rope marks in it. A tree has fallen partially on the well, which is also overgrown with brush. Grate present. Outer perimeter is a possible square construction about 10 cm above surface; higher to west where ground is lower.
Superstructure: None preserved.
Surroundings: A pool (0.45 × 0.75 m and 20 cm deep) lies at the northeast corner of the well. Walls to the south could be the remains of a house, although it is too overgrown with brush to see anything clearly. To the north there is a larger pool, 3.05 m wide and 53 cm deep (its length could not be determined).

7 Date surveyed: 10/26/1986
    Coordinates: 108156/119386
                    Grid 23
    Depth: 19.79 m
    Top elevation: 19 m
    Diameter
     External: 1.90 m
     Internal: 1.10 m
    Photo no.:   1.8 (view to E)

Description: Rounded shaft built of dressed *kurkar* stones. West top course is a pillar fragment with medium-deep rope marks at its north end. All is overgrown with brush. Grate present. More-or-less square construction 20·cm above·surface; 35 cm at west side where surface slopes down.
Superstructure: None preserved.
Surroundings: A pool (2.75 m wide and 50 cm deep; length cannot be determined) lies to the south of the well.

8 Date surveyed: 10/26/1986
    Coordinates: 108084/119431
                    Grid 23
    Depth: 13.15 m
    Top elevation: 16 m
    Diameter
     External: 1.70 m
     Internal: 1.15 m
    Photo no.:   1.9 (view to N)

Description: Rounded shaft built of dressed *kurkar* stones. The southeast corner is built into an acute angle for 7 courses down. After that the shaft is completely round. Slightly overgrown with grass and brush. Grate present. Square construction 25 cm above surface on west side. Nothing above ground on east side.
Superstructure: None preserved.
Surroundings: Eroded retaining wall ca. 4 m to south of well; part of it may still be seen southeast of well. Another retaining wall to west of well, ca. 5 m away. Both walls drop to lower ground level. East of well some long narrow cement slabs lie on the ground.

9 Date surveyed: 10/27/1986
    Coordinates: 108318/119367
                    Grid 18
    Depth: 9.30 m
    Top elevation: 21 m
    Diameter
     External: not determinable
     Internal: 0.95 m
    Photo no.:   1.10 (view to W)

Description: Round shaft built of *kurkar* stones. Surrounded by lawn which curves down to it, so that no structure is seen above ground at all. Grate present.
Superstructure: None preserved.
Surroundings: The well lies 7 m to the west of paved road. No other construction present.

10 Date surveyed: 10/27/1986
Coordinates: 108100/119345
Grid 30
Depth: 10.30 m
Top elevation: 12 m
Diameter
 External: 3.48 × 2.13 m
 Internal: 0.95 × 0.95 m
Photo no.: 1.12 (view to W)

Description: Rounded shaft built of dressed *kurkar* stone. Starting at 2.15 m below the top of the well the shaft becomes square. Into each side an arch is built which protrudes from the curvature of the shaft. The tops of the arches are 1.05 m below the top of the well, so that the entire arch is 1.10 m high. Grate present. Rising 1 m above ground level is a squared construction, containing within it that part of the shaft which is square. It is built of dressed and undressed *kurkar* stones. On the east side is a stair of five steps leading to the top of the well.

Superstructure: None preserved.

Surroundings: A dirt road lies 1.5 m to the north of the well; ca. 13 or 14 m to the west is a small raised garden retained by walls, one of which contains a half-preserved pillar.

11 Date surveyed: 10/27/1986
Coordinates: 108004/119331
Grid 30
Depth: 2.48 m
Top elevation: 10 m
Diameter
 External: 2.0 × 2.35 m
 Internal: 0.91 m
Photo no.: 1.13 (view to SW)

Description: Rounded shaft built of dressed and undressed *kurkar* stones. Rising 85 cm above ground is an oblong irregular construction comprising the external part of well. It is built of undressed *kurkar* fieldstones.

Superstructure: None preserved.

Surroundings: Coming to the well from the northeast is a water channel, ca. 1 m wide, which apparently was used to lead water into the well from surface runoff. Attached to the south and east of the well is a small raised garden retained by fieldstone walls. This may at one time have been a pool. The entire structure measures 5.75 (including well) × 3.40 m.

12 Date surveyed: 10/27/1986
Coordinates: 108038/119303
Grid 30
Depth: 4.60 m
Top elevation: 11 m
Diameter
 External: 3.0 × 1.90 m
 Internal: 1.70 m
Photo no.: 1.14 (view to N)

Description: Rounded shaft. Some dressed *kurkar* stones are in evidence, but most of the shaft exhibits poured cement containing a lot of shells. The negatives of vertically standing boards are still evident in the cement. External construction rises 0.75 m above surface, a rectangle built of *kurkar* fieldstones. Grate present.

Superstructure: None preserved.

Surroundings: Coming to the well from the north is a water channel, 90 cm wide, apparently for leading runoff water into the well.

13 Date surveyed: 10/27/1986
Coordinates: 108117/119283
Grid 31
Depth: 2.31 m
Top elevation: 13 m
Diameter
 External: 1.75 m
 Internal: 0.92 × 0.89 m
Photo no.: 1.15 (view to W)

Description: Squared shaft built of dressed *kurkar* stones. Further down, the shaft becomes trapezoidal. Possibly it becomes a round shaft, of which there is the first rough evidence visible before debris obscures the sides of the well. The top course of the north wall consists of a small pillar fragment with deep rope marks. Grate present. Well is raised 90 cm above surface, a dressed and undressed *kurkar* stone construction.

Superstructure: None preserved.

Surroundings: A small semicircular pool is attached to the north side of the well. A small raised garden retained by fieldstone walls may have been a pool once. The entire thing measures 4.60 × 4.85 m.

14 Date surveyed: 10/27/1986
Coordinates: 108085/119242
Grid 38
Depth: 12.35 m
Top elevation: 13 m
Diameter
 External: 2.64 × 3.24 m
 Internal: 1.67 × 0.74 m
Photo no.: 1.16 (view to W)

Description: The rectangular top of the shaft, built of dressed *kurkar* stones, becomes irregularly rounded as the well goes deeper. But in the north and south sides the diameter is extended in a broad groove, presumably a pathway for bucket chains. Parts of the shaft are plastered. Grate present.

Superstructure: A tower rises 3.50 m above surface (see external diameter). The inside is a pointed arch which has two openings in it through which a bucket chain once passed. Construction is of dressed *kurkar* stones. Top back of arch also has small opening. The roof is square. On the facade a semicircular stone rises from the roof line as decoration.

Surroundings: Entire structure is on a raised platform retained by dressed and undressed *kurkar* stones. South of tower and well there is a pool 4.35 × 4.05 m. In northeast corner of pool are two small steps and a spout that was apparently used to lead water from roof of tower down into pool. Northeast of tower stands a square pillar built of *kurkar* stones. Southeast of tower a path leads to steps ascending to platform, and some pillars lying on ground. One pillar fragment stands on platform, close to edge.

15 Date surveyed: 10/27/1986
Coordinates: 108232/119275
Grid 32
Depth: 12.17 m
Top elevation: 17 m
Diameter
 External: 3.50 × ca. 3 m
 Internal: 1.94 m
Photo no.: 1.17 (view to N)

Description: Round shaft built of well-dressed *kurkar* stones. The upper two courses are not neatly built like the rest. They form a smaller and much rougher circle, ca. 1.6 m in diameter. Well is protected on north side by semicircular fieldstone wall (see external diameter) and open to the south. Grate present.

Superstructure: None preserved.

Surroundings: 12–13 m to east of well is a paved road. Perpendicular to it, and passing directly to north of well is a dirt road.

16 Date surveyed: 10/27/1986
Coordinates: 107955/119260
Grid 37
Depth: 17.70 m
Top elevation: 21 m
Diameter
 External: not determinable
 Internal: 0.86 m
Photo no: 1.19 (view to N)

Description: Rounded shaft of dressed *kurkar* stones. Grate present.

Superstructure: None preserved.

Surroundings: A pool lies to the north, 3.17 m wide and of unknown length because its north wall is gone. Two cement floors to the east.

17 Date surveyed: 12/01/1986
Coordinates: 108083/119151
Grid 38
Depth: 20.42 m
Top elevation: 21 m
Diameter
 External: ca. 1.75 m
 Internal: 1.05 × 1.08 m
Photo no.: 1.21 (view to N)

Description: Rounded shaft built of dressed *kurkar* stones, of which the upper three courses are built square. Well is completely overgrown with brush. Grate present. North wall, first course, is a split pillar fragment, round part up, which extends 25 cm out from the wall and has some very shallow rope marks.

Superstructure: None preserved.

Surroundings: There appears to be a pool to the west of the well, now totally overgrown. A modern kiosk lies 15 m to the east of the well.

18 Date surveyed: 12/01/1986
Coordinates: 107953/119168
Grid 44
Depth: 10.82 m
Top elevation: 26 m
Diameter
External: 3.0 × 3.05 m
Internal: 1.39 m
Photo no.: 1.20 (view to W)

Description: Rounded shaft built of dressed *kurkar* stones. Grate present.
Superstructure: An arch springs from north to south. The top of the roof is 2.15 m above surface level. There are two openings in the roof where a bucket chain used to be. There are some small channels on top of the roof, one of which leads to the adjacent pool.
Surroundings: A pool measuring 3.0 × 2.80 m and 96 cm deep is built against the west side of the archway. It has a step in the northwest and southeast corners. An east-west road passes just north of well, and on the other (north) side of the road there is a raised garden, retained by what was once a pool, also probably associated with the well.

19 Date surveyed: 12/01/1986
Coordinates: 108024/119149
Grid 45
Depth: 10.55 m
Top elevation: 24 m
Diameter
External: ca. 1.50 m
Internal: 0.92 m
Photo no.: 1.22 (view to E)

Description: Rounded shaft built of dressed *kurkar* stones. The top courses (3 to 1 courses) are roughly squared off. In the south wall there is a split pillar fragment, flat side up, in which there are some medium-deep rope marks. Built onto the top of the pillar fragment are two additional courses of small fieldstones. Grate present.
Superstructure: None preserved.
Surroundings: Four meters north an east-west road passes. Nine meters to the east is Well 20 (which appears in the background of the photo of this well).

20 Date surveyed: 12/01/1986
Coordinates: 108032/119149
Grid 45
Depth: 13.06 m
Top elevation: 25 m
Diameter
External: 2.40 m
Internal: ca. 0.85 m
Photo no.: 1.23 (view to W)

Description: Circular shaft built of dressed *kurkar* stones. The top 6 courses are increasingly stepped back, though very irregularly, until diameter is slightly more than 1.50 m. Grate present.
Superstructure: None preserved.
Surroundings: Built against southwest corner of well is a pool 3.0 × 3.20 m, depth unknown. An east-west road passes directly to north of well. Well 19 is situated 9 m to the west (appears in background of photo of this well).

21 Date surveyed: 12/01/1986
Coordinates: 107865/119200
Grid 43
Depth: 7.25 m
Top elevation: 22 m
Diameter
External: 3.70 × 3.92 m
Internal: ca. 1.25 m
Photo no.: 1.24 (view to S)

Description: Rounded shaft built of dressed *kurkar* stones. The top 3–6 courses are very irregularly stepped back. The outer perimeter is a square, the north side of which stands 0.55 m above surface.
Superstructure: None preserved.
Surroundings: About 10 m to west is the cliff which drops to the sea; 20 m to the east is a parking lot; 20 m to the south is the *weli*. Between the *weli* and the well the tops of some walls can be seen. This may have been a pool associated with the well. Not enough is showing to make a reliable judgment.

22 Date surveyed: 12/01/1986
Coordinates: 107896/119112
Grid 51
Depth: 15.60 m
Top elevation: 23 m
Diameter
External: 2.42 × 3.14 m
Internal: 1.50 × 2.16 m
Photo no.: 1.25 (view to SW)

Description: Rounded plastered shaft begins 2.30 m below an upper rectangular structure, which consists of 2 or 3 cemented steps with increasing diameter (upper step 2.10 × 2.85 m). The north and south walls of shaft have a groove in them, likely from a bucket chain. A large iron ring, not *in situ*, hangs precariously at top of shaft. Grate present. Partially overgrown.
Superstructure: None preserved.
Surroundings: Three meters from southwest corner of well is a pool measuring 3.95 × 3.37 m, depth unknown. Its west wall continues to north and may have been part of another structure just west of well. About 20 m to northeast are modern toilets.

23 Date surveyed: 12/03/1986
Coordinates: 107938/119078
Grid 51
Depth: 4.57 m
Top elevation: 24 m
Diameter
 External: ca. 1.80 m
 Internal: 0.82 × 0.98 m
Photo no.: 1.26 (view to N)

Description: Squared shaft built of dressed *kurkar* stones, quite overgrown with thorns and brush. Grate present.
Superstructure: None preserved.
Surroundings: Part of a pillar base lies directly north of well. Ten meters northeast of well is a palm tree.

24 Date surveyed: 12/03/1986
Coordinates: 108064/119088
Grid 45
Depth: 13.23 m
Top elevation: 19 m
Diameter
 External: ca. 1.80 m
 Internal: 0.87 m
Photo no.: 1.27 (view to W)

Description: Rounded shaft built of dressed and undressed *kurkar* stones. The upper two courses are squared and stepped back to a diameter of ca. 1.25 m. At a distance of 1.57 m from the top the shaft is again squared for two courses, after which it continues round as it goes down. The well is built into a platform 1.75 m above surface on its south side. The platform measures 4.65 × 4.65 m. It has a small pool located directly north of well. The pool contains a modern water source. Grid present.
Superstructure: None preserved.
Surroundings: Large medieval(?) wall 16.50 m to the north of platform. A more modern wall abuts this and comes south, abutting the north wall of what was once a pool. This pool is situated 5 m west of platform. About 25 m east of well is a dirt road.

25 Date surveyed: 12/03/1986
Coordinates: 107962/119020
Grid 52
Depth: 18.20 m
Top elevation: 20 m
Diameter
 External: ca. 1.75 m
 Internal: 1.00 × 0.81 m
Photo no.: 1.28 (view to E)

Description: Oval shaft which becomes more round and regular 2 m below top. It is built of dressed and undressed *kurkar* stones. South wall of external diameter stands 0.64 m above surface. The top two courses of well are squared and stepped back, in disrepair. Second course in western wall is a pillar fragment with medium rope mark. Grate present.
Superstructure: None preserved.
Surroundings: A small 1.0 × 0.6 m pool is built against western wall of well. An east-west retaining wall descends 30 cm to south of southeast corner of well. To northwest of well, and connecting to small pool, is a larger pool completely overgrown with brush.

26 Date surveyed: 12/03/1986
Coordinates: 107962/119031
Grid 52
Depth: 22.90 m
Top elevation: 23 m
Diameter
 External: ca. 1.75 m
 Internal: 0.94 × 0.98 m
Photo no.: 1.29 (view to E)

Description: Rounded shaft which, for the first 1.8 m, is more or less squared. Built of dressed and undressed *kurkar* stones. Grate present.
Superstructure: None preserved.
Surroundings: Built against northwest corner of well is a small round pool 0.50 m in diameter (depth unknown). South of this, and directly west of well, is a small rectangular pool measuring 1.00 × 0.65 m and 14 cm deep, which leads into a larger pool directly to the west measuring 2.95 × 2.80 cm and 50 cm deep. Pools and well are all one integrated structure.

27 Date surveyed: 12/03/1986
Coordinates: 107804/119055
Grid 57
Depth: 11.94 m
Top elevation: 15 m
Diameter
 External: 2.58 × 2.70 m
 Internal: 1.85 m
Photo no.: 1.30 (view to W)

Description: Rounded shaft built of dressed and undressed *kurkar* stones. On the west side and halfway down a groove can be seen which may have been for a bucket chain, but this is not sure. East side of outer structure is 10 cm above surface, but since well is built into slope, west side is built up ca. 1.50m. Grate present.
Superstructure: None preserved (modern railing on west side).
Surroundings: A north-south dirt road runs 1.50 m to the east of well. Grid 57 of the current Ashkelon excavations lies to the southwest.

28 Date surveyed: 12/03/1986
Coordinates: 107775/118998
Grid 58
Depth: 9.36 m
Top elevation: 11 m
Diameter
External: 2.00 × 1.85 m
Internal: 1.00 m
Photo no.: 1.31 (view to W)

Description: Rounded shaft, squared on the east side. Modern repair has been added to top of well, squared off. The first original course of the east wall, spanning the square shaft, is a pillar fragment with deep rope marks. West side of outer structure stands 1 m above surface. Grate present.
Superstructure: None preserved.
Surroundings: Part of stone floor approaches well on east side. A dirt road lies 3 m to east; 7 m to south a wall retains slope toward south. To the north is Grid 57 of the current Ashkelon excavations.

29 Date surveyed: 12/03/1986
Coordinates: 107815/118976
Grid 58
Depth: 4.35 m
Top elevation: 11 m
Diameter
External: 2.40 × 4.75 m
Internal: 0.73 m
Photo no.: 1.32 (view to W)

Description: Rounded shaft, built of dressed and undressed *kurkar* stones. The seventh course down is a single large sandstone slab with a round hole in it, serving as part of the shaft. The sixth course has a pillar fragment in its south wall with medium-deep rope marks in it. Then the courses are stepped back irregularly to a diameter of ca. 0.95 m. The outer structure is roughly rectangular, standing 0.45 m above surface on its south side. Two steps lead to the platform from the east.
Surroundings: Three meters to north is an east-west retaining wall.

30 Date surveyed: 12/03/1986
Coordinates: 107840/119012
Grid 58
Depth: 6.24 m
Top elevation: 14 m
Diameter
External: 2.90 × 3.08 m
Internal: ca. 1.12 m
Photo nos.: 1.33 (view to E)
1.34 (view to S)

Description: Round shaft built of dressed *kurkar* stones. Grooves for bucket chain in south and north wall. Wide-grid grate.
Superstructure: Structure standing 1.80 m above surface, with two openings in the roof for a bucket chain. To west of these is a small pool measuring 1.55 × 0.80 m and 11 cm deep. It drains through a pipe into north pool below. A door, which is blocked by a grate cemented into walls, is located in west wall. East wall has a small hole on top. Roof is arched on inside, flat on top. Facade has three decorative stones on roof, rounded at edges.
Surroundings: A pool 3.27 m wide and 70 cm deep (length unknown) is attached to north side of wellhouse.

31 Date surveyed: 12/04/1986
Coordinates: 107873/119006
Grid 58
Depth: 0.60 m
Top elevation: 15 m
Diameter
External: 1.55 m
Internal: 0.86 × 0.85 m
Photo no.: 1.35 (view to S)

Description: Square-built, plastered on inside and outside, looks like a pool, but might be a filled-up well. A small water channel rises with the slope to the north, disappears under brush. No grate.
Superstructure: None preserved.
Surroundings: Well (or pool) is in corner of deteriorated east-west retaining wall and rough partition wall going south, west of pool/well.

32 Date surveyed: 12/04/1986
Coordinates: 107900/118876
                Grid 66
Depth: 13.60 m
Top elevation: 13 m
Diameter
 External: 3.20 × 3.35 m
 Internal: not determinable
Photo no.:   1.36 (roof)
                1.36A (view to N)

Description: Rounded shaft built of dressed *kurkar* stones; plastered. Grooves on north and south sides for bucket chain. No grate.
Superstructure: Stone house with entrance facing east. The arch inside springs from north to south. Facade has rounded decorated motif on roof. There is an opening in the back (west) wall, 41 × 41 cm square, and the house stands 2.45 m high. In each corner of the roof is a small blob of cement, rounded and with a hollow negative in the middle. The two eastern chunks have square negatives, the two western ones, round negatives. The roof contains two openings, through which an iron bucket chain is suspended. It is draped over two wooden wheels composed of four sections each, which are fitted one into the other and nailed together. The two wheels are connected by iron bolts, leaving a space of 41–42 cm between them. The wheels are 10 cm thick. The fulcrum of the wheels is missing; they are sitting on top of the roof. The chain links are 40 cm apart, and the chain is 30–31cm wide. Buckets measure ca. 30 × 15 × 15 cm. They are rectangular boxes, made either of wood or metal. On roof east of bucket chain is a small pool (1.50 × 1.15 m and 15 cm deep) that drains into the pool below, south of the wellhouse.
Surroundings: A pool is built against the south wall of the wellhouse (outer perimeter: 3.00 × 3.60 m; inner: 1.73 × 1.84 × 1.50 m). Ca. 20 cm from top is a bench 10–20 cm wide. A pipe leads into pool wall from south, connecting to small channel. The wellhouse is surrounded by a system of small water channels, going off in various directions. Two rough square-built fieldstone pillars stand in front of wellhouse, and front area is bordered by fieldstone walls.

33 Date surveyed: 12/04/1986
Coordinates: 107834/118915
                Grid 66
Depth: 1.47 m
Top elevation: 10 m
Diameter
 External: 1.70 × 1.65 m
 Internal: 0.77 m
Photo no.:   2.1 (view to N)

Description: Rounded shaft built of dressed and undressed *kurkar* stones. Grate present.
Superstructure: None preserved.
Surroundings: Modern water pipe to east of well, emptying into it. Small slope 2 m to west of well. East-west dirt road ca. 20 m north of well.

34 Date surveyed: 12/04/1986
Coordinates: 107720/118952
                Grid 64
Depth: 1.85 m
Top elevation: 7 m
Diameter
 External: 2.20 × 2.20 m
 Internal: 0.90 × 0.97 m
Photo no.:   2.2 (view to E)

Description: Irregular shaft of dressed and undressed *kurkar* stones, squared on west side and somewhat rounded on east side. A squared pier is built into the east wall. Top course of east wall is a pillar fragment with extremely deep rope marks in it. The pillar spans the pier, which drops away below it. Grate present.
Superstructure: None preserved.
Surroundings: Modern water pipe close to northeast corner of well. Attached to north side of well is a cement floor, ca. 38 cm below top of well, measuring 3.80 × 4.62 m. Water pipe is built into it and leads into well.

35 Date surveyed: 12/04/1986
Coordinates: 108006/118918
                Grid 60
Depth: 1.35 m
Top elevation: not measured
Diameter
 External: ca. 2.3 × 2.3 m
 Internal: ca. 1.1 m
Photo no.:   2.3 (view to W)

Description: Circular shaft built of dressed and undressed *kurkar* stones. West wall of outer structure stands 1.05 m above surface. Grate present.
Superstructure: None preserved.
Surroundings: Modern water pipe to east, leading into well.

36
Date surveyed: 12/08/1986
Coordinates: 108029/118933
Grid 60
Depth: 6.06 m
Top elevation: 16 m
Diameter
 External: ca. 1.75 × 2.40 m
 Internal: ca. 0.90 m
Photo no.: 2.4 (view to W)

Description: Irregularly rounded shaft built of dressed and undressed *kurkar* stones. The top course of the east wall is a granite pillar fragment (most of the pillar fragments in other wells are white marble). It has no rope marks in it. Grate present. Outer perimeter stands ca. 40 cm above surface.
Superstructure: None preserved.
Surroundings: Built against the west side of well is a pool measuring 2.68 × 2.77 m, depth unknown. A smaller pool, ca. 0.90 × 1.10 m and 20 cm deep, is built against the east side of well. It contains a modern water pipe which leads into the well. North of this pool and against southeast corner of well is a circular installation, diameter 0.45 m, showing signs of fire on inside.

37
Date surveyed: 12/08/1986
Coordinates: 108045/118898
Grid 60
Depth: 9.93 m
Top elevation: 17 m
Diameter
 External: ca. 1.85 m
 Internal: 1.30 m
Photo no.: 2.5 (view to N)

Description: Round shaft built of dressed *kurkar* stones. Grate present. Outer wall ca. 40 m above surface.
Superstructure: None preserved.
Surroundings: A pool is built onto the east side of well, 3.40 m in width. Length and depth unknown.

38
Date surveyed: 12/08/1986
Coordinates: 108160/118866
Grid 55
Depth: 22.30 m
Top elevation: 25 m
Diameter
 External: 3.15 × 3.15 m
 Internal: 1.63 m
Photo no.: 2.6 (roof; view to N)
2.7 (view to W)

Description: Rounded shaft built of dressed *kurkar* stones, which becomes irregular ca. 1 m down, round/oval on east side and straight on west. In north and south walls are grooves for bucket chain. No grate present.
Superstructure: A square wellhouse which stands 2.25 m above surface. Flat roof, arched inside, entrances (grated shut) in both east and west walls. Over the east entrance is a decoration of rounded stones. In the roof are two openings through which a bucket chain passes. This chain is similar to that of Well 32 in every respect. No wheel is present, although there is a rounded, shallow negative in the roof. East of the openings is a small shallow pool measuring 1.15 × 1.00 m and 12 cm deep. This leads by a small channel going south into the pool below.
Surroundings: A pool (3.85 × 0.75 m; length unknown) is built against the south side of wellhouse. A large wooden beam, 5.75 m long and 25 × 25 cm in square cross-section, is laid against the east wall of pool. The east end of the pole has a 6-cm rounded margin. The west end has been burned, so the full length is not preserved. This beam was probably left over from the bucket chain apparatus. Several cement slabs lie around the wellhouse. Ca. 8 m to east is a rounded fieldstone wall enclosure, quite overgrown with brush.

39
Date surveyed: 12/08/1986
Coordinates: 108126/118969
Grid 54
Depth: 7.33 m
Top elevation: 22 m
Diameter
 External: ca. 2.10 m
 Internal: ca. 0.85 × 1.00 m
Photo no.: 2.8 (view to W)

Description: Squared shaft built of dressed and undressed *kurkar* stones and occasional architectural pieces in secondary use. At 2 m down the shaft becomes round. Outer west wall stands 1.08 m above surface. Upper courses of well in disrepair. Grate present.
Superstructure: None preserved.
Surroundings: A small pool measuring 0.80 × 1.15 m and 18 cm deep is built against south side of pool (it contains a modern waterpipe which leads into well). To south of that is a larger pool measuring 3.15 × 2.95 m and 40 cm deep. At northeast corner of well are two rounded installations which show signs of fire.

40 Date surveyed: 12/08/1986
Coordinates: 108154/119036
Grid 46
Depth: 12.60 m
Top elevation: 20 m
Diameter
 External: 3.50 × 3.70 m
 Internal: ca. 1.75 m
Photo no.: 2.9 (view to W)
 2.10 (view to N)

Description: Round shaft built of dressed *kurkar* stones. No grate present.
Superstructure: A wellhouse stands 2.17 m above surface. Flat roof, arched inside. In the top of the roof are two openings (now barred by 3 iron bars each) for a bucket chain. No grooves in shaft (shaft is large enough to accommodate chain). No chain present. South of openings is a small pool measuring 1.24 × 1.03 m and 9 cm deep leading by east channel to pool below. Entrance from south barred by a cemented grate.
Surroundings: A pool measuring 3.65 × 3.55 m and 1.17 m deep is built against east wall of wellhouse. There is a bench on the north, east, and south sides of pool. Well 41 lies 12 m north of wellhouse.

41 Date surveyed: 12/08/1986
Coordinates: 108157/119050
Grid 46
Depth: 4.20 m
Top elevation: 20 m
Diameter
 External: ca. 1.65 m
 Internal: ca. 1.05 × 1.00 m
Photo no.: 2.11 (view to S)

Description: Irregular shaft built of dressed and undressed *kurkar* stones, which becomes circular 1.05 m down, and is then built of only dressed *kurkar* stones. South wall stands 0.80 m above surface, but is extended by benches and structures on all sides. Three steps lead up to well from west. Bench to south and east, small pool to north. Grate present. Upper course of west wall is a pillar fragment which has three round impressions on top, but no rope marks are present.
Superstructure: None preserved.
Surroundings: A small pool to north (0.85 × 0.95 m and 28 cm deep) contains a modern water pipe which leads into well. A larger pool (2.95 × 3.50 m and 60 cm deep) is built onto east side of well. Well 40 lies 12 m to south.

42 Date surveyed: 12/08/1986
Coordinates: 108158/119012
Grid 47
Depth: 11.02 m
Top elevation: 22 m
Diameter
 External: ca. 1.4 m
 Internal: ca. 0.75 × 0.75 m
Photo no.: 2.12 (view to N)

Description: Squared shaft built of dressed and undressed *kurkar* stones. Becomes rounded ca. 0.90 m down west wall, top course is an upright standing marble slab, no rope marks present. Grate present. Outer north wall stands 25 cm above surface.
Superstructure: None preserved.
Surroundings: A small pool, now destroyed, may have been built against west side.

43 Date surveyed: 1/19/1987
Coordinates: 108425/119274
Grid 19
Depth: not determinable
Top elevation: 28 m
Diameter
 External: ca. 1.75 m
 Internal: not determinable
Photo no.: 2.13 (view to E)

Description: A well which is almost completely covered by a modern water fountain. Only the west side is showing, consisting of a pillar fragment and a grate just sticking out over it. The pillar fragment is lying north-south.
Superstructure: Modern fountain.
Surroundings: To the south of the well, and attached to it, is a pool measuring 2.35 × 2.75 m and 58 cm deep.

44 Date surveyed: 1/19/1987
Coordinates: 108454/119287
Grid 19
Depth: 13.00 m
Top elevation: 32 m
Diameter
 External: not determinable
 Internal: 1.00 m
Photo no.: 2.14 (view to E)

Description: Circular shaft built of dressed *kurkar* stones. Outer perimeter overgrown with grass and inaccessible. Grate present.
Superstructure: None preserved.
Surroundings: Three modern sinks and faucets stand 3 m to the east.

45 Date surveyed: 1/19/1987
Coordinates: Grid 32
Depth: 13.50 m
Top elevation: 19 m
Diameter
 External: ca. 2.30 × 2.70 m
 Internal: 1.00 × 1.05 m
Photo no.: 2.15 (view to N)

Description: Squared shaft built of dressed and undressed *kurkar* stones which becomes circular 2.5 m down. In the south wall, 1.5 m down, there is a marble pillar fragment with one clear rope mark in the middle. Two steps lead to the top from the north. On the west the structure stands 50 cm above ground. Grate present.
Superstructure: None preserved.
Surroundings: Attached to the well on its south side is a pool, measuring 2.10 × 2.33 m (depth unknown). Steps leading up to Well 46 lie 3 m to the southeast.

46 Date surveyed: 1/19/1987
Coordinates: 119176/108255
 Grid 32
Depth: 18.25 m
Top elevation: 22 m
Diameter
 External: 2.90 × 3.40 m
 Internal: ca. 1.90 m
Photo no.: 2.16 (view to W)
 2.17 (view to E)

Description: Rounded shaft with two arches, one to the west and one to the east, under which the shaft rounds out. The tops of the arches are presumably the original top surface of the well. A north-south rectangle results from the arches, which accommodate a bucket chain at each end. All is built of dressed *kurkar* ashlars. No grate present.
Superstructure: A wellhouse stands 2.10 m above present surface. An arch springs from south to north. It has two openings through which a bucket chain still hangs. There is no wheel on top of the roof. Entrances in east and west wall, both closed with grates. The east facade has some stones on top of the roof which were once a decoration. Located on the west side of the roof is a cement block with an iron ring which held the bolt of the wheel, 0.60 m above the roof. On the east side of the roof is a small pool measuring 1.00 × 0.85 m and 10 cm deep. A small channel leads to the pool on its south end.
Surroundings: A pool measuring 3.50 × 3.20 m and 60 cm deep, rounded at the north end, is attached to the wellhouse on south side. Two built pillars stand on the east side of structure.

47 Date surveyed: 1/19/1987
Coordinates: 119172/108217
 Grid 32
Depth: 14.60 m
Top elevation: 21 m
Diameter
 External: 1.80 × 1.70 m
 Internal: 0.90 m
Photo no.: 2.18 (view to NW)

Description: Rounded shaft built of dressed and undressed *kurkar* stones. From 1.5 to 2.5 m below the top, the shaft is half angular, half circular; then it returns to being circular underneath. The first course on the south side is a pillar fragment with slight to medium-deep rope marks. Grate present. North side is 0.80 m above surface.
Superstructure: None preserved.
Surroundings: A modern faucet with small pool leads into well, attached to south side of well. Three irregular steps lead up to it from the west. A modern kiosk is located ca. 30 m to the west. Just showing are tops of walls of a pool on the south side of the well, dimensions unknown. On the east side is a small, round, filled-in cement installation.

48 Date surveyed: 1/19/1987
Coordinates: 119260/108296
 Grid 25
Depth: 17.90 m
Top elevation: 20 m
Diameter
 External: not determinable
 Internal: 1.15 m
Photo no.: 2.19 (view to N)

Description: Round shaft built of dressed *kurkar* stones. Top course on south side is a pillar fragment which exhibits no rope marks. Grate present. Sides overgrown with brush.
Superstructure: None preserved.
Surroundings: A pool measuring 3.65 × 3.25 m (depth unknown) is attached to east side of well.

49 Date surveyed: 6/6/1987
        Coordinates: 119373/108410
                        Grid 19
        Depth: not determinable
        Top elevation: 27 m
        Diameter
         External: not determinable
         Internal: not determinable
        Photo no.:   none

Description: Totally covered; nothing can be seen of well.
Superstructure: None preserved.
Surroundings: Solar heating unit and modern house just north of well.

50 Date surveyed: 6/6/1987
        Coordinates: 119356/108398
                        Grid 19
        Depth: not determinable
        Top elevation: 27 m
        Diameter
         External: 2.10 m
         Internal: not determinable
        Photo no.:   none

Description: Square of cinderblocks and undressed *kurkar* stones. Well is covered with boards on which earth is piled.
Superstructure: None preserved.
Surroundings: Modern house 10 m south of well.

51 Date surveyed: 6/6/1987
        Coordinates: 119308/108377
                        Grid 19
        Depth: not determinable
        Top elevation: 25 m
        Diameter
         External: not determinable
         Internal: not determinable
        Photo no.:   none

Description: Completely covered. On top of well and earth that covers it is a pillar base, with a pillar fragment on top of that.
Superstructure: None preserved.
Surroundings: Modern dining hall lies 3 m east of well.

Nos. 52–73 were discovered during the excavations of the Leon Levy Expedition.

52 Date surveyed: 8/31/1987
        Coordinates: Grid 64, Square 96
        Feature no.:   64.96.F4
        Depth: 1.08 m, as preserved
        Top elevation: not determinable
        Diameter
         External: not determinable
         Internal: 0.81 m
        Photo no.:   none

Description: Round shaft built of dressed *kurkar* stones extending down to and below the present water table. There is a small rectangular niche in the north wall six courses down from the top, perhaps for climbing down the shaft. Dated ceramically to the Roman period (1st cent. B.C.–3rd cent. A.D.)—see the discussion of the pottery found in this well in the next section on "Dating Ancient Water Wells Using Radiocarbon and Ceramics."
Superstructure: None preserved.
Surroundings: Well is on beach ca. 8 m south of the medieval sea wall, which has reused pillars protruding from it.

53 Date surveyed: 8/31/1987
        Coordinates: Grid 71, Square 5
        Feature no.:   71.5.F3
        Depth: 3.10 m, as preserved
        Top elevation: not determinable
        Diameter
         External: 1.50 m
         Internal: 1.10 m
        Photo no.:   none

Description: Round shaft of dressed *kurkar* stones. The east side, which is set into an archaeological section, is 3.10 m above the water table. Water is visible in the bottom of the well. The west side (as preserved) is only 1.70 m above the water table. In the north side three small square niches can be seen, one above the other, separated by two and three courses. Dated ceramically to the Byzantine ("Late Roman") period.
Superstructure: None preserved.
Surroundings: On beach near Well 52 (15 m to the north) and Well 54 (8 m to the southwest).

54 Date surveyed: 8/31/1987
    Coordinates: Grid 71, Square 15
    Feature no.:   71.15.F3
    Depth: 1.20 m, as preserved
    Top elevation: not determinable
    Diameter
     External: not determinable
     Internal: 0.82 m
    Photo no.:   none

Description: Rounded shaft built of dressed *kurkar* stones. Dated ceramically to the Byzantine or early Islamic period.
Superstructure: None preserved.
Surroundings: On beach near Well 53 (8 m to the northeast). (For further details, see the forthcoming archaeological report on this area.)

55 Date surveyed: 8/31/1987
    Coordinates: Grid 64, Square 87
    Feature no.:   64.87.F3
    Depth: 1.55 m, as preserved
    Top elevation: not determinable
    Diameter
     External: 1.35 × 1.40 m
     Internal: 0.95 × 0.87 m
    Photo no.:   none

Description: The upper 6 courses are a squared shaft; the lower 6 are round; all of them dressed *kurkar* stones. The diameter of round part of shaft is 0.95 m. The round shaft has small square niches in northeast and southwest sides, every second course. In the third course from the top of the square shaft, the east and west walls contain two small niches each, opposite one another, as if at one time these served to anchor two poles across the shaft. The west ones are 0.38 m apart, the east 0.43 m. Dated ceramically to the early Islamic period.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

56 Date surveyed: 8/31/1987
    Coordinates: 119.126 107.834
        Grid 50, Square 58
    Feature no.:   50.58.F28
    Depth: 2.60 m, as preserved
    Top elevation: 18.19 m
    Diameter
     External: 1.20 m
     Internal: 0.85 m
    Photo no.:   none

Description: Round shaft built of dressed *kurkar* stones. Dated ceramically to the Byzantine ("Late Roman") period.
Superstructure: None preserved.
Surroundings: The south balk of Grid 50 is 1 m to south of well. (For further details, see the forthcoming archaeological report on this area.)

57 Date surveyed: 8/31/1987
    Coordinates: 119135/107833
        Grid 50, Square 58
    Feature no.:   50.58.F38
    Depth: 1.00 m, as preserved
    Top elevation: 17.45 m
    Diameter
     External: 1.40 m
     Internal: 0.95 m
    Photo no.:   none

Description: Round shaft built of dressed *kurkar* stones. Dated ceramically to the Byzantine period.
Superstructure: None preserved.
Surroundings: Well 56 lies to the southeast. (For further details, see the forthcoming archaeological report on this area.)

58 Date surveyed: 8/31/1987
    Coordinates: 119139/107821
        Grid 50
    Depth: 0.42 m, as preserved
    Top elevation: not determinable
    Diameter
     External: 1.25 m
     Internal: 0.91 m
    Photo no.:   none

Description: Round shaft built of dressed *kurkar* stones. The east side is in the cliff along the shore. The west external side is exposed 1 m down. Dated ceramically to the Islamic period.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

59 Date surveyed: 8/31/1987
Coordinates: Grid 38, Square 54
Feature no.: 38.54.F9
Depth: 1.30 m, as preserved
Top elevation: 17.55 m
Diameter
 External: 1.25 m
 Internal: 0.91 m
Photo no.: none

Description: Round shaft built of dressed *kurkar* stones. Two small niches in southeast side spaced two courses apart (second and fifth course). One niche in north side, third course down. Dated ceramically to the Islamic period.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

60 Date surveyed: 8/31/1987
Coordinates: Grid 38, Square 64
Feature no.: 38.64.F3
Depth: 0.28 m, as preserved
Top elevation: 17.25
Diameter
 External: 1.30 m
 Internal: 0.88 m
Photo no.: none

Description: Rounded shaft built of dressed *kurkar* stones. Upper course disarticulated. Dated ceramically to the Byzantine period.
Superstructure: None preserved.
Surroundings: The well is located ca. 4.5 m south of the north balk of Grid 38. (For further details, see the forthcoming archaeological report on this area.)

61 Date surveyed: [not recorded]
Coordinates: 108251/119667
Grid 2, Square 72
Feature no.: 2.72.F22
Depth: not excavated
Top elevation: 22.65 m
Diameter
 External: not determinable
 Internal: 0.88 m

Description: Round shaft built of dressed *kurkar* stones. At least 2.15 m of the upper courses had been robbed, as shown by the robber pit which led down to the extant courses.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

62 Date surveyed: [not recorded]
Coordinates: 108076/119207
Grid 38, Square 54
Feature no.: 38.54.F44
Depth: >1.40 m
(not fully dug)
Top elevation: 17.80 m
Diameter:
 External: not determinable
 Internal: 0.80 × 0.90 m

Description: Round shaft built of dressed *kurkar* stones. Dated ceramically to the Byzantine period.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

63 Date surveyed: [not recorded]
Coordinates: 108073/119193
Grid 38, Square 64
Feature no.: 38.64.F26
Depth: >0.53 m
(not fully dug)
Top elevation: 20.43 m
Diameter:
 External: 1.33 m
 Internal: 0.96 m

Description: Round shaft built of dressed and undressed *kurkar* stones. Dated ceramically to the Islamic period (12th–13th cent.)
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

64 Date surveyed: [not recorded]
Coordinates: 108069/119189
Grid 38, Square 74
Feature no.: 38.74.F60
Depth: not determinable
Top elevation: 22.52 m
Diameter:
External: 1.04 m
Internal: 0.60 m

Description: Round shaft built of dressed *kurkar* stones. Some white plaster holds the stones together. Dated ceramically to the Islamic period.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

65 Date surveyed: [not recorded]
Coordinates: 108058/119187
Grid 38, Square 74
Feature no.: 38.74.F353
Depth: not determinable
Top elevation: 20.87 m
Diameter:
External: 1.40 m
Internal: 0.85 m

Description: Round shaft built of dressed *kurkar* stones. A pit (38.74.F120) lies directly above the well—probably a result of the robbing of the well's upper courses. Dated ceramically to the Roman period.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

66 Date surveyed: [not recorded]
Coordinates: 107673/118961
Grid 64, Square 85
Feature no.: 64.85.F2
Depth: >0.75 m
(not fully dug)
Top elevation: 2.22 m
Diameter:
External: not determinable
Internal: 0.85 m

Description: Round shaft built of dressed *kurkar* stones. Bottom of well is cut into virgin soil. Dated ceramically to the Byzantine period.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

67 Date surveyed: [not recorded]
Coordinates: 107823/119147
Grid 50, Square 47
Feature no.: 50.74.F33
Depth: not determinable
Top elevation: 16.34 m
Diameter:
External: 1.17 m
Internal: 0.85 m

Description: Round shaft built of dressed *kurkar* stones held together by shell-tempered white plaster. Lined around the outside with mudbrick. Dated ceramically to the Byzantine period.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

68 Date surveyed: [not recorded]
Coordinates: 107841/119140
Grid 50, Square 48
Feature no.: 50.48.F151
Depth: >1.02 m
(not fully dug)
Top elevation: 16.25 m
Diameter:
External: 1.50 m
Internal: 0.90 m

Description: Round shaft built of dressed *kurkar* stones. Dated ceramically to the Byzantine period.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

69 Date surveyed: [not recorded]
Coordinates: 107846/119127
                Grid 50, Square 59
Feature no.:   50.59.F48
Depth: >1.40 m
                (not fully dug)
Top elevation: 17.78 m
Diameter:
 External: 1.34 × 1.22 m
 Internal: 0.94 × 0.82 m

Description: Round shaft built of dressed and undressed *kurkar* stones. The exposed western half is largely destroyed. The exposed eastern half is embedded in the east balk of Grid 50, Square 48. Dated ceramically to the Islamic period.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

70 Date surveyed: [not recorded]
Coordinates: 107777/119051
                Grid 57, Square 58
Feature no.:   57.58.F228
Depth: >1.10 m
                (not fully dug)
Top elevation: 10.50 m
Diameter:
 External: 1.44 m
 Internal: 1.10 × 0.85 m

Description: Rounded shaft with grooves for a bucket chain on the east and west sides. Built of well-dressed *kurkar* stones. Dated ceramically to the Islamic period.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

71 Date surveyed: [not recorded]
Coordinates: 107690/118958
                Grid 64, Square 87
Feature no.:   64.87.F46
Depth: >0.40 m
                (not fully dug)
Top elevation: 2.17 m, as preserved
Diameter:
 External: not determinable
 Internal: 1.05 m

Description: Round shaft built of crudely dressed *kurkar* stones which were excavated below the water table. Square 87 in Grid 64 was subsequently reburied, so this well is now entirely covered up. Dated ceramically to the late Persian or early Hellenistic period (4th cent. B.C.).
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

72 Date surveyed: [not recorded]
Coordinates: 107670/118957
                Grid 64, Square 95
Feature no.:   64.95.F52
Depth: >0.50 m
                (not fully dug)
Top elevation: 0.50 m, as preserved
Diameter:
 External: not determinable
 Internal: 0.90 m

Description: Round shaft built of dressed *kurkar* stones. Dated ceramically to the Roman period.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

73 Date surveyed: [not recorded]
Coordinates: 107649/118923
                Grid 71, Square 35
Feature no.:   71.35.F1
Depth: 1.50 m
Top elevation: 2.98 m, as preserved
Diameter:
 External: 1.30 m
 Internal: 0.80 m

Description: Round shaft built of undressed irregular *kurkar* fieldstones, laid without identifiable courses. The bottom of the well was reached ca. 1.50 m below the uppermost preserved course and was cut into the *kurkar* at the level of the water table. Originally the well probably did not extend much higher than the top level of the virgin soil in the eastern cliff. Dated ceramically to the Philistine period.
Superstructure: None preserved.
Surroundings: (See the forthcoming archaeological report on this area.)

Dating Ancient Water Wells Using Radiocarbon and Ceramics

*by Israel Carmi, Iris Eldar-Nir, Ya'akov Nir, Ella Werker, Lawrence E. Stager,
and Barbara L. Johnson*

SINCE 1984, eleven ancient water wells, ranging in date from the Late Bronze Age to the Crusader period (ca. 1300 B.C. to A.D. 1300), were excavated along the Mediterranean shores of Israel. These wells reflect ancient groundwater tables that were directly related to their contemporaneous sea level. According to many sources, sea level did not fluctuate more than ±1.5 m during the period under discussion (see Raban and Galili 1985; Nir and Eldar 1987). In wells in which researchers found greater differences between the ancient groundwater level and the present level, tectonic activity is implied. In the course of determining ancient groundwater tables, Nir and Eldar (1987) have proven the relative stability of the coastal belt, from Atlit in the north to Ashkelon in the south, for the past 3,000 years. These results contradict earlier studies which proposed large tectonic movement of up to 25–30 m in the same region during this period (e.g., Neev et al. 1973; 1987:137).

The dating of the operational periods of most wells was based on the youngest archaeological finds discovered at the lowest part of the well, embedded in the relict mud layer which represents the part that supplied the water. In many cases, this mud layer contains diagnostic pottery, coins, and other artifacts, which make it possible to date the latest use phases of the wells quite accurately.

During the 1987 excavation season of the Leon Levy Expedition to Ashkelon, another two ancient wells were discovered and re-dug. The excavators were exploring the southern part of the site in an effort to locate the ancient harbors of Ashkelon. In the vicinity of the wells, a thick clayey layer was discovered, continuing several meters below sea level.

On the mound itself, the earliest occupation dates from the Chalcolithic period, where it sits on the *kurkar* sandstone bedrock, 3–4 m above present sea level. Ashkelon has remained almost continuously occupied since then, and from the third millennium B.C. to the thirteenth century A.D. it served as a major seaport of the Eastern Mediterranean.

The two wells under discussion are located some 25–30 m east of the present shoreline, near Bāb el-Baḥar, at the bottom of the sea cliff on which the mound sits at present. The southern well, designated 71.5.F3 (i.e., Grid 71, Square 5, Feature 3), was excavated by David Stacey. Ya'akov Nir and Iris Eldar-Nir excavated the northern one, 64.96.F4 (Grid 64, Square 96, Feature 4), to most of its depth. Note that 71.5.F3 is Well 53 in Lass's catalogue and plan above, and 64.96.F4 is Well 52.

Like most wells, these two are cylindrical. In many of the wells dug, the lowest part of the construction is preserved, while the upper sections are missing, having been destroyed either by human activity or by natural agents, such as sea-wave action. The southern well is 1.10 m in diameter; the northern one has a diameter of only 0.80 m. The wells were preserved to a depth of 2 m. The surrounding soil matrix is clayey sand, which is quite poor as an aquifer. In order to obtain a better water supply, the dressed *kurkar* and beachrock blocks, of which the walls were constructed, were not cemented, as was common practice (see Nir and Eldar-Nir 1987; 1988). A wooden log underlay the lowest course of dressed stone in each well.[18] Timber was used as a foundation for the *kurkar* stones in order to prevent the entire uncemented structure from collapsing due to lowering the groundwater table by "overpumping," among other reasons.[19]

The two wells differ in their basic construction technique from wells dug into a loose matrix. In this case, a cylindrical shaft was excavated until groundwater was reached. A curvilinear wooden log provided a foundational casing, upon which the dressed stones were laid in circular courses, beginning at the bottom of the well and continuing to the top.[20] Wells dug into a loose matrix, such as uncemented sand or sandy *kurkar* layers, were, on the other hand, constructed from the top down, course by course (Nir and Eldar-Nir 1987).

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[18] In archaeological excavations ancient wood is often preserved under three conditions: when reduced to charcoal, submerged in an anaerobic environment, or found in dry desert conditions.

[19] During the same period wooden casings to strengthen wells have been documented in Europe (see Forbes 1955: 147). Perhaps this technology was brought to the Near East by the Romans.

[20] The preserved two meters of wells just below the present beach sand indicate that the Early Roman city to which these wells belonged extended farther west toward the sea. In this area (Grid 57) the Early Roman occupation was some 10 m above present sea level; i.e., the mouths of the wells were some 5–7 m above their present mouths.

The wood was analyzed by Ella Werker, who identified its botanical affinity, structure, and uses. Its ¹⁴C age was determined by Israel Carmi, and the ceramic finds of the lowest parts of the fill were analyzed by Barbara L. Johnson.

Botanical Description of the Wooden Log

A small sample of wood was removed from the log at the bottom of one well. Thin sections were made across the branch and along it in a radial and tangential direction for microscopic examination.

The wood was identified as *Ficus sycomorus* (Heb. *šiqmâ*) according to the following anatomical wood characteristics (Fahn, Werker, and Baas 1986:132f.): tangential bands of medium-thick to thick-walled fibers alternating with bands of thin-walled parenchyma cells; vessels diffuse in radial multiples of 2–3, some solitary, rounded in cross-section, with simple perforations, mostly in horizontal end walls; and rays up to 14 cells wide, of varying heights up to 0.5 mm, heterocellular, with procumbent central cells and square, upright marginal cells. Laticifers, or the cells containing the "milky" fluid, were occasionally observed in the rays.

Growth rings were not evident. Growth rings are absent or very faint in sycamores, marked only by progressive changes in the width of the parenchyma and fiber bands. Therefore, the age of a sycamore sample is usually difficult to determine and unreliable, especially when only a small block is available for examination.

In the past, the sycamore was one of the most extensively grown trees in the coastal plain and the Jordan Valley. Muqaddasi (A.D. 985) described Ashkelon's richness in fruits, mentioning among others "especially that of the sycamore." Sycamore may be a relict of the Pleistocene. It is also found in Egypt, the Sudan, Ethiopia, and other regions of tropical Africa. Sycamore wood was used in ancient Egypt for coffins and as construction timber (Zohary 1982: 223); coffins made of sycamore wood have also been found in En-Gedi (Werker 1994). Wood of the *Ficus* (species not identified), dating from 10,000 B.C., was found in Jericho (Lipshitz and Weisel 1972).

Although sycamore wood has been described as hard, dense, strong, and durable (e.g., Bärner 1962: 388), Zohary considers it to be light and porous. The wood, due to its anatomical structure, is light and not very strong. Its specific weight is 0.4 (Fahn 1982), within the range of 0.35–0.65 usually used for timber (Eames and McDaniels 1947). The fact that worked sycamore wood was preserved in ancient Egypt and around the Dead Sea can be explained by the hot dry climate prevailing there, rather than by the wood's durability. The log under discussion remained mostly underwater; prevailing anaerobic conditions prevented its fast decay.

It can be concluded, therefore, that sycamore was used for the following reasons:

1. It was a readily available tree, especially in the coastal plain.
2. The tree grows up to 12–15 m in height and up to 1–2 m in diameter, a good source for large logs.
3. The alternating bands of thin- and thicker-walled cells render the wood more pliable than a more homogeneous wood, a useful characteristic for attaining the desired curvilinear shape for foundational casing of the well.
4. More speculative is the possibility that the wood's laticifers, present in some of the rays, protect the wood from infection.

The Pottery

Many types of pottery were recovered from well 64.96.F4. Among these are fine wares, utilitarian wares, lamps, and transport amphoras. Both locally made and imported items are present. The datable ceramic material ranges from the first century B.C. to the third century A.D.

After the well went out of use, broken pottery was dumped into it. This is indicated by the good condition of the individual vessel fragments: they are not waterworn from having been in an active well for any length of time, nor are they worn from having tumbled about on or in the earth prior to being deposited in the well. Moreover, the sherds nearly filled the preserved section of the well, again indicating that the material was dumped after a clean-up operation.

The pottery from the wells is published in final form in *Ashkelon 2: Imported Pottery of the Roman and Late Roman Periods* by Barbara L. Johnson (2008). Well 52 (Feature 64.96.F4), in particular, contained the following wares:

1. **Eastern Sigillata A.** Bowls, plates, cups, and (less frequently) jugs are the shapes found in the repertoire of this well known and widely distributed fine ware of the Hellenistic and Early Roman periods. The vessels are made of a fine clay, covered with a red slip, and they may or may not have rouletted and/or stamped decoration. Several examples were recovered from Well 52 that correspond to Eastern Sigillata A forms found at Samaria (see Crowfoot et al. 1957:281–357).

2. **Arretine Ware.** This ware, although widely distributed in the ancient world, is not common at

sites in Israel. Its date range is from the second half of the first century B.C. until well into the first century A.D.[21]

3. **Cypriot Sigillata.** A limited number of shapes occur in this Early Roman ware; these are mainly bowls and a particular kind of deep bowl or krater (Form 1), which may have three knuckle-bone feet, a flat base, or a ring foot. Although some jugs appear, they are not common. The fragment of a Form 1 krater from Well 52 is too small to discuss, other than to assign it to Form 1. Therefore, no closer date may be given for it than that of the general range of "probably late first century B.C. through the first century A.D."[22]

4. **Gray Ware Barbotine Cup**. Such cups are rare in Israel, but a parallel for the single example from Well 52 (shown below; see Johnson 2008:no. 104) was found at Oboda (Negev 1986:20).
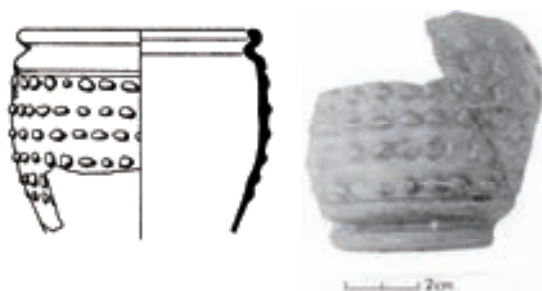
5. **"Orlo Bifido" Cooking Pans**. These pans derive their name from the deep groove around the upper surface of the rim which divides it into two parts. The examples from Well 52 are blackened from use. Both belong to Riley's Fabric 3, for which he suggests an Aegean origin (Riley 1979:247ff.). The date range is mainly late first century B.C. to mid-second century A.D.

6. **Pompeian Red Ware.** The shapes found in this cooking ware are pans, platters, and lids. The pans and platters are coated with a thick red slip on the interior; the lids are unslipped. Frequently, one or more bands composed of multiple, closely set concentric grooves, decorate the pan's floor. Both examples from Well 52 belong to Peacock's Fabric 2, for which he suggests a Mediterranean origin (Peacock 1977:153f. and fig. 3.1). The date range for this ware is from the first century B.C. to the first century A.D., or perhaps a little later.

7. **Miscellaneous Cooking Pans.** Four cooking pans from Well 52 belong to Riley's Early Roman Cooking Ware 6, Fabric 1 at Benghazi (Riley 1979:253–56). The distribution pattern of these pans suggests an eastern Mediterranean production center. The date range runs from the early first century to the third century A.D., with the period of greatest popularity being the first half of the second century A.D.

8. **Transport Amphoras.** Included in the final category of imported pottery from the well are the transport amphoras. These are Pseudo-Rhodian, Pseudo-Koan, and (in one case) Tripolitanian amphoras. Pseudo-Rhodian amphoras resemble their Hellenistic Rhodian predecessors in overall shape. In the Roman period, this type was produced in a number of different centers, probably all in the Aegean. The date range runs from the late first century B.C. into the early part of the second century A.D. (Peacock and Williams 1986:102ff.).

The Pseudo-Koan amphora is a not very common commercial wine jar of the Early Roman period. These vessels were produced in the west at a number of different centers, mainly in Italy. The distribution area includes the eastern Mediterranean, however, and Palestine as well. They vary in fabric depending on their place of manufacture, but all are characterized by heavy double-coil handles set below the rim and on the shoulder. The date range is from the late first century B.C. to the mid-second century A.D. (ibid., pp. 105f.).

Another identifiable imported amphora from Well 52 was manufactured in North Africa, specifically Tripolitania. This class of jars has a long history, ranging from the first to the fourth centuries A.D. Within this range, the example from the well belongs to the group identified as Tripolitania II (ibid., pp. 166ff.).

The remainder of the pottery from Well 52 was locally made and includes lamps, jugs, unguentaria, and large jars. The various vessels fall within the date range indicated by the imported ware.

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[21] See Hayes 1976. A krater somewhat similar to example no. 7 is dated ca. A.D. 10–25; see ibid., p. 13, no. 54; fig. 1, pl. 7. For the Haltern Type 2 dish, see ibid. p. 8, no. 22, fig. 2, pl. 8, date: ca. A.D. 10–25. For the Haltern Type 8 cup, see ibid., pp. 8–9, no. 26, pl. 8, date: ca. A.D. 1–20.

[22] Hayes 1967a:65–77; for Form 1, see ibid. pp. 67ff. Type A is dated probably to the late first century B.C. to the first half of first century A.D. Type B is dated to the second half of the first century A.D. For Form 3, see ibid., p. 69, where the type is dated to ca. late first century B.C. to the mid-first century A.D.

Radiocarbon Dating of the Wooden Log

The wooden log was dated by the ^{14}C method (sample RT-843). Following cleaning and oxidizing, the product CO_2 was transformed to ethane and measured in a gas proportional counter (Carmi et al. 1971; 1987). The age of the log was found to be $2,080 \pm 80$ radiocarbon years B.P. Calendric age was obtained by means of high-precision calibration, based on high-precision radiocarbon age measurements of absolutely dated tree rings by dendrochronology (Stuiver and Pearson 1986). The calibration cannot always give an unambiguous answer; for example, at 2,200 radiocarbon years B.P., when the calibrated age is undeterminable between 260 and 340 B.C. For the wooden log, fortunately, the calibration is single-valued, which gives a one-to-one correspondence and corrects the radiocarbon age of the log to 200 ± 10 B.C.

Discussion and Conclusions

The two wells under discussion, found at the bottom of the present sea cliff of the tell of Ashkelon, were operating some 2,000 years ago, as determined both by ^{14}C methods and by diagnostic pottery. Nir and Eldar-Nir (1987) conclude that a well constructed with cemented dressed stones, and periodically maintained, can operate for a few centuries. Although the walls of the two wells in which wooden logs were discovered were not cemented, there is no doubt that they belong to the same category and could have been in use for a long period of time. Deserted wells were in most cases used as refuse pits; the identification of diagnostic pottery may represent the latest period of a well's operation or the beginning of its secondary use as a refuse pit.

The calibrated ^{14}C age of the wooden log, as noted above, is 200 ± 10 B.C. This represents the date of *construction* of the well. The well probably func-

tioned for a long period without any disturbance other than cleaning and other maintenance functions. The pottery, on the other hand, represents the last stages of the well's use, when it ceased to operate during the second century A.D. Therefore, the maximum operational time of the well could have been some 300 years (from 200 B.C. to A.D. 100). This calls into question the notion that the wells under discussion survived for only a few decades because of their relatively small water supply, causing them to be abandoned for better sources.

Abandonment of wells at Ashkelon (and elsewhere in the region) obviously did occur, and this probably resulted from one or more of the following causes: (1) malfunctioning of the well, resulting from salinization due to the penetration of seawater into the groundwater system; (2) withdrawal of the *kurkar* ridge, leading to the collapse of the newly developed sea cliff, where the wells are located; (3) the discovery of better water sources in the vicinity of the wells; (4) destructive military operations; and (5) political or demographic changes that resulted in the abandonment or partial abandonment of the site, and a consequent lack of maintenance of wells.

There is general agreement between the two dating methods used; nevertheless, the comparison between the date obtained by the ^{14}C method and the date obtained from the diagnostic pottery should be made with great care. The actual overlap of the range of dates yielded by the two methods is very small, which is reasonable in view of the specific field relations of the objects analyzed. In this case, the primary steps of construction, represented by the wooden log, are being compared with the pottery assemblage of the abandonment period, showing that the well had an operational period of one to two centuries. Future discoveries of wooden logs in other wells or in other water systems may lead to stronger conclusions regarding the operational lifespans of other ancient water wells.

7. ARCHAEOBOTANICAL EVIDENCE OF BIRDLIMING AT ASHKELON

by Mordechai Kislev

CHARRED seed-stones of the tree species *Cordia myxa* L. emend. Hutchinson were found at Ashkelon in layers dated to the medieval Islamic period. This was the first archaeobotanical example of this species found in modern Israel. Historical sources reveal that the fruit of this tree was used in the region to prepare birdlime. Fowl-trapping with birdlime has been practiced in the Near East, and in coastal Palestine in particular, for hundreds, if not thousands, of years. The combination of archaeological and documentary evidence therefore suggests that birds caught by birdlime played a significant role in the economy of Ashkelon in the medieval period, and perhaps much earlier. In what follows, archaeobotanical finds of *C. myxa* and allied species are reviewed. It is suggested that *C. myxa*, as well as the related species *C. crenata*, was native to Egypt.

C. myxa is not a well-known species. Plants that are widely recognized in archaeobotanical research are usually staples for human consumption, or they are notorious for their aphrodisiac or hallucinogenic effects. This may account for the paucity of references to *C. myxa* in the archaeobotanical literature. Moreover, even when remains of this species have been found in archaeological sites, they have no doubt been regarded as uninteresting, and so have not been investigated seriously. This unfortunate neglect is compounded by the fact that botanical remains from relatively recent historical periods often do not receive the attention they deserve, because of the false assumption that there is little to be learned from them in comparison to more ancient remains.

Taxonomy and Distribution

According to some authors, the genus *Cordia* belongs to a special family Ehretiaceae, which is confined to tropical and subtropical regions. Others assign it to a separate group in Boraginaceae. In early sources, the tree and fruit of *C. myxa* and several related species are referred to in Greek (and Latin) as *myxa* (e.g., Pliny, *Natural History* 13.10.51; 1st cent. A.D.), and in Arabic as *sebesten* (e.g., Ibn al-Baytar, ca. A.D. 1240; see Sontheimer 1842:4).

C. myxa, which was described by Linnaeus (1753: 190), is divided today into three species. A specimen of the "true" *C. myxa* is kept in Linnaeus's herbarium and therefore retains the original epithet, namely, *C. myxa* L. emend. Hutchinson. The use of the Latin name *Cordia myxa* for different species leads to some confusion in the literature. Here this name is used only for the true species.

At the present time, this species is cultivated and sometimes naturalized in the following regions (see figure 7.1): southern Iran, southern Iraq, various oases in Arabia (in Asir, Nejd, and the eastern region), certain Mediterranean districts (in coastal Egypt, Israel, Cyprus, southern Anatolia, and the Aegean islands of Chios and Rhodes), and in northern and tropical Africa (see Davis 1978:246; Heller and Heyn 1986:60; Hutchinson 1918:217f.; Täckholm 1961:29; Townsend 1980: 644f.). In the early Roman period it was acclimatized in Italy, according to Pliny (*Natural History* 13.10.51).

The second species, *C. crenata* Del., resembles *C. myxa* but differs in its long, slender style arms which are not expanded at the apex, in its elliptic leaves with rounded teeth, as well as in its smaller and narrower fruits, which measure 7.5–13 × 5–7.8 mm (Hepper, pers. comm.; Hutchinson 1918:217f.; see figure 7.2). *C. crenata* grows wild in central Sudan (Andrews 1956:78; Schweinfurth 1867:278) and was cultivated in recent centuries (and perhaps earlier) in Egypt, although it has not been reported recently from that country (Delile 1824:214; note that Alpino [1735:17] named it *Sebesten sylvestris*).

The third species, *C. dichotoma* Forst. (= *C. obliqua* Willd.), has long, slender style arms that are generally expanded fanwise toward the apex, and variable leaves that are usually penninerved at the base. The drupe is larger, up to ca. 2.5 cm. Its area of distribution includes India, Ceylon, Malaysia, the Philippines, and tropical Australia (Hutchinson 1918: 217f.; Townsend 1980:645f.).

In addition, the related species *C. sinensis* Lam. grows naturally in Israel, Arabia, and Egypt; and another four species are recorded from the southern part of the Near East, namely, *C. abyssinica* R.Br., *C. dioica* Boj. ex D.C., *C. ovalis* R.Br., and *C. perrottetii* Wight ex D.C. Their main distribution area is in Africa, excluding Egypt, and they extend to Arabia (Heller and Heyn 1986:60).

Figure 7.1: Cordia myxa in fruit (from Delile 1824:plate 19, fig. 1)

Figure 7.2: Cordia crenata (from Delile 1824:plate 20, fig. 1)
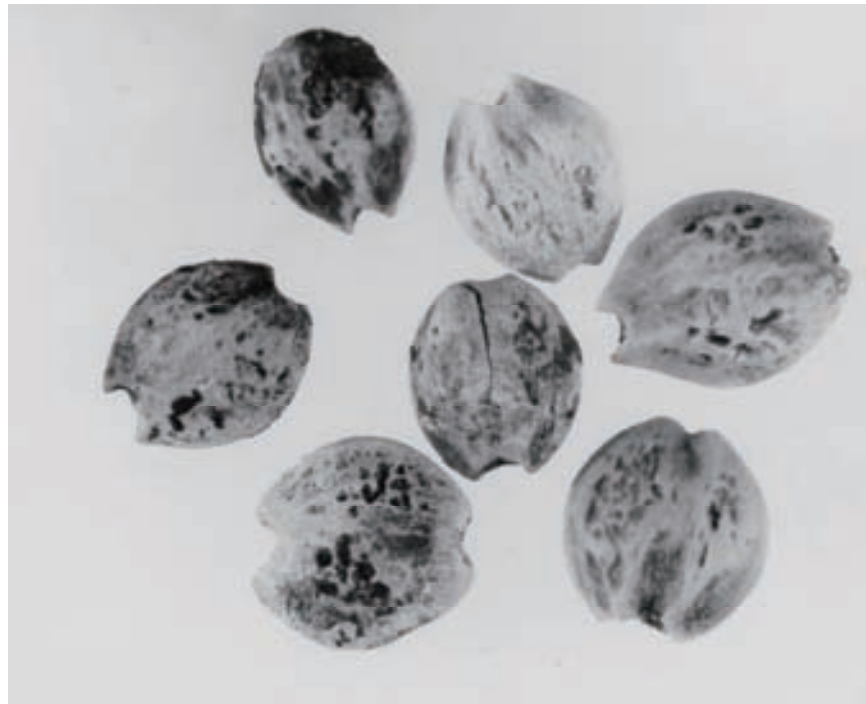
Figure 7.3: Cordia myxa (from Alpino 1735:fig. 7)

Figure 7.4: Cordia myxa fruit stones from the tree grown in the botanical garden of Miqve Yisra'el

The Plant and Its Uses

C. myxa is a tree that is usually ca. 7–12 m in height, but is sometimes as small as a shrub. Its leaves are petioled, broadly ovate or elliptical, and frequently subrotund (figure 7.3); those of young trees are oblong and dentated. Its inflorescences have many white, polygamous flowers. The drupe is yellow when ripe but afterwards turns blackish; it is roundish, mucronate, the size of a cherry (20–30 × 15–20 mm), sitting in the enlarged calyx. The pulp is almost transparent, very tough, mucilaginous, and sweet (*myxa* means slime or mucus in Greek). The stone is 12 × 9 × 6 mm on average (figure 7.4), cordate, bidentate and perforated at both ends, rugose, somewhat four-sided, and four-celled; only rarely do all prove fertile (Delile 1824:209; Hepper, pers. comm.; Hutchinson 1918:218; Townsend 1980: 644f.). The ripening season of the tree, which grows today in the botanical garden of Miqve Yisra'el near Tel Aviv, extends from August to October. The stones germinate readily without special treatment.

The following table shows the dimensions (in mm) and the indices of fresh kernels of *C. myxa* (N = 50). These are kernels from a single tree grown in Miqve Yisra'el. Deviations from the average (±) represent the 95% confidence intervals of the mean (1.96 × standard deviation/VN).

Table 3. Dimensions and Indices of *C. myxa* Kernels

	Minimum	*Maximum*	*Average*
Length (L)	8.3	13.2	11.80 ± .23
Breadth (B)	5.3	11.8	9.03 ± .43
Thickness (T)	3.7	8.5	6.13 ± .31
100 × L/B	103	203	133 ± 5
100 × T/B	62	76	68 ± 1

The timber of *C. myxa* is soft and light, and not very durable. In Egypt it was used to make horse saddles. In India, the related species *C. dichotoma* was used for building canoes, small boats, and agricultural implements. The timber of *C. sinensis* is a good kindling wood and is considered one of the best for lighting fire by friction (Delile 1824:208; Forsskål 1775:33; Post 1896:532; Townsend 1980:645f.).

The fruit of *C. myxa* and related species was eaten by natives of all regions where these trees grow. When fresh, the fruit is slightly astringent but pleasant-tasting and thirst-quenching. It can also be pickled. The kernel of the stone was consumed as a nut. The stone of *C. dichotoma* has a heavy, disagreeable odor when cut, but its kernel tastes like fresh filberts (Roxburgh 1874:198; Townsend 1980: 644f.).

Theophrastus (*Enquiry into Plants* 4.2.10; 4th–3rd cent. B.C.) wrote that the inhabitants of Thebes in Egypt, because of the abundance of the tree, bruised the fruit of *C. myxa* (which he calls a "plum") and made cakes of it. Pliny also mentions that in Egypt the fruit was used for making wine (*Natural History* 13.10.51).

The writers on Indian "Materia Medica" noted two varieties of *sepistan* (the Persian name for the fruit, corrupted in Arabic to *sebesten*). One is as large as a prune. Its stone is immersed in mucilaginous pulp and is separable from it. The second variety is smaller. Its stone adheres to the pulp (as described by writers on "Materia Medica" in Europe); it is less mucilaginous and sweeter than the larger variety.

The larger variety of the *sepistan* fruit is to be identified as belonging not to *C. myxa* but to *C. latifolia* Roxb., which is native to India (Roxburgh 1874: 198). The smaller variety is to be identified as *C. dichotoma*, which is closely related to the Mediterranean *C. myxa*. In other words, when the Persian word *sepistan* was adopted in Egypt (corrupted to Arabic *sebesten*), it was used there to describe native species related to the Indian *C. dichotoma*, namely, *C. myxa* and *C. crenata*.

The dried fruit of *C. myxa* was traditionally used by druggists to make a home remedy for chest ailments. The pulp of the fruit is a mild laxative and was added to purgatives to ameliorate their action (Townsend 1980:645f.). The glue that was made out of the fruit of both species grown in Egypt— "*Sebesten domestica*" (*C. myxa*) and "*Sebesten sylvestris*" (*C. crenata*)—was used to cure tumors and various afflictions of the throat and chest (Alpino 1735:17f.).

These species were grown in Egypt not so much for human consumption, however, but to produce birdlime. The ripening of the fruit coincides with the autumn migration of birds from Europe to Africa, and it was used extensively for producing birdlime to trap wild fowl.

The Preparation of the Glue

The best glue in Egypt was made out of the fruit of *C. myxa*. While some glue-makers squashed the ripe fruit to obtain its flesh, others chewed it briefly and then, by pressing the tongue to the roof of the mouth, sucked the sticky flesh out of the skin and spat it into a receptacle. After a sufficient amount of flesh was obtained, it was boiled in a pot until the water evaporated (Alpino 1735:17). Delile (1824:210) cites a sixteenth-century authority, P. A. M. Mattiolus, who noted that the glue made of the fruit of *C. myxa*

was exported from Egypt and Syria (including Palestine) to Venice, where it was known as "Alexandrian glue." Olivier (1804:177) reports that at the end of the eighteenth century, quite large quantities of this glue were exported from Egypt, although Delile (1824:210) claims that during his visit to Egypt just a few years later this glue was no longer exported.

Fowling by birdlime is mentioned by classical authors. According to the poet Oppian in his book *Cynegetica* (3rd cent. A.D.):

> Triple sorts of hunting hath God bestowed on men— in air and on earth and on the sea delightful. But not equal is the venture: for how can these be equal—to draw the writhing fish from the deeps or hale the winged birds from the air and to contend with deadly wild beasts on the hills? Yet not for the fisherman either and truly not for the fowler is their hunting without toil. But their toil only pleasure attends and no bloodshed: unstained of gore are they. . . . Yea, and to the fowler his toil is sweet; for to their hunt the fowlers carry nor sword nor bill nor brazen spear, but the Hawk is their attendant when they travel to the woods, and the long cords and the clammy yellow birdlime and the reeds that tread an airy path. Who would dare to sing of these things as of equal weight? . . . Hunters kill Wolves, fishermen kill Tunnies . . . the fisher with his trident takes the Red Mullet; the tracker takes the Boar, the fowler with his birdlime takes the Nightingale. [Oppian, *Cynegetica* 1.47–76; Oppian 1928:46f.]

The most vivid description of the capture of birds by birdlime is that by Meinertzhagen (1930), who recounts the manner in which it was practiced in Lower Egypt in the first part of the twentieth century:

> On April 4, 1922, in the *Journal Officiel* was published a law, No. 13, for the protection of birds. The use of birdlime and the cultivation of the birdlime tree (*C. myxa*) are prohibited by law in Egypt. The operation of this law presents many difficulties, and it has not been rigorously enforced. From August to November a huge belt of country would have to be watched. Detection would be rare and convictions difficult. The law is little understood except by its breakers, and excites little sympathy from public opinion. The law was intended to deal with a scandalous practice, entailing the slaughter of thousands of small migratory birds every year, even though the majority of these are protected and scheduled as "useful to agriculture." The number of birds annually destroyed on lime-twigs is incredible and entails shocking cruelty. An official report, written in 1927, records that birdliming is an extensive and well organised business on the north coast of the delta, with the whole population of the coastal area taking part in the illegal practice.

> The method employed is as follows. Lime twigs and sticks are placed in position soon after dawn, or the more prominent twigs of bushes are treated with birdlime. As the migrating birds settle they are ensnared by the viscous liquid and torn off by persons watching the traps. To prevent escape their wings are roughly snapped or even torn in two. Larger birds, such as shrikes, have the lower mandible broken to prevent them damaging the smaller birds. The hunted birds are then put in rush baskets, where they remain until the middleman appears. They are then slaughtered, the suffocated ones being cast away, consignments are packed in ice and railed to Cairo and Alexandria. Packages weigh some 20 kilos each and contain an average of five hundred small birds. Trade is brisk, for in 1927 between August 24 and September 10, twenty-one packages left Damietta Station alone for Cairo and Alexandria.

> The season for this trade lasts about ten weeks from the end of August to early Novembers. Some one hundred packages, each with five hundred birds, leaves Damietta during the season. This would represent some 50,000 birds. At Rosetta the business is equally lucrative, and these are but two localities in the stretch of hundreds of miles. It can be no exaggeration to say that well over a million small birds are slaughtered every autumn on the north coast of Egypt.

[Meinertzhagen 1930:78, 82f.]

More recently, the use of birdlime to catch birds such as golden oriole, cuckoo, hoopoes, and rollers has been reported from northeast Sinai, but no details are given concerning the origin of the glue (Apel 1970:46).

Birdliming in Palestine and northern Egypt is highly effective because vast numbers of migratory birds arrive there during the autumn months. These birds include skylarks, robins, stonechats, starlings, and chaffinches. Somewhat later, meadow pipits and black redstarts arrive.

Birds that winter in the southern part of Palestine fly over land. In contrast, migratory birds whose ultimate destination is Africa generally fly by night over the Mediterranean Sea in large groups and, when they need to rest, they land in an exhausted state at any possible place. Most of these Africa-bound birds arrive in coastal Palestine and Egypt early in the season, in August and September; these include several species of swallows and martins, wheatears, and woodchat shrikes. Later, in November, spotted flycatchers, whincats, redstarts, and chiffchaffs arrive (Paz 1986:16f.). Twigs were treated with birdlime at dawn because that is when weary migrating birds search carelessly for a place to land, without paying too much attention to the danger.

Large cranes were caught in a different way. For instance, a gourd might be hollowed out, then smeared inside with birdlime and a beetle placed within it. Hearing the humming of the beetle, a crane would approach and put its head into the gourd to catch the beetle. The gourd would then be stuck on the crane's head and it would remain standing helpless on the spot and be easily caught. If no beetle is at hand, one can take the leaf of an onion and put it into the hollowed gourd (see Bodenheimer 1960:61).

In early times, the problem of long-distance transportation of fresh birds caught by birdlime was more acute than it is today. Before the use of ice or refrigerators, large quantities of seasoning was necessary for cookery. In order to consume birds that were hung too long or those that fed in marshes and had a disagreeable "fishy" smell, a recipe for a sharp-tasting sauce was presented by Apicius, who lived in the first century B.C. (Edwards 1984:132f.).

Archaeobotanical Finds

Archaeobotanical finds of *C. myxa* are rather scanty. The species can be recognized in archaeological contexts by the fruit stone, which is flattened, rather similar to that of *Prunus insititia*, but identifiable by the notches at both ends and the two triangular teeth at the sides of each notch. In the 1985 excavation season at Ashkelon, one complete stone (9.9 × 7.0 × 5.5 mm) was found in Grid 57, Square 58, Layer 13, dated to the eighth–tenth centuries A.D., and two complete stones (11.6 × 8.1 × 5.5 mm and 11.3 × 8.9 × 6.7 mm) and a fragment, all charred, were found in a pit—Grid 57, Square 58, Layer 22, Feature 18—dated to a slightly later Islamic period. Since then, kernels of *C. myxa* have been found at two sites in the Dead Sea region, namely, ᶜEn Gedi (Byzantine period) and Ketef Jericho (Roman period). In two caves of the latter site some smaller kernels belonging to *C. sinensis*—apparently used for the same purpose—were also found (Melamed and Kislev 2005; Kislev and Hartman 1998).

The practice of fowling by birdlime is mentioned in Hebrew texts of the Roman period: "(He is culpable that takes out) lime enough to put on the tip of the lime-twig" (Mishnah, *Shabbat* 8.4; 2nd cent. A.D.). The lime in question might have been prepared from sticky fruits of native plants such as *C. sinensis*, mistletoe (*Viscum cruciatum* Sieb. ex Boiss.), or *Loranthus acaciae* Zucc. Löw (1928:296) claims that *C. myxa* is mentioned in the Babylonian Talmud (*Abodah Zarah* 14a; *Bekhoroth* 8a). This may be an indication that *C. myxa* was grown in Palestine in Roman times. Pharchi (1852:85.1), who lived there in

the fourteenth century A.D., translated *gufnin* (Mishnah, *Demai* 1.1; Babylonian Talmud, *Berakoth* 40.2) as *sebesten*. Moreover, the statement by Mattiolus that glue made of *C. myxa* was exported from Syria (Delile 1824:210), may be an additional evidence that the tree was grown continuously in Palestine for several centuries. The possibility cannot be excluded, however, that the stones found at Ashkelon originated from fruit imported from Egypt.

Aside from Ashkelon, Ketef Jericho, and ᶜEn Gedi, all other remains of the plant—fruit, stones, fruit calyces, twigs, and leaves—are reported from about ten sites in Egypt. In addition, fruits from Egypt of unknown provenience and date are kept in Vienna (Unger 1860:113), and in the Agricultural Museum in Cairo.

Table 4. Archaeobotanical Finds of *Cordia* from Egypt

	Site	Context	Date	Fruit	Other
1.	Saqqara	?	3rd Dyn.	1	-
2.	Thebes	Tomb 35	12th Dyn.	1	9
3.	Deir el-Medina	?	18th Dyn.	+	-
4.	Saqqara	dump	4th–1st c. B.C.	1	
5.	Hawara	cemetery	2nd–3rd c. A.D.	+	-
6.	Fayum	garland	Roman	-	+
7.	Fayum	beads	Roman	+	-
8.	El Hawara	labyrinth	Roman		+
9.	Berenike	?	Roman	+	-
10.	Mons Claudianus	?	Roman	+	-
11.	Quseir al-Qadim	?	Roman	+	-
12.	Saqqara	monastery	fifth cent. A.D.	+	-
13.	Phoebammon	monastery	Coptic	1	-
14.	Sheikh Said	building	Coptic?	-	+
15.	Faras	?	Coptic?	+	+

["Other" includes twigs, stones, leaves, etc. Note that Faras is actually situated in Sudan, not Egypt, but just near the border. Most of the data were accumulated by Täckholm (1961:29f.); since then, another five reports have been published.]

Sources: **1** Täckholm 1961:29 **2** Keimer 1924:26; Täckholm 1961:29; Germer 1988:23f., 41, fig. 24 **3** Täckholm 1961:29f. **4** Hepper 1981:147 **5** Newberry 1889:53; Lucas 1948:32; Täckholm 1961:30; Germer 1988:24 **6** Germer 1987:246 **7** Braun 1879:54f.; Täckholm 1961:30; Germer 1988:54, fig. 83 **8** Täckholm 1961:30 **9** Vermeeren and Cappers 2002 **10** Veen 1996; 2001 **11** Veen 2003 **12** Täckholm 1961:30 **13** Täckholm 1961:30, pl. 11b **14** Davies 1901:4; Lucas 1948:32; Täckholm 1961:30 **15** Lucas 1948:32; Täckholm 1961:30

Discussion

Table 4 lists one find from each of the Old, Middle, and New Kingdoms, eight from the Hellenistic and Roman periods, and four from later periods. If the earliest find listed in the table (Third Dynasty) is correctly identified and dated, then *C. myxa* was used in Egypt as early as the third millennium B.C. The fruit may have been used already as a medicine, as

well as for food. The nine twigs and leaves from Tomb 35 at Thebes, dated to the Twelfth Dynasty, provides direct evidence that the tree grew locally in Egypt at the beginning of the second millennium B.C., if not earlier.

No ancient Egyptian name is yet known for *Cordia* and it is not represented in drawings and reliefs on ancient monuments. It is likely that the use of the *C. myxa* fruit became widespread only during the Hellenistic and Roman periods, presumably in connection with birdliming, as classical sources suggest.

It should be kept in mind that some of the Egyptian finds identified as *C. myxa* may include the Sudanian species *C. crenata*. (The Indian species *C. dichotoma* is not likely to be found in Egypt.) Alpino states that both *C. myxa* and *C. crenata* were grown in Egypt in the sixteenth century A.D. The fruit of *C. crenata* is inferior in quality and was considered by him to be wild (1735:17). If neither of these species was native to Egypt, *C. crenata* could have been introduced from Sudan via the Nile valley, and *C. myxa* from the Arabian peninsula. But it is also possible that *C. crenata* or *C. myxa*, or both, are native to Egypt itself. In India, 11 stones of what is identified as *C. myxa* are reported from several layers at Inamgaon (Kajale 1988:765f.); but in view of the prevailing terminological confusion, these might well be *C. dichotoma*, which is native to India.

Unfortunately, no morphological key for fruit stones of *C. myxa*, *C. crenata*, and *C. dichotoma* is available. The fruit of *C. dichotoma* is the largest and that of *C. crenata* is the smallest, but the ranges of their dimensions overlap. The width of the stone changes considerably according to the degree of development of the locules (see table 3 above). Except for the Phoebammon find, no description or measurements of the Egyptian finds have been pub-

lished, so it is impossible in any case to determine the precise species, or whether the finds may belong to a different species related to *C. myxa*. Reexamination of the archaeobotanical remains and the discovery of additional remains might help us to decide whether it is *C. myxa* or *C. crenata* which is referred to by Theophrastus and Pliny in their descriptions of the uses of *Cordia* products from Egypt.

Conclusions

The find of *C. myxa* stones in Islamic-period Ashkelon suggests that the trapping of wild birds with birdlime was practiced in the region at that time. The tree today grows in the region mainly in the neighborhood of the National Park of Ashkelon; however, a century ago it was grown nearly everywhere (Post 1896:532). The cultivation of the tree near Ashkelon in the medieval period can thus be safely postulated.

In any case, one can assume that there has been more than a thousand years of intensive cultivation of *C. myxa* in Ashkelon, which has the best natural resources in Israel for exploiting fowl meat by birdlime. Perhaps it was based on a tradition of exploiting local wild species such as *C. sinensis*. The importance of this practice in the economy of ancient Ashkelon, however, cannot be evaluated at present.

APPENDIX

Iconographic and Textual Evidence of Birdliming

by Lawrence E. Stager

TODAY only a few *Cordia myxa* trees grow in Ashkelon, whereas once they could be found throughout the coastal Levant, in North Africa, and in Cyprus as well as the Greek islands (see Professor Kislev's discussion above, as well as Kislev 1997 and Post 1896:532). Mordechai Kislev has identified seeds from the fruit of this tree, which in common parlance is called the Syrian plum tree or the birdlime tree, from a botanical sample recovered by water flotation from ash and debris excavated from a pit—possibly a tree pit—that contained Islamic-period refuse dating

from the tenth to twelfth centuries A.D. Kislev learned that the pulp of this fruit was extracted, sometimes by mouth, collected, and then boiled to make a mucilage which is smeared on two- to three-foot long sticks or twigs. The sticky substance is known as birdlime and the practice of capturing birds by such means as birdliming. The birdlimed twigs are then placed among the branches of a tree or bush to attract small birds, usually near their favorite landing or feeding place. When the birds come to perch there, they become ensnared much like insects stuck to flypaper traps.

The glue sticks to the bird's wings and feet, making them unable to fly or walk about. Birds so entrapped may suffer a slow, agonizing death until the fowler comes along and wipes off the sticky substance and puts them in a cage or slits their throats, breaks their beaks, or crushes their heads. It is no wonder, then, that birdliming has been outlawed in most parts of the world. It is recognized as a cruel practice that often leads to a gruesome death for the bird. It has been outlawed in Egypt since 1912, although there and in other countries the ban is not always strictly enforced.[23]

Archaeobotanical remains of *Cordia myxa* have been found in Old, Middle, and New Kingdom tombs, perhaps indicating that birdliming was practiced in Egypt for 4,700 years, starting with Dynasty III (Wilkinson 1998:46). But we cannot be certain of this since *Cordia myxa* could be used for other purposes and, to the best of my knowledge, there are no illustrations of birdliming being used as a fowling technique on the wall reliefs of ancient Egypt, while other forms of bird-trapping are depicted. Although birdlime became its most important product, the timber of *Cordia myxa* was of some value, especially in Egypt, where wood was always in short supply. The fruit was also used as food and for medicinal purposes, as Kislev has described above.

On Cyprus, the use of birdlime-sticks is still very widespread, in spite of the ban. Officials estimate that more than 15 million birds are killed each year from birdliming and trapping by fine filament nets, or "mist-nets" (see the article "Lime-sticks and Mist-nets: The Massacre of Migrant Birds in Cyprus" at *http://www.conservation.org.cy/birds.htm*). Professor Kislev (pers. comm.) describes attending a festival in one of the villages in Cyprus where they served small migrant birds as a delicacy, known in Greek as *ambelopoulia*, grilled with heads and innards still intact. At a single sitting a gourmand might eat a dozen or more such delicacies. Those not consumed locally are pickled and sold abroad at very high prices.

Most bird-trapping takes place in the southeast of Cyprus. As in Greece and most of the coastal Levant, including Ashkelon, Cyprus provides places for millions of small migrating birds to rest and feed on their journey south in the fall and north in the spring. It is in such a Cypriot seaport that Shakespeare's Iago says: "My invention comes from my pate as birdlime

does from frize; it plucks out brains and all" (*Othello* Act 2, Scene 1, line 126).[24]

There is no doubt that birdliming was well known already in the medieval period, as is now directly attested by the botanical remains at Ashkelon; but the question remains how far back the practice can be documented. Saint Augustine, the fourth-century church father and philosopher, beseeched the Lord: "Increase Thy gifts more and more in me, that my soul may follow me to Thee, disentangled from the birdlime of concupiscence. . . ." (*Confessions*, Book 10; Augustine 1949:223f.). In the third century A.D., the poet Oppian wrote: "The fisher with his trident takes the red mullet, the tracker takes the boar, the fowler with his birdlime takes the nightingale" (Oppian 1928:46). Roman mosaics depict birds paralyzed by lime sticks, lured to the clutchtrap by an owl decoy perched nearby (Lo Porto 1963:22, fig. 6). The first-century geographer Strabo knew about birdlime, as he recounts in this odd tale of an encounter in India by Alexander the Great's soldiers (*Geography* 15.1.29; Strabo 1932):

> In the forest above-mentioned both the number and the size of the long-tailed apes are alike described as so extraordinary that once the Macedonians, seeing many of these standing as in front-line array on some bare hills . . . got the impression that they were an army of men; and they actually set out to attack them as human enemies, but on learning the truth . . . desisted. The capture of the animal is effected in two ways. It is an imitative animal and takes to flight up the trees. Now the hunters, when they see an ape seated on a tree, place in sight a bowl containing water and rub their own eyes with it; and then they put down a bowl of bird-lime instead of the water, go away, and lie in wait at a distance; and when the animal leaps down and besmears itself with the bird-lime, and when, upon winding, its eyelids are shut together, the hunters approach and take it alive. Now this is one way, but there is another. They put on baggy breeches like trousers and then go away, leaving behind them others that are shaggy and smeared inside with bird-lime; and when the animals put these on, they are easily captured.

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[23] Meinertzhagen (1930), presents the most detailed description of birdliming in northern Egypt at the beginning of the twentieth century. For an early account of birdliming in England, see Smith 1697:64–87.

[24] Frize/frieze is a coarse, woolen cloth with a rough surface or nap, such as a shag carpet. Shakespeare alludes to birdlime in many of his plays: e.g., in *The Tempest* (Act 4, Scene 1, lines 143ff., when Trunculo tells Caliban to lime his fingers, thereby giving him a propensity to steal with his "sticky fingers"; in *Much Ado About Nothing* (Act 3, Scene 1, lines 24–25, 104), where Ursula exclaims that Beatrice "like a lapwing runs close by the ground" is "limed . . . We have caught her"; and also in *Macbeth* (Act 4, Scene 2, lines 40–42), where Lady Macduff addresses her son: "Poor bird! Thou'ldst never fear the net nor lime / The pitfall nor the gin."

Figure 7.5. Birdliming scene on an Attic black-figured neck-amphora from the White-Levy collection
(Von Bothmer 1990:139)

When I discussed birdliming with Leon Levy during one of his visits to Ashkelon, he suggested that I take a look at a Greek vessel with farming scenes that he and Shelby White had in their collection. It portrays a plowman and a tree with birds dropping from it (figure 7.5). The jar had been studied by the eminent Greek-pottery expert Dietrich von Bothmer, who identified it as an Attic black-figured neck-amphora, attributed to the Bucci Painter, dated ca. 540–530 B.C. Bothmer made a connection between the two scenes on either side of the vase. One side depicts what he describes as "spring plowing." A farmer drives a yoke of oxen; he guides the scratch plow with his right hand and wields his whip with his left. The plowman appears to be focusing on the scene ahead on the other side of the amphora. For reasons unclear to me, Bothmer thinks that this scene takes place in the spring. He correctly describes the scene as a depiction of fowling with birdlime, in which "a leafless tree has been coated with glue to trap birds that have been attracted by the prospect of freshly sown seed and do not seem deterred by the presence of an owl that fulfills the functions of a scarecrow" (Von Bothmer 1990). A crouching fowler is ready to pounce on the birds that have been limed. He continues: "Of the thirty-one birds depicted, twelve have

already been lime-twigged, and some of the others seen descending may no longer be capable of sustained flight, but those on the ground are merrily going about their destructive business of picking the newly sown seeds" (ibid.).

It is not clear on what basis Bothmer infers "spring plowing," since plowing was often done in a cycle: the first plowing was done in the spring to bury the weeds and convert them into fertilizer and to loosen the soil to retain moisture from rainfall; a second plowing took place in summer; and a final plowing was done in the fall, when crops were sown (see Mosse 1969:34–35). So if it is seeds that are attracting the birds, then the most likely time is autumn, which is also the most common season for making birdlime from the ripe fruit of *Cordia myxa*.

But it is not clear that birds on the ground are "merrily going about their destructive business of picking the newly sown seeds." The four birds on or near the ground seem to be injured. In fact, most, if not all, of the thirty-one birds seem to be impaired by the birdlime, whether stuck on the branches and glue sticks or falling to the ground.

Bothmer's observation about the birds on the ground was probably inspired by an earlier misreading of a birdliming scene on an Attic red-figured

skyphos of the mid-fifth century B.C. in the collection from Newcastle-upon-Tyne. On first examination of the skyphos, Brian Shefton, another eminent Greek-pottery specialist, described the scene thus: "Captive owl perched as decoy with birds caught alighting or about to alight on the limed twigs; two birds pecking away on the ground" (Shefton 1970:59–60 and figs. 14–15). But upon further examination, Shefton made a very important discovery: "On the branches nearest to the owl there are indicated in very faded white a succession of straight bare rods rising at short intervals. These are no doubt the limed twigs stuck onto the living branches which are shown covered with leaves. These limed twigs may have glued up the birds' wings as well as their feet. . . . Some twigs have also been planted into the ground just underneath where the owl sits. Two birds have been caught and are immobilized, not 'pecking away.'" (Shefton 1970:62).

An older birdliming scene appears on the Taranto black-figured amphora, which is dated ca. 520 B.C. (Lo Porto 1963:18–19 and figs. 1–3). Bothmer observes that the depiction of the birds and the owl on the Taranto amphora most closely resembles that of the Bucci Painter on the White-Levy exemplar. Shefton detects incisions on the Taranto amphora that represent lime twigs, just as the white lines do on the Newcastle-upon-Tyne skyphos (Shefton 1970:62). Unlike the owls on the skyphoi in Brussels and in Newcastle-upon-Tyne, which sit on the branches of the tree like the other birds, the Taranto owl is perched on a stake to which it is presumably tied. On the White-Levy jar, where the birds hurtle head-first toward the ground, unable to fly because of the birdlime that has entangled their wings and impaired their flight, I see faintly painted diagonal lines extending from the branches of the tree, which probably represent limed twigs or sticks attached to the natural branches, to which some of the birds are stuck.

On all four vessels with birdliming scenes an owl appears, whether a live captive or an artificial one. The owls on the White-Levy and Taranto examples are perched on a stake in the ground; whereas the owls on the Brussels and Newcastle-upon-Tyne skyphoi sit on the branches of the tree, along with the limed birds. It is commonplace to think of owls as being hostile to small birds, so Bothmer misinterprets the role of the owl in these scenes, noting that the birds "do not seem deterred by the presence of an owl that fulfills the functions of a scarecrow" (Von Bothmer 1990). As Aristotle (1965) tells us, far from scaring small birds away, owls attract them:

> In the case of birds, there is mutual enmity between . . . the crow and the owl. . . .There is enmity also between the owl and the wren; for the latter also devours the owl's eggs. In the daytime all other little birds flutter round the owl—a practice which is popularly termed "admiring him"—buffet him, and pluck out his feathers; in consequence of this habit, bird-catchers use the owl as a decoy for catching little birds of all kinds.

[Aristotle, *Historia Animalium*, book 9, chapter 1]

The White-Levy black-figured neck-amphora decorated by the Bucci Painter shows that the practice of catching birds by birdliming, which has now been documented archaeobotanically by the Leon Levy Expedition to Ashkelon, was well established already in the mid-sixth century B.C. The practice of birdliming was probably much older, providing an important source of nutrition, especially along the Levantine coast, where millions of birds alighted during their seasonal migrations from Europe and Asia to Africa. We can expect, therefore, that future excavations that are attentive to this possibility will find more evidence of *Cordia myxa*, which we continue to seek at Ashkelon itself.

PART TWO

HISTORY OF EXCAVATIONS

8. EARLY EXPLORATIONS

by J. David Schloen

TRAVELERS AND ILLUSTRATORS

BEGINNING in the eighteenth century, an increasing number of Europeans visited ancient sites in the Near East and published detailed accounts of their travels. This phenomenon reflects a growing fascination with the history and cultures of the "Orient," fueled by the antiquarian scholarly interests of the Enlightenment, by the Romantic fascination with mysterious foreign cultures, and by more hard-nosed imperial designs on the Ottoman Empire—all neatly combined in Napoleon's invasion of Egypt and Palestine in 1798–1799, in which the French army was accompanied by a large corps of 175 scholars who produced the famous multivolume *Description de l'Égypte.*

Many travelers in the Levant made a point of visiting the ruins of Ashkelon, in particular, a place that was well known from the Bible and from classical and medieval sources. Although the site had long since been abandoned, its name had not been forgotten, and the fortifications of the ancient city and many architectural remains were plainly visible, making it easy for visitors to imagine (often in a rather romanticized fashion) what the city had been like when it was inhabited.

Constantin-François Volney

Fifteen years before Napoleon's expedition, one of the earliest and most widely read of European travelogues about the Levant was written by Constantin-François Volney (1757–1820), who published his *Voyage en Égypte et en Syrie* in Paris in 1787, on the eve of the French revolution. His book was informative and engagingly written, and it must have aroused considerable interest, for it was immediately translated and published in English in 1787, German in 1788, Dutch in 1789, and Italian in 1799 (see Volney 1959:17).

Volney visited a number of places in Egypt, Palestine, and western Syria from 1783 to 1785, including the site of Ashkelon, "dont les ruines désertes s'éloignent de jour en jour de la mer, qui jadis les baignait" (ibid., p. 347). Unfortunately, despite his well-documented powers of scientific observation and his knack for description, Volney has nothing else to say about the ruins of Ashkelon, although he does comment on the reputation of the nearby town of Majdal (el-Mejdel) as a place where the best cotton in Palestine—coarse as it was—was spun.

Lady Hester Stanhope

A more aggressive exploration of Ashkelon was carried out by another European traveler, the eccentric Englishwoman Lady Hester Stanhope (1776–1839). She was the eldest daughter of an earl—Charles Stanhope, himself noteworthy as a radical political reformer and experimental scientist—and the niece of William Pitt the Younger, prime minister under George III. This irascible and independent-minded woman traveled widely in Syria and Palestine, encountering various Ottoman officials, European diplomats, and adventurers like herself. Later in life she settled in the mountains of Lebanon, where she died.[25]

Lady Hester's travels are recounted by her personal physician, Charles Meryon, who describes an expedition she led to Ashkelon in 1815 in search of buried treasure (Meryon 1846, vol. 3:86–97, 116–171). Upon learning of an old manuscript that described great treasures buried in Ashkelon and other sites, Lady Hester petitioned the Sublime Porte for permission to dig at Ashkelon, in order to recover the treasure on behalf of the Ottoman government, "offering them all the pecuniary benefit that might accrue, and reserving for herself the honour only" (ibid., p. 92)—but expecting that the British government would remunerate her for enhancing the reputation of her homeland. In January 1815, written permission was sent from Istanbul, commanding the local Ottoman governors to assist her; in particular, Muhammad Aga, the governor of Jaffa, who was to oversee the excavations.

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[25] In keeping with what might be called the "cult of the British eccentric," Lady Hester's remarkable experiences and personality have been treated in a series of adulatory amateur biographies, some by her own descendants, beginning with the six(!) volumes about her life and travels published by her physician, Charles Meryon (1845; 1846). Several such biographies have been published in the twentieth century (Roundell 1909; Armstrong 1928; Haslip 1934; Watney 1975; Childs 1990; Day 1997).

Lady Hester and her entourage arrived at Ashkelon on March 31, 1815. The next day they explored the site, locating the great mosque of the Islamic period, which was chosen as the best place to dig. Meryon reports that he and a few others set up their tents just to the east of the area to be excavated, but that most of the group camped outside the eastern gate because of strong superstitions concerning the danger of spending the night within the haunted ruins. Lady Hester herself stayed in a house in the nearby village of Jura.

Approximately 150 workmen dug from dawn to dusk for the next two weeks. At a depth of three or four feet they uncovered the stone foundations of a colonnaded building, but little of interest was found in the area (broken pottery, of course, would have seemed worthless to them), except for a large headless stone statue of a cuirassed soldier, probably a Roman emperor, discovered six or eight feet below the surface. Fortunately, Meryon made a detailed sketch of it (ibid., p. 162; see figure 8.1) because on her departure from the site, Lady Hester had this statue smashed and the pieces thrown into the sea.

Meryon reports that she explained this act by arguing that, if she kept the statue, "I lose with the Porte all the merit of my disinterestedness. . . . Malicious people may say I came to search for antiquities for my country, and not for treasures for the Porte" (ibid., pp. 165, 166). No doubt she had in mind the recent controversy over the shipment of the famous "Elgin marbles" from the Parthenon in Athens to England, which took place from 1802 to 1812 and had provoked considerable criticism of Lord Elgin by Lord Byron, among others (and which still generates controversy to this day).

Although Lady Hester's behavior is hardly commendable from the point of view of modern archaeological research, it is clear that she—a progressive, free-thinking aristocrat like Byron—was eager to commend herself to the inhabitants of her adopted land. What is harder to understand is why she went to the extreme of destroying the statue instead of simply reburying it. This we can probably attribute to her well-documented predilection for dramatic and unconventional behavior that she hoped would mark her out as someone to be reckoned with.

Moreover, despite her best intentions, not everyone was willing to believe in her "disinterestedness." Rumors circulated among the workmen that the statue had been destroyed because it was filled with gold that was secretly appropriated by Lady Hester.

Muhammad Aga himself seems to have been more interested in removing the marble paving stones that had been unearthed in the digging and sending them back to Jaffa. Indeed, Ashkelon had long been subject to sporadic excavations in search of building materials, if not treasure. Its location on the sea made it a convenient place to obtain ancient stonework that could be shipped north to Jaffa and Acre.

In addition to uncovering the foundations of the colonnaded building, excavations were undertaken near one of the medieval towers of the eastern part of the city wall. No gold was found there either. Rather than admit that her treasure map was a forgery, Lady Hester decided that the site had been previously excavated by the governor of Acre in order to embellish his city with granite and marble pillars, and that he had already found the treasure. After only two weeks of digging, Lady Hester and her entourage left Ashkelon on April 15, 1815. Muhammad Aga remained behind, however, gathering building materials for Jaffa.

It is quite probable that the Ottoman authorities, upon hearing the news of possible buried treasure from Lady Hester, had sent Muhammad Aga to Ashkelon ahead of time to look for the gold, and only when he could not find any did they give her permission to excavate. Meryon notes that: "There were appearances showing that the ground had been disturbed at some former period, particularly in the south-east corner, where there was a ditch of a very recent date, which (it was whispered by the peasants) had been made by Mohammed Aga himself" (ibid., p. 160). After Lady Hester departed, a certain amount of digging no doubt continued, conducted by local inhabitants in search of the treasure that the Englishwoman had been so certain of finding.

Lady Hester was more of an adventurer and dilettante than a serious scientific explorer, thus she made no drawings or plans of her excavations at Ashkelon, and there is no record even of the locations where she dug. The large building she uncovered is probably the one shown in David Roberts's illustration of the ruins of Ashkelon (see below). Once exposed, its foundations seem to have survived relatively intact until Roberts's visit to the site in 1839, and were still visible at the time of Guérin's visit in 1854. But these foundations were subsequently either reburied or removed for use as building material, because no trace of them was detected by the British surveyors who inspected the site in 1875 (Conder and Kitchener 1883:237–41). Both the statue and the colonnaded building unearthed by Lady Hester probably date from the early third century A.D., when the Roman emperors of the Severan dynasty sponsored a renovation and reorganization of the city (discussed in the next chapter).

Figure 8.1: Drawing of the headless statue found by Lady Hester Stanhope (Meryon 1846:vol. 3, p. 162)

Figure 8.2: Byzantine mosaic from Umm al-Rasas depicting multistory houses in Ashkelon

Le Comte de Forbin

In 1818, three years after Lady Hester Stanhope's expedition, Ashkelon was visited by another peripatetic aristocrat, Louis Nicolas Philippe Auguste, Comte de Forbin (1777–1841), as he recounts in his *Voyage dans le Levant en 1817 et 1818* (Forbin 1819). He and a few others left the caravan in which they were traveling from Jaffa to Gaza in order to see the ruins of Ashkelon, which he describes as follows:

> A plain leads up to the ruins of Ascalon. This city, which no longer has a single inhabitant, is situated on an immense slope, forming a half-circle; the rise is almost imperceptible from the landward side, but seaward the escarpment, which forms the chord of that arc, is very considerable. The ramparts and their gates stand upright; the tower awaits the vigilant sentinel. The streets lead you to piazzas and gazelles bound up the interior stairway of a palace. The vast churches no longer echo with anything but the cry of the jackal; entire flocks of these animals gather in public piazzas, and at present are the only masters of Ascalon. . . . Not far from these Gothic monuments is found the grand debris of a temple of Venus: forty columns of rose granite of largest size, capitals, and friezes of beautiful marble all rise above a deep, open vault. The shaft of an immense orifice descends into the bowels of the earth; fig trees, palm trees and sycamores veil, in part, this great disaster. What a picturesque, philosophical contrast these Greek ruins make . . . with the dome of a chapel of the Virgin. The latter dominates this beach and was doubtless invoked more than once in the midst of perils off this stormy coast. . . . One finds every minute some coats of mail, the iron of a lance, or the remnants of a shield. Lady Hester Stanhope came to attempt some excavations at Ascalon, the price of which quickly terrified her. A tribe was charged with this enterprise, but the ruinous protection of the Aga of Jaffa caused Lady Stanhope to renounce this project. [Forbin 1819:48–49; translated from the original French by the present author]

Forbin's description was no doubt embroidered considerably, but it suggests that quite a few architectural remains were exposed to view at the time of his visit. It is possible that additional informal excavations had been carried out by local treasure-hunters in the aftermath of Lady Hester's expedition, uncovering long-buried structures of the medieval and classical periods. This would also account for Forbin's statement that he was shown numerous helmets and swords by the residents of Majdal.

In addition to his written account, Forbin published two lithographs of the ruins of Ashkelon (Forbin 1819:pls. 41 and 42). Unlike many depictions of sites in the Levant, these were drawn in the field

and thus are useful for reconstructing the architecture of medieval Ashkelon, assuming that the artist provided a faithful record of what he saw. They indicate that the city wall and towers themselves provided substantial quarters for the many troops garrisoned in the city during the Fatimid and Crusader periods. Various ramps and stairways are shown, and a broad elevated walkway parallels the inside of the wall. Large vaulted cisterns are shown under this walkway; drains from the walkways on the towers and along the walls would have channeled rainwater into these cisterns. The wall was higher than other parts of the city, so water from the cisterns could easily have flowed down into baths and fountains.

The battlements at the top of the wall and the towers have a crenellated parapet. The artist also depicts what appear to be a few loophole windows in the towers—the view presented is of the inside of the city wall, where only a few such windows were needed. As expected, only square towers are shown in this view; round towers, of which several are still visible at the site today, would have been used on the exterior of the wall, being better suited for defense.

Another interesting detail is the narrow three-story house with steeply slanted roof built against the inside of the city wall. This house provides a sense of scale in relation to the height of the city wall. The ruins of other walls in the area suggest that similar houses once stood nearby, in what was probably a densely populated section of the city. Similar narrow three- and four-story houses with slanted roofs built just inside the city wall are depicted at Ashkelon and at other cities in the Byzantine-era mosaic maps of Palestine that have been found in Madaba, Umm al-Rasas, and Ma^cin in Jordan (Piccirillo 1993:95 [fig. 77], 201 [fig. 309], 226 [fig. 352]; see figure 8.2).

In the foreground at the left of Forbin's illustration is a sarcophagus, and at the far left there appears to be an open tomb or pool. The many fallen columns shown in the center indicate that a colonnaded roadway might once have existed near this section of the wall. To the right is part of a well-constructed building still standing at least eleven courses high—perhaps this is the "palace" that Forbin describes.

Unfortunately, few of the structures recorded by Forbin were visible when scientific exploration of the site began in earnest in the second half of the nineteenth century. Most of the architectural remnants exposed to view in the early nineteenth century were extensively robbed in subsequent decades to provide building materials, especially during the period from 1832 to 1840 when the Egyptian army occupied the region, as discussed below.

David Roberts

The most famous illustrations of ancient sites in the Holy Land are those of the Scottish landscape artist David Roberts (1796–1864). These were published as tinted lithographs in three massive folio volumes, with commentary by the Reverend George Croly (Roberts 1842–1844; reprinted in Roberts 1996—see the essay by Eric Meyers on "The British and American Rediscovery of the Holy Land in the Early Nineteenth Century," pp. 29–37). Roberts traveled to Palestine and neighboring regions in 1838–1839. He visited Ashkelon in March 1839; his illustration of the site is reproduced below in figure 8.3. Roberts noted in his journal that various impressive ruins of the ancient city were well exposed at the time of his visit because Ibrahim Pasha (1789–1848), the son and skillful general of Muhammad Ali, viceroy of Egypt, had recently ordered that the area be excavated to supply building materials for the construction of a military base near the ancient city. This short-lived settlement was called "New Ashkelon" (*ᶜAsqalān al-Jadīda*). It was situated between Majdal and the site of ancient Ashkelon, probably on the *kurkar* ridge northeast of the ancient site, in the area of the modern police station (see Guérin 1869:133–35 and the discussion of "New Ashkelon" below). Ibrahim Pasha had initiated this clearance operation at Ashkelon during his successful campaign against Ottoman forces in Palestine and Syria in 1831–1832, after which he became governor of the whole region until 1840.

The foundations of a large colonnaded structure were fully exposed in this way, and this building—located somewhere in Grid 31 or 32 of the Leon Levy Expedition—is the focus of Roberts's drawing. Despite Ibrahim Pasha's stone-robbing operation, Roberts was able to see some remaining columns, each carved from a single piece of granite, as well as entablatures and capitals made of marble. This building was very likely the large columned structure originally excavated by Lady Hester Stanhope in 1815, because it matches quite well her physician's description.

Figure 8.3. Illustration of the ruins of Ashkelon made by David Roberts in 1839

The vantage point for Roberts's drawing of Ashkelon was the elevated site of a church, of which the pavement and column bases had been preserved. This church was apparently the "temple of Venus" that Forbin saw in 1818. It was situated on the northwestern edge of the mound, inside the city walls near the seashore (in Grid 1 or 2 of the Leon Levy Expedition), and it provided the platform on which Roberts stood, gazing south, as he made his drawing of Ashkelon.

Roberts's careful eye also picked out the remains of a theater in the distance at the south end of the site, which previous visitors had failed to note—perhaps because it was exposed only in the 1830s by Ibrahim Pasha's clearance project. On the left side of Roberts's drawing are the eastern portions of the city wall that appear in the eastward-looking illustration published by Forbin. What seem to be the remnants of a smaller temple or church lie in the distance, south of the large colonnaded building shown in the foreground. The *weli* called "el-Khadra"—Forbin's "chapel of the Virgin"—still stands today in the location where Roberts has drawn it (in Grid 50 of the Leon Levy Expedition), overlooking the sea in the south-central part of the site, on the right edge of the drawing. This demonstrates Roberts's much-admired concern for accurate detail.

The British archaeologist John Garstang published Roberts's illustration in a report on his excavations at Ashkelon from 1920 to 1922 (discussed below in chapter 9). Garstang suggested that the colonnaded building shown in the foreground was the peristyle that he himself had excavated, initially dubbed the "Temple of Fortune" or "Tycheion" because a statue of the goddess Tyche was found nearby (Garstang 1924:33–35). But Garstang's peristyle is oriented differently (north-south rather than east-west) and it lies farther south than the building drawn by Roberts. It is more likely that Roberts depicts the building earlier excavated by Lady Hester, and further exposed by Ibrahim Pasha, in which case Garstang's building still lay buried in 1839, awaiting his expedition.

SCIENTIFIC SURVEYS

From the late 1830s until the First World War, a number of researchers conducted detailed scientific surveys of ancient sites in Palestine and their geographical contexts, including the site of Ashkelon. This was in keeping with the trend toward the professionalization of geographical and historical research that took hold in Europe and America in the course of the nineteenth century. A pioneer in this regard was the American biblical scholar Edward Robinson (1794–1863), who had learned the latest historical and linguistic methods in Germany and subsequently put them to good use during his travels in Palestine in 1838 and 1852 (see Moorey 1991:14–18).

Although Robinson is justly regarded as the founder (and one of the best practitioners) of scientific historical geography in Palestine, most of the investigators of this period were from France or Britain. This reflects the political realities of the day, a period when these two European powers were in a position to compete for influence in the Levant, culminating in the British conquest of Palestine in 1917 and the post-World War I division of the Ottoman domain in Syria and Palestine into French and British administrative zones mandated by the League of Nations.[26]

Victor Guérin

Following on the work of Robinson (who did not visit Ashkelon), one of the earliest systematic surveys in Palestine was carried out by the French scholar Victor Guérin (1821–1890). Trained in classical philology at the École Normale Supérieure in Paris, Guérin first visited the countries of the eastern Mediterranean in 1852–1854 (see Miroschedji 1997). After 1863 he devoted himself to the study of ancient Palestine, in particular, undertaking three exhaustive itineraries in the region of ancient Judea (1863), Samaria and the Jordan Valley (1870), and Galilee and Phoenicia (1875). The results of these surveys were published between 1868 and 1880 in the seven volumes of his *Description géographique, historique et archéologique de la Palestine.*

Concerning the site of ancient Ashkelon and its surroundings, Guérin describes the vestiges of the military base called "New Ashkelon" (ᶜ*Asqalān al-Jadīda*) that was built by Ibrahim Pasha, the commander of the Egyptian army, during his occupation of Palestine and Syria from 1832 to 1840 on behalf of Muhammad Ali, the rebellious viceroy of Egypt. After the region was returned to Ottoman control in 1840 by the British-brokered Treaty of London, New Ashkelon was abandoned and gradually dismantled by the inhabitants of the nearby town of Majdal, who used it as a source of building materials (Guérin 1869:133–35).

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[26] See Neil Silberman's book *Digging for God and Country* (1982) on the relationship between European imperialism and scholarly research on the geography and archaeology of ancient Palestine.

From Guérin's description, we know that New Ashkelon was situated somewhere between Majdal, which was located 5 km inland on the main highway, and the village of Jura next to the tell of ancient Ashkelon. Majdal's population numbered about 1,500 at the time of Guérin's visit and Jura's was about 300.

New Ashkelon's position can be pinpointed more precisely—to the first *kurkar* ridge several hundred meters northeast of the ancient site, in the vicinity of the modern police station—on the basis of one impressive landmark that was noted by Guérin and also by the British surveyors who came after him in subsequent decades: namely, an unusually wide and deep well, over which was erected a domed superstructure that was still intact at the time of Guérin's first visit in 1854. In the Palestine Exploration Fund's *Survey of Western Palestine* the name of this well is recorded as "Bir el-Kushleh" and its location is mapped (Conder and Kitchener 1882:419 and sheet 16; see also Warren 1871:89). It was much larger than normal, being 10 feet in diameter and 120 feet deep, with a winding staircase running down the inside. By way of comparison, the irrigation wells surveyed on the tell of Ashkelon were typically about 3 feet in diameter and 50 feet deep (Conder and Kitchener 1883:237).

The vaulted superstructure of the Bir el-Kushleh was in ruins when the British surveyors examined it, and the well was by then dry and out of use. The large well and associated cisterns at New Ashkelon were presumably constructed for the benefit of the Egyptian troops and horses that had been stationed there. A similar large-diameter circular well called "Bir esh-Shekeir" was located on the seashore a few kilometers north of Ashkelon (Conder and Kitchener 1882:420 and sheet 16). It is possible that it, too, was constructed by Ibrahim Pasha in the 1830s for military purposes.

New Ashkelon itself had been built using large quantities of stone and marble taken from ancient Ashkelon. Guérin remarks that it was fortunate for the preservation of the ancient site that Ibrahim's ambitious building plans were foiled by his forced departure from Palestine in 1840:

> Ce contre-temps sauva les ruines d'Askoulan, déjà trop souvent exploitées comme une véritable carrière de pierres taillées et de colonnes, et qui auraient fini par être réduites à de misérables débris, si l'établissement militaire projeté par Ibrahim était devenu le centre d'une ville nouvelle, qui, par sa naissance et ses développements, aurait porté à l'ancienne un dernier et irrémédiable coup, en héritant à la fois de son nom et de ses dépouilles. [Guérin 1869:134]

Palestine Exploration Fund Survey

Unfortunately, the abrupt demise of Ibrahim Pasha's New Ashkelon did not arrest but merely delayed the removal of the stonework that was visible on the surface of the tell. The large colonnaded structure drawn by David Roberts in 1839, for example, which had first been excavated by Lady Hester Stanhope in 1815 and had been further exposed (or reexposed) by Ibrahim Pasha's recent quarrying of the site, was located by Guérin in 1854, as was the theater previously detected by Roberts in the southern part of the site (see Guérin 1869:145–47). But both of these major features seem to have vanished or were covered again by irrigated fields and orchards by the time the site was subjected to an even more detailed and systematic British survey conducted on behalf of the recently established Palestine Exploration Fund (PEF) in April 1875, as part of its monumental *Survey of Western Palestine*, incorporating careful descriptions of "topography, orography, hydrography, and archaeology" (see Conder and Kitchener 1883:237–41; see also Conder 1875).

Still visible at the time of the PEF survey, however, were the foundations of the church at the north end of the site, where Roberts had stood as he made his drawing, and the small *weli* called "el-Khadra" perched above the seashore in the southern part of the tell. These two structures were situated in elevated areas of the site that were not cultivated by local farmers, and thus remained exposed to view.

In much of the site, however, the ruins within the medieval walls were covered by up to three meters of fertile soil:

> Quantities of masonry pillars and sculptured fragments are found in digging to a depth of some 10 feet. Inscriptions on slabs of white marble have also been discovered. There are many fine shafts of grey granite, some 3 feet [in] diameter and 15 feet long, lying among the ruins in various parts. [Conder and Kitchener 1883:238]

Conder and Kitchener report that the ruin mound of Ashkelon was intensively cultivated by the inhabitants of Jura, who irrigated it by means of at least thirty-seven wells scattered throughout the site. As at many other Near Eastern tell sites, centuries of accumulated mudbrick detritus and other cultural debris had produced a thick layer of rich agricultural soil, which was especially prized in a region that had been encroached upon increasingly by sand dunes.

Most valuable in the PEF survey are the maps of settlements and land use in the region around Ashkelon (see figure 8.4), and a detailed map of the site

Figure 8.4: Map of the Ashkelon region published in the PEF's *Survey of Western Palestine*
(Conder and Kitchener 1882:sheet 16; 1883:sheets 19 and 20)
Scan courtesy of Todd Bolen

Figure 8.5: Map of the site of Ashkelon made by Charles Conder in 1875
(Conder and Kitchener 1883:237 [facing page])

itself, which shows the irrigated fields and the remnants of the massive medieval fortifications (Conder and Kitchener 1883:237 [facing page]; reproduced in figure 8.5). Ashkelon's outer walls, towers, and buttresses were much better preserved in 1875 than they are today, and the PEF surveyors' description of them (including measurements of their dimensions) are very useful. The PEF maps clearly show that the existence of these fortifications was the main reason that the site of ancient Ashkelon was so intensively cultivated in the nineteenth century, because the ramparts and walls served to protect the tell from the encroaching sand dunes that had gradually smothered the coastal region between Gaza and Ashkelon—extending several kilometers inland, in some places—making it unsuitable for agriculture.

As noted above in chapter 2, however, the dune coverage must have been much less extensive in earlier periods, because settlement sites dating as far back as the Epipaleolithic period have been found buried under several meters of sand (see Gophna 1997:155 and footnotes there). In many areas, the dune coverage may be relatively recent. When traveling between Gaza and Ashkelon in 1867, Charles Warren observed that:

> It is curious in traversing these sand hills to come upon the site of some orchard which has been covered perhaps for hundreds of years. You suddenly come upon a sort of crater in the sand, 40ft. deep, at the bottom of which flourishes an apple tree; then you come upon a fig tree growing in the same manner, and lastly upon a little patch of ground, quite below the level of the sand, with a house attached; but even this patch of ground has several feet of sand over it. [Warren 1871:84]

In the decades following the PEF survey, British scholars maintained a strong interest in Ashkelon, and when the opportunity arose after the First World War, at the start of the British Mandate in Palestine, the Palestine Exploration Fund sponsored archaeological excavations at the site. The results of those excavations are summarized in chapter 9.

9. BRITISH AND ISRAELI EXCAVATIONS

by J. David Schloen

THE first scientific excavation of Ashkelon took place in 1920–1922. It was conducted by the British archaeologist John Garstang (1876–1956) and his assistant W. J. Phythian-Adams, on behalf of the Palestine Exploration Fund.[27] Garstang had excavated previously in Egypt, Anatolia, and the Sudan. Throughout his life he displayed a considerable talent for organization and administration in the service of archaeological research. In 1919 he became the founding director of the British School of Archaeology in Jerusalem, and in 1920 he became the founding director of the Department of Antiquities established by the British Mandate government of Palestine. In the same year, he undertook as his first field project in Palestine the excavation of Ashkelon.

Ashkelon is a deep and stratigraphically very complex site, and it is fair to say that most archaeologists of the early twentieth century—Garstang included—were ill equipped to make sense of it. The excavation and recording techniques employed by the British expedition were adequate only for the most basic kinds of stratigraphic and architectural analysis. Nonetheless, in the course of their relatively brief work at the site, Garstang and Phythian-Adams were able to collect a considerable amount of useful information of value to later researchers.[28]

John Garstang's "Senate House"

Garstang's principal architectural discovery was a large public building, which he identified as a senate house (*bouleuterion*) constructed in the first century B.C., to which was later added a colonnaded court or peristyle. He describes this structure as follows:

> A peristyle, about eighty metres in length, having twenty-four columns on each side and six at each end (counting the corner-pieces twice), forms an open approach to the theatre-like building identified as the Senate House. The remains were traced over an area

exceeding 100 metres in length and thirty-five metres in width. The whole building was thus probably about 110 metres, or 120 yards, over all, and with its long double line of columns must have presented a majestic appearance. [Garstang 1924:25; see figures 9.1 and 9.2 below.]

Several marble statues were found during the excavation of this impressive building, including a small statue of a "Crouching Aphrodite," a marble pillar carved in relief depicting the Egyptian goddess Isis flanked by the infant Horus, and two marble pillars depicting Nikē, the goddess of victory, holding a wreath and a palm and standing on a globe supported by Atlas (Garstang 1921a:14–15; Vermeule 1991).

Garstang attributed the construction of the peristyle to the munificence of Herod the Great, on the basis of the comment by Josephus that when Herod became king, he had adorned Ashkelon, the city of his birth, by building "baths and ornate fountains . . . with colonnades (*peristūla*) remarkable for their workmanship and size" (Josephus, *Jewish War* 1.422). But according to Michael Avi-Yonah, a "comparison of the style of the capitals, reliefs, and inscriptions with that of similar buildings at Sebaste (Samaria) and other places . . . proves that it [i.e., Garstang's peristyle] is of a later date—the end of the second or the beginning of the third century A.D." (Avi-Yonah and Eph^cal 1975:128). Moreover, the marble statuary Garstang recovered has been dated to the Severan dynasty by Cornelius Vermeule of the Museum of Fine Arts in Boston, who has noted further that it is the "most splendid Roman imperial architectural sculpture to be found east of Ephesus and Corinth" (Vermeule and Anderson 1981:15).

Garstang also discovered three Greek inscriptions, which he thought confirmed his identification of the theater-shaped building at the south end of the peristyle as the senate house of Ashkelon. Two of the inscriptions refer to men who had been honored by the senate and people (*boulē* and *dēmos*) of Ashkelon, and the third says "Advance Ashkelon! Advance Rome!" (Hogarth 1922).[29]

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[27] See Chapman 1997a,b for a brief biography of Garstang (cf. Moorey 1991:49) and for a summary of the nature and work of the Palestine Exploration Fund.

[28] The reports on this excavation are published in Garstang 1921a,b,c; 1922; 1924; and Phythian-Adams 1921a,b; 1923. Ten years earlier, in 1911, a preliminary investigation of the stratification of Ashkelon had been made by Duncan Mackenzie (1913).

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[29] The two men honored in this way were Aulus Iustulius Tances, a centurion of the Tenth Legion in the late first century A.D., and Tiberius Julius Micio, a citizen of Ashkelon.

But these brief inscriptions lack a secure strati-
graphic context and may well predate the building
itself. Like the large statue of a Roman emperor and
the associated colonnaded structure excavated else-
where on the site by Lady Hester Stanhope in 1815
(see chapter 8 above), Garstang's "senate house" was
erected under the aegis of the Severan dynasty, who
apparently sponsored an extensive renovation of Ash-
kelon. Contrary to Garstang's interpretation, there is
no evidence that the building was constructed in two
phases, with the peristyle added to an original
bouleuterion. Lawrence Stager concludes, rather, that
it was an apsidal basilica, probably built during the
first decade of the third century A.D., and he notes
further that "the organization of Roman Ashkelon
bore a striking resemblance to the New Forum, with
its civic center and marketplace, which the emperor
Septimius Severus (193–211 A.D.) built along the
harbor of his birthplace Lepcis (or Leptis) Magna in
Tripolitania, North Africa" (Stager 1991:45).

Phythian-Adams's step-
trench in the sea cliff

Phythian-
Adams's
section

Garstang's "Senate House"
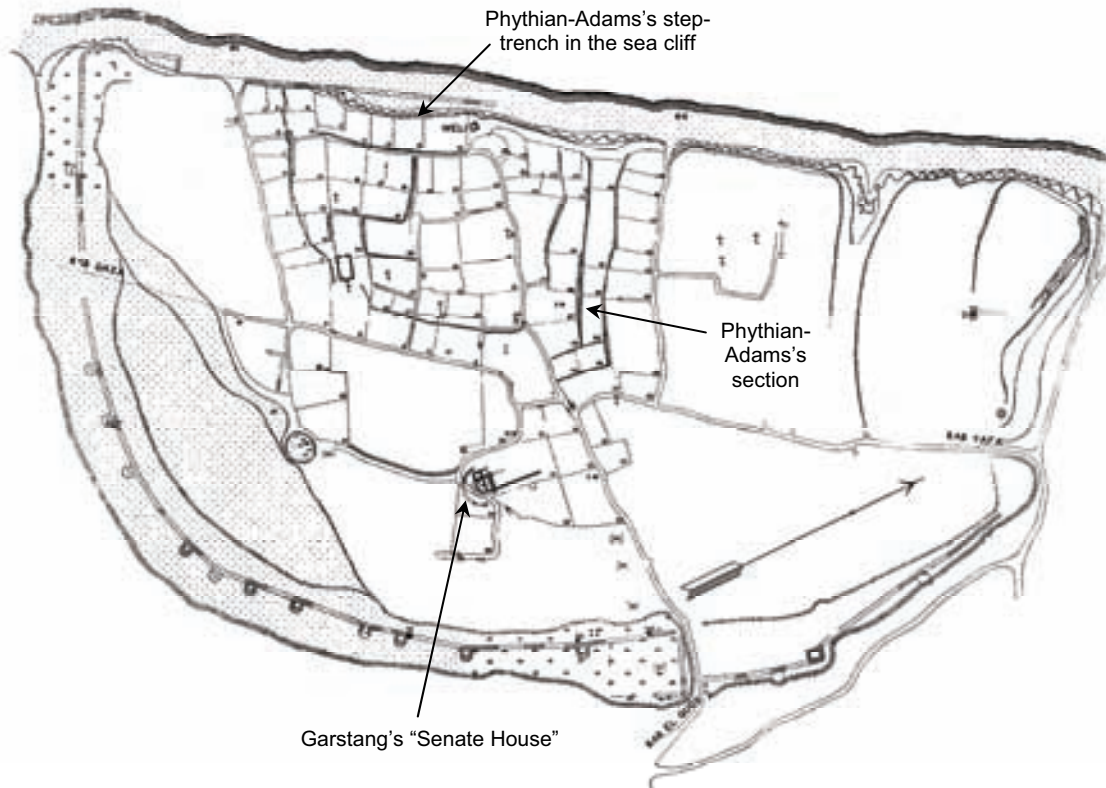
Figure 9.1: Garstang's plan of Ashkelon showing medieval walls and excavation areas (Garstang 1922:plate 1)
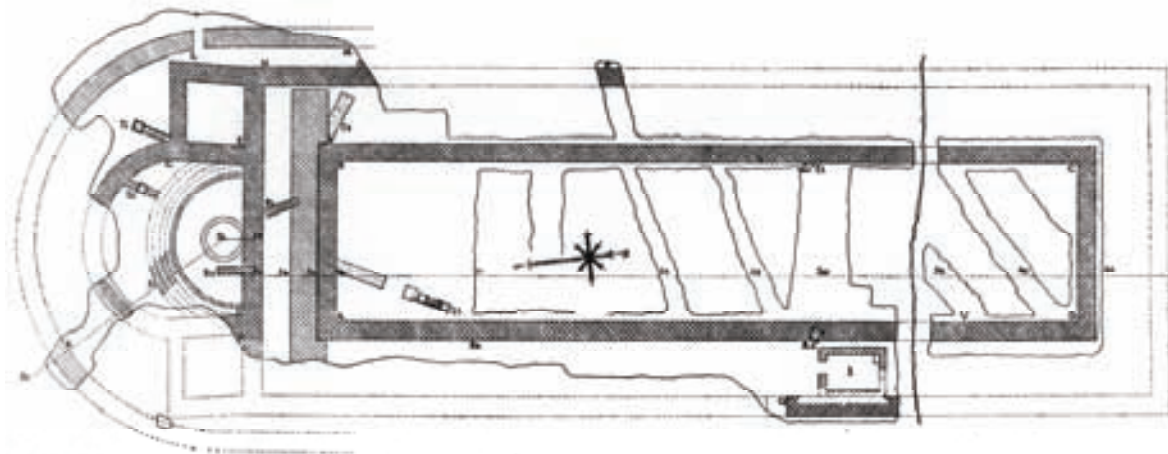
Figure 9.2: Plan of Garstang's "Senate House" (Garstang 1924:plate 1)

Figure 9.3: John Garstang (on right) and W. J. Phythian-Adams examining the statue of Nikē
Courtesy of the Palestine Exploration Fund

Figure 9.4: The Garstang excavations of Roman-period remains in progress north of the "Peace Pool"
Courtesy of the Palestine Exploration Fund

W. J. Phythian-Adams's Exploration
   of the Philistine and Canaanite Strata

While Garstang excavated Roman-period architecture, his assistant W. J. Phythian-Adams focused on earlier periods of occupation at the site, cutting a section on the north side of the southern mound (the "South Tell" of the Leon Levy Expedition), where a terraced field (no. 167) abutted a much lower field (no. 163), forming a 7.5-m high cliff or escarpment (Phythian-Adams 1921b; see the site plan in figure 9.1 above and figures 9.5 and 9.6 below). As the drawing of this section shows, a two-meter thick Philistine stratum was identified at a depth of between 5.5 and 7.5 m below the modern surface of the southern mound; that is, down to the level of the modern surface of the lower terraced field. In the lowest and earliest part of the Philistine stratum were found several courses of yellowish mudbricks standing on a fieldstone foundation, in association with what, based on Phythian-Adams's description, we would now call Philistine Monochrome pottery (although he marked no clear separation between this and the later Philistine Bichrome ware).[30]

Below the Philistine stratum were another two meters of accumulated debris, in which Phythian-Adams found mainly Late Bronze Age pottery, including imported Cypriot Base Ring ware and Mycenean ware. Beneath this Canaanite stratum he struck virgin sand, at a depth about two meters below the modern surface of the lower terraced field (no. 163). The lack of earlier material in this area, especially the absence of Early Bronze Age ceramics such as had been found elsewhere on the tell, prompted Phythian-Adams to conclude that "the sand stratum at the bottom . . . may be no more than a deep but local drift, and that beneath this again new and earlier epochs will reveal themselves" (Phythian-Adams 1921b:168).

On the basis of later excavations, we know that Phythian-Adams correctly described and dated the basic cultural sequence in this part of the site, even though he was unable to separate the deposits he had observed any more finely than by assigning them to gross strata comprising several centuries each, which

he labeled "Roman," "Hellenistic," "Philistine," and "pre-Philistine." When it began its excavations more than sixty years later, in 1985, the Leon Levy Expedition was able to locate Phythian-Adams's section within its Grid 38, and to excavate several 10 × 10-meter squares next to it, using his probe as a general guide to the stratigraphic sequence in that area. In particular, similar kinds of early Philistine pottery and mudbrick architecture were found at the levels he identified.

Phythian-Adams excavated another much wider stratigraphic section in the sea cliff on the western edge of the southern mound, in a field (no. 19) that lay between Grids 50 and 57 of the later Leon Levy Expedition (Phythian-Adams 1923; see figures 9.7–9.9 below and the site plan in figure 9.1 above). He cut a series of broad steps, each 1 m high, 2 m deep, and 8–9 m wide, from the top of the sea cliff to the beach at the bottom. By correlating the pottery he collected with the various levels of his step-trench, Phythian-Adams was able to construct a reasonably accurate ceramic sequence from the Middle Bronze Age (the earliest period of occupation in this part of the site) to the Hellenistic period and later. This was possible because he looked carefully for intrusive pits and wells dug in later periods that had disturbed the earlier strata, and he excluded the material found in them.

No doubt there was still considerable stratigraphic mixture of which he remained unaware, given his method of excavation by arbitrary levels and his reliance on large numbers of archaeologically unskilled local workmen. But his pottery groups hold up remarkably well as coherent assemblages, nonetheless. Indeed, his ceramic sequence from Ashkelon formed the basis, together with the material from Gezer, for establishing the pottery chronology of the Bronze and Iron Ages in Palestine.

In particular, Phythian-Adams was one of the first to identify correctly the distinctive Philistine pottery of the early Iron Age, noting its relative stratigraphic position between Canaanite-period remains of the Middle and Late Bronze Ages, and the later Iron Age, Persian-period, and Hellenistic pottery. He was aided in this by the presence of an extensive destruction layer characterized by ashes and blackened soil that ran horizontally between the Iron Age material above it and the Late Bronze Age material sealed below it (Phythian-Adams 1923:63–64; see figure 9.9 below, where the destruction layer is indicated in the strata labeled γ and δ).

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[30] "Thinner cups or bowls of red clay with dark red lines inside and outside the rim or on the sides, and a few fragments of buff ware with dark brown bands" (Phythian-Adams 1921b:167) probably refer to Philistine Monochrome ware (so-called Mycenean IIIC1:b).

Figure 9.5: Stratigraphic section excavated by W. J. Phythian-Adams on the north side of the South Tell
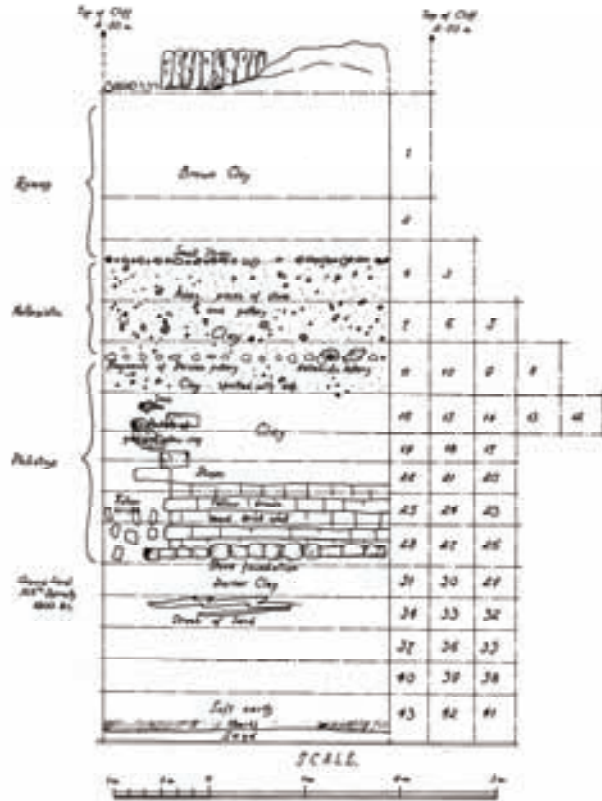
Figure 9.6: Section drawing of South Tell profile (Phythian-Adams 1921b:163 [facing page])

Figure 9.7: Step-trench excavated in the sea cliff by W. J. Phythian-Adams (seen from above)
Courtesy of the Palestine Exploration Fund

Figure 9.8: Step-trench excavated in the sea cliff by W. J. Phythian-Adams (view to east)
Courtesy of the Palestine Exploration Fund
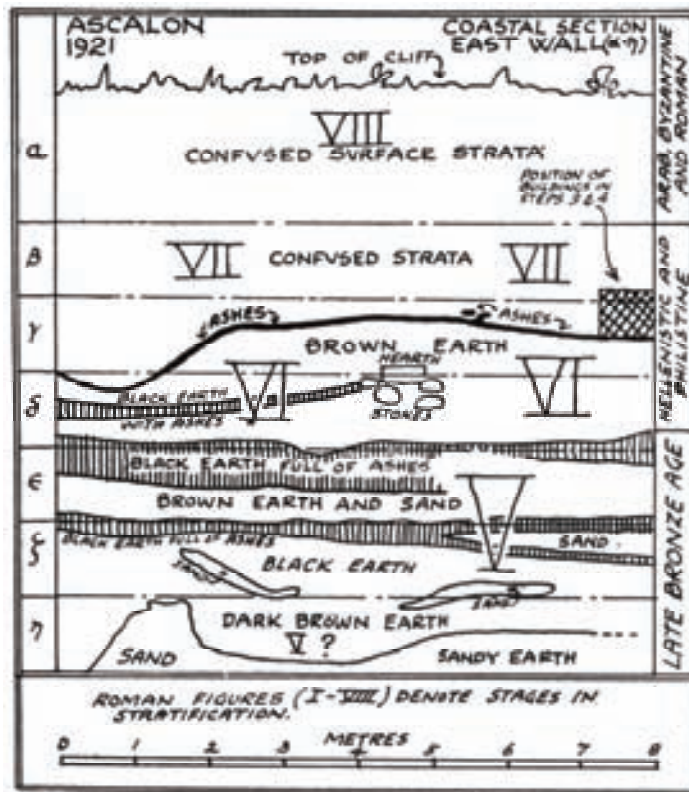
Figure 9.9: Section drawing of east face of sea-cliff step-trench (Phythian-Adams 1923:62, fig. 3)

OTHER EXCAVATIONS IN THE ASHKELON AREA

A number of excavations have been conducted in the vicinity of ancient Ashkelon by the Department of Antiquities (later the Israel Antiquities Authority), beginning already in the 1930s under the British Mandate, and continuing since the establishment of the State of Israel in 1948.

A Byzantine Agricultural Estate

In 1991, the Israel Antiquities Authority (IAA) conducted a salvage excavation in the Barnea district of modern Ashkelon, ca. 4.5 km northeast of the ancient city, on the eastern edge of the *kurkar* ridge that runs parallel to the coast, ca. 2.3 km inland from the sea (map ref. 11080/12160). The excavator, Yigael Israel (1993; 1995a), suggests that this site lay on the main route through coastal Palestine. The 40-ha site was buried under sand dunes that had accumulated since the medieval period, as shown by the discovery under the dunes of a well-preserved agricultural estate of the Byzantine period. Architectural components of this estate that were uncovered by the salvage excavation include a bathhouse with associated plastered pools, an oil press, two wine presses, several storehouses, five pottery kilns, and a cemetery.

Many such estates must have existed in the Ashkelon area in the Roman and Byzantine periods. Subsequent IAA salvage excavations continue to uncover wine presses: in 1993, near the estate in the Barnea district 4.5 km northeast of the ancient city (Fabian, Naḥshoni, and Ein Gedy 1995); in 1995, at a site ca. 1 km south of that estate (Naḥshoni 1999); and in 1996, at a site located 1.8 km northeast of ancient Ashkelon (Varga 1999b).

Two Byzantine Churches

In 1954 a large Byzantine church was excavated by J. Ory in the Barnea district of modern Ashkelon, a few kilometers northeast of ancient Ashkelon. Unfortunately, this excavation remains unpublished, but the building uncovered by Ory has been described as:

> a basilical church with an inscribed apse flanked by two square chambers (prothesis and diaconicon). The nave measures 25 by 8 meters and each side aisle is 25 by 4 meters. A chapel (circa 7.5 meters wide) was attached to the south side of the church. It contains an inscribed apse and a corridor (circa 2 meters wide) running along the width of the structure and separating the apse from a cruciform baptistery (10 by 4.5 meters) with plastered walls and floor. Numerous fragments of marble flags, apparently debris of the

church pavement, were discovered, as well as colored-glass tesserae, indicating that the walls had been faced with mosaics. [Avi-Yonah and Eph‘al 1975:130]

A second basilical church was excavated by Vassilios Tzaferis in 1966–1967 at a location ca. 200 m northwest of the previously excavated church (Tzaferis 1967). The only remnant of it was the mosaic pavement preserved in the north aisle (6 m wide and 10.4 m long) and in part of the narthex. A six-line Greek inscription in the center of the pavement states that the church was completed in the month of Artemisios in the year 602 of the era of Ashkelon (i.e., A.D. 597), while Athanasios was the bishop.

Tombs of the Roman and Byzantine Periods

In 1936, a beautifully painted tomb of the fourth century A.D. was found by a local farmer at a place 2 km north of ancient Ashkelon, about 300 m inland from the seashore (Ory 1939). No objects were found in it; apparently it had been robbed and perhaps even reused for other purposes. But paintings on stucco plaster were preserved on the interior walls and ceiling of the vault. On the south wall, in particular, was a well-preserved scene in which two nymphs were depicted reclining by a stream or pond, shown in the foreground, with Nilotic reeds and lotuses in the background. The ceiling was painted with a vine trellis. The size of the tomb and the quality of its construction was in keeping with its elaborate decoration. According to the excavator:

> The tomb is a single vaulted chamber placed on slightly raised ground c. 80 cm below the surface of the dune. It is preceded by a small open vestibule measuring 1.70 m by 1.65 m, reached by a flight of three steps. It has a plastered floor and is enclosed by dry masonry walls in four courses of sandstone, averaging in size 0.40 m by 0.60 m by 0.30 m. . . . The interior of the vault measures 4.10 m (north and south) by 3.56 m (east and west). Its height, measured from the floor to the top of the vault, was 2.45 m. The walls (c. 40 cm thick) were made of concrete mixed with fine rubble and were plastered inside and outside. The mortar used is of grey colour and is mixed with small sea-shells. The interior contained four graves, two graves along each of the east and west sides, with a narrow passage between them running from the stairs to the further end of the vault. [Ory 1939:38]

A smaller, unpainted tomb of the same period (late third or fourth century A.D.) had been found by a local farmer a few years earlier, in 1931, in a field south of ancient Ashkelon. It lay 1.3 m below the

surface of the surrounding sand dunes, and it consisted of a single, vaulted chamber, 3 m long, 2.3 m wide, and 2.3 m high (Iliffe 1933).

In 1972 two marble sarcophagi with sculptured reliefs on their sides were found in the sand dunes in the Barnea district. One depicts the "Rape of Persephone" and the other depicts a battle between Greeks and Trojans. These have been dated to the third century A.D. (Avi-Yonah and Eph^cal 1975:130; Avi-Yonah 1976b).

More recently, in 1993, a multichambered concrete mausoleum with central courtyard was excavated by the IAA in the Migdal district of modern Ashkelon (Kogan-Zehavi 1996). It had been robbed in antiquity. Better preserved was a rectangular ashlar tomb of late Roman date, which was located closer to the seashore. It was roofed with flat stone slabs and contained "the skeletal remains of 26 sand-covered individuals, placed one atop the other and with the heads to the west" (Kogan-Zehavi 1997).

In 1993 also a second IAA salvage excavation unearthed remants of a cemetery of the Roman and Byzantine periods in the area of the pre-1948 Arab village of Jura, just north of ancient Ashkelon. In this cemetery there were simple pit graves, in which were remnants of wood and lead coffins, as well as larger vaulted tombs (Wallach 2000).

In 1996, a cult structure of the Roman period, where funerary rituals were apparently carried out, was excavated by the IAA near the seashore, just 20 m west of Ory's painted tomb (Israeli 1999). In 1995 an additional vaulted tomb of late Roman date had been found close by, in a beachfront area being developed as the marina of modern Ashkelon (Golani and Milevski 1999:82*). Two other similar tombs of this period had earlier been found near the painted tomb found in 1936. This brings to four the number of Roman-era tombs found in the vicinity of the cult structure (ibid., fig. 167).

Yet another vaulted tomb of the Roman period (2nd–3rd cent. B.C.), located near the shore just north of the tell of ancient Ashkelon, was excavated by the IAA in 1996 (Varga 1999a). It contained three lead coffins. Another salvage excavation in 1996, farther inland at the Muslim site of Nabi Husein, on the *kurkar* ridge just east of ancient Ashkelon, unearthed "four burial structures of the Byzantine period . . . . The burial structures were erected in hollows cut into the exposed *kurkar* rock. Their walls were built of dressed *kurkar* stones and covered with concrete" (Kol-Ya'aqov and Shor 1999:73*). Other Byzantine remains have been found south of Ashkelon, at the outlet of the Naḥal Shiqma, at a site which has been interpreted as a warehouse and anchorage (Fabian and Goren 2001).

A Hoard of Egyptian-Style Bronzes

In 1936, J. H. Iliffe published a description of a hoard of bronze figurines and weights that had been found at Ashkelon. Unfortunately, the exact location of the hoard on the tell is not specified. Its context is described as follows:

> The original discovery had been made in the course of the cutting of a towing-path by the [field-]owner to enable a camel to draw water from a well. Mr. Ory's sounding [on behalf of the Department of Antiquities] revealed, at a depth of about 3 metres, the remains of a square room in which the bronzes occurred, together with typical pottery of the fifth to second century B.C., including Greek red-figured and black-glazed ware, hole-mouth jars of the Persian period, and Greek wine-jar handles. [Iliffe 1936:61]

The hoard consisted of fourteen groups of figurines representing Egyptian deities or priests, and two groups of weights (zoomorphic and cuboid). A few of the deities were represented by several examples. The figurines were identified as: Harpocrates (seven examples), Osiris (seven), the Apis bull (three), Isis nursing the child Horus (two), and one example each of Anubis, Bastet, the solar deity, a seated ibis (Thoth), a serpent-headed god, a priest of Amen-Ra, a kneeling priest, a man with pole and bag, a man or god with conical headdress, and a donkey. In addition, there were four zoomorphic weights made of bronze filled with lead, two in the form of reclining bulls, one in the form of a ram, and one probably in the form of a lion. Seven other bronze weights were in the form of rough cubes or truncated pyramids. A number of these items were not recovered during excavation but were purchased afterward, although Iliffe was sure that they were originally from the same hoard.

Although this hoard was dated by Iliffe to the fourth century B.C. on the basis of the associated pottery, it may well have been manufactured much earlier, in the seventh century B.C. The sounding that was hastily dug to retrieve the bronzes produced a very mixed ceramic assemblage in association with the hoard ("fifth to second century B.C."). The excavator obviously did not achieve a clear stratigraphic separation between the "square room" in which the hoard was originally deposited and later material that had accumulated in the same area. He may well have penetrated to a pre-Persian building of the late seventh century, in view of the similarity of this hoard to

Egyptian-style bronze figurines and cuboid weights discovered by the Leon Levy Expedition in the debris from the destruction of Ashkelon by the Babylonian army in 604 B.C. (see Stager 1996a; 1996b:62).

Tombs of the Middle Bronze Age II

The excavations of the Leon Levy Expedition have revealed a huge earthen rampart built around Ashkelon in the MB IIA period, in the late nineteenth century B.C., when the site was reoccupied after a hiatus in settlement during the deurbanized MB I (EB IV) period (see chapter 14). The Leon Levy Expedition has also uncovered a network of subterranean MB II tombs dug into the *kurkar* bedrock of the sea cliff, in the center of the western edge of the site (Grid 50; see chapter 15). It is not surprising, therefore, that salvage excavations have turned up additional MB II remains in the region.

Of particular interest is a cemetery partially excavated in 1993 by the IAA, in the Migdal district of modern Ashkelon, ca. 5 km east of the ancient city, near the *kurkar* ridge along which a main north-south travel route has traditionally run (map ref. 1111/ 1203). The excavator reports that:

> About 40 burial pits hewn into the *kurkar* rock were exposed after their top part had been removed by mechanical equipment. At least two jars were found in most of the pits, but in a few pits only one jar was recovered. Other pottery vessels were placed inside and next to the jars. These vessels included mainly bowls, both open and carinated, and jugs. One of the pits contained four jugs but no jar. A dipper juglet was found in some of the jars close to the base; presumably, the juglets originally had been placed in the jar mouth and kept in place by sticks resting on the jar rim until they eventually fell to the bottom of the jar. The skeletal remains and the pottery vessels were poorly preserved due to local conditions and the nature of the rock. The small finds included three stone beads, a stone pommel for a knife or dagger, a bone comb and a bronze bead. [Gershuny 1996:131–32]

The full extent of this cemetery is not known, but 33 additional MB II burial pits with similar contents were excavated nearby in 1994 (map ref. 1101–13/ 1190–04; Gershuny 1997). It is likely that an MB II settlement was situated in the vicinity of these numerous burials—perhaps an outpost of the large city of Ashkelon, guarding the approach to Ashkelon along the main road that ran parallel to the coast (see the discussion in chapter 3 of the possibility that there was a "Migdal" fortress near Ashkelon already in the Middle Bronze Age).

A few years earlier, in 1991, another MB II cemetery had been discovered during the excavation of the Byzantine estate (discussed above) in the Barnea district of modern Ashkelon, ca. 4.5 km northeast of the ancient city. The excavator describes it as follows:

> Three groups of pit graves were discovered south of the MB I settlement [described below] in an area about 100 m long; sixteen of these graves were excavated. The graves were dug into a recent *kurkar* layer and were sealed with reddish sand. All the burials were of single individuals, with the exception of one grave which contained the remains of a woman and a girl (mother and daughter?). The deceased were all laid to rest with the head to the east, except for one, whose head lay to the north. . . .

> The cemetery—located on the road . . . from Ashqelon to Tel Poran (5 km north of the site), where a settlement protected by an MB II rampart existed— may have belonged to one of the satellite villages of Ashqelon. [Israel 1995a:101]

A Village of the Middle Bronze Age I

On the site of the Byzantine agricultural estate described above, in the Barnea district 4.5 km northeast of ancient Ashkelon, the IAA excavations also discovered a 4-ha Middle Bronze Age I (Early Bronze IV) settlement. This settlement is noteworthy because there is no evidence of occupation at the tell of Ashkelon in this period (ca. 2200–1900 B.C.), even though the tell was occupied in the preceding EB III period and became very large in the subsequent MB IIA. In keeping with the pattern found elsewhere throughout Palestine, evidence of EB IV/MB I occupation is very scarce in the Ashkelon area.

This agricultural village is described by the excavator as follows:

> Four rooms were excavated in this settlement, which extended over c. 40 dunams [4 ha]. The rounded or oval rooms (diam. 1.50–3.00 m) are similar in shape to contemporaneous structures in the Negev hills. The rooms were dug one meter deep into the clayey-sandy soil, and their walls were built up with bricks to at least a man's height. The bricks were hand made in various shapes with one flat side and were laid when still wet. The structures were probably roofed with branches, supported wherever necessary by a central wooden pole.

> The ceramic finds . . . are of types characteristic of southern Israel, comprising store jars with flat bases and everted rims, at times with combed, punctured or rope decoration, amphoriskoi, including a twin amphoriskos with a basket handle, chalices, bowls and holemouth jars. The flint assemblage is characterized by large knives, sickle blades and a few hammers. . . .

These finds indicate that the inhabitants grew cereals, probably in the valley soil west of the settlement. In addition, many remains of organic material, bones and coprolites . . . attest to cattle and sheep or goat farming. [Israel 1995a:101]

Agricultural Settlements of the Early Bronze Age I

In the 1990s, salvage excavations conducted by the Israel Antiquities Authority revealed a series of settlements dating to the Early Bronze Age Ia (3500–3350 B.C.). They are deeply buried under sand dunes ca. 2–8 m thick, and they lie within 500 m of the modern shoreline (Brandl and Gophna 1994; Baumgarten 1996; Braun and Gophna 1996; Golani 1997; Gophna 1997; Khalaily and Wallach 1998; Golani and Milevski 1999; Golani and Segal 2001; Gophna, Golani, et al. 2004). These sites, located in the Afridar district of modern Ashkelon, are distributed at regular intervals along the coast, extending north of the tell of ancient Ashkelon over a distance of 2.5 km. At the tell itself there is ceramic evidence of EB I occupation (Stager 1993:105), indicating a relatively intensive settlement of the area in this period.

Ram Gophna (1997:155) notes that many settlement sites along the southern coast of Palestine, ranging in date from Neolithic to Middle Bronze, "were concealed until recently by sand dunes," especially those situated in the fertile "troughs" between the north-south *kurkar* ridges. "In fact, the existence of these sites became known only when large-scale development works were undertaken, necessitating the removal of the sand dunes by mechanical equipment. One may suppose that the sites discovered so far are only part of a larger group of uncharted sites, either still buried in the sands or destroyed earlier, unnoticed by the developers and by archaeologists."

For the EB I sites, in particular, Gophna cites archaeobotanical evidence that shows that olive orchards were already being cultivated near Ashkelon, as well as farther north along the coast at Nizzanim (Gophna and Liphschitz 1996). This new emphasis on olive production may have been related to the maritime trade between the Levant and Egypt that began to flourish in this period, in the centuries leading up to unification of Egypt under Pharaoh Narmer (ca. 3100 B.C.). Such trade is indicated by the presence at the Ashkelon-area EB I sites of wood from two foreign tree species that are native to Lebanon, *Cedrus libani* (cedar of Lebanon) and *Quercus cerries* (Turkey oak). Gophna concurs with Lawrence Stager's conclusion that:

> Already Ashkelon must have been a seaport linking Egypt and Mesopotamia via Byblos and northern coastal Syria in the mid- to late Early Bronze Age I.

. . . Ashkelon also served as a way station on the overland route along which donkey caravans transported copper, bitumen, and other Canaanite products to Egypt. [Stager 1993:105–6]

Neolithic and Chalcolithic Sites

In 1955, Jean Perrot and John Hévesy excavated a Neolithic settlement located on the *kurkar* sea cliff ca. 100 m from the modern shoreline and ca. 1.5 km north of ancient Ashkelon (map ref. 10825/12125; Perrot 1955; Perrot and Gopher 1996). This site was reexcavated by Yossi Garfinkel of the Hebrew University in Jerusalem in 1997–1998, as one of the salvage projects carried out in conjunction with development work on the marina of modern Ashkelon (Garfinkel 1999). Garfinkel's excavation exposed ca. 1,000 m^2 of the settlement, revealing some 80 hearths, as well as pits of various shapes and sizes, but little in the way of architecture. No pottery was found, and "the flint assemblage is characteristic of Pre-Pottery Neolithic C" (ibid., p. 72*). Garfinkel thus corrects the date proposed by Perrot and Gopher (1996:164), who conclude that the settlement belongs to the Pottery Neolithic (Yarmukian) period, despite the absence of pottery, based on the flint assemblage.

Another prehistoric site, reported in 1974, is located 400 m east of the Mediterranean shore, a few kilometers south of ancient Ashkelon (Noy and Berman 1974). It occupies ca. 500 m^2 and is probably Neolithic in date, given the absence of pottery, although "the possibility that it served one of the distant settlements of the Chalcolithic period as a craft site should also not be excluded" (ibid.).

There is ceramic evidence of Chalcolithic occupation at the tell of ancient Ashkelon itself, in the form of cornet bases found in a secondary context in Grid 57 (Stager 1993:105). Moreover, one of the EB Ia sites recently excavated by the IAA ca. 2 km north of the tell has numerous V-shaped bowls in its earliest phase, suggesting that settlement began there in the Chalcolithic period and continued into the Early Bronze Age (Khalaily and Wallach 1998:101).

Underwater Surveys

From 1992 to 1997 the IAA conducted underwater and coastal surveys near Ashkelon under the direction of Ehud Galili (Galili and Sharvit 1998; Galili, Sharvit, and Dahari 2000; Galili and Sharvit 2000). These surveys complement the two offshore surveys sponsored by the Leon Levy Expedition in 1985–1987 and 1996–1997 (reported above in chapter 4).

In 1992 and 1994–1996 a survey was conducted along the coast north of ancient Ashkelon, in con-

junction with large-scale modern construction activity in this area. The surveyors report that:

> Following the construction of a marina at Ashqelon, the coastal cliffs and the sea bottom in the north beaches were damaged by severe erosion, which exposed the remains of an ancient settlement and of wrecked ships. A section of the cliff north of the site of esh-Sheikh ᶜAwad revealed walls of buildings or of installations and the remains of two city walls (each 2 m wide), erected perpendicular to the coast *c.* 140 m from each other. . . . Many architectural fragments, broken marble basins and bowls were recovered, as well as numerous pottery fragments of the Late Roman and Byzantine periods, mainly of "Gaza-type" store jars. [Galili and Sharvit 1998:101]

In this area north of the tell, the remains of at least seven ships were found at a distance of 100–150 m from the shore, at a depth of 4.5–6.0 m. These remains consisted of pottery as well as stone and iron anchors, and the stone and lead shanks of wooden anchors, ranging in date from the Late Bronze Age to the Islamic period.

In relation to the important question of how ancient Ashkelon functioned as a seaport (discussed above in chapter 4), the IAA surveyors concluded that: "In view of these finds, and of the physical characteristics of the continental shelf, the settlement probably never had a proper built-up   harbor and used the open anchorage which was connected with the fortified site discovered on the shore" (Galili and Sharvit 1998:102).

Another IAA survey was conducted in 1996–1997 along the coast immediately opposite the tell of ancient Ashkelon, and extending for some distance south of the tell (Galili and Sharvit 2000). Shipwrecks, cargoes, and anchors of various periods were discovered at a distance of up to 250 m from the present-day shoreline, at depths of 0–9 m. The surveyors note that the coastal *kurkar* cliff on which the tell is perched is rapidly being eroded, which gives rise to the phenomenon of "underwater remains of land origin," including granite and marble columns, capitals, and bases that had been reused in a now-submerged city wall (ibid., p. 84*–85*).

Again, the surveyors found no evidence of a constructed harbor from any historical period: "These finds reinforce the assumption that in ancient times the ships arriving in Ashqelon moored in the open sea several hundred metres off the shoreline. The conveyance of passengers and merchandise from the ships to the land was probably carried out via small boats" (ibid., p. 85*).

10. THE LEON LEVY EXPEDITION

by Lawrence E. Stager and J. David Schloen

THE Leon Levy Expedition has been conducting large-scale excavations on the tell of ancient Ashkelon since 1985, thanks to the great generosity of Mr. Leon Levy and Ms. Shelby White of New York. They have supported the expedition in many ways, of which their financial contribution is only one. Every summer from 1985 to 2000, Leon and Shelby visited Ashkelon during the excavation season, taking the trouble to meet the expedition staff and often working with dig volunteers and professional staff in the field. Without supporters like them, the difficult task of excavating such a complex multiperiod site on such a large scale would have been impossible. Sadly, Leon Levy died in 2003. His enthusiasm for archaeology and for the work at Ashkelon in particular is sorely missed.

The present volume provides an overview and summary of the results from seventeen seasons of excavation, including sixteen consecutive seasons from 1985 to 2000 that were conducted on a large scale, and a smaller excavation in 2004. In addition, there were study seasons in Ashkelon to process excavated material in 2001, 2005, and 2006. A new phase of excavations began in 2007.

In most years from 1985 to 2000, excavations were conducted over a seven-week period from mid-June to the end of July. In some years, however, there was an additional five-week period of excavation in May and early June, for a total of twelve weeks of digging (these extended seasons took place in 1988, 1990, 1992, and 1994).

The Leon Levy Expedition has been fortunate to have had a large and capable staff of professional archaeologists, many of whom participated in the project during most, if not all, of the excavation seasons. The names and roles of these staff members are given below, year by year, in recognition of their vital contribution to the project.

The expedition has also depended on large groups of enthusiastic dig volunteers of all ages, typically numbering 80–100 per excavation season, who came to Ashkelon from North America, Europe, and many other places around the world. Many of these volunteers returned season after season, in some cases advancing to professional status as field supervisors. In addition to learning stratigraphic excavation and recording methods in the course of digging, the volunteer staff participated in evening lectures and weekend field trips to archaeological sites throughout Israel. These volunteers are too numerous to name individually, so they are acknowledged here collectively. Their hard work has been crucial to the success of the expedition over the years.

In the summer of 2007, a second phase of large-scale excavations at Ashkelon commenced under the field directorship of Daniel Master, sponsored by Shelby White and the Leon Levy Foundation. This volume therefore does not mark the end of the Leon Levy Expedition to Ashkelon but describes the first phase of its work from 1985 to 2006 under the direction of Lawrence Stager, who retains general oversight of the renewed work at the site.

PROFESSIONAL STAFF MEMBERS OF THE LEON LEVY EXPEDITION TO ASHKELON, 1985–2000

1985 Staff

Directors:

Lawrence Stager (director), Douglas Esse (associate director)

Specialists:

Charles Adelman (ceramist), Abbas Alizadeh (artist), Heather Campbell (registrar), Joëlle Cohen (ceramist), Julie Gorny (assistant registrar), Barbara Hall (conservator), Dorothy Ingalls (registrar), Larry Ingalls (engineer), Alan Jeude (computer specialist), Barbara Johnson (ceramist), Moshe "Musa" Shimoni (majordomo), Giora Solar (architect and restorer), Paula Wapnish (zooarchaeologist), James Whitred (photographer)

Grid Supervisors:

Elizabeth Bloch-Smith, Douglas Esse, Egon Lass, David Stacey, Samuel Wolff

Square Supervisors:

Helen Dates, Jonathan Elias, Ronald Gorny, Baruch Halpern, Larry Ingalls, Nicole Logan, David Small, John Spencer

Assistant Square Supervisors:

David Brooks

Figure 10.1: Leon Levy Expedition 1985 Professional Staff

Back row, left to right: S. Small, L. Stager, J. Spencer, H. Campbell, C. Adelman (shirtless), D. Ingalls, A. Jeude (top rear), D. Small, L. Ingalls, M. Shimoni, E. Bloch-Smith, D. Brooks, P. Wapnish, S. Wolff, B. Hall. **Middle row:** J. Elias (standing), D. Stacey (sitting), G. Solar, E. Lass, J. Gorny, R. Gorny. **Front row:** J. Whitred (kneeling), H. Dates, D. Esse, A. Alizadeh.

1986 Staff

Directors:

Lawrence Stager (director), Douglas Esse (associate director)

Specialists:

Charles Adelman (ceramist), Abbas Alizadeh (artist), Felicity Campbell (assistant conservator), Heather Campbell (registrar), Joëlle Cohen (ceramist), Helen Dates (staff coordinator), Julie Gorny (assistant registrar), Barbara Hall (conservator), Dorothy Ingalls (registrar), Larry Ingalls (engineer), Alan Jeude (computer specialist), Barbara Johnson (ceramist), Frank Koucky (geologist), Daniel Reid (assistant photographer), Donald Ryan (faunal analyst), Moshe "Musa" Shimoni (majordomo), Carolyn Smith (pottery registrar), Giora Solar (architect and restorer), Rachel Solar (artist), Jane Waldbaum (archaeometallurgist), Paula Wapnish (zooarchaeologist), James Whitred (photographer)

Grid Supervisors:

Elizabeth Bloch-Smith, Douglas Esse, Egon Lass, David Stacey, Ross Voss

Square Supervisors:

Abbas Alizadeh, David Brooks, Helen Dates, Jonathan Elias, Ray Fredlund, Ronald Gorny, Larry Ingalls, SeJin Koh, Nicole Logan, Richard Schoen, Jane Waldbaum

Assistant Square Supervisors:

William Griswold, Rudi Mayr

Figure 10.2: Leon Levy Expedition 1986 Professional Staff

Back row, left to right: A. Alizadeh (sitting), D. Ryan, C. Adelman, H. Dates, H. Campbell, J. Whitred. **Third row:** D. Reid (standing), M. Lloyd (standing), J. Elias (sitting), J. Cohen, R. Fredlund, unidentified (wearing hat), E. Lass, D. Brooks, unidentified. **Second row:** unidentified, M. Martelli-Castaldi, N. Logan, M. Shimoni, F. Campbell, M. Rosen-Ayalon, J. Waldbaum, D. Esse, W. Griswold, R. Voss. **Front row:** R. Schoen, G. Solar, E. Bloch-Smith (holding child), L. Stager, J. Gorny (holding child), R. Gorny.

1987 Staff

Directors:

Lawrence Stager (director), Douglas Esse (associate director), John Spencer (volunteer director)

Specialists:

Charles Adelman (ceramist), Abbas Alizadeh (artist), Susan Brooks (pottery compound manager), Heather Campbell (registrar), Joëlle Cohen (ceramist), Helen Dates (staff coordinator), Julie Gorny (assistant registrar), Susan Henson (assistant zooarchaeologist), Barbara Johnson (ceramist), Frank Koucky (geologist), Richard Saley (computer specialist), Moshe "Musa" Shimoni (majordomo), Carolyn Smith (pottery registrar and computer assistant), Terry Smith (assistant photographer), Giora Solar (architect and restorer), Jane Waldbaum (archaeometallurgist), Paula Wapnish (zooarchaeologist), James Whitred (photographer and camp manager)

Grid Supervisors:

Abbas Alizadeh, Elizabeth Bloch-Smith, Jonathan Elias, Egon Lass, David Stacey, Ross Voss, Samuel Wolff

Square Supervisors:

David Brooks, Helen Dates, Ray Fredlund, Ronald Gorny, William Griswold, Nicole Logan, Rudi Mayr, Richard Schoen, John Spencer, Jane Waldbaum

Assistant Square Supervisors:

James Davila, Doug Gordon-Denniston, Lou Gordon-Denniston, Eve Gordon, Chris Kilbridge, Benjamin Saidel

Figure 10.3: Leon Levy Expedition 1987 Professional Staff

Back row, left to right (standing): B. Johnson, C. Smith, C. Draper, D. Jordan, C. Adelman, J. Spencer, P. Wapnish, E. Lass, M. Shimoni, D. Stacey, V. Fine, S. Brooks, H. Dates, E. Gordon, D. Gordon-Denniston, J. Elias. **Third row (kneeling):** R. Fredlund, R. Gorny, S. Wolff, E. Bloch-Smith, D. Esse, N. Logan, J. Cohen. **Second row (sitting):** R. Voss, C. Kilbridge, J. Davila, B. Saidel, W. Griswold, S. Henson, H. Campbell, unidentified, J. Whitred, A. Alizadeh. **Front row:** V. Tzaferis, C. Spencer, G. Solar, L. Stager, J. Waldbaum, D. Brooks, T. Smith (reclining).

1988 Staff

(I = April–May session; II = June–July session)

Directors:

Lawrence Stager (director I, II), Samuel Wolff (associate director I, II), Cynthia Rose (volunteer director II)

Specialists:

Charles Adelman (ceramist II), Carolyn Brown (computer assistant I, II), Heather Campbell (registrar I, II), Joëlle Cohen (ceramist I, II), Helen Dates (staff coordinator I, II), Susan Henson (assistant zooarchaeologist I, II), Brian Hesse (zooarchaeologist I, II), Dorothy Ingalls (registrar I, II), Barbara Johnson (ceramist II), Frank Koucky (geologist I, II), Cynthia Rose (pottery registrar II), Richard Saley (computer specialist I, II), Moshe "Musa" Shimoni (majordomo I, II), Terry Smith (photographer I, II), Giora Solar (architect and restorer), Connie Tappy (computer assistant II), Valentine Talland (conservator II), Jane Waldbaum (archaeometallurgist II)

Grid Supervisors:

Abbas Alizadeh (II), Elizabeth Bloch-Smith (II), Shelby Brown (II), William Griswold (II), Egon Lass (I, II), Carol Redmount (II), David Stacey (I, II), Ross Voss (I, II)

Square Supervisors:

Elise Auerbach (I, II), Helen Dates (II), Ray Fredlund (I, II), Chris Kilbridge (II), Zvi Lederman (II), Nicole Logan (II), Richard Schoen (I, II), Carole Spencer (I), Jane Waldbaum (II)

Assistant Square Supervisors:

James Davila (II), Daniel Fleming (II), Nancy Fleming (II), Allan Maca (I, II), Gregory Mobley (II), Benjamin Saidel (II), Ron Tappy (II), Daniel Warner (II), Mark Yanaway (I)

Figure 10.4: Leon Levy Expedition 1988 Professional Staff

Back row, left to right: D. Stacey, M. Shimoni, J. Cohen, F. Koucky, D. Fleming (wearing hat), B. Saidel, E. Lass, C. Adelman, V. Talland, H. Dates (wearing sunglasses), E. Auerbach, S. Brown, D. Ingalls, A. Maca (far back), R. Voss, C. Kilbridge, R. Tappy, C. Tappy, G. Mobley (far back), N. Logan, D. Warner, Z. Lederman, T. Meyers, T. Smith. **Front row:** R. Fredlund, J. Davila, N. Fleming, C. Redmount, J. Waldbaum, H. Campbell, A. Alizadeh, L. Stager, S. Wolff, E. Bloch-Smith (holding child), W. Griswold.

1989 Staff

Directors:

Lawrence Stager (director), Samuel Wolff (associate director), F. Patrick Kilcoyne (volunteer director)

Specialists:

Charles Adelman (ceramist), Heather Campbell (registrar), Joëlle Cohen (ceramist), Helen Dates (staff coordinator), Susan Herndon (assistant zooarchaeologist), Andrew Herscher (assistant architect), Barbara Johnson (ceramist), Frank Koucky (geologist), Nicole Logan (assistant registrar), Richard Saley (computer specialist), Moshe "Musa" Shimoni (majordomo), Terry Smith (photographer), Lisa Snyder (pottery registrar), Giora Solar (architect and restorer), Valentine Talland (conservator), Jane Waldbaum (archaeometallurgist), Paula Wapnish (zooarchaeologist)

Grid Supervisors:

Abbas Alizadeh, Elizabeth Bloch-Smith, William Griswold, Egon Lass, David Stacey, Ross Voss

Square Supervisors:

Elise Auerbach, Helen Dates, Ray Fredlund, Joseph Groeneweg, Zvi Lederman, Allan Maca, Richard Schoen, John Spencer, Michael Sugerman, Jane Waldbaum, Daniel Warner

Senior Assistant Square Supervisors:

Jon Jorgenson, Benjamin Saidel, Ron Tappy

Assistant Square Supervisors:

Mark Bocija, Aaron Brody, Edward Chanda, Anna Choi, Jill Citron, Charles Gantt, Robert Herget, F. Patrick Kilcoyne, Mark Yanaway

Figure 10.5: Leon Levy Expedition 1989 Professional Staff

Back row, left to right: R. Fredlund (wearing hat), R. Tappy, D. Stacey, J. Jorgenson, A. Maca, F. Gerritsen, R. Herget, C. Gantt, B. Saidel, D. Vanderhooft, J. Cohen, B. Grantham, A. Alizadeh, A. Herscher, J. Groeneweg, F. Koucky, unidentified. **Second row (standing):** unidentified, M. Yanaway, J. Waldbaum, A. Choi (arms akimbo), A. Brody, E. Auerbach (wearing headscarf), R. Voss, P. Wapnish, V. Talland, H. Campbell, S. Wolff, W. Griswold (wearing pith helmet), R. Griswold, J. Whitred, T. Smith (lower right). **Front row (sitting):** Z. Lederman, E. Lass, unidentified, E. Bloch-Smith, P. Kilcoyne, L. Stager, C. Adelman (holding meter-stick), M. Shimoni, E. Chanda, J. Spencer, N. Logan.

1990 Staff

(I = April–May session; II = June–July session)

Directors:

Lawrence Stager (director I, II), Abbas Alizadeh (associate director I, II), F. Patrick Kilcoyne (volunteer director I, II)

Specialists:

Charles Adelman (ceramist II), Carl Andrews (photographer I, II), Benjamin Arubas (surveyor I, II), Heather Campbell (registrar I, II), Joëlle Cohen (ceramist I, II), Bill Grantham (assistant zooarchaeologist I), Andrew Herscher (architect II), Brian Hesse (zooarchaeologist I, II), Barbara Johnson (ceramist II), Frank Koucky (geologist I, II), Irit Narkiss (assistant conservator II), Richard Saley (computer specialist I, II), Sandra Schloen (assistant registrar II), Moshe "Musa" Shimoni (majordomo I, II), Lisa Snyder (pottery registrar), Connie Tappy (computer assistant II), Valentine Talland (conservator II), Jane Waldbaum (archaeometallurgist II), Paula Wapnish (zooarchaeologist I, II)

Grid Supervisors:

Abbas Alizadeh (I, II), Elizabeth Bloch-Smith (II), Egon Lass (I, II), David Stacey (I, II), Ross Voss (I, II)

Square Supervisors:

Aaron Brody (II), Daniel Fleming (II), Nancy Fleming (II), Ray Fredlund (I, II), Fokke Gerritsen (II), Joseph Groeneweg (II), Jon Jorgenson (II), F. Patrick Kilcoyne (II), Allan Maca (I, II), John Monson (II), Benjamin Saidel (II), Todd Sanders (II), Ron Tappy (II), Jane Waldbaum (II)

Senior Assistant Square Supervisors:

Mark Bocija (II), Anna Choi (II), Charles Gantt (II), Robert Herget (II), David Schloen (II)

Assistant Square Supervisors:

Edward Chanda (II), Christopher Hinson (I, II), Kenton Johnson (II), David Lipovitch (II), David Vanderhooft (II)

Figure 10.6: Leon Levy Expedition 1990 Professional Staff

Back row, left to right: R. Fredlund (standing), T. Sanders (sitting far back), J. Groeneweg, A. Appleyard, J. Jorgenson, K. Johnson, E. Lass (standing), D. Schloen. **Third row (sitting):** V. Talland, A. Herscher, L. Snyder, F. Gerritsen, E. Bloch-Smith (with children at left and right), A. Choi (wearing sunglasses), D. Lipovitch, C. Tappy, R. Tappy, A. Alizadeh, C. Gantt, J. Monson, F. Koucky. **Second row:** R. Voss (standing), C. Andrews, A. Maca, R. Herget (shirtless), B. Saidel, N. Fleming, D. Fleming, P. Kilcoyne. **Front row:** C. Hinson, S. Schloen, B. Hesse, L. Stager, J. Waldbaum, P. Wapnish.

1991 Staff

Directors:

Lawrence Stager (director), Abbas Alizadeh (associate director), F. Patrick Kilcoyne (volunteer director)

Specialists:

Charles Adelman (ceramist), Carl Andrews (photographer), Benjamin Arubas (surveyor), Heather Campbell (registrar), Dena Davis (pottery registrar), Robyn Griswold (computer assistant), Andrew Herscher (architect), Barbara Johnson (ceramist), Alix Kneifel (assistant architect), Frank Koucky (geologist), Nicole Logan (assistant registrar), Mireia Muñoz (conservator), Richard Saley (computer specialist), Moshe "Musa" Shimoni (majordomo), Giora Solar (architect and restorer), Jane Waldbaum (archaeometallurgist), Paula Wapnish (zooarchaeologist)

Grid Supervisors:

Abbas Alizadeh, Elizabeth Bloch-Smith, William Griswold, Egon Lass, Ross Voss

Square Supervisors:

Tracy Alsberg, Andrew Appleyard, Mark Bocija, Aaron Brody, Anna Choi, Ray Fredlund, Kenton Johnson, John Monson, Jill Santis (Baker), Michael Sugerman, David Vanderhooft, Jane Waldbaum

Assistant Square Supervisors:

Gary Hunter, Tom Jull, Daniel Lacoretz, Paul Merkel, Dorothy Phelps, Bryan Stone, Lyle Van Laningham, Mark Yanaway

Figure 10.7: Leon Levy Expedition 1991 Professional Staff

Back row, left to right: A. Brody, B. Stone, P. Kilcoyne, J. Baker, D. Vanderhooft, R. Levesque, L. Van Laningham, M. Sugerman, J. Monson, M. Muñoz, E. Lass, K. Johnson, R. Fredlund, A. Appleyard, G. Hunter, F. Koucky. **Front row:** H. Campbell, C. Adelman, B. Johnson, T. Alsberg, P. Wapnish, unidentified, J. Waldbaum, N. Logan, D. Phelps, A. Kneifel, A. Choi, M. Shimoni, L. Stager, D. Davis, A. Herscher, E. Bloch-Smith, unidentified, R. Voss, D. Lacoretz, W. Griswold, R. Griswold.

1992 Staff

(I = April–May session; II = June–July session)

Directors:

Lawrence Stager (director I, II), Barbara Johnson (associate director I, II), F. Patrick Kilcoyne (volunteer director II)

Specialists:

Charles Adelman (ceramist II), Carl Andrews (photographer I, II), Heather Campbell (registrar II), Peter Chomowicz (architect II), Dena Davis (pottery registrar II), Norma Dever (computer assistant II), Andrew Herscher (architect I), Brian Hesse (zooarchaeologist II), Barbara Johnson (ceramist I, II), Alix Kneifel (assistant architect II), Frank Koucky (geologist), Nicole Logan (registrar I), Mireia Muñoz (conservator I, II), Richard Saley (computer specialist I, II), Sandra Schloen (assistant registrar II), Moshe "Musa" Shimoni (majordomo I, II), Connie Tappy (computer assistant II), Jane Waldbaum (archaeometallurgist II)

Grid Supervisors:

Elizabeth Bloch-Smith (II), Aaron Brody (II), Egon Lass (I, II), Ron Tappy (II), Ross Voss (II)

Square Supervisors:

Tracy Alsberg (I, II), Andrew Appleyard (II), Jill Baker (II), Anna Choi (II), Nancy Fleming (II), Ray Fredlund (I), Gary Hunter (I, II), Kenton Johnson (I, II), F. Patrick Kilcoyne (II), David Lipovitch (II), John Monson (II), David Schloen (II), Bryan Stone (I), Jane Waldbaum (II), Mark Yanaway (I, II)

Assistant Square Supervisors:

Rachel Avigad (II), Michel Baud (II), Tara Coram (II), Matthew Friedman (I), Alison Karmel (II), Romeo Levesque (I, II), Paul Merkel (II), Jonathan Waybright (II)
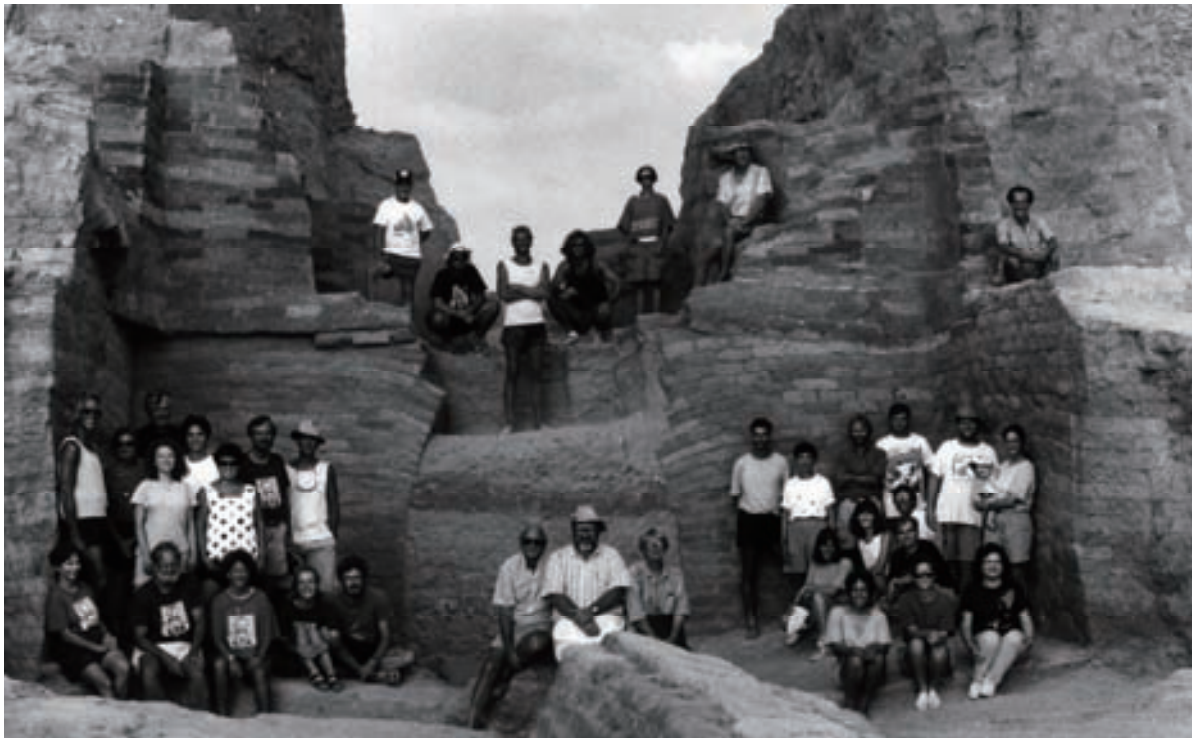
Figure 10.8: Leon Levy Expedition 1992 Professional Staff

Back row, left to right: P. Merkel, D. Lipovitch, K. Johnson, J. Waybright, J. Baker, R. Voss, C. Andrews (squatting on far right). **Second row (standing):** C. Adelman, H. Campbell, P. Kilcoyne, R. Avigad, M. Muñoz, A. Choi, R. Saley, P. Chomowicz (wearing hat), M. Baud (to right of arch), D. Davis, R. Tappy, A. Brody, B. Stone, E. Bloch-Smith (holding child). **Front row (sitting):** J. Waldbaum, B. Hesse, T. Alsberg, T. Coram, A. Appleyard, M. Shimoni, L. Stager, B. Johnson, C. Tappy, A. Kneifel (sitting in front), S. Schloen, D. Schloen (wearing glasses), J. Monson, unidentified, N. Dever.

1993 Staff

Directors:

Lawrence Stager (director), Barbara Johnson (associate director), F. Patrick Kilcoyne (volunteer director)

Specialists:

Charles Adelman (ceramist), Carl Andrews (photographer), Heather Campbell (registrar), Peter Chomowicz (architect), Norma Dever (computer assistant), Brian Hesse (zooarchaeologist), Barbara Johnson (ceramist), Alix Kneifel (assistant architect), Frank Koucky (geologist), Nicole Logan (assistant registrar), Mireia Muñoz (conservator), Richard Saley (computer specialist), Moshe "Musa" Shimoni (majordomo), Jane Waldbaum (archaeometallurgist)

Grid Supervisors:

Elizabeth Bloch-Smith, Aaron Brody, Egon Lass, David Schloen, Ron Tappy, Ross Voss

Square Supervisors:

Tracy Alsberg, Andrew Appleyard, Jill Baker, Anna Choi, Ray Fredlund, Gary Hunter, Kenton Johnson, F. Patrick Kilcoyne, David Lipovitch, John Monson, Todd Sanders, Bryan Stone, Jane Waldbaum, Jonathan Waybright

Assistant Square Supervisors:

Sharri Clark, Tara Coram, John Hunt, Alison Karmel, Daniel Master, Allen McCune, Paul Merkel, Dorothy Phelps, Connie Tappy, Lyle Van Laningham

Figure 10.9: Leon Levy Expedition 1993 Professional Staff

Back row, left to right (standing): C. Andrews, A. Kneifel, T. Alsberg, B. Hesse, J. Hunt, J. Baker, B. Stone (with raised arm), T. Coram, A. McCune, S. Clark, A. Appleyard, D. Lipovitch (wearing sunglasses), K. Johnson, P. Merkel, R. Voss, H. Campbell, J. Waybright, D. Master. **Second row:** C. Adelman, M. Muñoz, G. Hunter, N. Dever, D. Phelps, A. Brody, E. Lass, A. Choi, A. Karmel, R. Fredlund, T. Sanders, D. Schloen. **Front row (sitting on ground):** M. Shimoni, L. Stager, R. Tappy, C. Tappy, E. Bloch-Smith (holding child), P. Chomowicz.

1994 Staff

(I = April–May session; II = June–July session)

Directors:

Lawrence Stager (director I, II), Barbara Johnson (associate director I, II), F. Patrick Kilcoyne (volunteer director II)

Specialists:

Charles Adelman (ceramist II), Heather Alexander (assistant photographer II), Carl Andrews (photographer I, II), Heather Campbell (registrar II), Peter Chomowicz (architect II), Norma Dever (computer assistant II), Brian Hesse (zooarchaeologist II), Barbara Johnson (ceramist I, II), Richard Saley (computer specialist I, II), Sandra Schloen (assistant registrar I, II), Moshe "Musa" Shimoni (majordomo I, II), Jane Waldbaum (archaeometallurgist II)

Grid Supervisors:

Elizabeth Bloch-Smith (II), Aaron Brody (II), Egon Lass (I, II), John Monson (II), David Schloen (I, II), Ross Voss (II)

Square Supervisors:

Tracy Alsberg (II), Andrew Appleyard (II), Jill Baker (II), Anna Choi (II), Susan Cohen (II), Tara Coram (II), Salah Houdalieh (II), John Hunt (II), Kenton Johnson (II), F. Patrick Kilcoyne (II), David Lipovitch (II), Glenn Magid (II), Daniel Master (I, II), Bryan Stone (I, II), Jane Waldbaum (II), Jonathan Waybright (II)

Assistant Square Supervisors:

Anthony Appa (II), Paul Merkel (II), Dorothy Phelps (II), Lyle Van Laningham (II)

Figure 10.10: Leon Levy Expedition 1994 Professional Staff

Back row, left to right: A. Appleyard, T. Coram, P. Chomowicz (wearing white hat), A. Brody, M. D'Alessandro, D. Master, R. Voss, J. Waybright, G. Magid, D. Lipovitch, K. Johnson (wearing headband). **Second row:** S. Houdalieh, B. Johnson, C. Andrews, R. Saley, C. Adelman, M. Shimoni, P. Kilcoyne, J. Baker, S. Cohen, B. Stone, B. Hesse. **Front row:** A. Choi, D. Phelps, N. Dever, E. Bloch-Smith, H. Campbell, L. Stager, H. Alexander, T. Alsberg, J. Hunt, S. Schloen (holding child), D. Schloen, P. Merkel.

1995 Staff

Directors:

Lawrence Stager (director), Barbara Johnson and David Schloen (associate directors), F. Patrick Kilcoyne (volunteer director)

Specialists:

Heather Alexander (assistant photographer), Carl Andrews (photographer), Jill Baker (pottery registrar), Oded Borowski (stratigraphic consultant), Heather Campbell (registrar), Norma Dever (computer assistant), Barbara Johnson (ceramist), David Lipovitch (assistant zooarchaeologist), Dorothy Phelps (assistant registrar), Richard Saley (computer specialist), Moshe "Musa" Shimoni (majordomo), David Small (architect), Jane Waldbaum (archaeometallurgist and ceramist)

Grid Supervisors:

Elizabeth Bloch-Smith, Aaron Brody, Bryan Stone, Ross Voss

Square Supervisors:

Tracy Alsberg, Anthony Appa, Tristan Barako, Sharri Clark, Susan Cohen, Gary Hunter, Kenton Johnson, F. Patrick Kilcoyne, Daniel Master, Jonathan Waybright

Assistant Square Supervisors:

Catharine Clark, David Elias, Amy McMahon, Paul Merkel, Jennifer Stager, Lyle Van Laningham, Andrew Vaughn

Figure 10.11: Leon Levy Expedition 1995 Professional Staff

Back row, left to right: H. Alexander, A. Brody, D. Master, C. Clark, D. Schloen, R. Saley, D. Lipovitch, R. Voss, O. Borowski, T. Barako, C. Andrews (on lower level), K. Johnson, B. Stone, D. Small (wearing sunglasses), A. Vaughn (wearing sunglasses and white hat), J. Waybright, D. Elias, A. McMahon (wearing headband), S. Cohen, G. Hunter. **Front row:** P. Merkel, D. Phelps, T. Alsberg, M. Shimoni, F. Cross, L. Stager, S. Clark, J. Waldbaum, J. Stager, D. Minwab, N. Dever, A. Appa, P. Kilcoyne, B. Johnson, J. Baker, E. Bloch-Smith.

1996 Staff

Directors:

Lawrence Stager (director), Barbara Johnson and David Schloen (associate directors), F. Patrick Kilcoyne (volunteer director)

Specialists:

Heather Alexander (photographer), Jill Baker (pottery registrar), Heather Campbell (registrar), Roseanne Cantale (assistant photographer), Norma Dever (computer assistant), Brian Hesse (zooarchaeologist), Barbara Johnson (ceramist), David Lipovitch (assistant zooarchaeologist), Dorothy Phelps (assistant registrar), Richard Saley (computer specialist), Moshe "Musa" Shimoni (majordomo), David Small (architect), Jennifer Stern (assistant architect), Jane Waldbaum (archaeometallurgist and ceramist)

Grid Supervisors:

Elizabeth Bloch-Smith, Aaron Brody, Susan Cohen, Todd Sanders, Ross Voss

Square Supervisors:

Anthony Appa, Tristan Barako, Gary Hunter, Kenton Johnson, Glenn Magid, Daniel Master, Amy McMahon, Ronald Simkins, Duane Smith, Jennifer Stager

Assistant Square Supervisors:

Benjamin Deutsch, Paul Merkel, Lyle Van Laningham

Figure 10.12: Leon Levy Expedition 1996 Professional Staff

Back row, left to right: B. Hesse, A. McMahon (in front), D. Small, G. Hunter, A. Brody, R. Voss, R. Simkins, D. Smith (far back), R. Saley, K. Johnson (far back, wearing headband), L. Van Laningham, D. Lipovitch, S. Cohen (in front), J. Stager, D. Schloen, P. Kilcoyne, J. Baker, D. Master. **Front row:** R. Cantale (wearing sleeveless shirt), A. Appa, P. Merkel, G. Magid, N. Dever, L. Stager, H. Campbell, B. Deutsch (kneeling in front), D. Phelps (sitting on ground), M. Shimoni (standing behind), T. Barako (arms crossed), E. Bloch-Smith (sitting, holding child).

1997 Staff

Directors:

Lawrence Stager (director), David Schloen (associate director), Todd Sanders (lab director), F. Patrick Kilcoyne (volunteer director)

Specialists:

Charles Adelman (ceramist), Jill Baker (pottery registrar), Heather Campbell (registrar), Leslie Dawson (assistant physical anthropologist), Norma Dever (computer assistant), Brian Hesse (zooarchaeologist), David Lipovitch (assistant zooarchaeologist), Dorothy Phelps (assistant registrar), Richard Saley (computer specialist), Moshe "Musa" Shimoni (majordomo), David Small (architect), Ilan Sztulman (photographer), Jane Waldbaum (archaeometallurgist and ceramist)

Grid Supervisors:

Elizabeth Bloch-Smith, Aaron Brody, Susan Cohen, Ross Voss

Square Supervisors:

Adam Aja, Tracy Alsberg, Anthony Appa, Tristan Barako, Daniel Master, Amy McMahon, Jennifer Peersmann, Ronald Simkins, Marilyn Spirt, Jennifer Stager, David Vanderhooft, Jonathan Waybright, Assaf Yasur-Landau

Assistant Square Supervisors:

Molly Davies, Jonathan Master, Paul Merkel, Michael Press, Geraldine Slean

Figure 10.13: Leon Levy Expedition 1997 Professional Staff

Back row, left to right: J. Master, R. Saley, J. Peersmann, T. Barako, A. Yasur-Landau, T. Alsberg, R. Simkins, D. Lipovitch, J. Stager, M. Finneran, L. Dawson, P. Kilcoyne, J. Baker. **Second row:** D. Master, D. Vanderhooft, M. Spirt, A. McMahon, G. Slean, A. Brody, S. Cohen, E. Bloch-Smith, D. Small, A. Aja. **Front row:** J. Waybright, N. Dever, D. Phelps, M. Shimoni, L. Stager, T. Sanders, A. Appa, H. Campbell, R. Voss, P. Merkel.

1998 Staff

Directors:

Lawrence Stager (director), David Schloen (associate director), Tristan Barako (lab director), F. Patrick Kilcoyne (volunteer director)

Specialists:

Charles Adelman (ceramist), Jill Baker (pottery registrar), Heather Campbell (registrar), Leslie Dawson (assistant physical anthropologist), Norma Dever (computer assistant), Brian Hesse (zooarchaeologist), David Lipovitch (assistant zooarchaeologist), Gabrielle Novacek (assistant architect), Dorothy Phelps (assistant registrar), Sandra Schloen (computer specialist), Moshe "Musa" Shimoni (majordomo), David Small (architect), Ilan Sztulman (photographer), Lyle Van Laningham (assistant volunteer director), Tasha Vorderstrasse (computer assistant), Jane Waldbaum (archaeometallurgist and ceramist)

Grid Supervisors:

Elizabeth Bloch-Smith, Susan Cohen, Ross Voss

Square Supervisors:

Adam Aja, Tracy Alsberg, Anthony Appa, Molly Davies, Garth Gilmour, Daniel Master, Jonathan Master, Kevin McGeough, Michael Press, Marilyn Spirt, Jennifer Stager, Jonathan Waybright

Assistant Square Supervisors:

Carolina Aznar, Aaron Burke, Catherine Cockerham, Paul Merkel, Jeffrey Orenstein, Geraldine Slean

Figure 10.14: Leon Levy Expedition 1998 Professional Staff

Back row, left to right (standing): C. Aznar, L. Van Laningham, D. Schloen, S. Schloen, D. Master, J. Orenstein, M. Spirt (in front), M. Davies, J. Stager, J. Master, D. Lipovitch, S. Cohen, M. Altaweel, P. Kilcoyne (far back), A. Appa, J. Baker (far back), E. Bloch-Smith, J. Rosenberg, G. Gilmour, J. Waybright, R. Voss. **Front row (sitting):** T. Vorderstrasse, N. Dever, D. Phelps, L. Dawson, K. McGeough, G. Novacek, A. Aja, T. Barako, L. Stager, M. Shimoni, G. Slean, C. Cockerham, H. Campbell, C. Adelman, M. Press.

1999 Staff

Directors:

Lawrence Stager (director), David Schloen (associate director), Tracy Alsberg (lab director), F. Patrick Kilcoyne (volunteer director)

Specialists:

Jill Baker (pottery registrar), Heather Campbell (registrar), Norma Dever (computer assistant), Audrey Goodman (assistant zooarchaeologist), Brian Hesse (zooarchaeologist), Netta Lev-Tov (assistant physical anthropologist), Dorothy Phelps (assistant registrar), David Schloen (computer specialist), Moshe "Musa" Shimoni (majordomo), David Small (architect), Ilan Sztulman (photographer)

Grid Supervisors:

Elizabeth Bloch-Smith, Susan Cohen, Ross Voss

Square Supervisors:

Adam Aja, Anthony Appa, Aaron Burke, Garth Gilmour, Daniel Master, Jonathan Master, Michael Press, Duane Smith, Marilyn Spirt, David Vanderhooft, Jonathan Waybright

Assistant Square Supervisors:

Carolina Aznar, Catherine Beckerleg (Cockerham), Kathleen Birney, Glenn Corbett, Nicholas McMillion, Gabrielle Novacek, Seong Park, Deirdre Stritch, Wieslaw Wieckowski

Figure 10.15: Leon Levy Expedition 1999 Professional Staff

Back row, left to right (standing): J. Waybright, M. Shimoni, M. Press, D. Stritch, N. Lev-Tov, D. Smith, G. Gilmour, D. Small, J. Master, H. Campbell (in front), P. Kilcoyne, K. Birney, A. Goodman, J. Baker (far back), B. Hesse, A. Hesse (in front). **Second row (sitting):** D. Vanderhooft, N. McMillion, D. Master, W. Wieckowski, S. Cohen, G. Novacek, M. Spirt, C. Beckerleg, R. Voss, E. Bloch-Smith. **Front row (sitting):** A. Burke, A. Aja, C. Aznar, G. Corbett, D. Schloen, L. Stager, N. Dever, D. Phelps, T. Alsberg, S. Park.

2000 Staff

Directors:

Lawrence Stager (director), David Schloen (associate director), Benjamin Saidel (lab director), F. Patrick Kilcoyne (volunteer director)

Specialists:

Aaron Burke (computer assistant), Jill Baker (pottery registrar), Heather Campbell (registrar), Norma Dever (computer assistant), Brian Hesse (zooarchaeologist), Netta Lev-Tov (assistant physical anthropologist), Dorothy Phelps (assistant registrar), Sandra Schloen (computer specialist), Moshe "Musa" Shimoni (majordomo), David Small (architect), Ilan Sztulman (photographer)

Grid Supervisors:

Susan Cohen, Garth Gilmour, Daniel Master, Ross Voss

Square Supervisors:

Adam Aja, Anthony Appa, Carolina Aznar, Tristan Barako, Kathleen Birney, Tracy (Alsberg) Hoffman, Nicholas McMillion, Seong Park, Michael Press, Marilyn Spirt, Deirdre Stritch, Jonathan Waybright, Wieslaw Wieckowski

Assistant Square Supervisors:

Glenn Corbett, Todd Ferry, Rosina Lanson, Gabrielle Novacek

Figure 10.16: Leon Levy Expedition 2000 Professional Staff

Back row, left to right (standing): J. Baker, D. Small, B. Saidel, W. Wieckowski, S. Cohen, G. Novacek, R. Lanson, K. Birney, G. Gilmour, D. Stritch, P. Kilcoyne, M. Press, unidentified. **Second row (sitting):** N. Lev-Tov, D. Master, M. Spirt, T. Hoffman, G. Corbett, A. Burke, A. Aja, R. Voss. **Front row (sitting):** T. Barako, C. Aznar, T. Ferry, A. Appa, N. Dever, D. Phelps, L. Stager, D. Schloen, H. Campbell, J. Waybright, N. McMillion, S. Park.

OTHER SPECIALISTS

In addition to the professional staff members listed above, the following specialists have served as consultants or have conducted special projects on behalf of the Leon Levy Expedition to Ashkelon:

Mitchell Allen (regional survey), David Ayalon (Islamic history), Vladimir Bitman (pottery restoration), Orna Cohen (conservation), Michael Coogan (director of publications), Frank Moore Cross (Semitic epigraphy), Haim Gitler (numismatics), John Huehnergard (cuneiform epigraphy), Helene Kantor (art history), Mordechai Kislev (archaeobotany), Hannan and Omri Lernau (fish remains), Ora Mazar (pottery restoration), Ya'akov Meshorer (numismatics), Ya'akov Nir (geology and hydrology), Avner Raban (maritime archaeology), Ze'ev Radovan (photography), David Reese (malacology), Miriam Ronsheim (pottery restoration), Arlene Miller Rosen (geomorphology), Myriam Rosen-Ayalon (Islamic art and archaeology), Jay Rosenberg (illustration and surveying), Mark Roughly (illustration), Moshe Sharon (Arabic epigraphy), Patricia Smith (physical anthropology), Vassilios Tzaferis (Greek epigraphy), Shelley Wachsmann (maritime archaeology).

PART THREE

METHODS OF COLLECTION AND RECORDING

11. GRID SYSTEM AND FIELD METHODS

by Daniel M. Master

THE digging methods and recording procedures used by the Leon Levy Expedition to Ashkelon reflect the evolution of American excavation techniques at multiperiod Levantine sites during the past forty years, as filtered through expedition director Lawrence Stager's own excavation experience on several noteworthy projects in Israel and elsewhere: Gezer in the 1960s; Tell el-Ḥesi, Idalion in Cyprus, and the Judean Desert (Buqeʾah) in the early 1970s; Carthage in the late 1970s; and Ashkelon from 1985 to the present. As Stager himself says: "Along the way I have scavenged aspects of several digging and recording systems from other excavations, from staff members of my own excavation teams; and from time to time, I have added a few innovations of my own. Thus the system used at Ashkelon is a mongrel, the result of crossbreeding; and because of its mixed origin, perhaps heartier and more intelligent than most others."

The Development of the Ashkelon Method

At Ashkelon an attempt has been made to combine the best features of two rather different systems of excavation. The first system is usually referred to as the "Wheeler-Kenyon" method of excavation, devised by the British archaeologist Mortimer Wheeler in the 1930s (Wheeler 1954) and modified for use at deeply stratified Near Eastern sites by Wheeler's student Kathleen Kenyon, in her dig at Jericho in the early 1950s (Kenyon 1957; see Moorey 1991:94ff.; comments on Wheeler's method more generally may be found in Barker 1982:15; Harris 1989:18; and Renfrew and Bahn 1996:100–103).

The primary goal of the Wheeler-Kenyon method is to provide an accurate stratigraphic sequence and temporal profile of a multicomponent, multiperiod mound, such as a tell. Its concerns are primarily diachronic, aiming to reconstruct the "history" of the site. But that history is as limited in scope as Kenyon's trenches are narrow. The usual procedure using this method is to enforce strict stratigraphic control by relating debris layers and architecture to standing balks (unexcavated strips of earth) surrounding excavation squares usually not larger than 5 × 5 m. These squares are aligned end to end to form deep trenches across the mound, producing a stratigraphic profile.

This is the method that informed the American digs at Shechem and Gezer in the 1950s and 1960s. It was at the latter site that Lawrence Stager served as an area supervisor and was introduced to the balk-oriented Wheeler-Kenyon method. Subsequently, for the American excavations at Tell el-Ḥesi (begun in 1970), where Stager participated as a field supervisor, this method was further adapted to meet the needs of a truly multidisciplinary excavation project. This was the first excavation project in Israel in which all significant debris layers were systematically sampled and water-sieved to retrieve botanical remains.

By this time the "New Archaeology" (now called processual archaeology) was at the height of its vogue, and Stager and co-director Anita Walker, in their excavation of Idalion in Cyprus (1971–1980), attempted to develop a field strategy that would accomplish some of the objectives of the New Archaeology (see Stager and Walker 1974; 1989). This was only partially successful because in practice there was still a rather strict adherence to the Wheeler-Kenyon method. But it was clear that field methods, especially on complex sites, had to change in order to address the new and valuable synchronic concerns inherent in processual archaeology, especially in relation to the reconstruction of ancient lifeways and recurrent socioeconomic behavior using not only texts but also archaeology. This requires broader horizontal exposures, which means breaking free of the confines of the Wheeler-Kenyon method by working in larger excavation squares with thinner, temporary balks.

This brings us to the second system of excavation that has been partially incorporated into the Ashkelon method, the "open-field" approach popularized by Philip Barker in his *Techniques of Archaeological Excavation* (1982; first edition, 1977). Stager was introduced to this method at Carthage, where he excavated after his work at Idalion. At Carthage there were a dozen international excavations simultaneously in progress during the late 1970s. The British team, under the direction of Henry Hurst, very successfully excavated the ancient naval harbor using the open-field method. In this method, the entire excavation area is treated as one big unit, excavating layers and features in reverse order of their deposition and without the aid of standing balks. Sections are

artificially reconstructed from the detailed elevations recorded on all layers and features. The British team also introduced Stager and his American team to the use of the "Harris matrix" method of diagramming stratigraphic sequences (see Harris 1989). After Carthage, Stager and several of his students (notably the late Douglas Esse) went on to dig at Ashkelon, where excavation commenced in 1985.

Ashkelon is a large, very deeply stratified tell which, because of the scarcity of building stone in the region, has been subject over the centuries to intensive pitting and robbing of earlier features and layers. This makes it a challenging site to excavate and calls for a sophisticated method. Because of this complexity, and because of their "processual" concern with synchronic distributions of finds over wide areas that would reveal aspects of ancient social behavior (without neglecting the diachronic distributions of artifacts essential to traditional culture-historical research), Stager and his collaborators wanted an excavation and recording system that combined the best aspects of the Wheeler-Kenyon method, to ensure precise stratigraphic control, and of the open-field method, which provides substantial horizontal exposures. In other words, a method was needed that would provide the "big picture," unobscured by massive balks artificially crisscrossing architectural features every few meters, and at the same time would preserve strict vertical control.

The excavation method devised to accomplish this is described below, as condensed from the field manual developed at Ashkelon for the use of expedition staff. This method has proved to be quite successful in accomplishing the objectives of the Leon Levy Expedition. At the same time, it should be noted that the application of this method at a site such as Ashkelon requires a large commitment of resources and manpower over a long period. Indeed, it was only on that basis, and thanks to the generosity of Leon Levy, that Stager decided to tackle Ashkelon.

Grid System

The cartographic grid system employed by the Leon Levy Expedition is laid out in a series of 100×100 m units called "grids." These grids are oriented parallel to the Mediterranean coast, not to true north. They span an area of 840,000 m^2, running 700 m from east to west and 1,200 m from north to south, encompassing the entire settled area of ancient Ashkelon. The 100-m grids are numbered from 1 to 84 in horizontal rows that are seven grid units (700 m) wide, beginning at 1 in the northwestern corner of the overall grid system and ending at 84 in the southeastern corner (see figure 11.1). Throughout the recording sys-

tem, a given 100-m grid unit is referred to by number (e.g., "Grid 38," in the middle of the site).

Within each 100-m grid unit there are 100 smaller squares, each measuring 10×10 m. These are the primary units of excavation, and they are referred to as "squares" throughout the recording system. The 10-m squares within each 100-m grid are numbered from 1 to 100 in horizontal rows that are ten squares (100 m) wide, starting with "Square 1" in the northwestern corner and ending with "Square 100" in the southeastern corner.

If necessary, a 10×10-m square is subdivided into 100 "fine-grid" squares, each measuring 1×1 m. This subdivision is used for the excavation of floors and other primary contexts in order to provide tighter spatial control over scattered ceramic finds and other material whose findspots would not normally be plotted individually on a daily plan. The fine grids are numbered in the same way as the 10-m squares, in horizontal rows starting with "Fine Grid 1" (usually abbreviated "FG 1") in the northwestern corner of the 10-m square and ending with "Fine Grid 100" ("FG 100") in the southeastern corner.

Two points should be noted in relation to the grid system to forestall any potential confusion. The first involves orientation. As was mentioned above, the grid lines are not oriented precisely north-south and east-west but are tilted toward the east by 30 degrees to make the grid system parallel to the seacoast. For this reason, a north arrow is included on all plans, including the square supervisors' daily top plans.

A second point relates to the numbering of the 100-m grid units, as compared to the numbering of the 10-m squares and the 1-m fine grids within them. The overall surveyed grid system is only 700 m wide, not 1,000 m, so there are only seven 100-m grid units in each row, which means that Grid 8 lies directly south of Grid 1, Grid 15 lies directly south of Grid 8, and so on. In contrast, there are ten squares in each horizontal row of 10-m squares and ten fine-grid units in each horizontal row of 1-m fine grids, so Square 11 will always lie directly south of Square 1 and Fine Grid 11 will always lie south of Fine Grid 1.

The location of a stratigraphic unit that is exposed in the course of excavation is recorded in terms of the grid, square, and perhaps fine-grid square in which it is situated (e.g., "Grid 38, Square 64, Fine Grid 55, Layer 100" or "38.64.FG55.L100"). Architectural features and debris layers are drawn on plans and artifact findspots are plotted with reference to fixed grid stakes that mark the corners of relevant grids and squares. Likewise, vertical elevations above mean sea level are measured with reference to permanent benchmarks of known elevation.
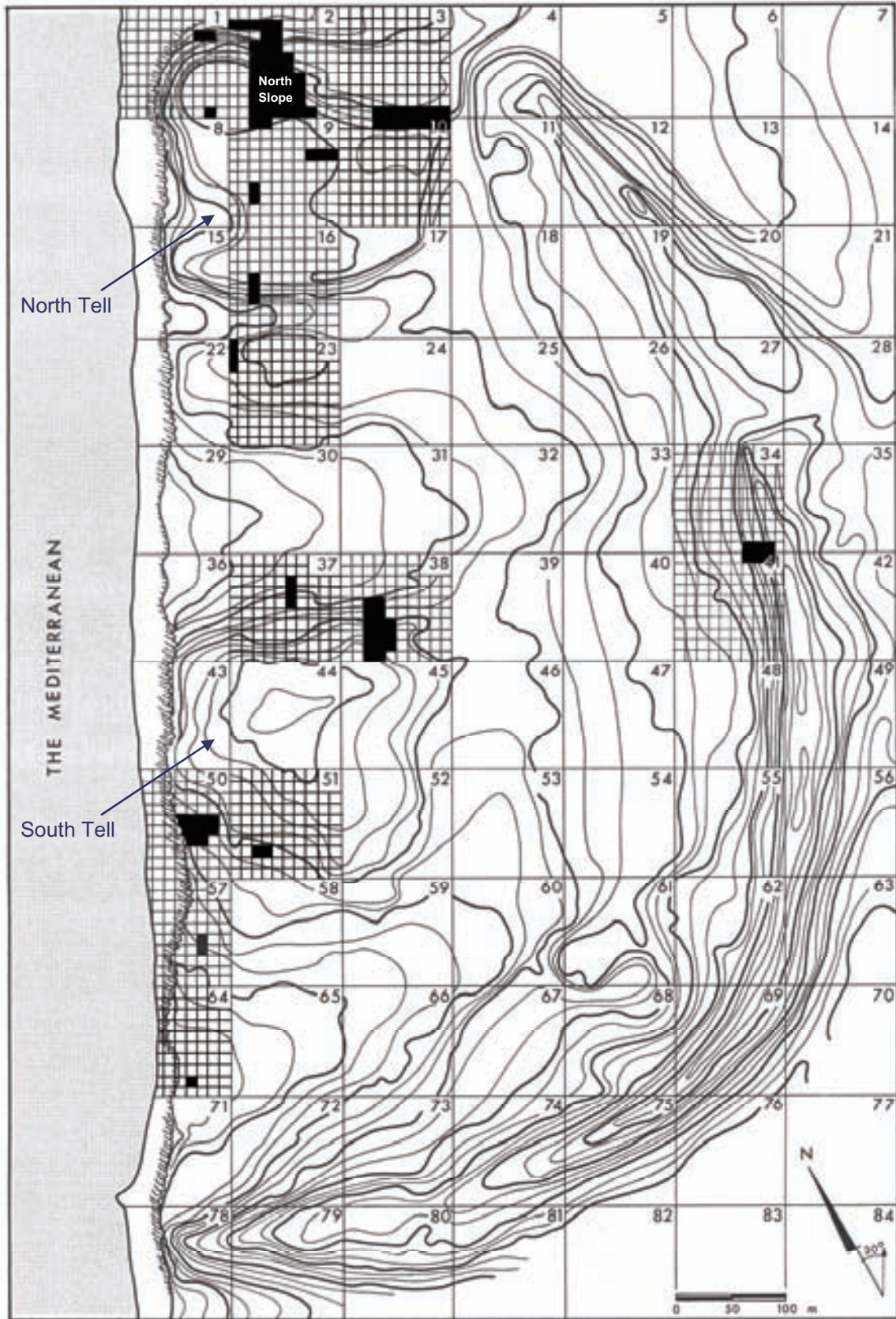
Figure 11.1: Map of the site of Ashkelon showing grid system and excavated squares

ROLES AND RESPONSIBILITIES OF FIELD STAFF

1. Director and Associate Director

The director appoints all of the staff members of the expedition, including the field staff, and has overall responsibility for all aspects of the project and for the publication and interpretation of the finds. The director and associate director have many duties during the field season, including general oversight of the work being done off the site by the artifact registrars, data entry assistants, ceramic specialists, conservators, photographers, and others, not to mention ongoing work on the publication of previously excavated material and evening lectures for the field school. In terms of the actual excavation, however, the director and associate director normally visit each excavation area at least once a day during the field season, discussing stratigraphic and logistical issues with the grid and square supervisors. Difficult problems of stratigraphy or functional interpretation are often the subject of lengthy conferences in the field.

2. Grid Supervisors

A grid supervisor is always a professional archaeologist who has substantial excavation experience. Most of the grid supervisors who have worked at Ashkelon since 1985 have had doctorates in archaeology or were in an advanced stage of their doctoral work at the time. The grid supervisor is responsible for the day-to-day progress of excavation in all of the 10-m squares chosen for excavation within a particular grid (e.g., in Grid 38 or Grid 50). The squares chosen for excavation are normally arranged to form a contiguous excavated area consisting of several hundred square meters (from two to eight 10 × 10-m squares or parts of squares) within the larger grid unit in which they are situated.

The grid supervisor guides the excavation of the entire area, overseeing the square supervisors and advising them on the best approach to take within their squares. The grid supervisor allocates volunteer diggers and hired workers to the square supervisors and reassigns them as necessary, depending on digging priorities and interpersonal problems that may arise. Meanwhile, the grid supervisor consults regularly with the expedition's director and associate director about general excavation strategy and specific stratigraphic problems in the grid.

The grid supervisor regularly inspects the field notebook of each square supervisor under his or her authority, ensuring that plans and section drawings are up-to-date, that the standardized forms describing stratigraphic units and small finds are correctly filled out, and that useful daily journal entries are being made. The grid supervisor coordinates the work of the expedition's photographers, surveyors, and other specialists within the grid, requesting their services as needed. Because the day-to-day paperwork is handled by square supervisors, grid supervisors normally do quite a bit of digging themselves, demonstrating correct techniques to the volunteers and tackling the most difficult stratigraphic problems.

After each excavation season, the grid supervisor makes use of the field notebooks and reports produced by the square supervisors to write a detailed final report that presents an overall summary and interpretation of the stratigraphy and finds unearthed that year, in relation to discoveries made in the same grid in earlier seasons or elsewhere on the site. This "grid report" includes relevant 1:50 phase plans for the entire grid and a final "Harris matrix" diagram documenting the relevant stratigraphic sequences.

Each year from 1985 to 2000, excavations were conducted in five or six different grids during the summer field season. This means that at any one time there were five or six grid supervisors, each of whom was in charge of as few as two and as many as eight square supervisors and assistant square supervisors. Each square supervisor in turn supervised the work of four to six volunteers. Hired workmen were also brought in as needed to assist with certain tasks.

3. Square Supervisors and Assistant Square Supervisors

Square supervisors are normally graduate students of archaeology who have had significant excavation experience and know the Ashkelon recording system. In some cases, a more junior person will be given a supervisory role as an "assistant square supervisor," assisting a particular square supervisor with record-keeping and with the training of volunteers. The square supervisor is responsible for producing a complete set of documentation concerning the excavation carried out in his or her square. At the end of the season, each square supervisor submits a field notebook (a three-ring binder) containing detailed descriptions of every stratigraphic unit that was exposed or removed, lists of pottery buckets and other finds sent in for processing, daily plans (with elevations) documenting the changing configurations of layers and features and the findspots of special items, vertical section drawings, and free-form daily journal entries. In addition to this notebook, the square supervisor writes a report summarizing what was found in the square during the field season, complete with stratigraphic and functional interpretations.

Square supervisors are usually granted considerable discretion in determining how excavation should proceed within their squares, but even the most experienced of them regularly seeks advice from the grid supervisor. When any question of archaeological interpretation arises, the grid supervisor's opinion is sought and noted in the square supervisor's daily journal. No major decision can be taken without the grid supervisor's approval because the grid supervisor is responsible to the director for everything that happens in the grid. An important task of the grid supervisor is to train square supervisors in relevant aspects of archaeological method and in the specific requirements of the Ashkelon recording system. Over the years, the result of this training has been that a number of square supervisors have been promoted to the rank of grid supervisor.

4. Volunteers and the Volunteer Program

The volunteer program at Ashkelon is designed as a field school in which students may earn college credit for their work on the dig. Each year from 1985 to 2000, a group of 80–100 dig volunteers of all ages has participated in a seven- or twelve-week season of excavation at Ashkelon. The volunteer coordinator (later called director of personnel) handles volunteer recruitment and supervises the activities of the volunteers when they are not working at the site.

In the field, volunteers are assigned to work in a particular square. The relationship of the square supervisor to the volunteers under his or her supervision is like that of teacher and students. The square supervisor trains volunteers in basic excavation techniques, as well as in the use of the recording system. Grid supervisors and square supervisors also safeguard the health and safety of the volunteers and hired workmen in their charge, making sure that tools are used properly and that appropriate care is taken wherever unstable debris may present a problem.

Volunteers excavate for five days per week, from 5:30 A.M. until 1:00 P.M. They also participate in an afternoon work session from 4:30 to 6:00 P.M. in the expedition's processing compound, washing the day's pottery and faunal remains and assisting the professional staff in various preliminary processing tasks. The day's scheduled activities usually end with an evening lecture from 7:00 to 8:00 P.M., at which attendance is required for students of the field school.

Volunteers also participate in weekend field trips to important archaeological sites in Israel, taken at regular intervals over the course of the season under the supervision of the volunteer coordinator.

THE RECORDING SYSTEM

Square supervisors are the primary record-keepers during the course of excavation. They are responsible for recording every activity in their squares. It is intended that the field notebook maintained by each square supervisor provides enough information not only to document what was found in the square, but also to explain every decision made by the square supervisor and grid supervisor during the excavation.

Redundancy of information has been intentionally built into the recording system to ensure that all items of importance are adequately described. Every stratigraphic unit (debris layer or architectural feature) that is distinguished by the field supervisors is recorded in several ways. At Ashkelon, every stratigraphic unit that represents a distinct depositional process is given a separate "layer" (debris layer) number or "feature" (architectural feature) number, depending on the nature of the unit. The "layer" versus "feature" distinction is used to reduce the confusion caused by the alternative term "locus," which is ambiguous. Historically, the term locus has been used to refer to contexts ranging from individual debris layers to entire rooms or buildings.

A standardized form (a "layer sheet" or "feature sheet") is filled in for every stratigraphic unit excavated during a given excavation season, even for units whose excavation was begun in a previous season. A daily journal entry is made for each stratigraphic unit for each workday during which it is excavated. Lists of pottery bucket numbers and of associated collections of faunal, botanical, and artifactual remains (metal, stone, ivory, etc.) are also recorded for each stratigraphic unit using standardized forms. Copies of the photographs taken in the square during the season are pasted into the field notebook, with annotations indicating the layers, features, and small finds that apppear in each photo.

Once the excavation of a stratigraphic unit has begun, it is plotted on the successive 1:50 plans that the square supervisor prepares every day or two to represent the state of excavation in his or her square. Over the course of the season, the square supervisor also makes 1:25 vertical section drawings of at least two of the sides of the square, labeling each layer or feature that appears in the section. After the sections are drawn, balks between squares are excavated to restore the unobstructed open-area view of the excavation area. At the end of the season, the expedition's surveyor prepares detailed 1:50 phase plans of groups of contemporaneous features found during the season in the excavation area, in close consultation with the grid supervisor.

Immediately after the completion of excavation, each square supervisor prepares a detailed written report summarizing what was found in his or her square, phase by phase, and suggesting interpretations of the remains. The grid supervisor then utilizes all of the square notebooks and square reports to prepare a final report on the season's excavation in the entire excavation area. This report includes a "Harris matrix" diagram of the relevant stratigraphic sequences, as reconstructed by the field supervisors in consultation with the expedition's director and associate director. This diagram incorporates every stratigraphic unit that was excavated during the season.

Numbering of Layers and Features

The square supervisor, as the primary record-keeper, is responsible for assigning sequential numbers to the stratigraphic units (debris layers and architectural features) identified in his or her square, in the order in which they are exposed during the course of excavation. The number assigned to a given layer or feature is unique within the 10×10-m square in which it was found; it is not unique across the whole site. Within each square, the numbers assigned to stratigraphic units range from 1 to 999. In successive excavation seasons, numbering of newly discovered layers and features begins with the next available number in that square, without regard to the numbers assigned to the same stratigraphic unit in neighboring squares. This means, for example, that Layer 100 in Square 64 is not the same stratigraphic unit as Layer 100 in the neighboring Square 65, which is different again from Layer 100 in Square 66. A stratigraphic unit is identified by citing its grid, square, and layer or feature number; for example, "Grid 38, Square 64, Layer 100" (or more briefly, "38.64.L100").

This is done for two reasons: (1) to avoid the use of lengthy serial numbers that are prone to errors in transcription, e.g., when copying numbers onto pottery tags (note that quite lengthy numbers would be required to identify uniquely the tens of thousands of stratigraphic units excavated over the years at Ashkelon); and (2) to eliminate the cumbersome process of having someone other than the square supervisor assign numbers, with the attendant risk of unintentional duplication of identifying numbers. A minor drawback of this approach, of course, is that a stratigraphic unit that spans two or more squares receives multiple identifying numbers, which must later be correlated ("Grid 38, Square 64, Layer 100" = "Grid 38, Square 65, Layer 150").

A number that has already been assigned to a debris layer will not be used for an architectural feature in the same square, and vice versa, unless it is a case of a single stratigraphic unit that has been interpreted as being both a layer and a feature. In other words, Square 64 will not have both a Layer 100 and a Feature 100 unless these refer to the same stratigraphic unit (e.g., a beaten-earth floor that is interpreted as both a layer and a feature). In that case, the stratigraphic unit will be referred to both by layer number and by feature number; for example, "Grid 38, Square 64, Layer 100, Feature 100" (or "38.64. LF100"). Sometimes the equation between a layer and a feature, recognizing that they are the same stratigraphic unit, is not made until later, after the layer and feature have each been assigned a unique number. In that case, both numbers will be cited when identifying that stratigraphic unit; for example, "Grid 38, Square 64, Layer 100, Feature 95" (or "38.64.L100.F95").

It should be noted that, during the first few seasons of the Leon Levy Expedition, layers and features were sometimes numbered independently, with the result that a layer might use the same number as a feature even though they are separate stratigraphic units (e.g., "38.64.L100" might be a different unit from "38.64.F100"). This confusing practice was soon corrected, however, so that in the vast majority of cases, a given number refers to only one stratigraphic unit, whether it is a layer or a feature, or both.

Numbering of Pottery Buckets and Associated Finds

The square supervisor is also responsible for assigning sequential numbers to the plastic buckets of pottery collected from specific layers or features in the course of excavation in his or her square. Again, these numbers are unique only within the square, not the grid, and they range from 1 to 999. At the beginning of each excavation season, the pottery buckets for that season in that square are numbered starting at 1. Thus, unlike layer and feature numbers, pottery bucket numbers are unique only within the year of excavation; the same number will often be reused for different pottery buckets in successive excavation seasons in the same square. This is necessary because hundreds of buckets of potsherds are collected in a typical square during a single season. These buckets are cylindrical plastic containers with a maximum capacity of ca. 8 liters.

On the other hand, pottery bucket numbers are not dependent on the layer or feature number. As buckets of pottery are collected throughout the square from various layers and features, they are numbered sequentially by the square supervisor in the order they

are collected, without regard to the layer or feature number. A concordance is maintained in the field notebook, indicating which layer or feature (and fine-grid square) the pottery bucket number is associated with, and that layer and/or feature number is also written on the pottery bucket tag, together with the pottery bucket number and the date of excavation.

This means that a given pottery bucket can be fully identified by citing the year, grid, square, and bucket number, although the layer or feature number is usually also included on pottery tags and in other references to the bucket, both for the sake of convenience and because it provides additional redundant information that can help to prevent errors; for example, "1995, Grid 38, Square 64, Layer 100, Bucket 50" (or, more briefly, 95.38.64.L100.B50).

All other small finds (other than potsherds) that are collected in the course of excavation are bagged or boxed by category (bone, metal, etc.) and are tagged with the same information as the associated bucket of pottery. This allows the nonceramic materials from a given layer or feature to be studied in relation to the immediately surrounding ceramic evidence. If necessary, a one-meter "fine grid" is used to enable finer spatial control, with one bucket per fine-grid square.

Excavation Using a Fine Grid

As was noted earlier, a 10 × 10-m square can be subdivided into 100 "fine-grid" squares, each measuring 1 × 1 m. A fine grid is laid out with string in the relevant portion of the square during the excavation of archaeologically important deposits, especially occupational debris left on primary living surfaces and evident destruction debris that seals a primary context (including material from collapsed roofs and walls and the jumbled occupational debris from the upper story of a building). Each fine-grid square has its own pottery bucket for the given debris layer, providing a more detailed record of the location of potsherds and other finds whose position is not plotted individually on a plan.

When excavating with a fine grid, all debris is immediately sifted using a wire-mesh screen in order to retrieve small bones, artifacts, and charred botanical remains. A soil sample is also taken from each fine-grid square for subsequent water flotation and wet-sieving to retrieve additional botanical remains (the "light fraction") and very small faunal and lithic remains (the "heavy fraction"). The procedures and results of soil flotation at Ashkelon are discussed in more detail below in chapter 12.

Secondary deposits that are not excavated according to the fine grid are not sifted in their entirety, but a certain proportion is sifted systematically (i.e, every fifth or tenth basket of debris), and flotation samples are taken where significant botanical remains are seen.

Sifting Ratios and "Gufa Count"

The proportion of loose debris that is sifted at the time of excavation is determined by the nature of the layer. Baskets of debris that are dug from secondary leveling fills and dumps are normally sifted at a ratio of 1:5 (20%), or at 1:10 (10%) if the layer is very large. Sterile natural accumulations that contain no cultural material are not sifted at all (these are relatively rare). Occupational debris or destruction debris on top of ancient streets, courtyards, indoor floors, and other living surfaces is sifted in its entirety (i.e., at a ratio of 1:1 or 100%). Also sifted 1:1 is the debris filling small pits, postholes, bins, and cooking facilities (hearths or clay ovens), and the first few centimeters beneath beaten-earth surfaces (called "floor makeup"), which contains material trampled into the surface during its period of use.

As debris is removed, a tally is kept of the number of baskets of debris excavated from a given layer, or from a particular 1 × 1-m fine-grid square within the layer, in the process of collecting a given bucket of pottery. These two-handled baskets, called "gufas," are made from old rubber tires, with a maximum capacity of ca. 10 liters. The "gufa count" is recorded for each pottery bucket. It provides a rough measurement of the volume of debris removed and hence of the density of potsherds in that part of the layer.

Measurement of Vertical Elevations

An optical transit or laser theodolite is used to measure the vertical elevation (in meters above mean sea level) of each stratigraphic unit. Multiple elevations are taken at various spots on large layers and features and these are plotted on the relevant daily plan. The elevation of each stratigraphic unit is measured when it is first exposed and at the start and end of each day's excavation of that unit. For each bucket of pottery taken from a given layer or feature, the square supervisor records the top and bottom elevations of the debris that was excavated to produce that pottery.

Processing of Pottery and Other Material

At the end of each day's excavation, the buckets of pottery and associated collections of other small finds are taken to the expedition's processing compound where the material is cleaned, sorted, and registered.

Each bucket of potsherds is washed and counted by the volunteer staff in their late-afternoon work session, and the number of sherds is recorded for each bucket. The expedition's pottery specialists then sort the sherds by period and type, documenting the contents of each pottery bucket and selecting the most important pieces (i.e., fragments of rims, handles, bases, and all decorated or otherwise diagnostic sherds) to be registered and permanently marked with the relevant provenience data (year of excavation, grid, square, fine-grid square, layer and/or feature, and pottery bucket number).

Animal bones and teeth are likewise washed by the volunteer staff and then documented and analyzed by the expedition's zooarchaeologists, as described below in chapter 13. Human remains are studied by the expedition's physical anthropologist, who employs various analytical techniques, including DNA analysis (see chapters 28 and 29).

All other finds are given a preliminary inspection by the artifact registrar and assistant registrar, who consult the director and other senior staff to determine what should be kept and registered, and then clean and store the registered artifacts, recording a brief description of each item together with the relevant provenience data. The cleaning of certain fragile items is done by the expedition's conservator. Meanwhile, the day's soil samples are processed by water flotation (see chapter 12). The light and heavy fractions from each sample are bagged and labeled with the relevant provenience data and then stored for future study.

After eighteen excavation seasons (including the most recent season in 2007), the Leon Levy Expedition has amassed a very large collection of registered pottery, other artifacts, and faunal and botanical remains. Millions of objects in such dense stratigraphic relationship would test any excavation method, but our hybrid system continues to show the rigor, redundancy, and flexibility to adapt to Ashkelon's wide range of archaeological environments. The analysis of these finds has been proceeding since the first season of excavation. The present volume is the first of several planned volumes that will provide a final report on the expedition's discoveries.

Computer Database

The Leon Levy Expedition has made extensive use of computers since its inception, both for word-processing and to create a comprehensive, searchable database of information about the stratigraphic units (layers and features), pottery, and other material excavated at Ashkelon. Until 1996, the database system

was developed and maintained by Dr. Richard Saley, who employed the "dBase" database management software that was popular in the 1980s. Saley instituted systematic data-entry procedures and managed the expedition's data-entry staff, both during the summer field seasons at Ashkelon and during the rest of the year at the expedition's headquarters in Harvard University's Semitic Museum.

The development and maintenance of the expedition's computer database were then taken over by the Ashkelon project's associate director, Prof. David Schloen of the University of Chicago, whose early training was in computer science. Schloen has a long-held interest in computer applications in archaeology, which led him to develop a sophisticated archaeological database system that has been utilized by the Ashkelon project since 1996.[31] The latest version of this system is called OCHRE, an acronym for "Online Cultural Heritage Research Environment" (see *http://ochre.lib.uchicago.edu*). OCHRE is a multiuser database system that is accessible on the Internet, making it easy for project members to view, modify, share, and analyze data from wherever they are both during and after the excavation seasons. It can be used during excavation, in the course of post-exacavation analysis, and as a vehicle for the publication of the excavation results. Internet technology has developed to the point that in 2007, for the first time, square supervisors at Ashkelon used laptop computers within the excavation areas to enter observations and digital photographs directly into the database (which is physically located in Chicago) via high-speed cellular modems. This ease of access from any location is especially helpful to the diverse array of specialists in various institutions worldwide who are recruited to study particular aspects of the Ashkelon finds and can record their results in a central online repository, where their information is instantly available to other project collaborators.

The chief innovation in this database software is a visually oriented user interface that allows users to view and link together a wide variety of information, including photographs, drawings, and scanned facsimiles of hand-written documentation (e.g., square supervisors' field notes). Stratigraphic units and the registered finds unearthed within them are presented in diagrammatic form, as hierarchical "trees" that represent the spatial containment of artifacts within layers within excavation areas, and also as "flow-charts" of the temporal sequence of events of

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[31] David Schloen designed the database structure and user interface and the programming was done by his wife, Sandra Schloen.

deposition and destruction of stratigraphic units, based on the widely used "Harris matrix" diagramming technique (see Harris 1989). Information about individual layers or artifacts is displayed by clicking on the relevant spot in a the tree or flowchart.

Less noticeable to the end user, but very important from a database design perspective, is the way in which the OCHRE system defines and manages archaeological data elements and their interrelationships. It makes use of a hierarchical, "item-based" data model (Schloen 2001), consisting of an open-ended spatial hierarchy of independently definable units of archaeological observation (e.g., regions, sites, features, layers, artifacts, etc.). This data model is far more flexible and generic in its application than the project-specific "class-based" data models that underlie most existing archaeological databases.

Because it is so flexible and open-ended, but at the same time preserves a predictable basic structure, being a direct representation of a physical spatial hierarchy, it can integrate information from many different excavation and survey projects that use different nomenclatures and recording systems.

OCHRE will be used to publish the large corpus of detailed information from the excavations at Ashkelon—including tens of thousands of photographs, plans, and drawings—in tandem with the publication of a printed series of final report volumes. Printed reports are still very useful, but for reasons of space it is not feasible to publish all of the results in printed form. The Leon Levy Expedition has long had the goal of augmenting its report volumes with an effective form of electronic publication, and the OCHRE database system was designed with this in mind.

12. Soil Flotation and Quantitative Analysis

by Egon H. E. Lass

ALTHOUGH the process of flotation as a method of recovering material remains was introduced more than thirty years ago (Struever 1968), its full potential has yet to be realized in Palestinian archaeology. Very little work has been done to relate evidence derived from flotation to the study of ancient environments and site formation, or to the identification of intrasite activity areas (Hassan 1978:208; Glock 1985:466; Stager 1985a:4). An exception to this is the geoarchaeological research on Palestinian tells conducted by Arlene Rosen (1986a). Her research included analyses of environmental change, of the amounts of phosphates as indicators of increased or decreased occupation (cf. Davidson 1973), and of the delineation of activity areas by microscopic analyses of floor sediments.

At Palestinian sites where flotation is used, it is usually limited to the retrieval of the light fraction—the botanical remains that float to the surface of the water—and the result is simply an appended listing of plant species found. This procedure is useful for studies of subsistence and of the environment, but it is only a beginning. If, in addition to the light fraction, the heavy fraction (that part of the soil sample that sinks in water) is also recovered and analyzed, flotation can yield information that may be vital to the understanding of archaeological strata. The aim of this report is to demonstrate some of the potential inherent in flotation analysis.

The patterned behavior of a society is reflected in the patterns of archaeological remains, which may yield information on how that society was organized (Clarke 1977:18). Patterned activity may be determined from content profiles and from the clustering of material culture on living surfaces. Analysis of such contents may bring an otherwise inexpressive stratum to life. At Ashkelon, flotation is being used as just such a tool.

Since excavation began in 1985, flotation has been indispensable to our understanding of several major archaeological periods at the tell. From 1986 to 1988, in particular, a specific program of investigation was carried out to explore four questions: (1) Do different archaeological contexts contain significantly different quantities of cultural debris in the form of bone, fish scales, pottery, and botanical remains? (2) Are quantities of cultural debris found in successive historical periods significantly different? (3) Do different types of living surfaces differ significantly from one another with respect to the quantities and types of cultural debris found on them? (4) Do these living surfaces exhibit distinct clusterings of cultural material?

Methodology

Flotation is the recovery of both the light and the heavy fractions of a deliberately collected, unsifted and unsorted soil sample from an archaeological layer by means of water screening. The *light fraction* consists mostly of the botanical remains that float to the surface, from which they are skimmed off. The *heavy fraction* is the part of a soil sample that sinks in the water and is caught by a screen, which allows the silty component to escape. The purpose of flotation is to allow the identification of all recovered cultural materials and the discovery of any patterns inherent in them.

The manner in which soil samples are collected depends on the research questions being asked. If the purpose is solely the recovery of botanical remains, as has been the case in many Near Eastern excavations, soil samples are taken mainly from locations where there are visible concentrations of carbonized botanical remains. But if flotation is to be utilized as part of a more comprehensive research strategy, a more systematic method of collection is in order. At Ashkelon, soil samples are collected not only from all visible concentrations of botanical and faunal remains, but also from each 1 × 1-m fine-grid square whenever a fine grid is used to excavate occupational debris or destruction debris (see chapter 11 above).

A basic measurement used in all subsequent calculations is the weight of the unprocessed soil sample. The sample is laid out to dry (if necessary) and then weighed. It is then processed in the flotation device.

The simple but efficient flotation technique used at Ashkelon was developed by Robert Stewart at Tell el-Ḥesi (Stewart and Robertson 1973) and later used at Bâb edh-Dhrâᶜ (Richardson and McCreery 1978). A barrel is filled with water. A smaller round tub that has a 1.5 mm window screen for a bottom is immersed into the barrel. The soil sample is poured into the tub, and the light fraction is skimmed off the top of the water with a 0.5 mm strainer. The silt is then shaken through the bottom of the tub and the resulting heavy fraction is laid out to dry in the sun. The

light fraction is taken indoors and laid out on newspaper for a slower drying process. The barrel has to be cleaned out after the processing of approximately 150 kg of soil.

A disadvantage of this method is the potential for contamination of the light fraction. If a processed sample contains a large amount of botanical material, the subsequent samples will be contaminated. No matter how many times the surface of the water is skimmed with the 0.5 mm screen, a residue will keep surfacing after a time, or will remain suspended just below the surface of the water. Since samples taken from a specific floor are usually dealt with sequentially, this contamination does not appear to be significant for seed identification; but if the aim were the retrieval of radiocarbon samples, the soil sample would need to be processed separately.

After the dried heavy and light fractions have been shipped to the laboratory, each fraction is weighed and recorded as a percentage of the original gross weight of the soil sample. The heavy fraction is then sorted into various categories, most of which are counted and/or weighed. These categories of material are also recorded as percentages or ratios of the original gross weight. All of the recorded data are then entered into a computer database file, which can be utilized to answer a number of research questions.

Provenience Types

At Ashkelon, significant differences in quantities and types of material culture and other human debris have been examined within the framework of various archaeological contexts and periods. The analysis of debris from different types of living surfaces can provide evidence for sharply demarcated domestic and industrial activities. Taken together, these investigations demonstrate the utility of flotation as a method for more precise understanding of specific archaeological strata.

Figure 12.1 shows the weight percentages and mean weights of several kinds of cultural debris across 14 provenience types. Four types are from contexts relating to activity surfaces; others represent different kinds of human activity, e.g., hearths, ovens, pits, robber trenches, fills that are simply called layers, and the contents of vessels. Layers and pits are grouped according to three major kinds of soil matrices: ash, silt, or sand. This determination is made in the field by square supervisors, who fill in forms that specify, for each layer, the type of soil matrix and its contents. If the layer consists of a mixture of several materials, such as sand and silt, the materials are listed in the order of their abundance.

Floors and deposits surrounded by four walls forming a room, or by three walls and a section, are designated as being from indoor contexts. Those not visibly enclosed by walls are designated as outdoor contexts. Activity surfaces are divided into four categories: (1) indoor suprafloor deposits (IDSFD), comprising 5–10 cm of soil directly on top of the floor surface, including the artifacts lying directly on the surface; (2) indoor floors, defined by the make-up of the floors themselves; (3) outdoor suprafloor deposits (ODSFD); and (4) outdoor courtyard floors. Except for outdoor suprafloor deposits, the first, second, and fourth categories represent the largest number of samples taken and should therefore be fairly reliable statistically. From 54 indoor floors, 251 samples were processed using flotation; from 17 indoor suprafloor deposits came 82 samples; from 21 outdoor floors, 298 samples; and from 3 outdoor supra-floor deposits, 36 samples.

The nature of courtyards has prevented sampling more outdoor suprafloor deposits. Once a courtyard has been formed, there is usually no suprafloor deposit because the surface—composed of a patchwork of small lenses of silt, sand, and ash—simply keeps rising, often to a depth of several meters, the entire sequence being essentially floor make-up.

Courtyards are the locations for a number of different activities that leave behind substantial amounts of debris. In fact, outdoor floors contain more debris in every category than indoor floors (figure 12.1). A statistical test for each type of debris has proved this difference to be highly significant. The same is true for the mean weights of bone, shell, and sherds, which are always greater in outdoor floors than in indoor floors. At Ashkelon, courtyard floors appear to have been a dumping ground for ashes from bread ovens and hearths, contrary to one ethnographic account in which charcoal and ashes were dumped outside a courtyard (Weinstein 1973:273–74), and where, far from accumulating and rising through time, the courtyard was being degraded by daily sweeping. Another characteristic at Ashkelon is the use of beach sand, instead of sweeping, to keep surfaces clean, a practice described by Benet (1957: 196). Sand keeps down dust and also absorbs cultural objects, as long as those objects do not exceed a certain size (Fehon and Scholtz 1978:273).

Most indoor floors at Ashkelon are of beaten earth. They were regularly swept and probably sprinkled with water, creating a series of thin striations, each only a few millimeters thick. A significantly larger amount of debris is found lying on top of indoor floors than within the floor make-up, which has an impermeable, clay-like consistency.
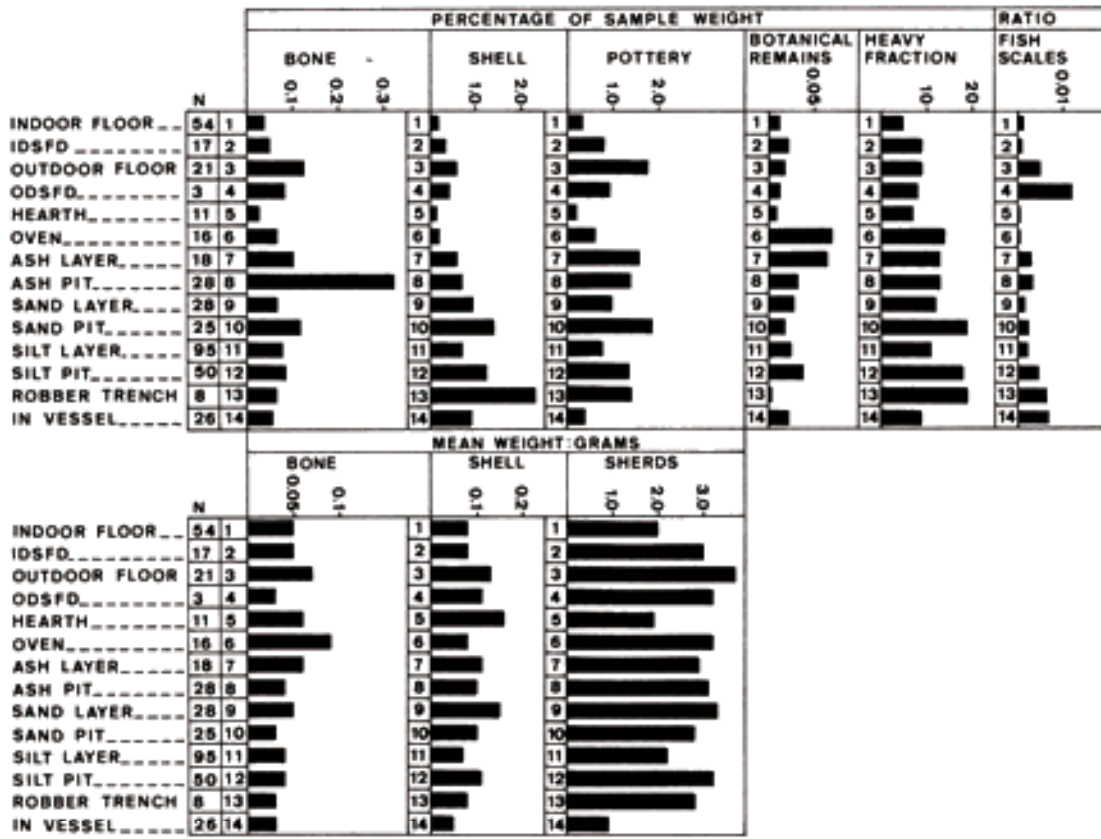
Figure 12.1: Weight percentages and mean weights of cultural debris categories for 14 provenience types
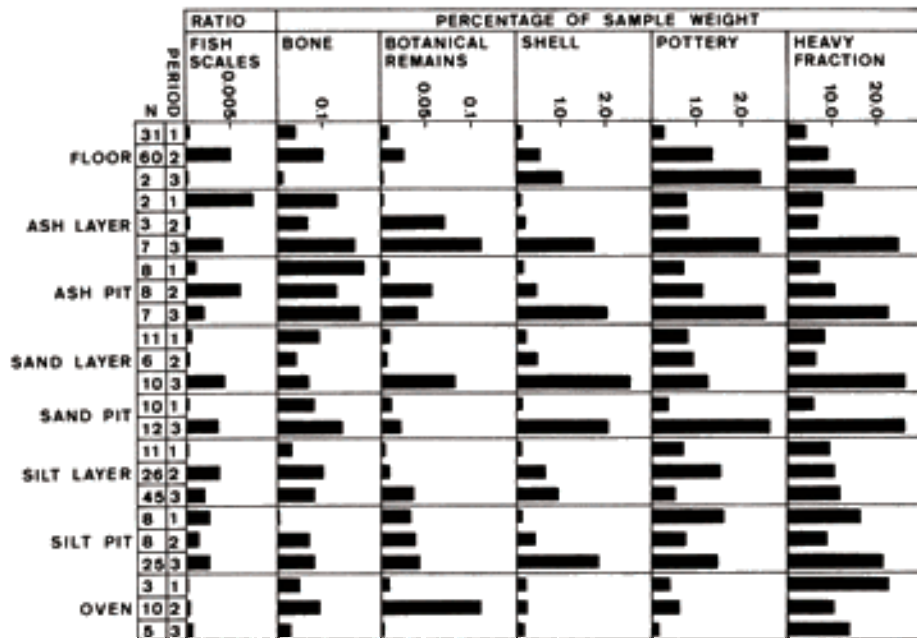**IDSFD** = indoor suprafloor deposit   **ODSFD** = outdoor suprafloor deposit

Figure 12.2: Weight percentages of cultural debris categories across three historical periods
Period 1 = MB–Iron II   **Period 2** = Persian–Hellenistic   **Period 3** = Late Roman–Islamic

The amount of bone found in ash pits is significantly larger than that found in any other type of provenience, even though its mean weight has been reduced by charring. Why the percentage of bones in silt pits is less than one-third that in ash pits is puzzling. It may be that certain types of pits were used for particular kinds of debris. Ash pits, for example, may contain debris from roasting fires (Butzer 1982: 205; Ellison 1984:93; 1986:151).

Because fires were fueled by botanical products such as wood and grasses (some in the form of dung), the botanical content of ashy proveniences is expected to be relatively large. Indeed, botanical values for ovens and ash layers are the highest of all (see figure 12.1). Why ash pits yield a low botanical content is not clear.

Samples from the insides of vessels should yield almost nothing except fine, dusty silt carried into the vessels by percolating water. If a vessel had been filled originally with anything organic, that material would have deteriorated not long after burial, except in cases of fiery destructions that carbonized grain stored in a vessel. Figure 12.1 shows a certain amount of cultural debris in vessels, probably because some of the vessels were partially broken, making the opening larger and allowing freer access for contamination of the original contents. Furthermore, a few large jars exhibiting deliberately cut holes were used as drains in streets. These will also have accumulated a fair amount of debris carried by a flow of water directly through the mouth. Robber trenches contain significantly greater shell weight than all other contexts, because shell served as a temper for the plaster and mortar of which the robbed walls were built (see below).

Unless there is a logical explanation for obvious anomalies, most of the differences in debris content will probably have occurred by chance. If, however, one provenience type, or a group of provenience types (such as indoor and outdoor floors), differs consistently with all other types across most or all of the various material culture categories, it must be assumed that the differences are significant.

Diachronic Development

Diachronic analysis of the sampled material has been undertaken, keeping in mind the following limitations. None of the sampled areas was entirely excavated at the time this analysis was made. In some excavation areas, the more recent strata are less well represented than in others; and in most areas the earliest levels have not yet been reached. Therefore, no sections are available that could show the entire sequence of historical development. For this reason, the question of whether the quantities of cultural debris found in successive historical periods are significantly different cannot yet be fully answered. Because of insufficient sample size, not all of the provenience categories can be included, and material from several historical periods is lumped together.

Figure 12.2 represents graphically the relative quantities of materials found in eight kinds of proveniences over three extended time periods. The first period includes the Middle Bronze Age through the Iron Age II (ca. 2000 to 604 B.C.); the second includes the Persian through the Hellenistic periods (ca. 538 B.C. to the first century B.C.); the third includes the late Roman through the Islamic periods (fourth to thirteenth centuries A.D.).

Figure 12.2 shows that in all proveniences, except for ovens, the heavy fraction, pottery, shell, and botanical remains have peaks during the last period (late Roman–Islamic). Bone and fish scales, however, do not show such a pattern.

The case of ovens is easily explained. Ovens were always used in similar ways. Whether they were clean or not at the time of abandonment is a matter of individual circumstance, hence no pattern should be expected. The peaks of pottery and bone weight in the Persian–Hellenistic period can be traced back to one oven, which may have been used as a dump after it fell out of use. Another single oven is responsible for a high reading of botanical remains in the same period. These consist of charcoal and show that the oven had simply not been cleaned out.

Shell is a special case, showing the strongest pattern of increase through time. During the late Roman period (ca. fourth century A.D.), a villa was built into the slope of the seashore in Grid 57. The walls were constructed of ashlars and held together with mortar that was heavily tempered with shell. These walls were dismantled during the medieval period (ca. twelfth–thirteenth centuries A.D.). Debris from the dismantling operations is widely scattered and turns up in samples from most late Roman–Islamic contexts. The shells used as temper are encrusted with mortar that cannot be removed by flotation or washing. Similar evidence has been found in other areas as well. Most of the walls of the earlier periods, however, were built of mudbrick. For this reason, the amounts and weights of shell found in the last period are greater than those found in the earlier periods.

The type of architecture has also influenced the heavy fraction. The mudbrick stratigraphy of Middle Bronze–Iron Age II produces substantially less rough rock. More ashlar walls were built in the Persian–Hellenistic period, but they were held together by a

plaster consisting of pure white lime. Only in the late Roman–Islamic period was a shell-tempered plaster used, and there were, in addition, many mosaic and plaster floors. Although these were destroyed, for the most part, their debris is represented as a higher value in the heavy fraction.

According to figure 12.2, there is an increase in sheer quantity of pottery in later periods. At this level of analysis it is almost impossible to defend any one theory with conviction. Does the increase in pottery reflect a higher degree of organization, efficiency, and expertise in industry, which may not necessarily reflect a qualitative improvement? Were the potters producing more coarse wares than before? Do those wares have a heavier specific gravity (cf. J. D. Evans 1973:133)? Or, is the increase due to a higher population density, requiring more vessels? Any combination of these and other reasons could have caused the pattern.

Botanical remains show a less distinctive grouping, although all of the early period samples are low in botanical content compared to subsequent periods. Botanical remains consist mostly of charcoal and probably represent the debris from fires. Since the general climatic conditions of the area have not changed during recent millennia, and since no substantial alteration has occurred in its flora and vegetation (Zohary 1982:15), one may assume that forestation either held steady or declined in the face of increasing fuel demands. Increasing usage of fuels in the intermediate and later periods may reflect an increase in pyrotechnologies and may, in fact, be linked to the pottery distribution. Increased production of pottery required larger fires for more kilns, and also, perhaps, for an increasing number of activities related to the manufacture of metal artifacts (Horne 1982: 12–13; Wertime 1983; Stager 1985a:11; Waldbaum 1989). Evidence for smelting in the form of copper spray and spill debris mixed with large amounts of charcoal has been found in a long Persian-period courtyard sequence in Grid 50. So far, no such evidence has been found in the earlier periods.

The most interesting result of this inquiry is that bones and fish scales do not conform to the pattern seen in the other categories, nor to any other pattern. Bones and fish scales are predominantly the remnants of food production, whereas the other categories are not (only a small part of the botanical remains are food debris). One may assume that in the areas sampled, the amounts of food prepared over time did not increase appreciably, because the progression seen in all other categories of debris is totally lacking in food remains. If the urban areas of Ashkelon expanded in the later periods, this does not necessarily mean that more people lived in less space. In a crosscultural study of 18 societies, Naroll (1962) put the average floor space for one person at ca. 10 m^2 (cf. Leblanc 1971:210–11). The data seem to indicate that, whereas the number of inhabitants in any one excavated area may not have increased (because food production did not increase), the amounts of pottery at their disposal did increase appreciably over time. Thus quantitative trends may show a significant increase or decrease through time, or they may show no trend at all, and both conditions may be significant for an understanding of diachronic development.

Fine-gridded Floors

To control more precisely the recovery of material resulting from living activities, a one-meter fine grid is superimposed on the basic ten-meter square unit of excavation. This is the most refined method of object placement outside of point triangulation. The fine grid is used when floors are encountered, for excavating both what is directly on the floor (suprafloor deposits) and the floor itself. At least one flotation sample is taken from each fine-grid square, resulting in varying numbers of samples from floors of different sizes. The samples are processed in the usual manner, ultimately yielding weight percentages of unsorted heavy fraction, bone, shell, pottery, botanical remains, and fish scales. Each category from each floor is compared to those from all the other floors. Since the data result from random variables of unspecified distribution, they need to be tested by a nonparametric method (Thomas 1976:262). The Mann-Whitney U test, an extremely useful method for evaluating the significance of a difference between the central tendencies of independently drawn samples that is able to accommodate samples of different sizes (Downie and Heath 1974:265–68; Blalock 1960:201–2; Hays 1970:633), is suitable for such comparisons.

Weight percentages of six cultural debris categories from 64 floors have been compared to one another, yielding a total of 12,288 comparisons. Table 5 shows the number and percentage of comparisons within each category that are significantly different. A low percentage should indicate homogeneity in magnitudes of content, a high percentage heterogeneity. It will be seen that indoor suprafloor deposits (representing materials that lay directly on floors) are the most homogeneous group. As mentioned above, frequent sweeping leaves few remains on such floors and the homogeneity is due to the dearth of materials that they contain. Outdoor floors are highly heterogeneous: all of their percentage indices are higher than 50%.

Table 5. Heterogeneity of Material Culture Found on Fine-gridded Floors

Provenience	N	Heavy fraction	Bone	Shell	Pottery	Botanical remains	Fish scales	No. of comparisons
IDSFD	13	47 (28)	51 (30)	27 (16)	33 (19)	52 (31)	34 (20)	169
Indoor Floors	33	487 (45)	265 (24)	483 (44)	346 (32)	436 (40)	391 (36)	1089
Outdoor Floors	15	152 (68)	129 (57)	148 (66)	135 (60)	144 (64)	125 (56)	225
All Floors	64	2246 (57)	1589 (40)	2078 (52)	11711 (43)	1802 (45)	1555 (39)	3969

N.B. Values represent numbers of significantly different comparisons between floors. Percentages are in parentheses.

These indices are higher than those of comparisons between all the floors combined. The reasons for this heterogeneity have already been stated: the use of sand to keep down the dust, the ready absorption of artifacts and other materials that is common in sandy areas, and the use of outdoor floors as locations for different kinds of activities (see below).

Comparisons between indoor floors and outdoor floors, as well as between indoor floors and indoor suprafloor deposits, are significantly different in all categories. Outdoor suprafloor deposits cannot be compared at this time because of their scarcity.

Outdoor floors taken one at a time show an index of heterogeneity which averages 57%. That is, of all possible comparisons of a single outdoor floor against all other outdoor floors, the average percentage of comparisons that are significantly different is 57%. Indoor floors taken one at a time show an index of heterogeneity averaging 38%.

Case Study of Outdoor Surfaces:
A Persian-period Courtyard

To determine whether living surfaces exhibit clustered cultural material, we will discuss a courtyard from the Persian period that is located in the middle of a long sequence of Persian-period courtyard deposits. The make-up is typical of Ashkelon courtyards: a patchwork of sand, silt, and ash lenses. At its southern end the courtyard is interrupted by a section. To the east and west it is bordered by walls. To the north it terminates partially against the walls of a building that includes a doorway (figure 12.3).

The courtyard spans the division between two 10 × 10-m squares (Grid 50, Squares 57 and 58). In 1987 the eastern half of the courtyard was excavated and sampled for flotation (Square 58, Feature 65). When the analysis was completed, a method for visual representation had to be devised to show what had occurred on this and other living surfaces.[32]

The range of values for each category of cultural debris can be divided into equal numerical intervals. These magnitude intervals may be represented by visual symbols, such as blackened circles that have been regularly graduated in size. The absence of a specific material is indicated by a blank circle.

Figure 12.3 illustrates the distribution of bone across the courtyard, expressed as a percentage of sample gross weight. When the eastern half, excavated in 1987, had been plotted, a distinctive L-shaped pattern could be seen in Fine Grids 71, 72, 82, and 92. It surrounded a relatively clean area represented by Fine Grids 81 and 91, where an amorphous lump of bricky material was encountered (figure 12.3, hatched circle). When shell, pottery, heavy fraction, botanical remains, and fish scales were plotted, the pattern was more or less consistent for all of them, with the heaviest concentrations at the northern end of the courtyard. In addition, Fine Grids 72 and 82 yielded five tiny beads each and Fine Grids 71 and 73 yielded one each, apparently marking the spot where a necklace or other bead-related artifact was lost.

In 1988 the square supervisor, who was about to begin excavation of the western half of the courtyard (Square 57, Feature 125), was alerted to be particularly careful in that area, and to see whether he could discover the vestiges of some installation immediately west of Fine Grids 81 and 91. When the level of the courtyard was reached, a semicircle of mudbrick appeared (Feature 129), the height of which was only 1 or 2 cm. When the circle is restored to full circumference the diameter is slightly larger than 1 m.

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[32] It is one thing to make density contour maps (Cassedy 1986), three-dimensional maps (Custer and Bachman 1986), or detailed top plans (Cahen and Keeley 1980) for the analysis of a single kind of artifactual category, such as stone tools and their debitage. It is quite another to attempt to deal with the profusion of cultural materials found in a Palestinian tell. The presentation problem becomes acute when one must not only deal with at least a dozen artifactual categories found in each provenience, but also try to represent their diachronic development and relatively quantified patterning through long historical sequences. As will be seen, the methodology is far from worked out.
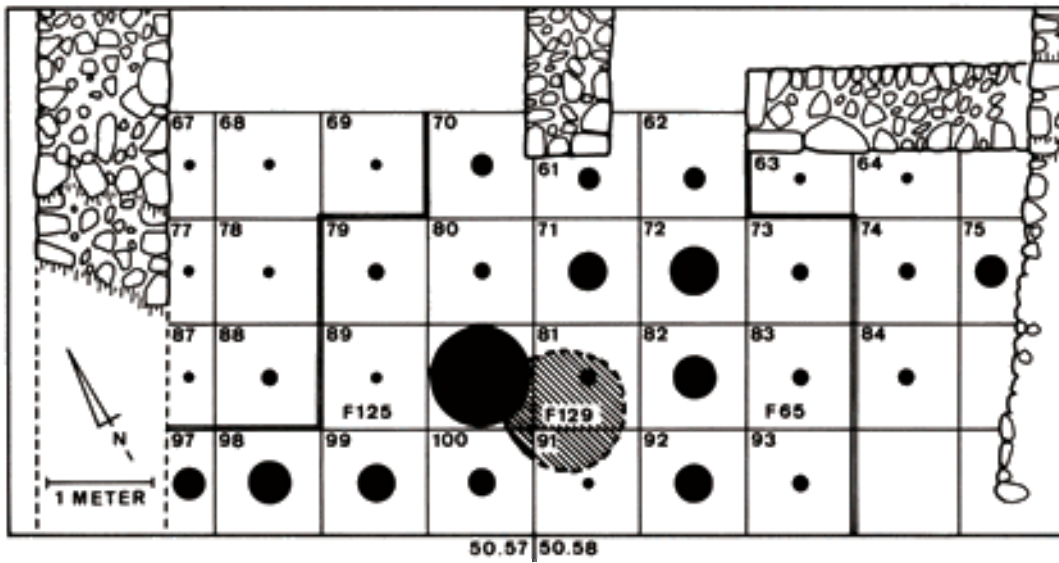
Figure 12.3: Bone-weight distribution in Persian-period courtyard around mudbrick platform or bin (F129)
A heavy line separates peripheries from main activity area.
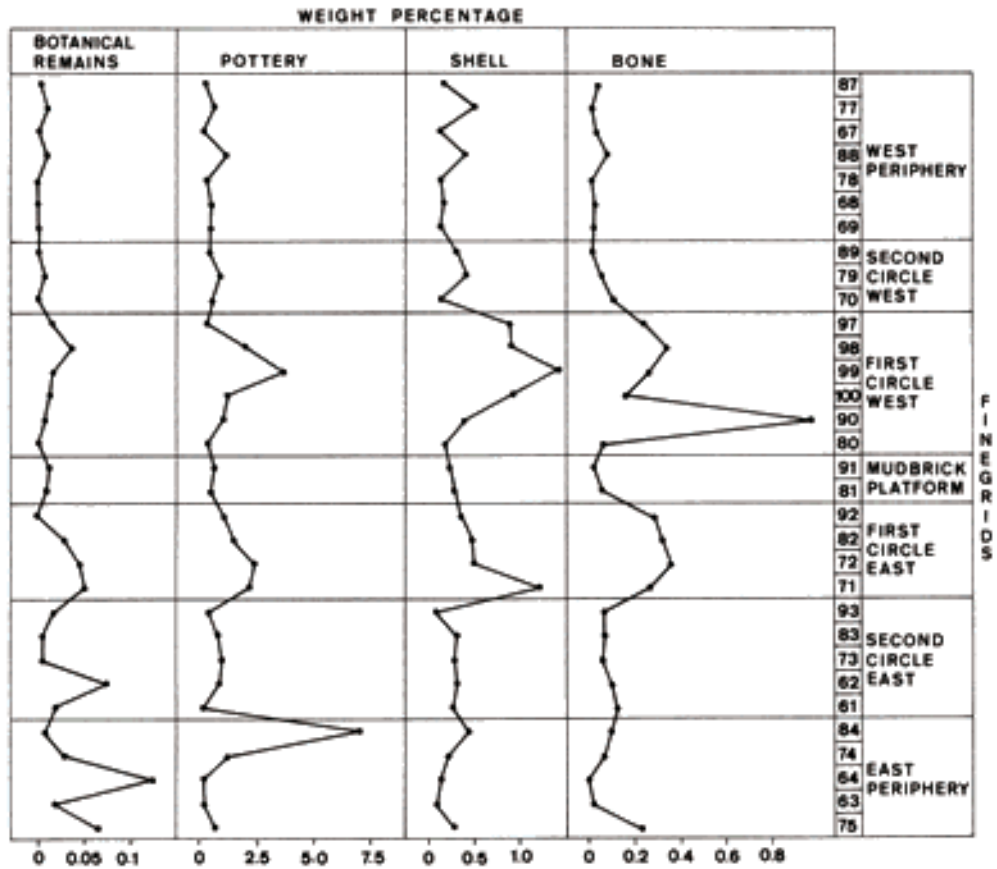
Figure 12.4: Weight percentages of cultural debris categories across fine grids of Persian-period courtyard
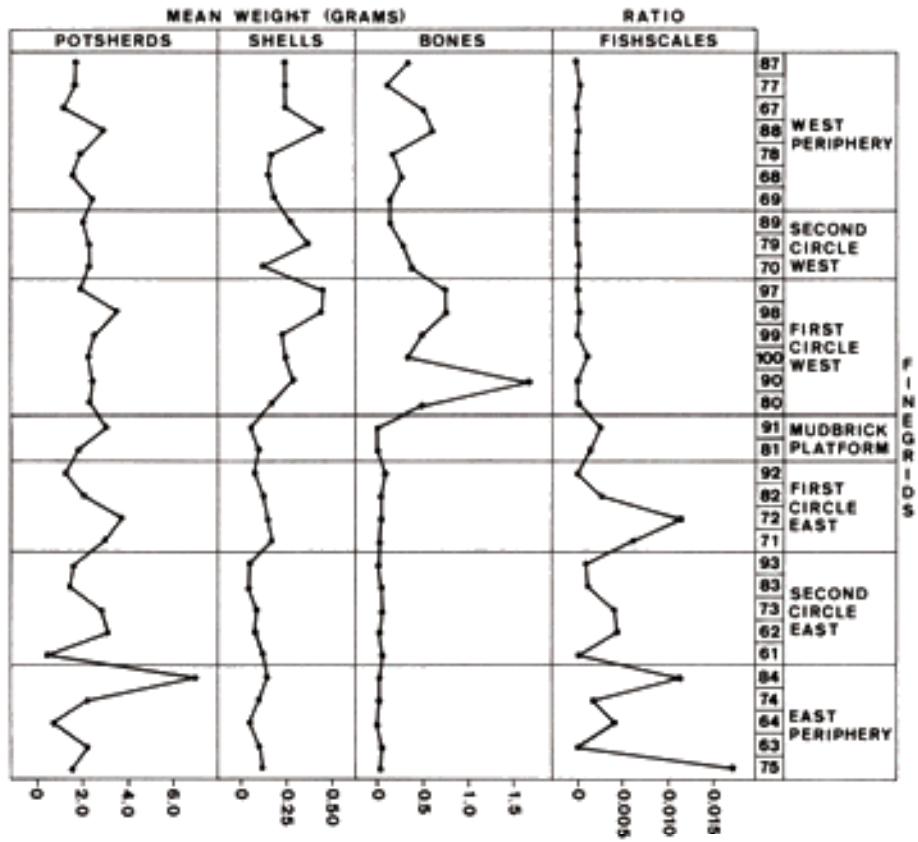
Figure 12.5: Mean weights of cultural debris categories across fine grids of Persian-period courtyard
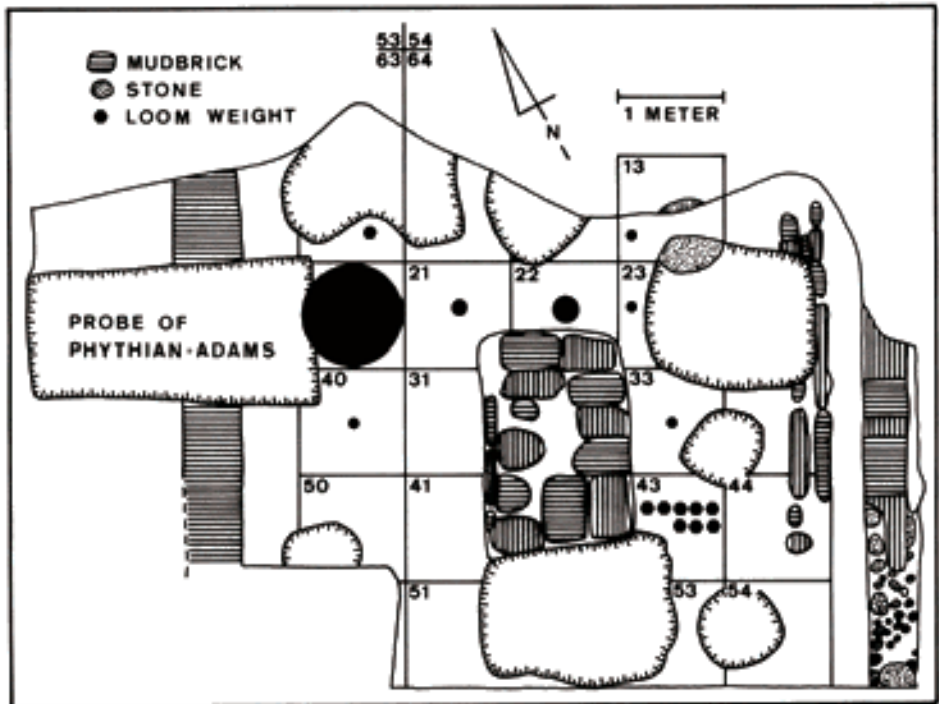
Figure 12.6: Distribution of fibers and clay cylinders (spool weights) on a floor in a Philistine house
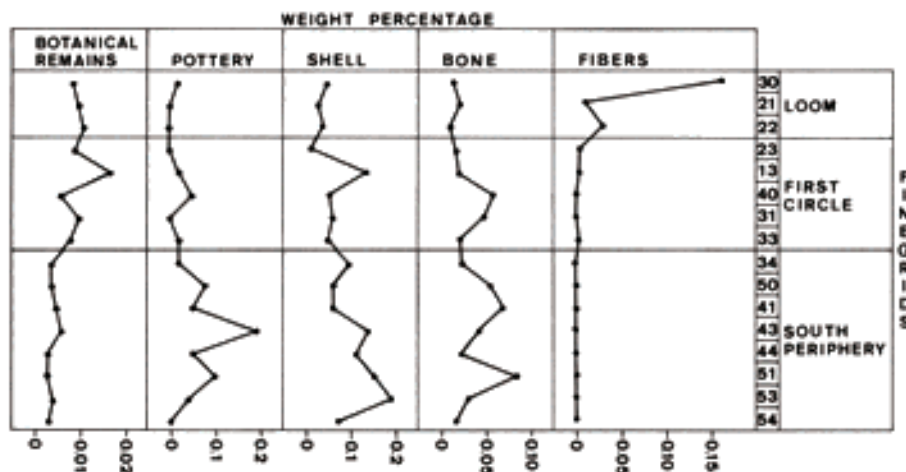
Figure 12.7: Weight percentages of cultural debris categories across fine grids of Philistine floor

The heavy concentration of bones skips over Fine Grid 80 to Fine Grids 90 and 100, from there continuing along the section by way of Fine Grids 99, 98, and 97. The larger circle in Fine Grid 90 is due to a single, large, sawed-off bone in addition to other bones. Among the hundreds of bone fragments scattered across the western half of the courtyard, 14 exhibit butchering marks. Pottery, shell, and botanical remains more or less follow the same pattern.

It seems evident that the courtyard contains a free-standing installation that is surrounded by significantly heavy concentrations of varying kinds of cultural debris. The pattern appears to have a slight break directly north of the installation (Fine Grid 80). If the installation (a platform or bin?) was used for domestic activities, such as food preparation, then a person could have been standing directly north of it where the gap occurs, tossing rejected scraps with the right hand and creating the fanlike concentration seen along the south section, although this interpretation may go beyond the information that can be extracted from such data. There may be something beyond the unexcavated south section that could explain the concentration of cultural debris running along it.

In a synchronic study like the present one, it is up to the researcher to present the data relevant to the point under discussion.[33] Since the residue pattern

seen in figure 12.3 is clustered around the mudbrick platform (F129) and is bisected by a line separating two squares, an attempt was made to present the data from the center of activity outward. The centerpiece is the platform itself, represented by Fine Grids 81 and 91 (figure 12.4). Then concentric rings of fine-grid squares from the centerpiece outward are presented, the eastern square to the right and the western square to the left. Peripheral areas are marked off in figure 12.3 by a double line, and occupy the marginal areas farthest from the centerpiece in figure 12.4. The first circle east and west of the circular platform always displays peaks of various kinds of cultural

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as an accurately scaled percentage of gross weight. Even if a way were found to depict them in this manner, it would only be a presentation of values within a single fine grid square. The purpose of this experiment is to show varying amounts of debris across a large number of 1-m fine-grid squares in order to distinguish where the clusters are.

The use of different dot sizes or other patterns becomes impossibly difficult; it does not solve the problem of each category occurring in a different magnitude in each separate fine-grid square. If one were to present each category in a separate diagram, as in figure 12.4, then all the varying distributions could be taken in at a glance, but this would require more than a dozen diagrams for each floor (many of the categories, such as chert, metal, slag, eggshell, plaster, glass, pumice, bitumen, red ocher, etc., are not discussed here). The only solution to the problem seems to be a series of simple graphs that can show relative quantity when placed next to each other. But this, too, presents a frustrating difficulty. Fine-grid squares are not placed in a neat row. They come at least several wide and several deep. What is the correct arrangement for presentation? Should it proceed line after line, which would then eliminate any facility for recognizing distributions?

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[33] It would be advantageous if a method could be found that allowed the researcher to present a distribution of this material in a single diagram. Ideally, this would be a top plan on which relative distributions of all material culture categories could be presented. Pie diagrams will not work for several reasons. The percentages and ratios of most categories are so small that they could not be seen or drawn

debris and, in a majority of cases, has greater values than the second circle or the periphery (figure 12.4).

The distribution of the mean weight of bones compared to the fish-scale ratio is sharply contrasted: in the western half of the courtyard, where bones are large, almost no scales are found. In the eastern half where the bones are very small, many fish scales predominate (see figure 12.5). Immediately, the suspicion arises that some kind of collection bias has been introduced. The excavators of the eastern square may have been more thorough in their collection of bones before gathering flotation samples. If that had been the case, however, they would have wiped out the pattern around the installation, and fish scales are too small to be collected by hand or to be biased in other ways. In fact, 38% of the bones of the eastern square are from fish, compared to 25% in the western square. Moreover, the area of densest concentration is directly in front of a doorway where traffic was heavy, contributing further to fragmentation.

Fish scales and fragmented fish bones are extremely small objects. The McKellar Hypothesis (cited in Schiffer 1983:679), which states that smaller items are more likely to become primary refuse in activity areas, seems to apply at Ashkelon, as at other places (Baker 1978:291; Bradley and Fulford 1980: 85; Rosen 1986a:114; Stevenson 1985:67; Schiffer 1972:161). In the courtyard under discussion there appears to be a sharp division of two kinds of activities. On the eastern side of the platform fish were habitually prepared, resulting in a scatter of fish scales, while on the western side the meat of land mammals was processed (cf. Binford 1983:306, 310; South 1978:228).

In his study of disposal modes in an Eskimo hunting camp, Binford found that smaller, unobtrusive debris was dropped within 20 cm of the person's sitting and eating position around a hearth, while bones were tossed away slightly more than 1 m (Binford 1983). In the Ashkelon courtyard there appears to be a marginal space containing less debris around the installation, which may be as wide as 50 cm. If the reconstruction is correct, the installation (0.9 m^2) is substantially smaller than the area that shows lesser amounts of debris (2 m^2). The margin may even have extended into the adjoining fine-grid squares and may represent, at least on the eastern and northern sides, the habitual standing or kneeling room for the person working at the installation. Scraps were swept off the platform and deliberately kicked away from the standing or kneeling area (cf. Binford 1983:302; Stevenson 1985:75). This would contraindicate the "fringe effect" (Wilk and Schiffer 1979:533; South 1978:224) in which secondary refuse tends to accu-

mulate around any large stationary object or structure, but without the marginal space containing less debris that may have been a space for standing or kneeling.[34]

Case Study of Indoor Surfaces: A Philistine House

One of the floors (Grid 38, Squares 63 and 64, Features 28 and 25, respectively), dated to the Iron I period (ca. 1200–1000 B.C.), is unusually clean of any cultural debris and therefore significantly different from most of the other indoor floors. It is flanked on the eastern and western sides by mudbrick walls. To the north it is cut by a robber trench; the southern part goes into the unexcavated section. In the middle of the floor is a rectangular mudbrick platform or bin (ca. 2.10 m × 1.30 m × 0.12 m), which has been shaved off by a later stratum. East of the platform are two small, circular pits and a column base, all in a row, which constitute evidence that three columns once stood in the eastern part of the room. The column base is similar in shape and size to ones found at the Philistine temple at Tel Qasile (A. Mazar 1980: 37–38, pl. 3), and may indicate that the structure is a public building. Several pits have disturbed the area, including a probe by W. J. Phythian-Adams that was excavated in 1920 (see Phythian-Adams 1921b:163–69), which cuts part of the western wall and floor, as shown in figure 12.6.

At the northern end of the mudbrick platform a concentration of fibers was discovered. The fibers could not be detected in the finely laminated soil of the floor without magnification, but emerged only during flotation. A preliminary examination determined that they may have come from plants as well as animals (Azriel Gorski, pers. comm., 1988). They formed a fairly tight linear cluster, of which the main concentration was located in Fine Grids 30, 21, and 22 (figure 12.6). The amounts in other fine-grid squares were comparatively small. The distribution is such that the heaviest concentration is at the western

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[34] Not many parallels can be found for free-standing round installations in courtyards, and none in the Persian period. See, e.g., Seeden 1985:294–95, plates 12–15, for MB II and modern Syrian courtyard working platforms and food storage tables; Loud 1948:66, fig. 148, for an EB circular mudbrick structure at Megiddo; Amiran et al. 1978:19, 25, for EB II "cooking platforms" at Arad; Dever et al. 1986: 63, for LB I "worktables" at Gezer; Kenyon 1981:304, for Pre-Pottery Neolithic B mudbrick bins or platforms at Jericho. Only the latter seem similar to the one found at Ashkelon. No distributional studies of organic residues, which might have given better clues to the function of these features, were made.

end, a lesser concentration is at the eastern end, and the smallest concentration is in the middle. Such a configuration may be characteristic for the location of a vertical loom.

The first question to be answered is whether an upright loom in action would cause debris in the form of lint to accumulate under it. The question was answered emphatically in the affirmative by a Milwaukee weaver, Jonnie Guernsey, who states that the area under her loom has to be swept of small fiber debris at regular intervals (pers. comm.).

Textiles found in very early contexts, much earlier than that of the Philistine building at Ashkelon, attest to the antiquity of sophisticated weaving techniques (Adovasio, Andrews, and Carlisle 1978:59–60; Adovasio and Andrews 1981:184–85; James 1986: 64; Stager 1992:23–24), as do cuneiform archives (Dalley 1977; Szarzynska 1988) and other finds.

The most obvious clue that the fibers come from a loom is the presence of eight small, unfired, unperforated clay cylinders in Fine Grid 43, and one large clay cylinder in Fine Grid 20 (figure 12.6; Fine Grid 20 in this figure is the northernmost fine-grid square excavated in Square 63 and is shown destroyed by a pit). Furthermore, on a floor approximately 20 cm above the one under discussion (Feature 24), about 15 clay cylinders were concentrated in a row along the east wall of the room; in earlier layers, numerous clay cylinders were found in various locations of the same area. They are probably all weights for vertical warp-weighted looms.

While it is true that the loom weights found in Israel are usually perforated, unperforated cylindrical loom weights have been found in Troy, Tiryns, Pylos, Mycenae, and Kition (Blegen et al. 1958:152, fig. 256; Schliemann 1886:146–47; Karageorghis and Demas 1985:pls. 34, 117, 195; see Stager 1991:15), which has made them a persuasive clue for tracing the origin and migration route of the Philistines all the way to Ashkelon.

The earliest depictions of warp-weighted looms are on Greek vases dating to the sixth to fifth centuries B.C. (e.g., Boardman 1974:fig. 78; Richter 1987: 358, fig. 477), but archaeological finds suggest that they were already in use at the time of the Philistines (Sheffer 1981:81).

The clay cylinders from Ashkelon may be divided into three sizes: small, medium, and large. The small ones weigh ca. 60–70 g, the medium ca. 140–150 g, and the large more than 500 g. Not much comparative material has been published, but the weights of all clay cylinders from Ashkelon appear to fall within the range of other loom weights found in Israel (Sheffer 1981:81; Orit Shamir, pers. comm.).

If there was a loom standing on the floor (Feature 24) against the east wall of a Philistine house at Ashkelon, there is no evidence that it caught fire. The loom weights may have been cut down or loosened, or the strings that held them may have disintegrated (Schierer 1987:48–49). At a number of sites, rows of loom weights have been found *in situ* where they dropped when the loom and the artifact that was being woven burned (Blegen et al. 1950:350; Blegen 1963:72; Sheffer 1981:82; Schierer 1987:38–43). In Tell es-Saᶜidiyeh such a row of loom weights was found next to a storage bin dated to the middle of the eighth century B.C. (Pritchard 1985:36, fig.88).

If the fibers found at Ashkelon are evidence of a loom, then it stood perpendicular to the western wall. No post holes were found, but that is true of many other findspots as well, and experience shows that none were needed (Schierer 1987:45; Curel 1988:5). In Troy, excavators found evidence of a loom that had been attached to the wall at one end; the other end projected about 1.10 m into the room and was supported by two stout wooden posts, 0.25 m apart, which had been fixed upright in setting holes that had been cut through the floor (Blegen 1963:72). At Moresti, Romania, evidence of four looms was found in one room, none of which was wider than 1.5 m and all of which stood perpendicular to the walls (Schierer 1987:43, fig. 23).

The loom at Ashkelon may have been as wide as 3 m (cf. Hoffmann 1974:314; Wild 1987:470), which could have allowed a weaver to create a one-piece tunic such as has been described by Carroll (1985:173; cf. Dalman 1937:205–42, figs. 42–105), the basic design of which lasted for many centuries. The peculiar shape of the fiber distribution, with heavier concentrations at the extremities than in the middle, may be due to the formation of selvedges in which an outer band of the woven artifact is reinforced by doubling or tripling the number of times that the weft is led back and forth (Jonnie Guernsey, pers. comm.; cf. James 1986:65, Crowfoot 1960:519–20; 1982:546). Such a process would create more friction at the extremities of the loom, resulting in the distinctive fiber distribution accentuated at both ends. Just the weft entering the warp at the edges may have caused more friction than in the middle. The weft thread was often wrapped on a bobbin rod, which was then passed through the shed (Hoffmann 1974: 299, 307, figs. 125, 130). The proximity of the western end of the loom to the west wall may have created some awkwardness in placing and pushing the bobbin through from that end, creating the greatest friction and consequently the greatest accumulation of fibers on the floor.

If any activities other than weaving took place in the room, one would expect a separation of activity areas. Because of its size, the mere presence of a loom in a certain area would tend to preclude any activity that did not pertain to it. Figure 12.7 shows the distribution of some other material culture categories in relation to that of the fibers. It will be seen that the highest content for bone, shell, and pottery is located in the southern periphery, away from where the putative loom would have been, while botanical remains are concentrated near it. They consist mostly of infinitesimal amounts of charcoal. All of the materials on this floor are extremely scanty, and no significant clusters other than that of the fibers have been discovered.[35]

Conclusion

In the framework of the Ashkelon excavations an attempt has been made to answer both anthropological and archaeological questions at a "semimicro" level (Clarke 1977:11). When the quantities of various cultural debris categories from different archaeological proveniences are totaled, outdoor floors consistently contain greater amounts than indoor floors. This pattern holds across several methods of inquiry, including those of matching all floors against each other and taking the percentage of significant differences, and by matching single floors against all others and establishing an index of heterogeneity for each. In both of these statistical surveys the indoor floors show significantly lower values, which indicates homogeneity, because frequent sweeping has cleared them of most debris. Such a pattern may hold for other sites as well. Other significant deviations, such as large amounts of bone in ash pits or of botanical remains in ovens and ashy layers, may be more flexible even when considered from an intra-site perspective; but nothing can be said with assurance without comparative data.

When the researcher tries to analyze the remains left by a limited number of inhabitants—perhaps even by one person, depending on the activity—he may discover patterns. Considering the knowledge that has been gained in this project, an assumption can be made that wherever a loom was in use there should be traces of fiber in the floor, unless special circumstances, such as fire, caused their disappearance. Since the worst destructions by fire may redden a floor to a thickness that is often less than 2 cm, it remains to be tested whether all fibers would perish.

Other domestic or industrial activities may not readily show a pattern. Not all courtyards have platforms that show the specific patterns seen around the one at Ashkelon. Each courtyard is unique, providing all the more reason to make a study of them. The objects or the means of production in any one context may change, but the activities going on in them may still be the same.

Some questions that have been posed are of a sweeping nature and may reflect patterns of which not even those who caused them were aware. Others have tried to stalk the historical evidence left by actual individuals. With luck, the tiniest clue, such as lint on a floor, may answer questions about the movement and origin of peoples. It should therefore be evident that flotation analysis can be as important for the understanding of archaeological strata as any of the other methods that are now deemed indispensable. In several cases at Ashkelon it has brought archaeological layers to life.

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[35] For a discussion of spinning, weaving, and other industrial activities in public buildings such as temple precincts, see Stager and Wolff 1981:98. Lapp (1967:25) also makes mention of loom weights in a cultic context.

13. ZOOARCHAEOLOGICAL PROCEDURES

by Brian Hesse and Paula Wapnish

THE second most common type of archaeological find at Ashkelon (after the potsherd) is the animal bone fragment. When this fact of archaeological preservation is combined with two other aspects of the Ashkelon project—an expedition-wide commitment to thorough and systematic recovery, and the presence of a large and enthusiastic crew of volunteer archaeologists, digging for two months each year over a period of sixteen years—the result is a dauntingly large collection. We do not have a precise count of the number of items in the faunal collection from Ashkelon, but an estimate can be made as follows. At least 75 samples of animal bones (each associated with an individually labeled bucket of pottery) are recovered during each day of excavation. The content of the bone samples varies according to the nature of the stratigraphic context and the cultural period (Persian-period layers are particularly rich in faunal remains, for example), but an average sample contains approximately 20 bone fragments. Thus a conservative estimate of the size of the Ashkelon faunal collection is in excess of a million fragments.

Another way to appreciate the size of our faunal collection is to consider its spatial volume. As of this writing, the bone material almost fills a storeroom with a volume of about 50 cubic meters. However one quantifies the scale of the task, it should be clear that the zooarchaeological procedures we have employed have had to focus on the problem of collection management. It would be pleasant to report that we began the project in 1985 with a fully articulated procedure to which we adhered unflinchingly thereafter—as advocated, for example, in our book *Animal Bone Archeology* (Hesse and Wapnish 1985), or in Reitz and Wing's *Zooarchaeology* (1999). But the fact is that we did not fully appreciate the magnitude of the task that lay ahead. For this reason, the following discussion of our zooarchaeological methods presents the main components of a collection and recording system that has evolved in response to pragmatic needs over the course of the excavation, as we have learned to balance the requirement for careful analysis with the goal of comprehensive description of an extremely large and diverse corpus.

Training the "Bone Team"

It was immediately apparent that a field zooarchaeologist working alone (normally only one of us was able to be at the site at a given time) could not hope to keep up with the volume of animal bone material that entered the system each day. During the first season of excavation, bone washers from the modern city of Ashkelon were hired to deal with the problem. In subsequent years, we worked with the director of the Leon Levy Expedition's volunteer program to select a "bone team" consisting of about eight volunteers who had asked to work with bones rather than pottery during the afternoon lab sessions in the expedition's processing compound.

We have found that such a team can usually wash the bulk of each day's samples and re-bag the cleaned and dried bone material washed on the previous day. Additional cleaning and bagging are accomplished during the morning work hours by volunteers who, for one reason or another, cannot be out digging in the field. The bone team also maintains the preliminary storage system, consisting of cardboard boxes in which the washed bones are collected according to the grid-square from which they were excavated until they can be further processed.

Perhaps more important than the practical help the volunteers provide is the effect that these bone teams have on the conduct of the excavation itself. Conversation at the bone-washing table provides an opportunity to talk about the basic issues in zooarchaeological research and to do some training in field identification. This enables bone-team members to recognize bones when they are out at the site digging in a trench or screening debris, and to help their fellow volunteers do the same. As a result, significant faunal discoveries are more often and more promptly brought to the attention of field supervisors, which improves the recovery rate and lessens the excavation trauma suffered by the bones.

Procedures in the Field

Bone fragments are collected both in the course of digging and during the screening process, when debris is passed through a wire-mesh sieve (see chapter 11 above). Use of the sieve is determined by the nature of the debris layer, according to the general rule that baskets of debris ("gufas" made from old rubber tires) dug from secondary leveling fills and dumps be screened at a ratio of 1:5 (20%), or at 1:10 (10%) if the fill layer is very large, while the occupational debris or destruction debris immediately on top of

streets, courtyards, indoor floors, and other living surfaces should be screened in its entirety (i.e., at a ratio of 1:1 or 100%). Also screened at 1:1 is the debris filling small pits, postholes, bins, and cooking facilities (hearths or clay ovens), and the first few centimeters beneath beaten-earth surfaces ("floor makeup"), which contains material trampled into the surface during its period of use. Whenever an "articulation" (a set of bones from the same animal found in more-or-less correct anatomical position) is detected by the excavators, it is plotted on the daily top plan by the square supervisor, photographed *in situ* in many cases, and bagged separately.

The zooarchaeologist makes an effort to visit each excavation area every day to consult the grid and square supervisors and to discuss any special finds or problems that have emerged. The field supervisors regularly call in to the processing compound to report important discoveries, whereupon the zooarchaeologist immediately goes out to the site to identify the find and to advise the field personnel on the best method of excavation and preservation.

Bagging and Tagging

Once collected, the bone fragments are placed in plastic bags, each of which is tagged with a label that indicates the date of excavation and the material's provenience by grid, square, fine-grid (if any), layer and/or feature number, and associated pottery bucket number. On the back of the label is recorded the number of "gufas" (baskets of debris) that were excavated to yield the given bone sample, and the screening ratio (e.g., 1:1, 1:5, or 1:10). The "gufa count" and "sift ratio" thus indicate the volume of sediment and the sampling strategy associated with specific finds.

Special or exceptionally fragile zoological finds are placed in cardboard boxes packed with acid-free tissue paper and sent in with the non-pottery "material culture" artifacts. The rest of the day's collection of bagged bone samples is placed in plastic buckets for the trip back from the site to the processing compound, being kept separate from the pottery buckets in order to prevent breakage of the fragile bones.

Field Conservation

An effort is made to limit the amount of time any bone fragment remains at the site after it has been exposed because bone is susceptible to damage from sunlight and the fluctuations of temperature and humidity that occur on the southern coastal plain of Israel. If a bone must remain *in situ* on a floor until the whole feature is uncovered, the bone is temporarily reburied under a layer of clean sediment and a

plastic bucket or cardboard box is placed over it to protect it until it can be removed. Some bones, like the tooth rows of sheep and goats, can break apart quite easily once excavated. To forestall the loss of teeth from a mandible or maxilla, a bead of glue or a solution of PVA (polyvinyl acetate) in ethanol and acetone is applied to the margin between the teeth and the jawbone and the specimen is bagged or boxed separately when it is sent in from the field. Other bone finds, especially fish remains, must be articulated *in situ* to determine their extent and then carefully lifted out encased in the block of soil in which they have been preserved. If they are relatively small, as is true in most cases, these blocks of sediment with embedded bones are then placed in cardboard boxes and surrounded with crumpled paper for the trip back to the lab. Larger finds of this sort require the "plaster jacket" procedure that we have developed for dealing with the many dog burials of Persian-period Ashkelon, which are discussed in detail in chapter 30 below.

Conservation of Dog Burials

At first, the articulated dog burials encountered in Persian-period layers at Ashkelon were exposed *in situ* in the traditional manner by a team of excavators led by the zooarchaeologist. Dental picks and small brushes were the primary tools initially used in excavating the dog skeletons. We soon learned, however, that we could inflict less damage in the course of exposing the bones by using thin wooden skewers to loosen the soil and then squeezing a small rubber "puffer" to blow loose soil away. A solution of PVA in acetone and ethanol was applied to the bones as soon as they were exposed in order to prevent them from drying out and breaking in the heat of the Ashkelon summer. After cleaning and photography in the field, the bones were then removed individually and placed in cardboard trays lined with paper for transport back to the lab.

Had the number of dog burials remained modest, we no doubt would have continued using this procedure. But as more Persian-era deposits in Grids 50 and 38 were exposed, the large number of dogs unearthed each day made this solution impractical. There was simply not enough time and manpower available to excavate each articulated dog skeleton in the field. Thus we began to remove dog burials intact, in plaster jackets, using the following procedure.

After exposing the top of the skeleton just enough to determine its full extent, we "pedestal" the burial by cutting a small sloping trench around and under it, leaving a margin of soil between the trench and the skeleton and insuring that the skeleton is well under-

cut, but with a small pedestal of earth supporting the burial at its base. Then a layer of crumpled paper is placed on top of the partially exposed skeleton to protect it. A tag with the relevant provenience data (grid, square, layer, etc.) is included in this packing. A layer of plastic film is placed over the paper to seal it.

Fast-setting plaster bandages are then moistened in a bucket of water and wrapped around the pedestaled burial, making sure that the bandaging begins on the underside around the pedestal. Bandaging continues until the pedestaled chunk of soil in which the skeleton is embedded is fully covered with a thick layer of plaster. After the bandages have completely dried and the plaster jacket is quite hard, short sections of metal "rebar" (reinforcing bar) are driven through the neck of the pedestal and are used as levers to flip the jacketed burial over into a large cardboard tray. The newly exposed undersurface (where the earthen pedestal was broken) is then plastered with more bandages and a tag with the provenience information is affixed to a loop of bandage. After these bandages dry, the plaster jacket is labeled with permanent ink and is transported back to the lab, where the skeleton can be excavated within its protective casing under controlled conditions, free from the time pressures entailed in field excavation (see figure 30.3 below).

Some of the dog skeletons excavated in this way have been fully exposed within the opened jacket, without removing any of the bones, which remain embedded in the original soil beneath them. This tedious procedure has yielded a number of striking specimens for use in exhibits, where the plaster shell serves as a kind of frame for the dog. More often, however, the bones are removed one by one as they are exposed in the soil matrix within the plaster jacket. This allows us to document the burial accurately and to collect all of the bones without having to coat them with PVA or some other consolidant. It also makes it easier to do the osteological measurements needed for our zooarchaeological analysis of the burials. Dog skeletons prepared in this way are packed in small cardboard boxes and then collected into a larger cardboard box for permanent storage. Unexcavated skeletons encased in unopened plaster jackets can be stored indefinitely until it is possible to work on them.

Procedures in the Processing Compound

Bone bags are collected by the zooarchaeologist from the excavation staff as they disembark from the bus at the processing compound at the end of the digging day (i.e., at 1:00 p.m., before lunch and the mid-afternoon break; the excavation staff comprised of volunteers and field supervisors digs at the site each day from 5:30 a.m. until 1:00 p.m.). Pottery buckets and other finds are brought in at the same time.

The bone samples are placed on a large table in the bone-sorting area of the compound, where they await the afternoon work session. During that period, from 4:30 to 6:00 p.m., the volunteers of the bone team fill a large plastic basin with water. The bones from each bag are placed in a plastic colander to prevent the loss of any fragments and the colander is then submerged in the basin of water. The tag from the bone bag is attached to a cardboard tray, in which the bones from the bag are placed after they have been gently washed. The clean bones in their trays are set in a shady area to dry.

The next morning the bones are collected from the trays and an initial sort is performed. The occasional stray potsherd, worked stone, or other find found mixed in with the bones is given to the material culture registrar or the processing compound director. All remains of fish, birds, dogs, small mammals, reptiles/amphibians, and molluscs are removed for separate analysis and placed in separate labeled bags.

The rest of the bones are from large mammals such as sheep, goats, cattle, and pigs, which account for the great majority of zoological finds at Ashkelon. These bones are packed in paper bags, one for each original bone bag, to which the original field tag is attached. These bags are then sorted into a set of large cardboard boxes, one for each grid-square currently being excavated.

At the beginning of every field season the zooarchaeologist and the expedition director decide which research problems should be the focus of analysis. The large size of the Ashkelon faunal collection makes it impossible to study every bone bag, so the part of the collection that is relevant to the current research questions is segregated and moved to the area of the processing compound where detailed "bone readings" are done. The rest is moved as soon as possible to the bone storage facility, away from the humid outdoor environment of the processing compound. In this storeroom the bones are arranged for the most part by year of excavation in cardboard boxes labeled with the grid, square, and layer/feature number of the stratigraphic unit from which the bones in that box were excavated; however, special items such as the Persian-period dogs are kept together to make it easier to study them as a corpus.

Bone Description and Data Management

Bones selected for study are dealt with in the following manner. The material in each bag is first sorted grossly into five basic groups: (1) unidentifiable scraps; (2) long-bone shaft fragments; (3) ribs; (4)

vertebrae; and (5) a category called "identifiable." The scrap fragments are simply counted, noting any burned, cut, or otherwise modified fragments. The other groups are studied in more detail.

Long-bone shaft fragments are divided into three categories: (a) small mammals (up to the size of a dog, but bigger than a rodent); (b) medium-sized mammals (the size of a sheep, goat, or gazelle); and (c) large mammals (donkeys, cattle, and camels). Certain species, such as pigs and deer, tend to be intermediate between the medium and large categories, but we have not been able to find a criterion that adequately distinguishes these taxa among the long-bone shaft fragments.

The same tripartite set of categories is applied to the numerous small fragments of ribs and vertebrae that we recover, although a significant number of these bones are sufficiently well preserved to permit a more precise identification.

The "identifiable" fragments (bones that can be assigned to an anatomical category and a taxon more precise than the basic mammal types) are further described as to bone element, portion preserved, maturity, and modification, and they are also measured where appropriate. Bones of medium-sized and large mammals other than sheep, goats, cattle, and pigs are labeled and removed for further study. This includes deer, gazelles, antelope, equids, and camels.

Bones of the main domesticates are not numbered and extracted from the bags; in other words, the zoological finds are stored by specific stratigraphic provenience rather than by taxon and anatomical element, as is done in some many zooarchaeological projects. By keeping to a strictly stratigraphic organization of the collection it is easier to study the faunal remains in terms of an overall analysis of the function and character of the archaeological context in which the material was found. Moreover, it was decided not to store the bones by cultural period because this sort of periodization often changes in the course of post-excavation analysis of material and reassessment of the stratigraphy.

The disadvantage of this strictly provenience-based approach is that the bones belonging to any one taxon cannot easily be studied as a group. Many of the criteria used for making identifications are qualitative and subtle, particularly those for distinguishing sheep and goats. For this reason it is usually best to group large samples of the same kind of bone together to ensure that the criteria are being applied uniformly. Because we do not create large sets of similar bones we cannot do this, nor can we easily apply new diagnostic techniques to already processed samples. In order to mitigate this problem, a series of comparative specimens has been developed, to be consulted during the process of bone identification. This helps to ensure a degree of standardization.

The raw data collected during the process of bone sorting and description are entered into a computer using the "Statpac" statistical program. This software has allowed us to create comparable files for the other sites that we are currently studying. Similar features are available in many other software packages, but Statpac has the distinct advantage of permitting easy reassignment of the stratigraphic phasing applied to a given layer or feature for a large number of specimens.

Conclusion and Recommendations

Our experience with the Ashkelon zooarchaeological project has led us to formulate some recommendations for those working with similar large-scale, long-term excavation projects. First, it is essential to prioritize the research. Collecting information on several fronts simultaneously leads to unwanted complexity in the management of the collection. Second, regular consultations with the field staff about the shifting understanding of what is under investigation can suggest new priorities for "reading" the bones and so minimize wasted time. Third, it is essential to convey the basics of zooarchaeological research to as many of the field staff as possible. Even today, far too many experienced excavators have little knowledge of basic zoological identifications, a lack that would be embarrassing if it pertained to pottery forms. Fourth, it is useful to communicate frequently with both the conservation staff and the physical anthropologist on the project. They face many problems similar to those faced by animal bone researchers, and their solutions to these problems may thus be helpful to the zooarchaeologist. Finally, as we emphasize in our textbook *Animal Bone Archeology* (Hesse and Wapnish 1985), successful modern archaeology is collaborative, involving an ongoing process of sharing and discussing research results among all of the professional staff members—the stratigraphers, ceramists, and other specialists—in terms of clearly articulated research objectives. To do less is to consign zooarchaeological research, as well as the other archaeological sciences, to the unread appendices of final reports.

In this chapter we have introduced our zooarchaeological methodology. The results of our detailed analyses of the animal bone collection from Ashkelon will be published in future volumes of the final report series, each of which is devoted to a particular cultural period. In this way, the faunal remains can be related to their architectural and stratigraphic con-

texts and to the other finds from a given occupational phase, and so will be fully integrated into the multi-dimensional reconstruction of economic, political, and cultural developments at the site.

Notes and Acknowledgments:

PART FOUR

STRATIGRAPHIC OVERVIEW

*by Lawrence E. Stager, J. David Schloen, Daniel M. Master,
Michael D. Press, and Adam Aja*

14. THE NORTH SLOPE

D ETAILS of the stratigraphy, architecture, and small finds from the various cultural periods at Ashkelon will be published in subsequent volumes of the final report of the Leon Levy Expedition. What is presented here, in Part Four of the present volume, is an overview of the results obtained in the various excavation areas. These results are presented in chronological order, from the Middle Bronze Age to the medieval era. A sequence of twenty-four occupational periods at the site has been defined, labeled in Roman numerals from "Period I" to "Period XXIV." These site-wide periods are correlated with various stratigraphic phases in each of the excavation areas (see the stratigraphic chart on the next pages). In this chapter, we survey the discoveries made on the "North Slope," at the north end of the site near the Mediterranean shore (see figure 1.4).

John Garstang, who dug at Ashkelon in the early 1920s, surmised that the great arc of earthworks visible around the site, which were more than 2.2 km long and enclosed an area of some 60 ha, might date as early as the second millennium B.C., although he also recognized that the same contours continued to be refortified well into the Crusader period. Garstang was right about the early date of the earthworks, but he was wrong about their function. He believed that Ashkelon's earthworks, like those of the "Lower City" of Hazor, surrounded, not a city, but a huge chariot park. Such a park would require open spaces for horses, chariots, and equipment within the protected confines of an artificial enclosure. The inhabited part of Ashkelon, Garstang thought, was confined to the small 6-ha mound known as "el-Khadra," in the west-central portion of the site.

One of our goals during the first season of excavations in 1985 was to determine the date and function of the artificial enclosure. To do that, we laid out a trench against the inner face of the substantial medieval ramparts (once thought to have been built by the Crusaders, now known to have been built during the Fatimid period) that are preserved in Grids 34 and 41. Very soon, we came down upon a basilica whose apse was built into the rampart. We had discovered Santa Maria Viridis, a little Byzantine church, which was situated just inside and to the south of the Jerusalem Gate on the east side of the city (see chapter 21 below). Had there been earlier earthworks there, they were completely obliterated by this building and by the medieval fortifications.

In the following season we moved to the North Slope, where the latest walls along the crest of the enclosure appeared to be quite thin and the slope of the embankment is quite steep. At the bottom of the outer slope in Grid 1, where a bulldozer had clandestinely scooped out some sand and *kurkar* sandstone during the previous winter to level up floors being built in the nearby Club Mediterranée, Stager recognized in the tailings sherds of red-slipped carinated bowls and other MB IIA pottery types and wondered whether this could be an ancient glacis. Pursuing this lead, the North Slope area of Ashkelon was excavated from 1986 to 1998, both on the inside and the outside of the embankment, and also within the great enclosure. A sequence of four gates and revetted embankments was found, all belonging to the MB II period (figure 14.3). The excavations in this area occurred mainly in Grid 2.

The circuit of the enclosure walls forms an arc of more than 2.2 km, with its chord along the sandstone cliffs above the beach. A merchant or a soldier approaching the Canaanite city from the Mediterranean on the road leading up from the sea would have been dwarfed by the imposing earthworks and towering fortifications on the North Slope of Ashkelon. About 150 m along his ascent up the roadway from the sea, he would have turned right to enter this vast metropolis through the city gate on the north.

Ashkelon became a fortified seaport during the MB IIA period, ca. 1800 B.C. (see the chart of chronological synchronisms in figure 14.4). Residual pottery and other artifacts of the Chalcolithic and EB I–III periods were discovered in the MB II fills of the North Slope fortifications. Nothing from MB I (EB IV) was found there, this being the one Bronze Age period when Ashkelon was not an active seaport.

Excavations on the North Slope revealed fortifications throughout the MB II period (Ashkelon Periods XXIV–XX). There were none in LB—perhaps earlier ones were reused. New fortifications were built in the latter part of Iron II (Ashkelon Period XIII) and remained in use until the destruction of the city in 604 B.C. After this destruction, there were no fortifications on the North Slope until late in the Hellenistic period (Ashkelon Period VII). The next evidence for a major rebuilding of the ramparts, along the same lines as the earlier MB II and Iron II ramparts, belongs to the Islamic period, with a major overhaul in the Fatimid era (Ashkelon Period II).

Stratigraphic Periods and Local Phases at Ashkelon

Period	North Slope	South Tell			
		Grid 37	Grid 38	Grid 50	Grid 57
I Mamluk and Ottoman *A.D. 1191–1918*	Phase 1 (Crusader fortifications)	*Site abandoned; building stone robbed; land used for agriculture.*			
II Fatimid and Crusader *A.D. 969–1191*	Phase 2 (Fatimid fortifications)	Phase 1 (houses)	Phase 1	Phase 1 (robber trenches)	Phase 1 (pits)
			City totally destroyed by Saladin in A.D. 1191.		
III Umayyad and Abbasid *A.D. 640–969*			Phase 2		
IV later Byzantine *A.D. 450–640*		Phase 2 (large building)	Phase 3 (apsidal bldg.)	Phase 2 (wells)	Phase 2 (estate)
V early Byzantine *A.D. 325–450*	Phase 3 (bathhouses)		Phase 4 (later bathhouse)		
VI late Roman *ca. A.D. 100–325*	Phase 4 (pottery kiln)		Phase 5 (earlier bathhouse)		
VII Hellenistic and early Roman *ca. 290 B.C.–A.D. 100*	Phase 5 (fortifications)		Phases 6–8 (villa) Phase 9 (villa and cistern)		
VIII Persian *ca. 350–290 B.C.*	Phase 6 (no fortifications)	*Large-scale destruction ca. 290 B.C.*	Phase 10 (villa)	Phase 3 (warehouse)	Phase 3 (two-story bldg.)
IX Persian *ca. 400–350 B.C.*			Phase 11	Phase 4 (building with mudbrick floors)	Phase 4 (building with mudbrick floor)
X Persian *ca. 450–400 B.C.*		*unexcavated*	Phase 12 (dog burials)	Phase 5 (dog burials)	Phase 5 (dog burials)
XI Persian *ca. 525–450 B.C.*			Phase 13 (villa)	Phase 6 (warehouse)	Phase 6 (large building)
		City totally destroyed by Nebuchadrezzar II in 604 B.C. *Gap in occupation from 604 until ca. 525 B.C.*			*unexcavated*
XII Philistine (late Iron II) *ca. 700–604 B.C.*	Phase 7		Phase 14 (winery)	Phase 7 (marketplace)	

Stratigraphic Periods and Local Phases at Ashkelon (continued)

Period	North Slope	*S o u t h T e l l* Grid 38	Grid 50	Grid 57
XIII Philistine (Iron II) *ca. 950–700 B.C.*	Phase 8 (fortifications with mudbrick towers)	Phase 15 (silos) Phase 16 (house)	Phase 8 (quarry)	
XIV Philistine (late Iron I/early Iron II) *ca. 1050–950 B.C.*		Phase 17 (yellow-brick houses)		
XV Philistine (Iron I: late Bichrome) *ca. 1100–1050 B.C.*		Phase 18 (hearths and sunken jars)	Phase 9 (building with chariot fittings)	
XVI Philistine (Iron I: early Bichrome) *ca. 1150–1100 B.C.*		Phase 19 (bathtub building)		
XVII Philistine (Iron I: Monochrome) *ca. 1175–1150 B.C.*		Phase 20		
XVIII Canaanite (LB II) *ca. 1400–1175 B.C.*		Phase 21 (Egyptian fortress)	Phase 10 (courtyard bldg.)	
XIX Canaanite (LB I) *ca. 1550–1400 B.C.*	Phase 9	*mudbrick cist graves*	*mudbrick cist graves*	*unexcavated*
XX Canaanite (MB IIc: late 15th Dynasty) *ca. 1600–1550 B.C.*	Phase 10 (fortification and tower)	*courtyard*		
XXI Canaanite (MB IIB: early 15th Dynasty) *ca. 1650–1600 B.C.*	Phase 11 (footgate and calf shrine)		Phase 11 (subterranean chamber tombs)	*ceramic evidence of occupation in pre-Phase 6 fill*
XXII Canaanite (MB IIA: late 13th Dynasty) *ca. 1725–1650 B.C.*	Phase 12 (third gate)	*jar burials in sand*		
XXIII Canaanite (MB IIA: early 13th Dynasty) *ca. 1775–1725 B.C.*	Phase 13 (second gate)			
XXIV Canaanite (MB IIA: late 12th Dynasty) *ca. 1825–1775 B.C.*	Phase 14 (first gate)	*unexcavated*		
pre-XXIV	*Widespread ceramic evidence of occupation in EB I–III and localized evidence of Chalcolithic occupation.*			

Rampart/Glacis 1–4 (Phases 14–13)

The MB IIA culture of Ashkelon and elsewhere in Canaan has affinities with earlier coastal Syrian cultures known as "Amorite" or "West Semitic" (see Voss 2002 and Stager 2002 for more detailed treatments of the MB IIA pottery and stratigraphy of Ashkelon in relation to contemporary sites in the region). The Amorites established seaports in Palestine during MB IIA, from Akko in the north to Ashkelon in the south (see Cohen 2002). They introduced several architectural innovations into Canaan. Their newly founded cities were fortified with free-standing ramparts and dry moats. This innovation in fortifications and town layout derived ultimately from third-millennium settlements in the Baliḫ and Ḥabur river basins in Upper Mesopotamia. There this settlement type is known as the *Kranzhügel*, or "wreath-shaped mound" (Bretschneider and Van Lerberghe 1997).

A probe trench excavated at the crest of the North Slope (see figure 14.2) and west of the city gates revealed a series of four MB IIA battered embankments (Phases 14–13a in Section A–A in figure 14.1). Each glacis represents a chronological, not merely constructional, stage in the rampart's history. This is evident from the white-plastered, open **Drain 62** on the surface of Glacis 2, which was found in the probe trench at the peak of Glacis 2 (figure 14.5) and detected again two-thirds of the way down its slope.

The earliest city gate had a glacis capped with mudbricks. The later three glacis, all belonging to various subphases of Gate 2 (Phase 13), were capped with rows of rough, sometimes partially shaped, field stones. These sandstone "steps," however, were originally covered with rammed earth and plaster, to give the slope a smooth, slippery exterior surface, with an incline of 33–35 degrees. The crest of the freestanding rampart once stood 15 m above its surroundings both inside and outside the city. The sloping rampart became an even more formidable obstacle to an enemy when combined with the dry moat, sometimes 6–8 m deep, that was dug in front of the rampart and the two- or three-story-high fortification wall that loomed atop it.

Yigael Yadin, in his excavations at Hazor, proved that these free-standing Middle Bronze ramparts surrounded, not a chariot park, as Garstang had thought, but an entire city. Yadin then proceeded to develop his own hypothesis about the function of these fortifications. He believed that the sloping earthworks, so wide at the base, were built to counter the battering ram, the introduction of which he and others attributed to the Hyksos. We now know that the battering ram was already a weapon of siege warfare in the Early Bronze Age, since it is attested in the Ebla texts. It is also mentioned in the Mari texts of the Middle Bronze Age, which predate the Hyksos. And far from hindering a besieger's use of the battering ram, the inclined slope of Middle Bronze Age fortifications would have aided him. In the Iron Age and later, besiegers themselves built sloping siege ramps in order to move their battering rams into position for attacking the weak points in the fortification line, such as the city gate.[36]

Peter Parr (1968) subsequently suggested that the primary purpose of sloping ramparts was to counter the erosion that afflicted multiperiod tell sites. The accumulation of earlier settlements was such that some sites had already attained a considerable height by MB II. Parr also pointed out that glacis-style slopes were already being built in the third millennium B.C.; therefore, the introduction of this fortification type had nothing to do with Hyksos innovations in siege warfare.

While it is possible that revetted, plastered slopes might help to consolidate a tell and prevent erosion, this function would not apply to free-standing earthen enclosures, such as those excavated at Hazor, Dan, Ashkelon, and several other places. Thus it seems likely that Yadin was correct in seeing this new form of fortification as a defense against siege warfare. But it had nothing to do with the battering ram or the Hyksos. Rather, this form of free-standing fortification, with its thick base, was built in response to another ancient siege technique: tunneling under the fortifications, also known as mining or sapping. This technique was in use already in the second millennium B.C., if not earlier, and remained in common use through the medieval period. In Akkadian cuneiform texts, sapping operations known as *pilšu* are attested as far back as the Old Babylonian period.

While the city was under siege, a team of sappers would begin their tunnel at some distance from the fortifications they wished to undermine. Their objective was to cause the fortifications to collapse or to sneak under them and then surface inside the city to launch a surprise attack. Once under the ramparts, they might widen the tunnel in order to collapse the defense works above; or, if that failed, they could stoke the widened tunnel with combustibles, which would then be burned in order to precipitate a collapse, while assault troops penetrated the breach above ground.

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[36] See Eph'al 1996 for a discussion and bibliography of the various functions that have been proposed for glacis-style fortifications.
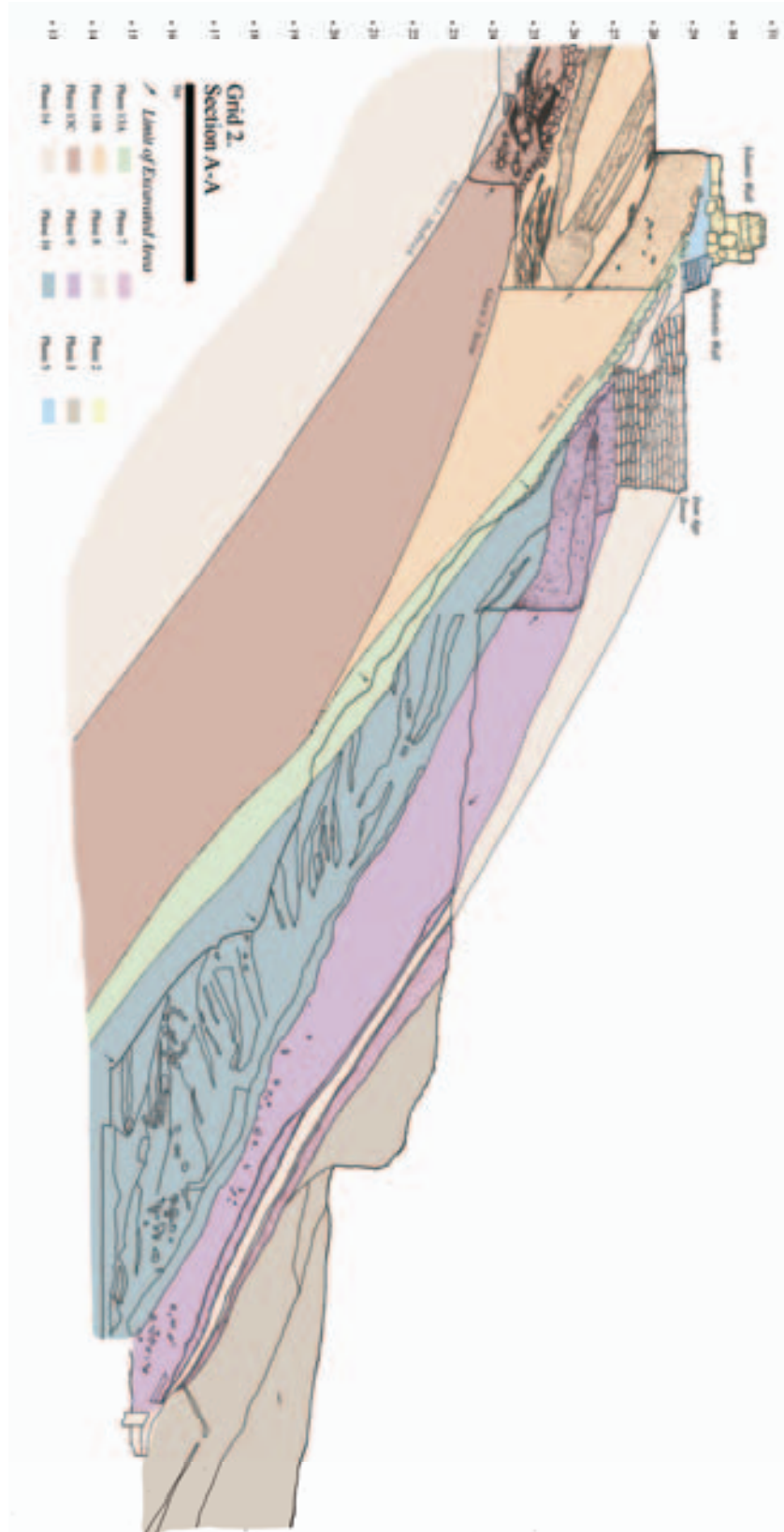
Figure 14.1: Profile drawing of West Section of Glacis 1–4 and Iron Age, Hellenistic, and Islamic ramparts
Scale on left side of drawing (at top of page) indicates meters above mean sea level.
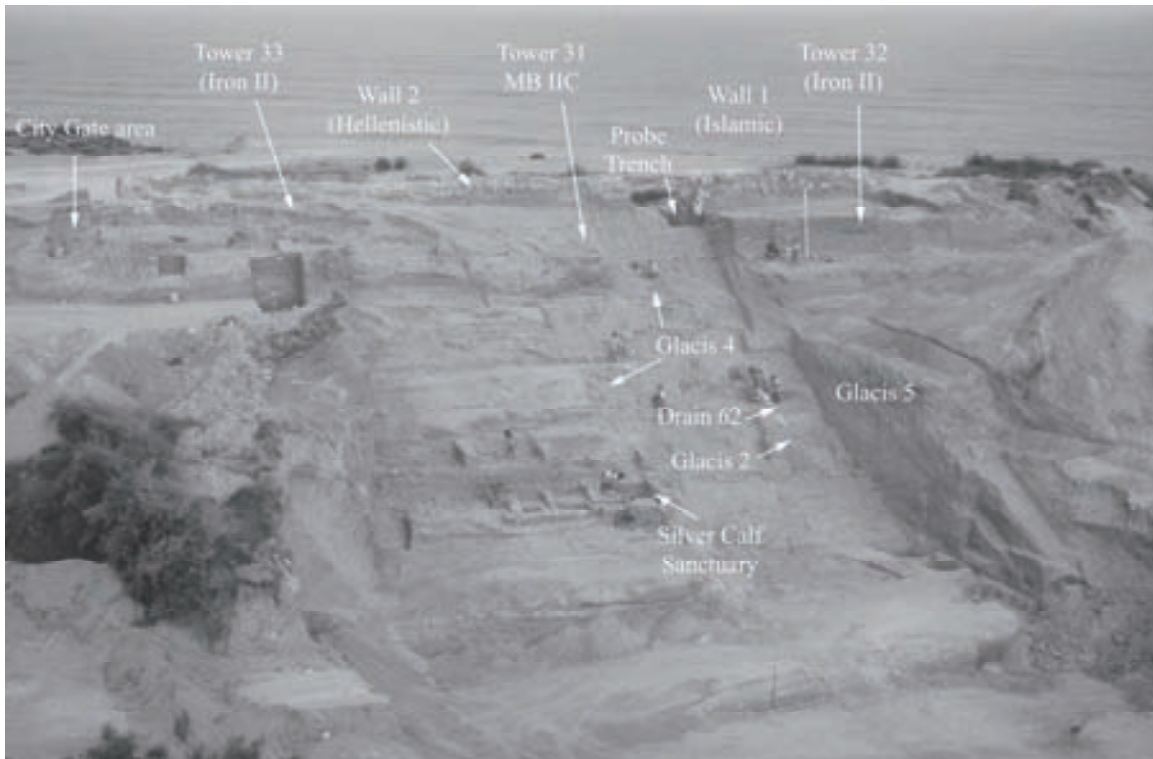
Figure 14.2: Overview of North Slope, looking southwest

Figure 14.3: Sequence of superimposed gates

Figure 14.4: Chronological synchronisms

Figure 14.5: Glacis 2 (stone-lined) with side of Drain 62 (single row of cobblestones) running along bottom of west balk (fill below Glacis 3). See figure 14.2 for location of Drain 62 farther down the slope of Glacis 2.

Clearly, the thick earthen ramparts of Ashkelon and other Middle Bronze Age cities posed a serious obstacle to this siege technique. In the case of Ashkelon, the sappers would have had to remove a tremendous amount of rampart fill over a distance of ca. 50 m before reaching the wall line and towers. This would give scouting parties, sent out from the besieged city, adequate time to spot the sappers and trap them. Later classical sources indicate that defenders would introduce bees into sapping tunnels or build a fire at the tunnel entrance to smoke out the sappers.

The function of defending against sappers also explains the construction of moats around ramparted sites. Sappers could not begin their tunnels beyond the moat, which were often dug deep into the bedrock. This gave scouts a better chance of spotting the entrance to a tunnel. A dry moat dated to the early MB IIA surrounded Ashkelon and another one was

constructed in the late MB IIA. These moats were dug into the bedrock near the base of the rampart.

Of course, tunneling through the massive earthen ramparts of Ashkelon would have been not only slow but also very dangerous. The sand, *kurkar*, and soil fills would have been extremely unstable and susceptible to collapse.

Gate 1, Phase 14 (figure 14.6)

There were three superimposed city gates with arched doorways (figure 14.3). The earliest of these, Gate 1, could only be reached in a few probes. Mudbrick **Piers 113** and **114** of the inner doorway and corridor **Walls 70** and **71** stood just 1.50 m high, having been truncated by the builders of Gate 2, whose piers and corridor walls sit flush on those of Gate 1. The mudbricks of Gate 1 are of high quality and of uniform size (0.35 × 0.40 × 0.10 m). Each course is grouted with light-yellow mud mortar.

A corbeled vault, 3 m wide and 9 m long, connected the inner doorway to the outer one. Roughly dressed sandstone coated with mud plaster formed the interior of the vault (figure 14.7). Only one course of the piers of the outer doorway survived. Most of the entrance had been dismantled to make way for the ashlar façade of Gate 2. The passageway into Gate 1 is 2.30 m, wide enough for cart and chariot traffic. Its overall dimensions are 12 m × 20 m, not including the corridor walls; its size suggests that it may have had one or two additional stories, as did the succeeding gate.

Gate 1 is contemporary with Glacis 1, the earliest of four battered ramparts of MB IIA. It is composed of sloping layers of crushed *kurkar* sandstone and sand capped with mudbricks.

Moat 21, which is ca. 15 m north and 10 m west of the center axis of Gate 1, was carved out of the local sandstone bedrock. It is ca. 8 m wide at the top and tapers to a depth of ca. 7 m (figure 14.8). We have traced Moat 21 for a distance of 70 m, from its apsidal end near the city gate toward the sea. During Phase 14, a visitor approaching the city from the sea would have walked up an ash-covered road flanked by the dry moat, turned right, crossed a 20-meter-wide sandstone "bridge" or causeway, and arrived at the entrance to Gate 1. This assumes that the dry moat resumes, beyond the land "bridge," in a more-or-less symmetrical fashion to the east of the city gate. Because of this "bridge," access to the gate entrance was direct.
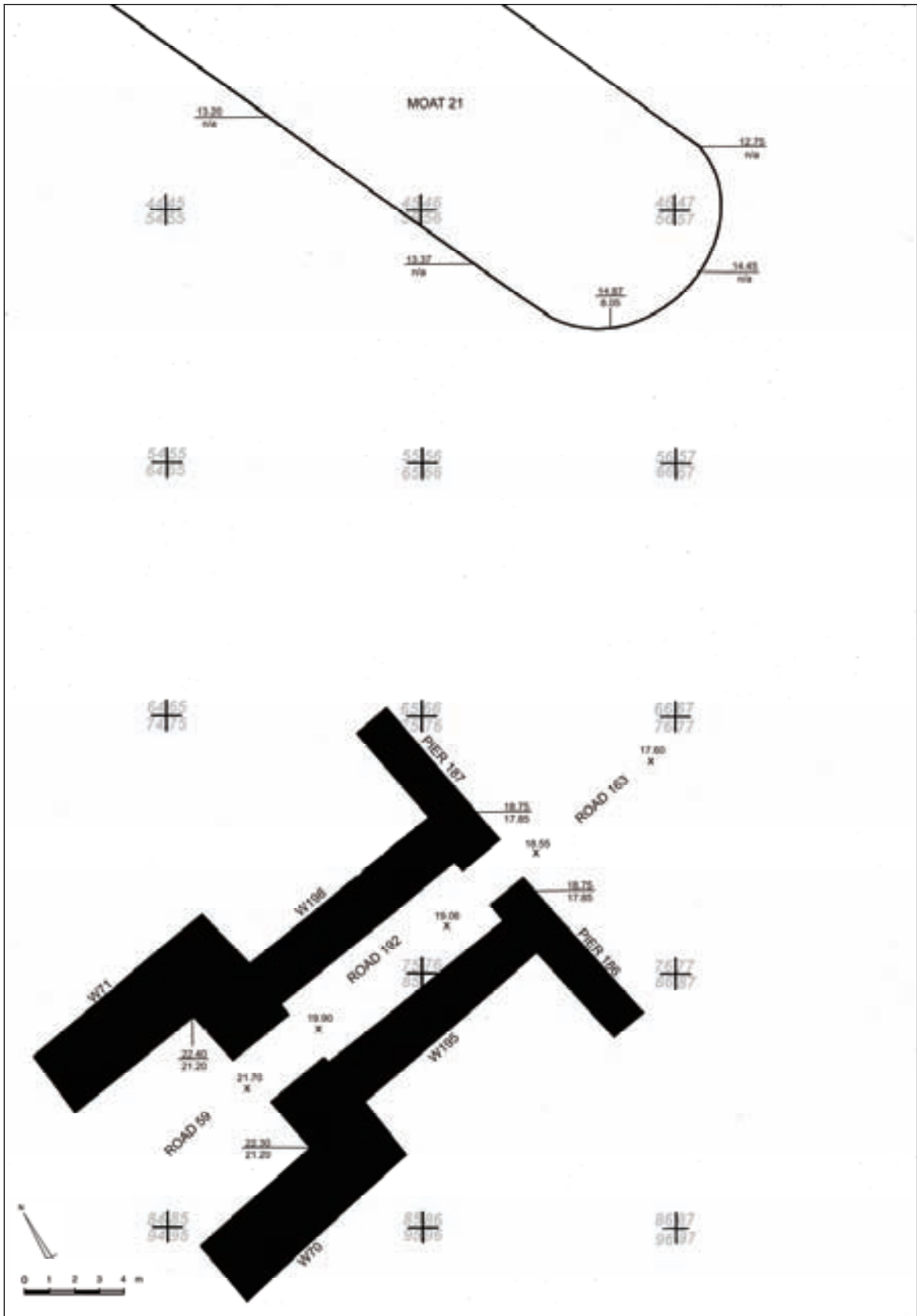
Figure 14.6: Block plan of Gate 1 and Moat 21 in Grid 2 Phase 14

Figure 14.7: Gate 1 interior, looking to southwest
Stone arch/vault with mud-plaster lining; the fill to the right of the lining is later.
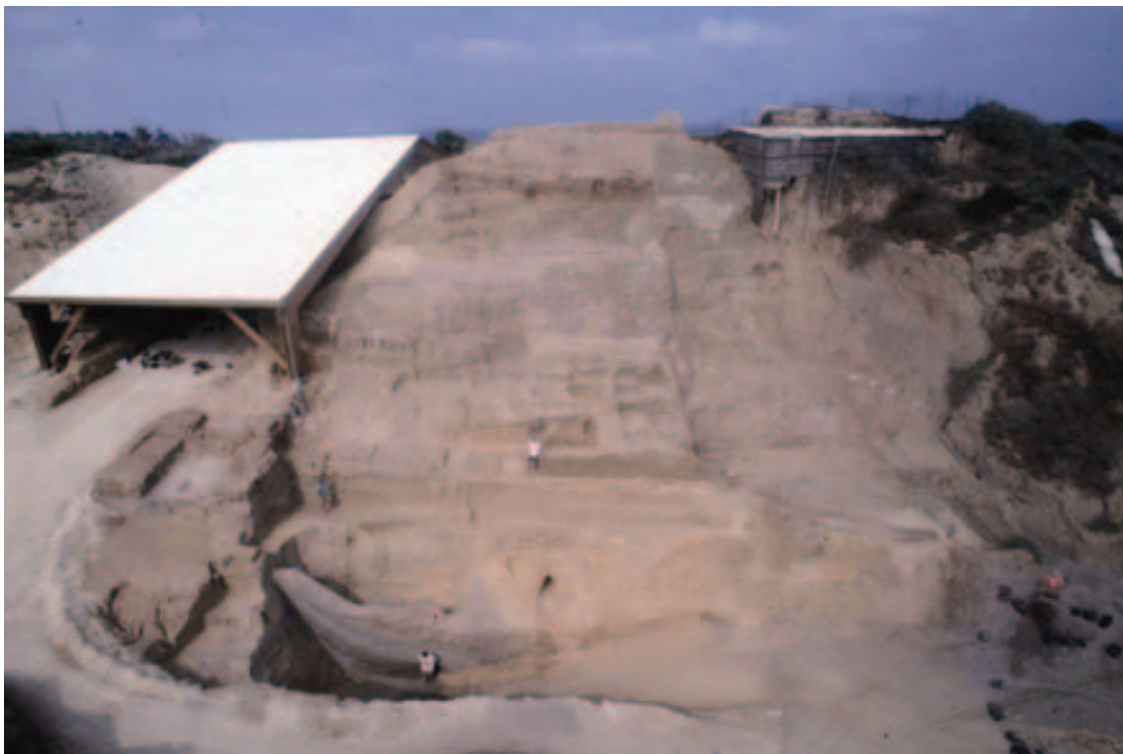
Figure 14.8: General view of North Slope with dry moat in foreground, looking southwest
Sequence of city gates (under roof to left) and battered slope (to right) and partially excavated dry moat (Phase 14) in foreground (supervisor stands in bottom of moat with section of Phase 14/13 fill behind him).

Gate 2, Phase 13 (figures 14.11 and 14.12)

Gate 2 was built along the same basic lines as Gate 1, but it displayed some features never before seen in Canaan. When Gate 2 was built, **Moat 21** was filled in with occupational debris, including a very thick deposit of midden ash. The Moat Deposit, as it is called (hereafter MD), represents fill derived from before and during the use of Phase 14 and the construction of Phase 13. MD was partially sealed by **Road 239**, the new approach to Gate 2. Another moat was dug just north of the old one and parallel to the earlier buried one. The lower apron of the new stone-lined battered slope (Glacis 2) flanked **Road 239** on the south side. The construction of this new road along the edge of the glacis formed an indirect approach to the gate—the first instance of an indirect gate access in Palestine.

The Moat Deposit

Most decisive for establishing an independent absolute chronology for Ashkelon during MB IIA are the more than forty clay sealings found in the ashy fill of **Moat 21**. They bear the imprint of Egyptian scarabs, which Dr. Lanny Bell and others would date to the beginning of Dynasty 13 of Middle Kingdom Egypt. Figure 14.9 is an example of these sealings. Five separate sealings were impressed with the same scarab. The sealing shown in this figure, like the other four, was used to close a knobbed box or chest.

The sealings from the moat provide an independent anchor point for dating MD to the first half of the eighteenth century B.C. The local and imported pottery from MD fits nicely into the relative and absolute chronology developed by Manfred Bietak for Tell el-Dab^{c}a, the ancient Hyksos capital of Avaris. Ashkelon Phases 14 and 13 overlap with the latter part of Tell el-Dab^{c}a Stratum H and Stratum G, respectively (see the chart of synchronisms in figure 14.4 above).

Locally Made Pottery

The most common amphora of MB IIA Ashkelon is the well-known "Canaanite Jar," which has an everted, outfolded rim and a ridge below (figure 14.10). It was produced at Ashkelon throughout MB IIA (Phases 14–12). Its rim flattens somewhat and everts even more in MB IIB (Phase 11).

Figure 14.9: Egyptian clay sealing stamped with scarab of early 13th Dynasty (from Moat Deposit)
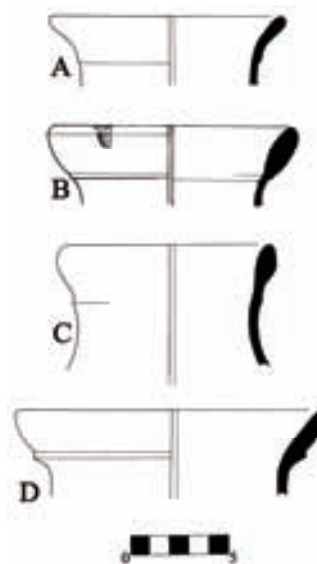
Figure 14.10: "Canaanite Jars," Ashkelon type SJ1 (from Moat Deposit)
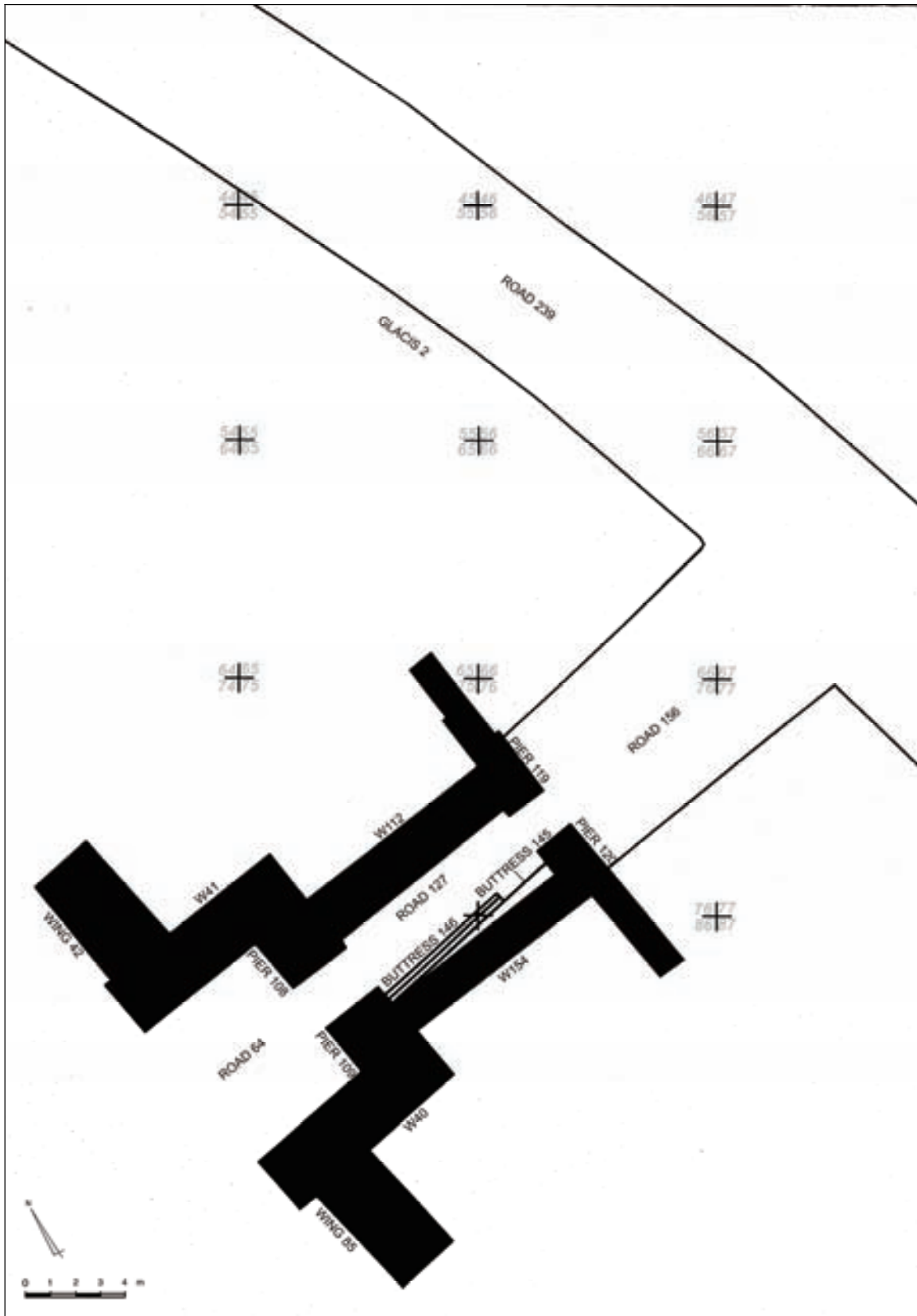
Figure 14.11: Block plan of Gate 2 in Grid 2 Phase 13c
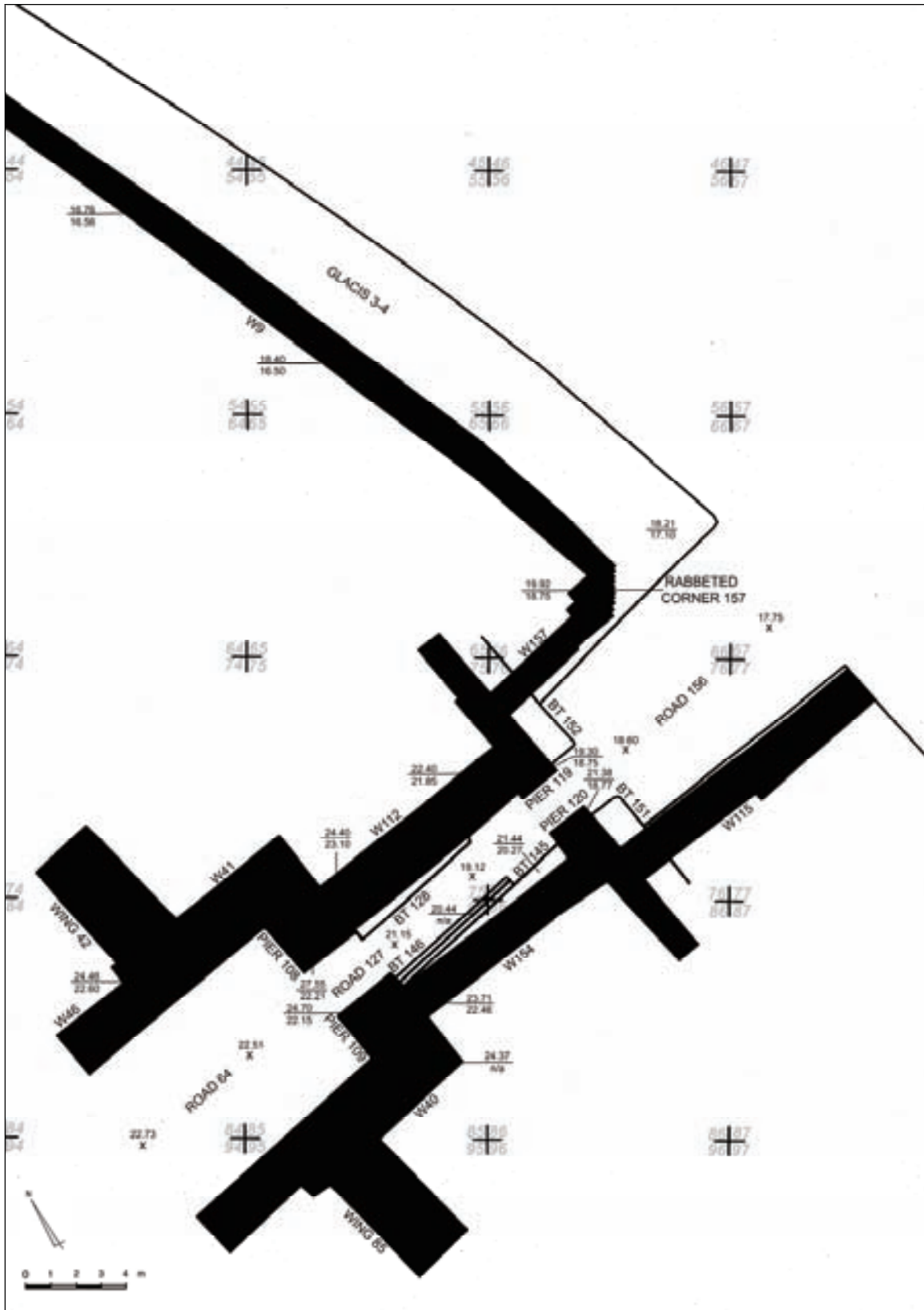
Figure 14.12: Block plan of Gate 2 in Grid 2 Phase 13a–b

This amphora type also appears with polychrome painted decoration, known as "Red, White, and Blue Ware" (figure 14.13). While most of this ware is locally made, according to petrographic analyses by Yuval Goren and Anat Cohen-Weinberger, some of it was imported from the Shephelah, most probably from Tell Beit Mirsim Stratum G. A few vessels of Red, White, and Blue Ware were imported at Avaris during Tell el-Dabᶜa Stratum G.

In Ashkelon, cooking pots, both handmade and wheelmade (see figure 14.14), occur in approximately equal numbers in the Moat Deposit (Phase 14/13), but the wheelmade ones predominate until MB IIA/early MB IIB (Phase 12). By MB IIB (Phase 11), gutter-rim wheelmade cooking pots have been superseded by those with upright rims.

Red Slipped Ware (RS) appears already during Phase 14 (Gate 1) and increases substantially during Phase 13. In MD, the following variety of RS pottery appears: (1) bowls with rounded or slightly carinated sides (figure 14.15); (2) bowls with flanged rims (figure 14.16); (3) bowls with out-turned rims (figure 14.17); (4) bowls with in-turned rims (figure 14.18); (5) bowls with knobs below the rim, sometimes incised with a cross (figure 14.19); (6) shoulder-handled jugs (figure 14.20); and (7) dipper juglets (figure 14.21).

Also found with the Egyptian sealings in MD is a beautiful dark-brown lustrous ware—a variant of Tell el-Yehudiyeh Ware (TeY)—with incisions filled with a white substance, probably powdered chalk or limestone (figure 14.23). This delicate lustrous ware has incised and filled decoration, including crenellations, running spirals, and punctate designs.

The petrography of TeY found in MB IIA contexts at Ashkelon indicates local manufacture. Avaris imported TeY from the Levant during this period and began to export TeY to Ashkelon in MB IIB. Nevertheless, the Ashkelon workshops were still producing their own versions of TeY in MB IIB, as is demonstrated by a splendid zoomorphic vessel depicting the Egyptian Horus falcon (figure 14.22). The Horus vessel is locally made. The lotus design on the falcon's breast and other attributes led Manfred Bietak to compare it to TeY from Tell el-Dabᶜa Stratum E/3.

When we compare the Ashkelon MB IIA corpus of pottery with the more extensive corpus from Tel Aphek, where the excavators divided the MB IIA period into four pottery phases, we find that the ceramics from Ashkelon Gate 1 (Phase 14) seem to overlap with part of Aphek Phase 2, while the Ashkelon pottery from MD (Phase 14/13) and Gate 2 (Phase 13) has more in common with Aphek Phase 3 (Kochavi et al. 2000; Cohen 2002; see figure 14.4).
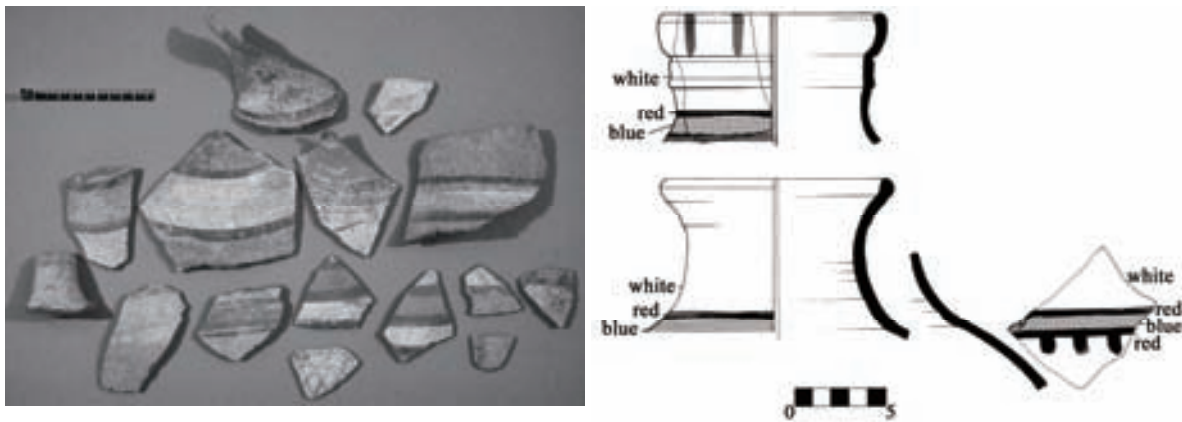
Figure 14.13: Red, White, and Blue Ware amphora rims (from Moat Deposit)
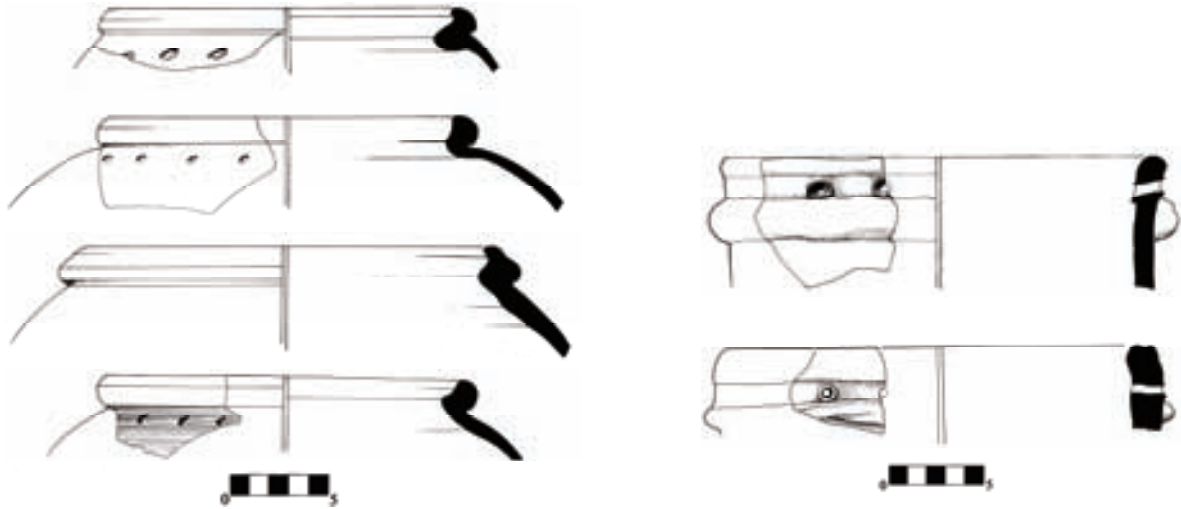
Figure 14.14: Wheelmade cooking pots with gutter rims (on left) and handmade cooking pots (on right) (from Moat Deposit)
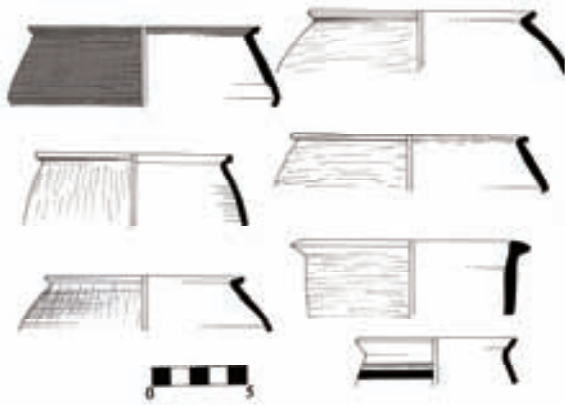
Figure 14.15: Red Slipped bowls with rounded or slightly carinated sides (from Moat Deposit)
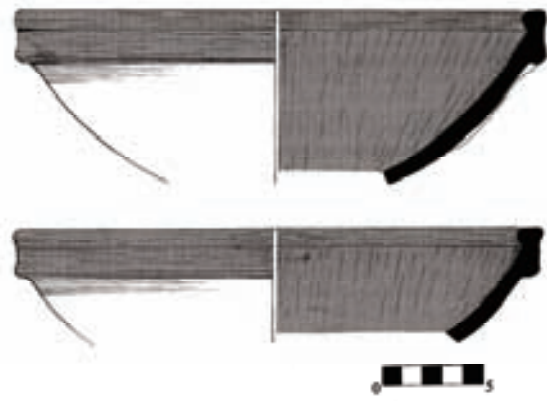
Figure 14.16: Red Slipped bowls with flanged rims (from Moat Deposit)

Figure 14.17: Red Slipped bowls with out-turned rims (from Moat Deposit)
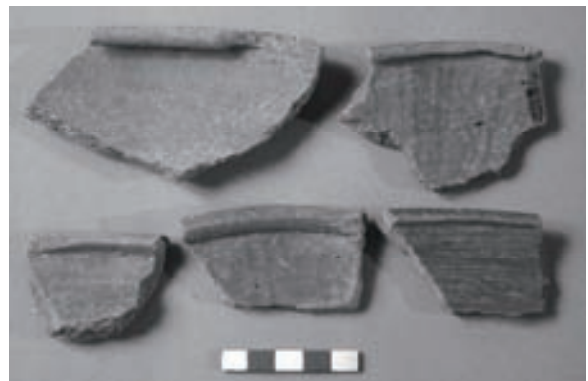
Figure 14.18: Red Slipped bowls with in-turned rims (from Moat Deposit)

Figure 14.19: Red Slipped bowls (from Moat Deposit) Lower right exemplar has knob incised with cross.

Figure 14.20: Red Slipped shoulder-handled jugs with double-ridged handle (from Moat Deposit)

Figure 14.21: Red Slipped dipper juglets (from Moat Deposit)

Figure 14.22: Tell el-Yehudiyeh zoomorphic vessel in the form of Egyptian Horus falcon (from an MB IIB tomb in Grid 50)

Figure 14.23: Tell el-Yehudiyeh lustrous ware (from Moat Deposit)
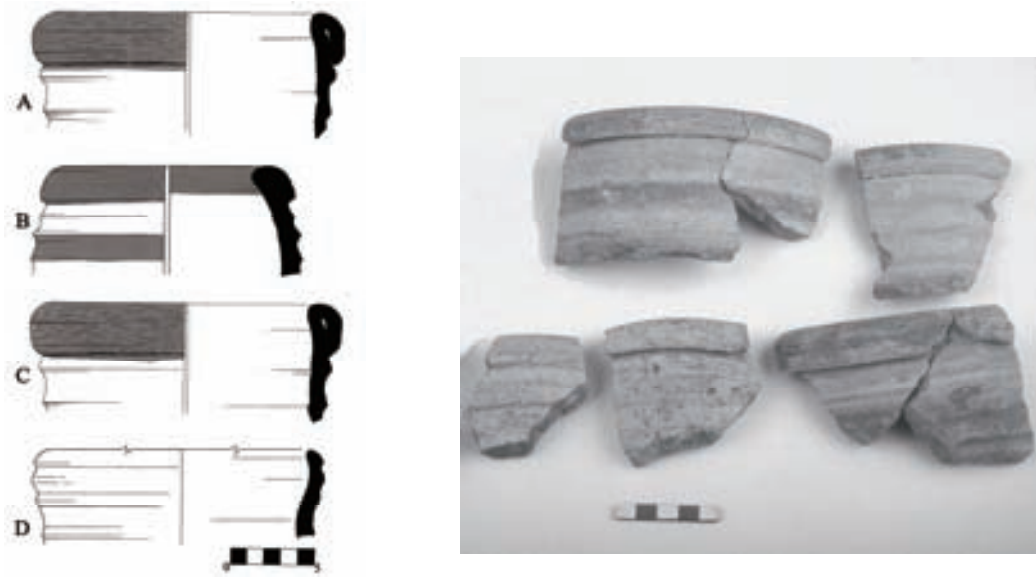
Figure 14.24: Ridged-Neck Pithoi with bands of red paint (from Moat Deposit)
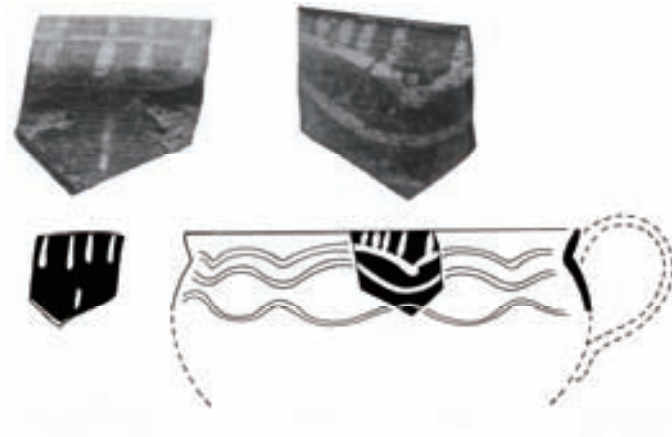
Figure 14.25: Kamares Ware "wavy-line cup" (from Moat Deposit)
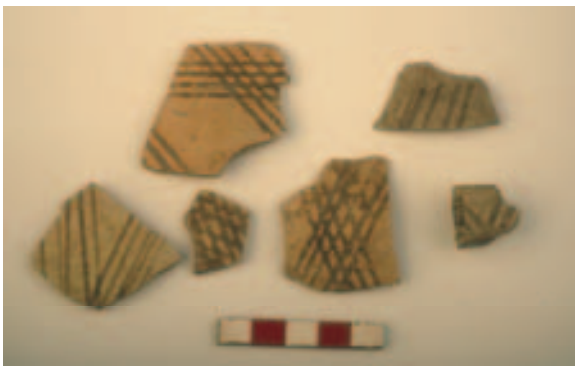
Figure 14.26: Cypriot Cross-Line Style jugs
(from Moat Deposit)

Figure 14.27: Egyptian "water jars" or *zir*s
(from Moat Deposit)

Imported Pottery

During MB IIA, Ashkelon was importing pottery from coastal Lebanon, Crete, Cyprus, and Egypt.

Coastal Lebanon: Although we have not found exemplars of the Ridged-Neck Pithos from the Levant, petrographers assure us that coastal Lebanon was their home. Tell el-Dabᶜa also has this type as an import. Several of the Ridged-Neck Pithoi from Ashkelon (Phases 14–13) have horizontal bands of red paint on the rim and neck (figure 14.24).

Crete: A rim fragment of a Classical Kamares Ware "wavy-line" cup came from MD (figure 14.25). It dates to Middle Minoan IIB on Crete, where this type is found in destruction deposits of the Old Palace Period. Another well-stratified Kamares Ware Cup fragment came from the palace garden at Tell el-Dabᶜa Stratum G/4, dated to the beginning of the 13th Dynasty. The Ashkelon cup can be independently dated to the same period, on the basis of the Egyptian sealings found in MD. These two firm contexts from Avaris and Ashkelon support the lower chronology for MB IIA (see figure 14.4).

Cyprus: Cypriot White Painted Cross-Line style jugs can now be dated more precisely. They were being exported to Ashkelon as early as Phase 14 (Gate 1), which overlaps with the latter part of Tell el-Dabᶜa Stratum H and early G/4. They continued to be exported to Ashkelon throughout the rest of MB IIA (figure 14.26) and to Avaris during Dynasty 13. They are attested at Tell el-Dabᶜa as early as Stratum G/4. Cypriot Red-on-Black Ware, however, is not attested at Ashkelon until late in MB IIA or early in MB IIB.

Egypt. Egypt was shipping small quantities of very large water jars, or *zir*s, to Ashkelon in MB IIA (figure 14.27). Egyptian pottery increases dramatically at Ashkelon during MB IIB, when TeY made in Egypt appears and Egyptian-style cooking pots proliferate.

The Gate

Gate 2 (figure 14.28) was built directly on top of Gate 1, reusing elements of the preceding gate as foundational material. It was built on the same plan as Gate 1 but on a somewhat larger scale. Overall, the gate passage was approximately 27 m long.

Unlike Gate 1, two stories of the gate construction are preserved. In fact, since the height of the glacis rises at least 4 m above the preserved remains of the second story, Gate 2 probably had at least one additional story. The extant ruins preserve the earliest known example of a city gate with arched entryways, spanned by a long barrel vault.

Gate 2 also had, as mentioned above, the earliest example of an indirect approach to a city gate in Canaan. The constructional material of the gate, especially in the interior of the vault and the façade of the entrance, display another significant change from the previous gate: the roughly dressed sandstone of Gate 1 is now replaced by true ashlars, also of sandstone.

Three subphases of this gate construction were evident, indicating repair and rebuilding of the gate over some length of time. At the entrance, the corridor (**Road 156**) was originally flanked by the glacis itself (in Phase 13c; see figure 14.11). In the later subphases, a beautiful rabbeted entrance of mudbricks flanked both sides of the outer court in front of the arched entryway of stone outlined in white gypsum plaster (Phase 13b–a; figure 14.12). The east side of the entrance was eventually replaced with a straight north-south wall and two huge mudbrick buttresses were built on both sides of the arch, probably to keep the gate from collapsing outward.

The sandstone ashlar blocks, three rows deep (1.86 m) on each side of the arch, are quite large, measuring 0.80 × 0.40–0.50 × 0.25–0.30 m. The blocks in the jambs and voussoir are set in alternating headers and stretchers, tightly locked in place. The ashlar façade of the entrance is 7.0 m wide; the doorway of the arch, 2.3 m at the base. The entrance was more than wide enough to admit wheeled vehicles, such as horse-drawn chariots and large carts.

The arched entryway led to the barrel vault—a nine-meter-long "tunnel"—which in turn connected to the inner arched doorway built of mudbricks. Later, the sides of the barrel vault were shored up by stepped mudbrick buttresses, which also acted as curbs. The steep street through the vaulted tunnel was paved with mudbricks.

The inner gateway was built on top of the shaved-down foundations of Gate 1. Two massive mudbrick towers, each 2.80 m thick, flanked the arched entryway, which was 2.45 m wide. Only the apex of the mudbrick arch was missing. Like the stone outer arch, it was built in bonded style: alternating courses of headers and stretchers were integrated into the whole façade. The Ashkelon arches, then, are quite different from the slightly later (transitional MB IIA/B) radial arch in the Tel Dan city gate. The radial arch was much easier to build and superseded the bonded arch some time during the second millennium B.C.

A seven-meter square, framed on three sides by towering mudbrick walls, formed the inner court of Gate 2. Mudbrick wing walls projected at right angles from the side walls to anchor rampart fills along the inner slope.

Figure 14.28: Gate 2 with arched entryway and rabbeted façade in Grid 2 Phase 13

The free-standing rampart, the rabbeted façade, and the bonded arch are all new architectural elements in MB IIA Canaan. They appear already in the third millennium in the Ḥabur Triangle at Tell Beydar, Tell Chuera, and Tell Muazzar, and probably farther south at Terqa and Mari. It seems that with the advance of Amorite cultures along the Fertile Crescent, these several architectural innovations were introduced into Canaan early in the second millennium B.C.

Gate 3, Phase 12 (figure 14.29)

The third gate was the largest in the MB sequence, and again built directly over and reusing the partially preserved remains of the previous gate. Beyond its size, it differs from the previous gate in that it was built entirely of mudbrick. The most significant difference, however, is in the plan of the gate. The open corridor approaching Gates 1 and 2 was now enclosed within a large gate complex, whose entrance was a separate lower gate (with a 5.5-meter-wide entryway) built over the Phase 13 ramped street (**Road 239**).

As the new upper gate was built high above Gate 2, the corridor leading up to it had to be built at a steeper angle. The mudbrick walls of the corridor in Phase 13 (**Walls 157** and **115**) were converted into buried retaining walls. These walls held a massive fill of crushed sandstone, whose ceramic assemblage—including Ovoid 1, Piriform 1a, and Cylindrical forms of Tell el-Yehudiyeh ware juglets; the first appearance of Middle Cypriot Red-on-Black Ware and White Painted III–IV Ware of Pendent-Line Style; biconical bowls with sharp carination; red polished dipper juglets; bowls with inverted lip and red-cross decoration on the interior; large red burnished globular bowls with knobs; red polished pots with rim rolled to the outside; Marl C jars with corrugated rim of 13th Dynasty type; and the Marl C *zir* of type 4—provides a parallel with Tell el-Dabᶜa Stratum F, and dates the founding of Gate 3 to the end of MB IIA (transitional MB IIA–B or early MB IIB).

Above the buried retaining walls, mudbrick **Walls 41** and **40** served both as the corridor walls flanking the entrance and the walls of the gate itself, with a total length of over 29 m. As in the previous gate, these walls would have supported piers and arches,
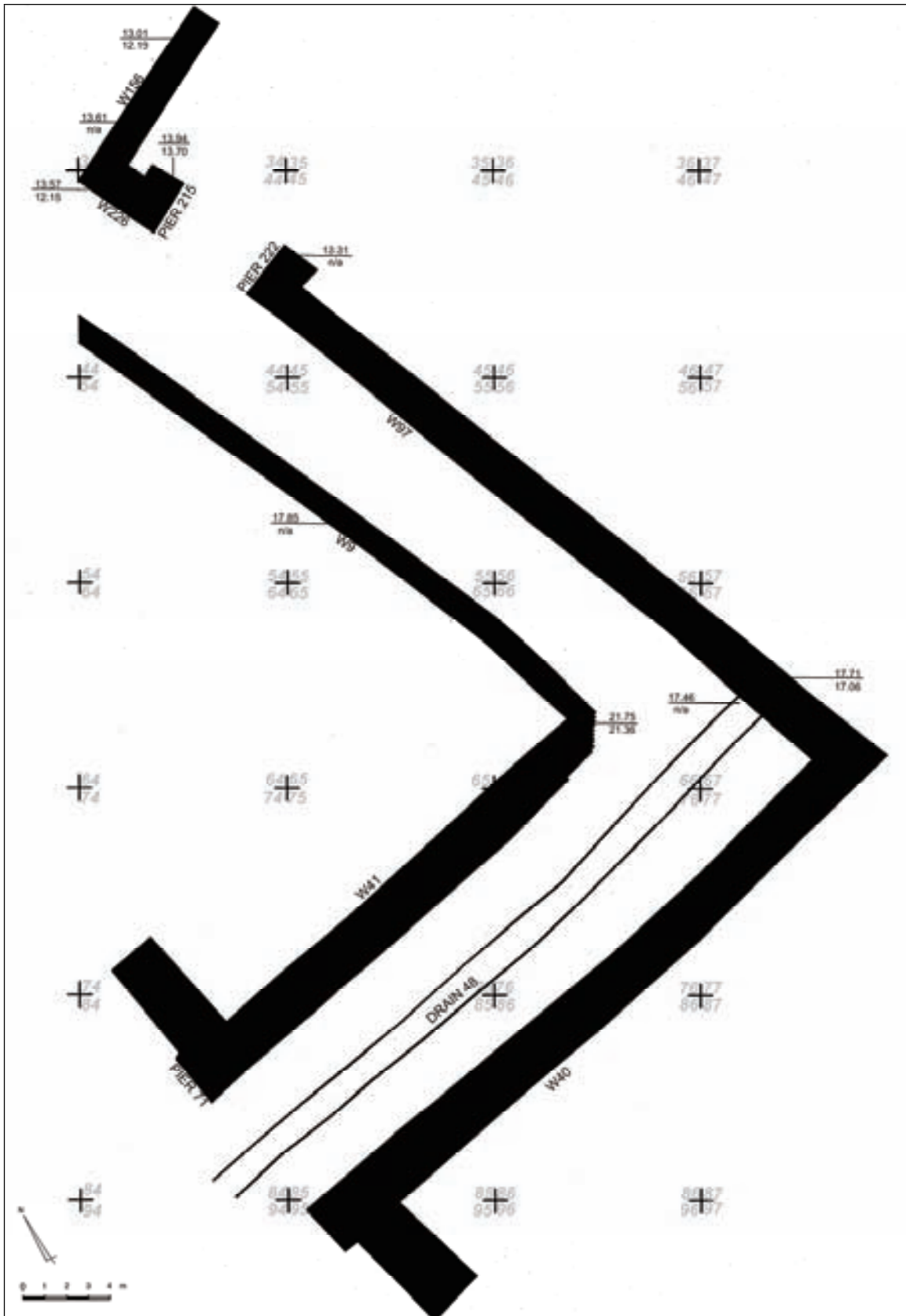
Figure 14.29: Block plan of Gate 3 in Grid 2 Phase 12

but these constructions were destroyed by the later building activity in Phase 11.

Gate 4, Phase 11 (figure 14.30)

In Gate 4, the massive Phase 12 construction was replaced by a much smaller pedestrian gate, which was carved out of the massive towers and side walls of the Phase 12 upper gate. The corridor leading up to the gate was now wide and fan-shaped. The interior of the foot-gate was a single chamber whose dimensions were only 3.70 × 3.90 m, with an entrance between the piers of only 1.5 m. Presumably, in this phase the main northern city gate was moved farther east along the ramparts. Although the gate was much smaller, its mudbricks were large like those of the previous gates (0.50 × 0.35 × 0.10 m).

The ceramic assemblage includes Cypriot White Painted V Ware alongside White Painted III–IV and the Red-on-Black Wares; Tell el-Yahudiyeh Ware jugs, both globular and biconical, now made of Egyptian clay; small burnished juglets with rim rolled to the outside and with double-ridged handles; brown polished bowls with inverted rim; MB IIB carinated bowls; MB II wheelmade cooking pots and wheelmade cooking pots tempered with loess sand (I-e-2 clay); as well as the first appearance of the Marl C *zir*, type 5. These forms provide a close parallel to Tell el-Dabᶜa Stratum E/1, leaving a gap in the gate sequence corresponding to Dabᶜa Strata E/3–E/2 (although parallel forms are attested in the Grid 50 necropolis; see figure 14.22 above).

The Tombs

Four built tombs, made mostly of mudbrick, were constructed at the base of the corridor leading up to the footgate. Three of them had been cut into the earlier revetment wall. The tombs were sealed with corbeled mudbrick vaulting (for a parallel, see Bietak 1996:45). Most of the vaults did not survive later robbing but could be inferred from the ledges which supported the superstructure.

Both **Tomb 10** and **Tomb 19** had been robbed of most of their mortuary goods. One partially preserved individual remained in **Tomb 10** and three were in **Tomb 19**. Both tombs had enough pottery remaining to date them to the Middle Bronze Age IIB in general and to Phase 11 in particular.

Tomb 9 was a stone-lined cist tomb, which once had a corbel-vaulted ceiling. A sandstone anchor with a single perforation served as a capstone at the entrance of the tomb. Four adults—two males (35+ years and 40+ years of age) and two females (one ca. 18 years of age)—and two children (one ca. 10 years old and the other between 3 and 7 years of age), as well as a neonate, were buried in this tomb. A total of twelve scarabs were found in the tomb, of which four date to Dynasty 15 and three to Dynasty 13 (published in Keel 1997:732–35).

Tomb 178, the smallest of the four, was found undisturbed. The chamber had a corbeled mudbrick ceiling and contained two articulated skeletons: a young woman, ca. 15 years of age, lay in flexed position at the west end; her head to the west, facing south. She had two scarab rings on the fingers of her left hand, one of glazed steatite and the other of dark amethyst set in a gold bezel. Her shroud or burial clothing, which was not preserved, had once been held in place by a bronze toggle pin at the left shoulder. An older man lay in flexed position at the east end of the tomb, his head to the east, facing north.

The Courtyard Building

Building 179, an extramural house of modest size (8.7 × 10.5 m) was built at the foot of the rampart (figure 14.31). It had six small rooms organized along two sides of a courtyard that measured 4.5 m × 7.0 m. Four of its rooms were dug into the terrace and revetment wall of the earlier slope of the rampart. **Room 101** contained an unusual cylindrical pottery vessel in which was found a calf image made of bronze and covered with silver. As a result, the building was immediately dubbed the "Sanctuary of the Silver Calf" (see Stager 2006b and chapter 32 in the present volume).

Baking had clearly gone on inside two of the rooms that had beehive ovens. **Room 164** had not only a bread oven but also millstones for grinding grain. Bowls for serving and drinking were the most common type of pottery found inside the Courtyard House. Cooking pots, both Canaanite and Egyptian, were the next most numerous vessels, followed by storage jars. No ritual vessels were found; instead, the assemblage of artifacts highlighted food preparation, eating, and drinking, just as they might in a domestic context.

The Bull-calf Image

The model shrine in which the calf image was found is a cylindrical ceramic jar with a beehive-shaped roof, with a knob on top and a flat base (see figure 32.2 in chapter 32 below). The model shrine is 25.2 cm high and 13.8 cm at its greatest diameter. A
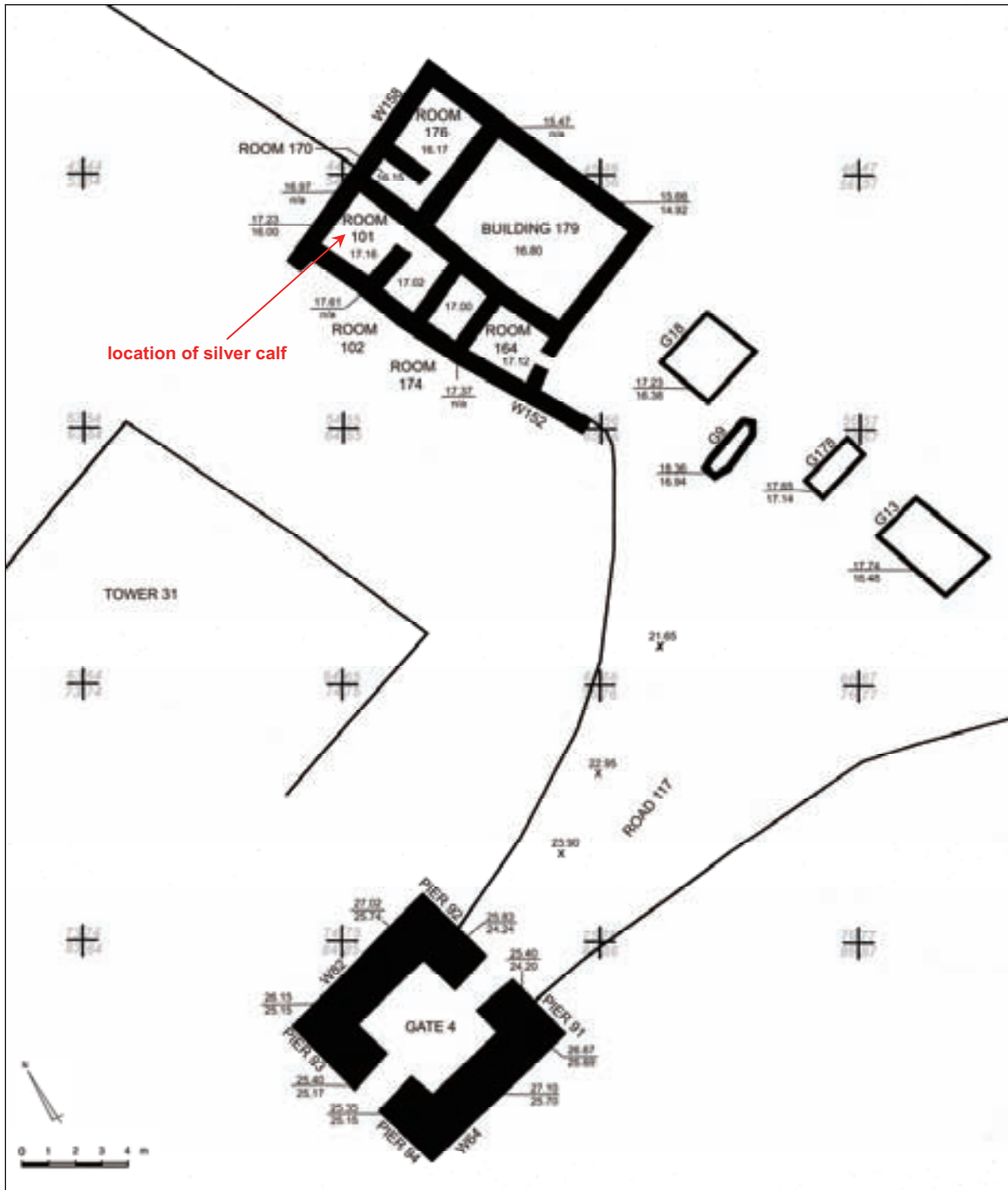
Figure 14.30: Block plan of Gate 4 and Building 179, the "calf sanctuary," in Grid 2 Phase 11

doorway cut into the side of the cylinder above the floor is just large enough for the calf to pass through. Scars on the jambs indicate where a separate pottery door had originally been fitted in place and "locked" by a horizontal bar of some sort, which was inserted through the hinges (now missing), when the shrine was closed.

The metal statuette of the calf was nearly complete when found: one horn was missing and the right fore-leg was detached from the rest of the body, but

otherwise it was intact (figure 32.3). The calf is 11 cm long and 10.5 cm high and weighs ca. 400 g. Its body is made of bronze, solid-cast except for the right foreleg and left hindleg. Tenons extending below the hooves were obviously used to mount the statuette on a small platform (now missing). The remaining details—horns, ears, and tail—were fashioned of pure copper. The surviving silver leaf, which once covered the entire animal, is 1.5 mm thick, including the corrosion. The original silver sheet was probably half that thickness. A maximum of eleven separate sheets of silver were used to cover the statuette. For more details about the silver calf, see chapter 32 below.

Final Rampart, Phases 10–9 (figure 14.31)

In the subsequent phases (10–9) of the North Slope, the footgate, corridor, and courtyard house of Phase 11 were all covered by layers of rampart fill. Phase 10 is dated by pottery of the MB IIC period, exemplified by three pieces of Tell el-Yehudiyeh ware, including a Biconical 2 juglet and a Biconical 3 juglet. Parallels to these are found at Tell el-Dabᶜa between Stratum E/2 and D/3–D/2. Cypriot imports include White Painted III–IV in both Cross-Line and Pendent-Line Styles, as well as White Painted V Ware, typical of the MC–LC transition. There is a continuation of wheelmade cooking pots with fine sand filler in the fabric and with rim rolled to the outside, as well as Egyptian Marl C3 clay *zirs* of type 5. The entire assemblage is well synchronized with Tell el-Dabᶜa Stratum D/3.

Phase 9 spans the period after MB IIC and before the rebuilding of the fortifications in Iron II. One of the rampart fill layers included some human skeletal remains, which were probably dumped in the corridor after the robbing of Phase 11's **Tomb 13**.

Philistine Fortifications, Phases 8–7 (figure 14.32)

Sometime in Iron II, but before the seventh century B.C., Ashkelon was once again refortified. It appears that the entire arc of fortifications enclosing the 60-ha city was renewed. This occurred during the period when Philistines occupied the site. On the North Slope, excavations revealed a new mantle of crushed sandstone, sand, and soil laid over the MB IIC glacis. **Wall 67**, ca. 2 m wide, made of mudbricks (each 0.21 × 0.35 × 0.10 m), crowned the crest of the slope and connected mudbrick **Tower 32** and **Tower 33**, which were erected some 20 m apart. The western **Tower 32** was built directly on **Glacis 4** and over a thick rampart fill (see figures 14.33 and 14.34). **Tower 33**, situated farther east, rested on **Tower 31** of Phase 9.

In order to excavate the west side of Gates 3 and 4, **Tower 33** was dismantled. Its mudbricks, like those of **Tower 32**, were 0.22 × 0.31 × 0.10 m. Under the bottom front course of **Tower 33**, a string of twenty equid teeth had been planted. No other parts of the skull or other bones were found in this context, which suggests that it was a foundation deposit of some kind.

Inside the curtain wall, three pits had been dug into the mudbricks of Gate 3. Pottery, amulets, and stone weights indicate the latest occupation behind the defenses was probably in the eighth or seventh century B.C. Some of the finds, including Phoenician Fine Ware, parallel those from the silos and pits of Grid 38 Phase 15. Most likely, the fortified ramparts of Ashkelon fell during the Babylonian attack in 604 B.C.

Precisely when the Philistines rebuilt the fortifications is more difficult to determine. Most of the pottery in the rampart fills dates to Iron I, with Philistine Bichrome Ware well represented. It seems likely that the Iron I city extended to the northern limits of the site. Otherwise, the rampart builders would have used nearby materials available from earlier eras to build a mantle along the North Slope. More pertinent for the date of the construction of the defense works is the latest pottery from the fills and in the mudbricks of the walls and the towers themselves. In these contexts, hand-burnished Red-Slip Ware is the latest pottery attested, which suggests the earlier part of the Iron II as the period of construction. Perhaps the fortifications were constructed with the advancing Assyrian empire in mind.

Persian-Period Building, Phase 6 (figure 14.35)

There is no evidence of the rebuilding of the rampart fortifications in the Persian period, although there is evidence of occupation on the North Slope. Remnants of the northern end of a Persian-period mudbrick **Building 76** were found on the inner slope of the free-standing MB II rampart. The southern two-thirds of **Building 76** was destroyed when the late Hellenistic stone defense works were built in Phase 5. The northern wall of **Building 76** was simply the MB IIC fortification **Wall 46** reused. Two rooms partitioned by **Walls 77**, **165**, and **163** were actually carved out of the matrix of **Wall 46**. Shaved-down portions of **Wall 46** served as the mudbrick floor of **Building 76**. Pottery from the structure indicates that the building was constructed and used in the fifth or fourth century B.C.
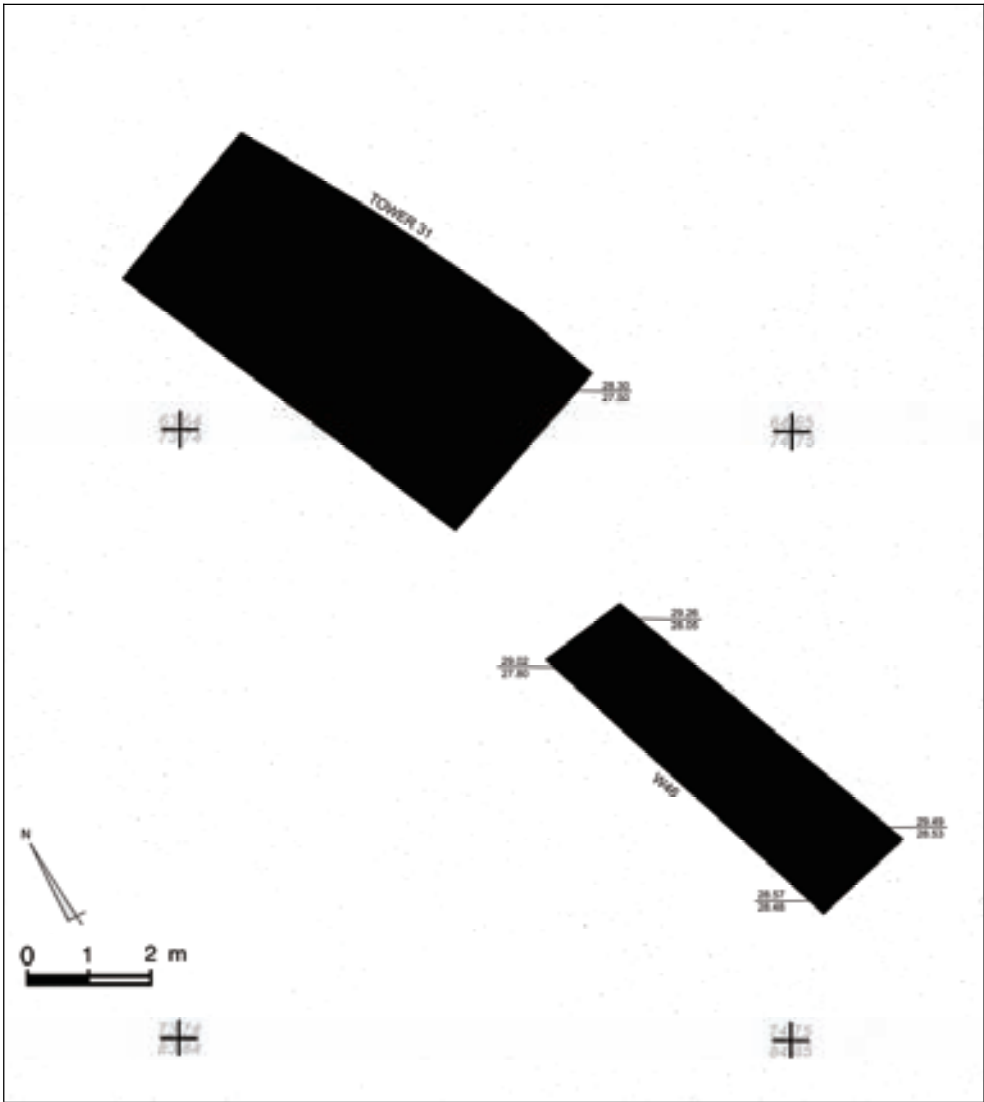
Figure 14.31: Block plan of the final rampart in Grid 2 Phases 10–9
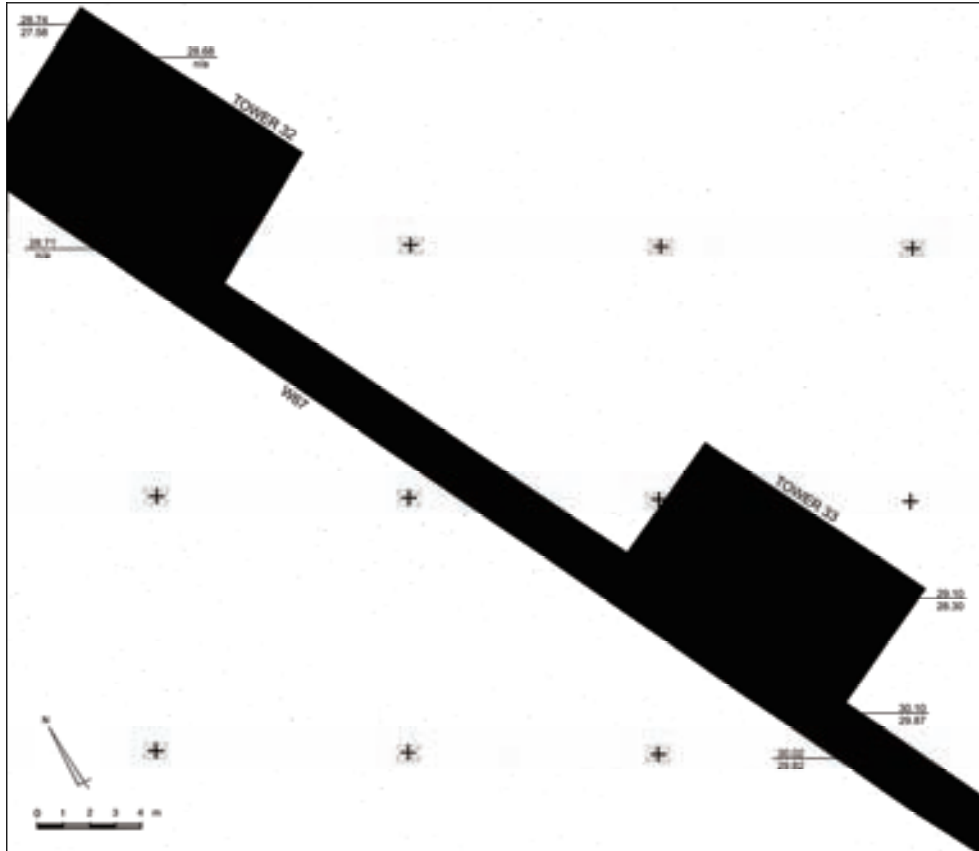
Figure 14.32: Block plan of the Philistine fortifications in Grid 2 Phases 8–7

Figure 14.33: Rampart glacis with Tower 31 (Grid 2 Phases 10–9) on left and Tower 32 (Phases 8–7) on right

*Figure 14.34:*East face of Tower 32, above glacis
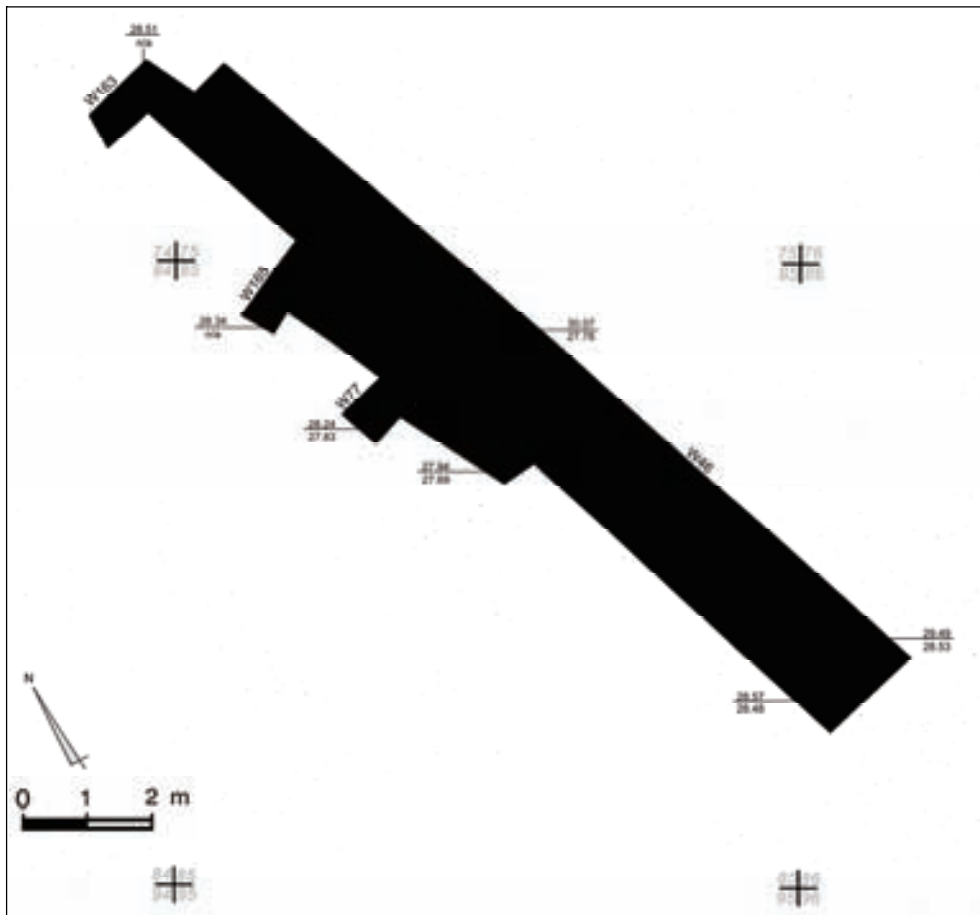
Figure 14.35: Block plan of the Persian-period building in Grid 2 Phase 6

Late Hellenistic Fortifications, Phase 5 (figure 14.36)

The fortifications of Ashkelon were not rebuilt after the 604 B.C. destruction until late in the 2nd century B.C., toward the end of the Hellenistic period. Along the inner slope of the MB II ramparts, a series of terraces were cut into the city gate and its scarp. The terraced slope was then backfilled with a thick layer of sand and pebbles (figure 14.37). The base of the slope was revetted with a mudbrick wall.

A casemate **Wall 2** and **Tower 23**, made of hewn sandstone blocks held in place with white plaster mortar, crowned the crest of the slope. The outer wall of the casemate survived; the inner wall was robbed out, indicated as **Robber Trench 69** (RT 69) in figure 14.36. The outer slope of the ramparts was not modified. The old Philistine fortifications were built over and their glacis was reused.

Roman-Period Pottery Kiln, Phase 4 (figure 14.38)

Pottery Kiln 4, ca. 2.5 m in diameter, was sunk deep into earlier rampart and street accumulations inside the line of the Hellenistic (Phase 5) defenses. The dome-shaped kiln was preserved to a subterranean height of more than 1.5 m, just above the springing line of the arches that supported the dome (figure 14.39). Wasters scattered inside and outside **Pottery Kiln 4** were exclusively of the so-called "Proto-Gazan" amphora type, a type that proliferated at Ashkelon in the 2nd–3rd century A.D. The most distinctive attribute of these amphoras is the stamped impression, high on the shoulder and just below the rim. The rectangular stamp impression consists of the monogram *alpha* and *beta*, with a palm tree or branch next to them.
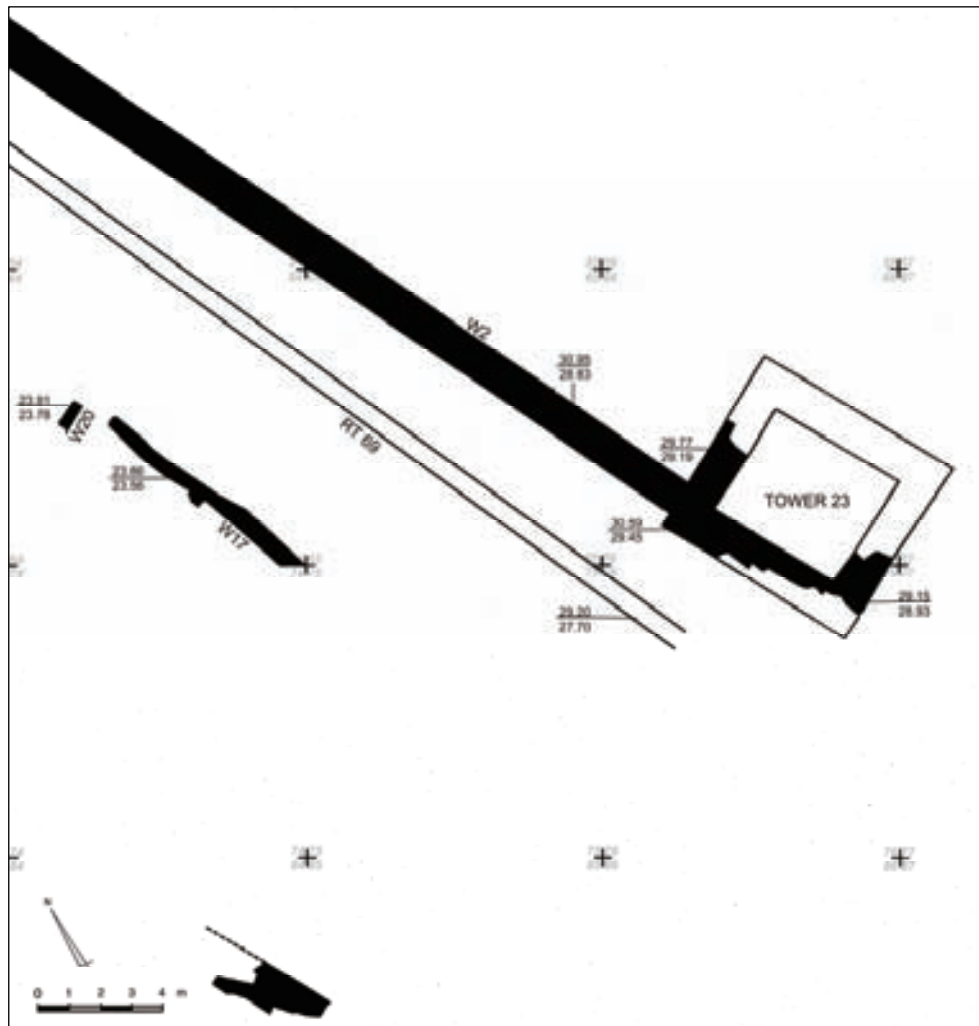
Figure 14.36: Block plan of the Late Hellenistic fortifications in Grid 2 Phase 5

Figure 14.37: Sand-and-pebble layer filling earlier terraces to build Hellenistic fortifications
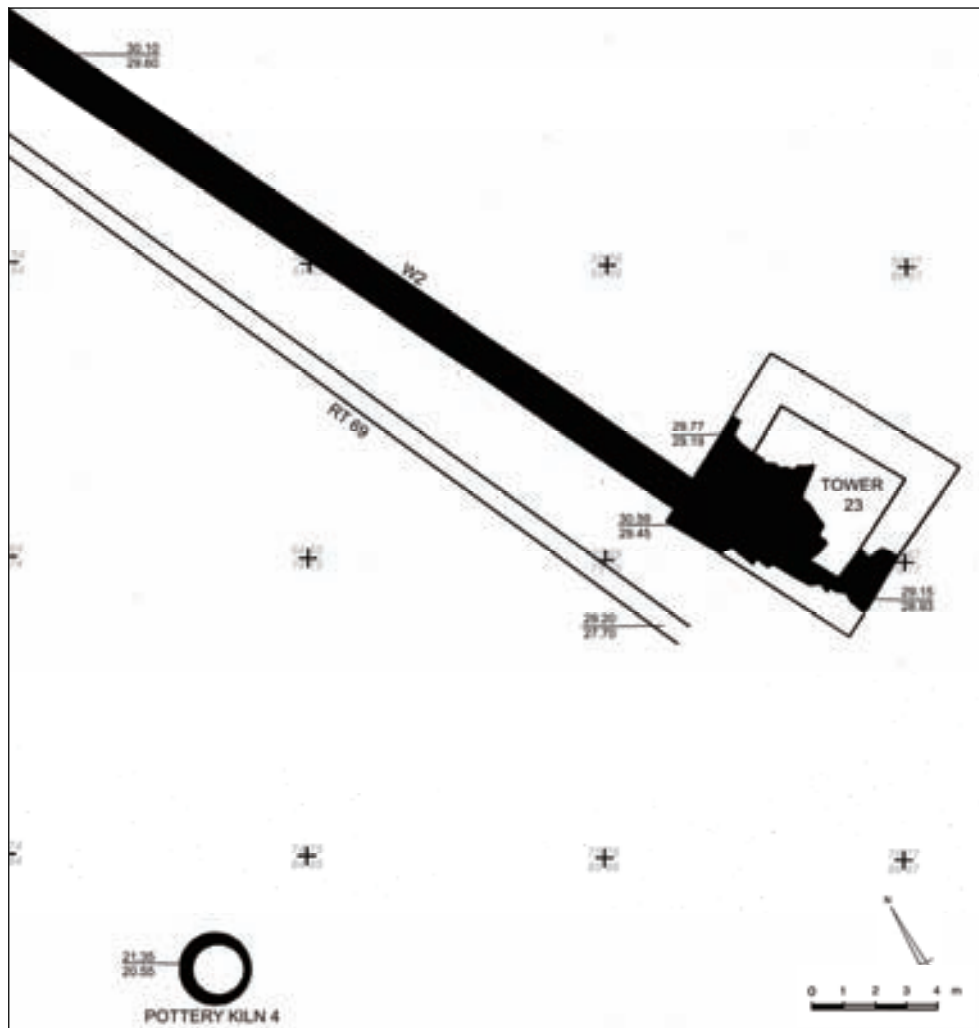
Figure 14.38: Block plan of the fortifications with Roman-period pottery kiln in Grid 2 Phase 4
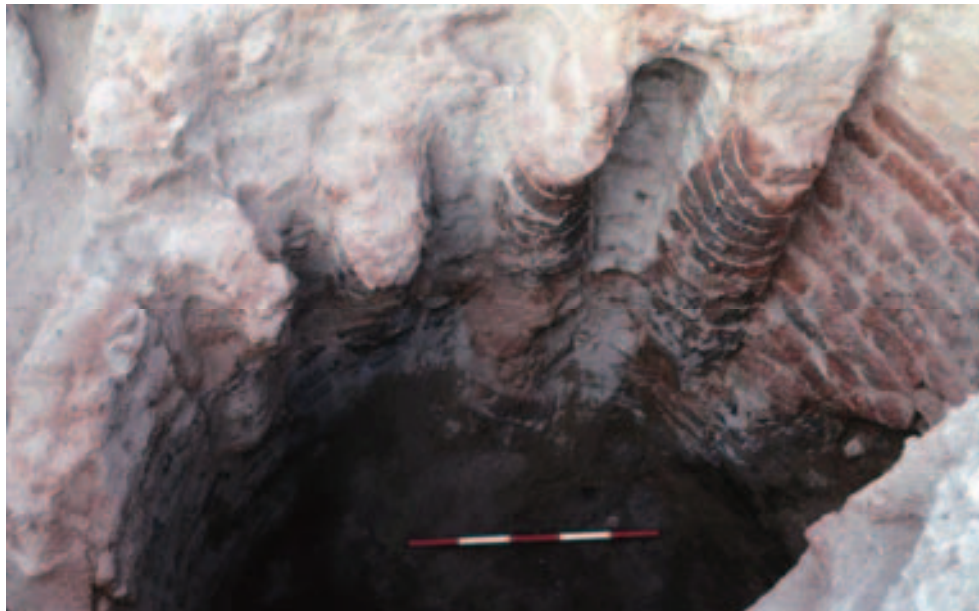
Figure 14.39: Roman-period pottery kiln in Grid 2 Phase 4
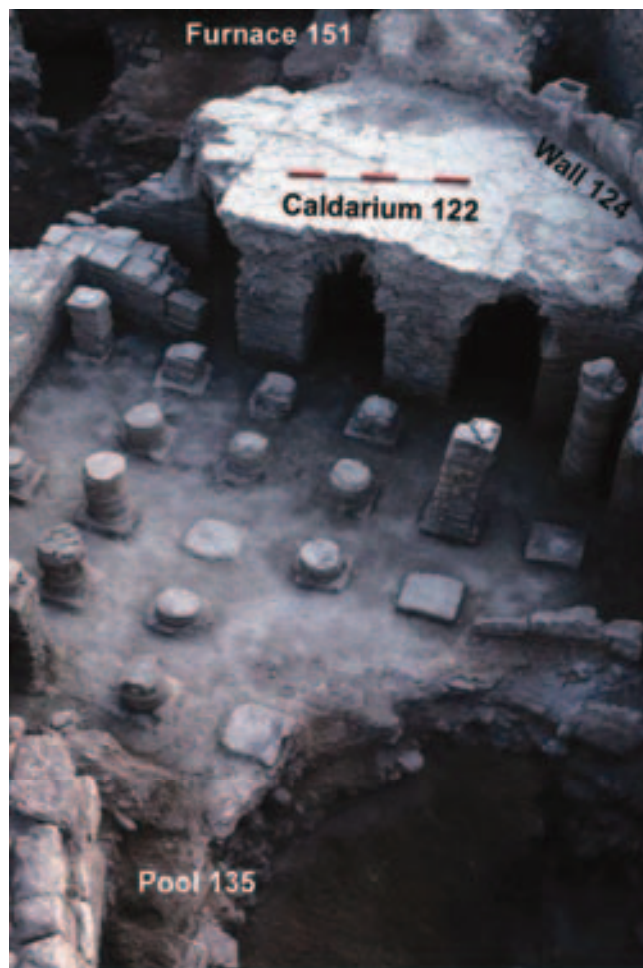
Figure 14.40: Late Roman bathhouse in Grid 1 Square 99
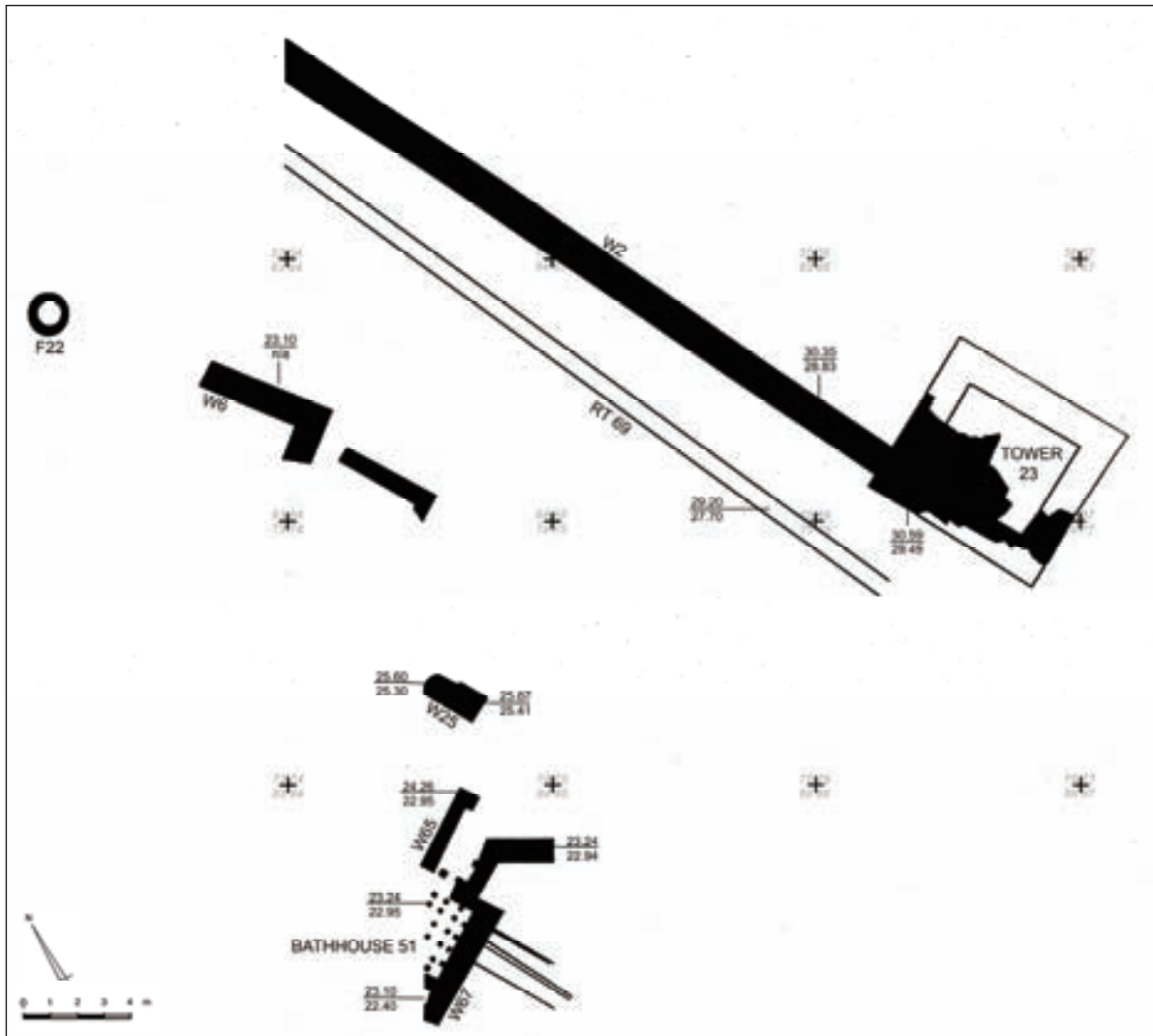
Figure 14.41: Block plan of late Roman/early Byzantine fortifications and bathhouse in Grid 2 Phase 3

Late Roman Bathhouses, Phase 3 (figure 14.41)

Part of a bathhouse was excavated in Grid 2, Square 84 (labeled Bathhouse 51 in figure 14.41). Farther west, in Grid 1, Square 99, some distance from the North Slope rampart, another well-preserved bathhouse was discovered (see the photograph in figure 14.40; it is not shown in the Phase 3 plan above in figure 14.41). The Grid 1 bathhouse was built in the late Roman period and seems to have gone out of use in the fourth century A.D. (early Byzantine; Period V). While many of the more valuable components, such as its marble floors, had been robbed in antiquity, the basic tile-and-mortar structure was intact.

To construct this bathhouse, the builders first cut a trench through the earlier Hellenistic fill layer and filled it with large *kurkar* stones, some of which were cut into blocks. Above this bedding, a second layer was laid that consisted of cobblestones and broken pieces of clay tile mixed with sand. In the south end of our excavation area, this second layer formed the bedding of a plastered floor that lipped up against a circular stone wall forming a chamber that we have interpreted as a pool (**Pool 135**).

The circular stone wall surrounding **Pool 135** was faced with smoothly cut stones backed with rubble; the wall canted outward and upward a few degrees off the vertical. As many as nine courses were preserved at various points in this wall and a sloping ramp of fieldstone rubble supported it from behind, at least in the southwest corner of our excavated area, where we were able to get behind the wall. The inner

face of the circular wall bore traces here and there of a plaster coating of a light green color.

The "hot" room or **Caldarium 122** lay north of **Pool 135**, to which it must have been connected by steps and a doorway of which no trace remains. What does remain is the flat, smooth floor of the hypocaust flue system and a number of stacks of yellow clay tiles (both round and square) that once supported a marble-tiled floor and permitted hot air to circulate beneath it. The hypocaust floor was made up of broken pieces of clay tile laid flat and rendered smooth with white plaster. The southern part of this floor had collapsed because it had been supported only by the stacks of tiles, which proved less stable than the three barrel vaults, built of the same yellow tiles, which lay to the north and supported an intact portion of the higher floor. On top of insulating material is a thick plaster or cement floor that still bears the imprint of large marble slabs (as large as 148×77 cm), which once covered it but were robbed out in antiquity. The pottery in the occupational debris layer above the floor was given a preliminary date in the fourth century A.D., when the bathhouse went out of use. The curvilinear design of the bathhouse may also point to a later date.

The semicircular **Wall 124**, which borders this room on the north, is only 0.30 m thick and is made of hard-packed clay and mortar, to which wall tiles were fastened with bronze revetment pins. Several of these pins were found scattered in the destruction debris and, in two cases, still embedded in the wall itself. Inside the wall was a series of vertical flues formed by baked clay "chimney pipes," of which one survives. These flues conducted hot air from the hypocaust system below the floor up into the wall to heat the room from the sides as well as the bottom.

At the north end of our excavation area, we found **Furnace 151**, which heated the hypocaust system. The outer wall of the furnace consisted of two rows of large ashlars preserved at least two courses high. Bonded onto the east side of this feature, inside the furnace, is a funnel-shaped channel made of clay tiles that formed the inner wall of the furnace and contained much black ash and evidence of burning. In the debris layer above it, we found broken bits of tile and chunks of clay, probably from the collapsed superstructure of the oven.

Medieval Fortifications, Phases 2 and 1 (figure 14.42)

The stone towers and sloping stone glacis of Ashkelon's medieval fortifications are still visible in many places, including the North Slope. The medieval stonework is built on top of the arc of earthworks erected around the city three millennia earlier during the Middle Bronze Age. The remnants visible today were constructed in the Fatimid period and later rebuilt by the Crusaders under Richard of Cornwall in A.D. 1240–1241 (see chapter 1 and the historical summary in chapter 22). In the twelfth century A.D., William, archbishop of Tyre, described the fortifications as follows:

> The whole is built of solid masonry, held together by cement which is harder than stone. The walls are wide, of goodly thickness and proportionate height. . . . There are four gates in the circuit of the wall, strongly defended by lofty and massive towers.
>
> [Translated in William of Tyre 1943, vol. 2, p. 219; see also Pringle 1984a]

The Leon Levy Expedition has done limited clearances of the medieval fortifications but has not excavated them extensively. They were better preserved in 1875, when Conder and Kitchener mapped them on as part of their "Survey of Western Palestine" (see figure 8.5 above). But an important discovery was made by the Leon Levy Expedition during a sounding in 1993 in Grid 3 (not shown in figure 14.42) that investigated a well-preserved segment of the stone-lined Fatimid glacis and moat situated below and to the north of the ruins of a large tower—perhaps a tower of the northern "Jaffa Gate"—which stood at the point where the city wall begins to curve to the southeast, ca. 300 m inland from the Mediterranean shore. Still visible on the surface on the crest of the slope are three massive segments of the tower walls, more than two meters thick, composed of stones bonded together with a cement-like mortar containing many seashells. The tower walls were strengthened with reused marble pillars embedded in the mortar, a technique often employed in monumental Muslim buildings (Sharon 1995, reprinted below in chapter 22). Similar reused pillars are visible also in the remnants of the sea wall in the cliff above the beach on the west side of the site. The dimensions of the tower are estimated to have been about 25×25 m. It would have loomed high above the city wall, overlooking the large moat (25 m wide and 9 m deep) to the north and with a view of the sea to the northwest.

In the sloping stone glacis below the tower was embedded a short Arabic inscription that leaves no doubt as to who originally constructed the glacis (see the discussion of this inscription by Moshe Sharon at the end of chapter 22). It was written in Fatimid imperial script and reads: "Dominion (possession) is Allah's." This inscription was engraved on a sandstone slab that was built into the glacis two courses above its bottom.

Even more interesting is a marble slab, found in the debris below the tower, which contains a 22-line Fatimid imperial inscription written in Arabic, over which heraldic Crusader emblems had later been engraved (see the detailed discussion of this inscription in Sharon 1995, reprinted in chapter 22 below). This inscription commemorates the building of a fortification tower in A.D. 1150—presumably the very tower below which the slab was found—by the local Fatimid governor of Ashkelon on the orders of the grand vizier in Cairo. The original inscription and its later reuse by Crusaders—most likely at the time of Richard of Cornwall's rebuilding of the city fortifications in A.D. 1240—vividly illustrate the history of Ashkelon and its fortifications in this period, when the city was bitterly contested by Muslim and Christian forces, leading to its eventual destruction and abandonment.
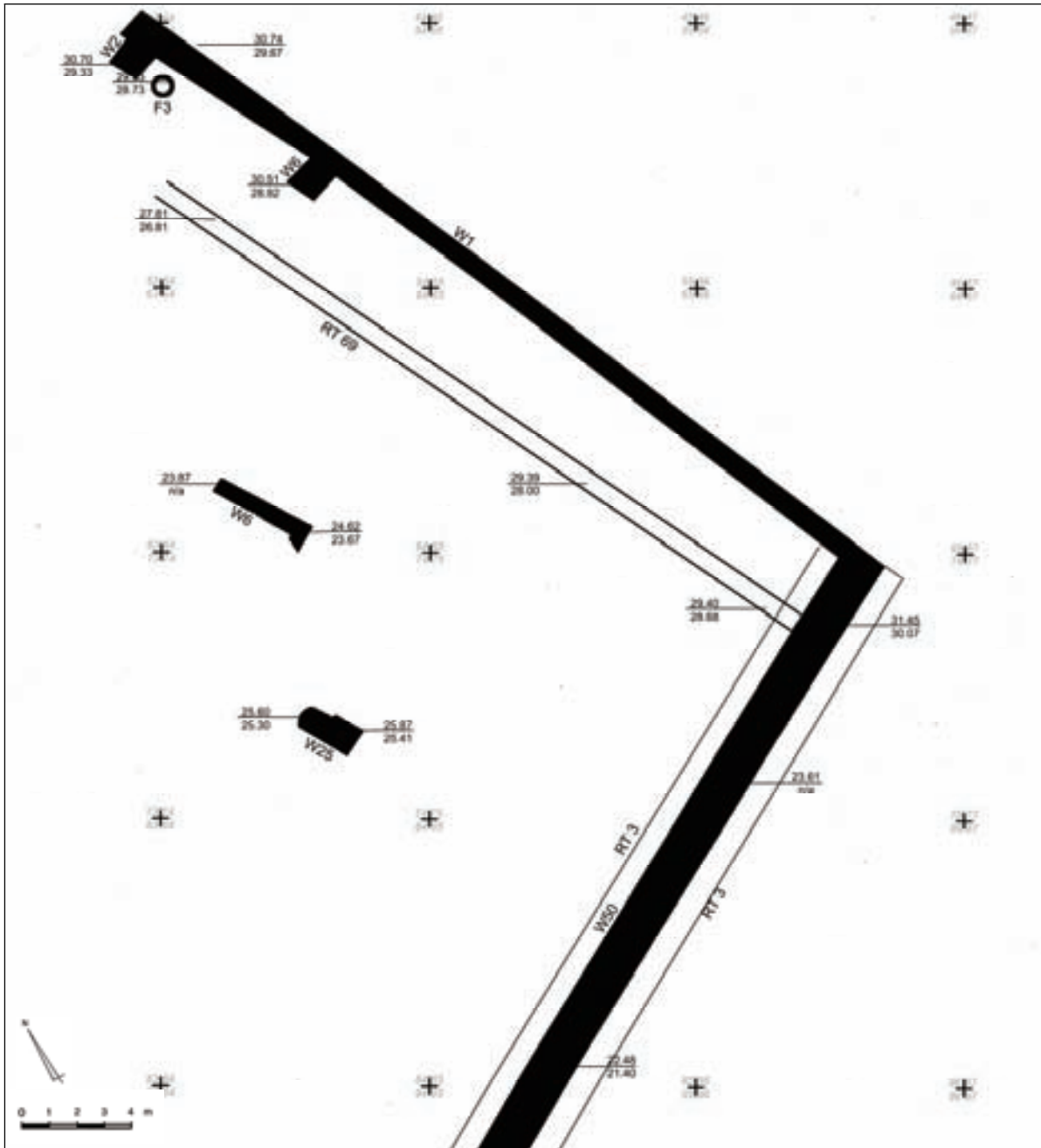
Figure 14.42: Block plan of medieval fortifications in Grid 2 Phase 2

15. THE SOUTH TELL

THE "South Tell" of Ashkelon is a six-hectare mound situated in the west-central portion of the site abutting the Mediterranean shore. The settlement as a whole was much larger, being defined by the arc of Middle Bronze Age ramparts that encloses a semicircular area of ca. 60 ha. But the South Tell was clearly a zone of special importance, in which occupational strata accumulated more rapidly, forming a distinct mound within the larger settlement. The Leon Levy Expedition has explored the South Tell by means of four excavation trenches in Grid 37, Grid 38, Grid 50, and Grid 57. In addition to these four main trenches, more limited soundings were made in other locations on the South Tell. The latter operations are not described here; material from them will be incorporated into subsequent volumes of the Leon Levy Expedition final report.

The Grid 37 Excavation Area

The Grid 37 trench was excavated for only a few seasons, so a coherent architectural plan is available only for the latest phases, which date to the Byzantine and Fatimid periods. The earlier phases in this area remain largely unexcavated; however, some earlier material was discovered in small probes dug in the bottom of the trench. This material is summarized below (no phase numbers are assigned to the scanty pre-Byzantine remains).

Pre-Byzantine Remains

The earliest period of occupation found in the Grid 37 excavation area dates to the Iron Age I to early Iron Age II. It is represented by an in-ground installation consisting of three reused storage vessels superimposed so as to form a pottery-lined pit. The ground surface in this area at this time consisted of dune sand, which had accumulated on top of a basal silt-clay stratum. The basal stratum, as well as the dune sand, was culturally sterile.

It appears that the area was abandoned at some point in the Iron II and was covered by accumulated colluvial sediments. Colluvial accumulation appears to have followed a brief period of non-colluvial deposition characterized by relatively dense clustering of well-preserved faunal remains (including partial skeletal articulations), ceramic debris (large-sized sherds), copper and ivory fragments, and mudbrick pieces, which directly overlay the pottery-lined installation. Approximately 1.65–1.70 m of colluvial sediment accumulated thereafter.

The next subsequent structure found in our Grid 37 trench is a large building that dates to the late Byzantine period. It is likely that the area did not remain abandoned from the Iron Age to the Byzantine period. The builders of the Byzantine structure presumably removed earlier structures in preparation for their building. This is indicated by the presence of pottery from the Hellenistic and Roman periods, which was found in fill layers below the Byzantine building.

Phase 2

Phase 2 consists of the large Byzantine-period building and its associated mosaic floors. The existence of earlier structures in the area is suggested by the fact that the southern face of **Wall 8** and the western face of **Wall 6** were unfinished, implying that these walls had been built against preexisting features. This would account for the absence of a foundation trench and the fact that debris layers containing material from the second and third centuries A.D. rise to a great height in the area south of **Wall 8** and west of **Wall 6**. The finished Byzantine structure rested in a terrace cut into the slope of the tell.

It is difficult to determine when the Byzantine building went out of use. It is possible that it continued in use during the early Islamic period. In any case, its mosaic floor was covered by ca. 0.80 m of fill material prior to the construction of new floors and walls in the Fatimid period. The builders of the Fatimid features reused portions of the Byzantine walls and made them the basis for their architectural plan.

Phase 1 (figure 15.1)

During the Fatimid period, the walls of the Byzantine building were reused to create three descending terraces in which were various rooms. The floor surfaces were covered either with plaster or with flagstones. An extensive drainage system spanned the Grid 37 area. The reused Byzantine walls served as retaining walls to the west and south.
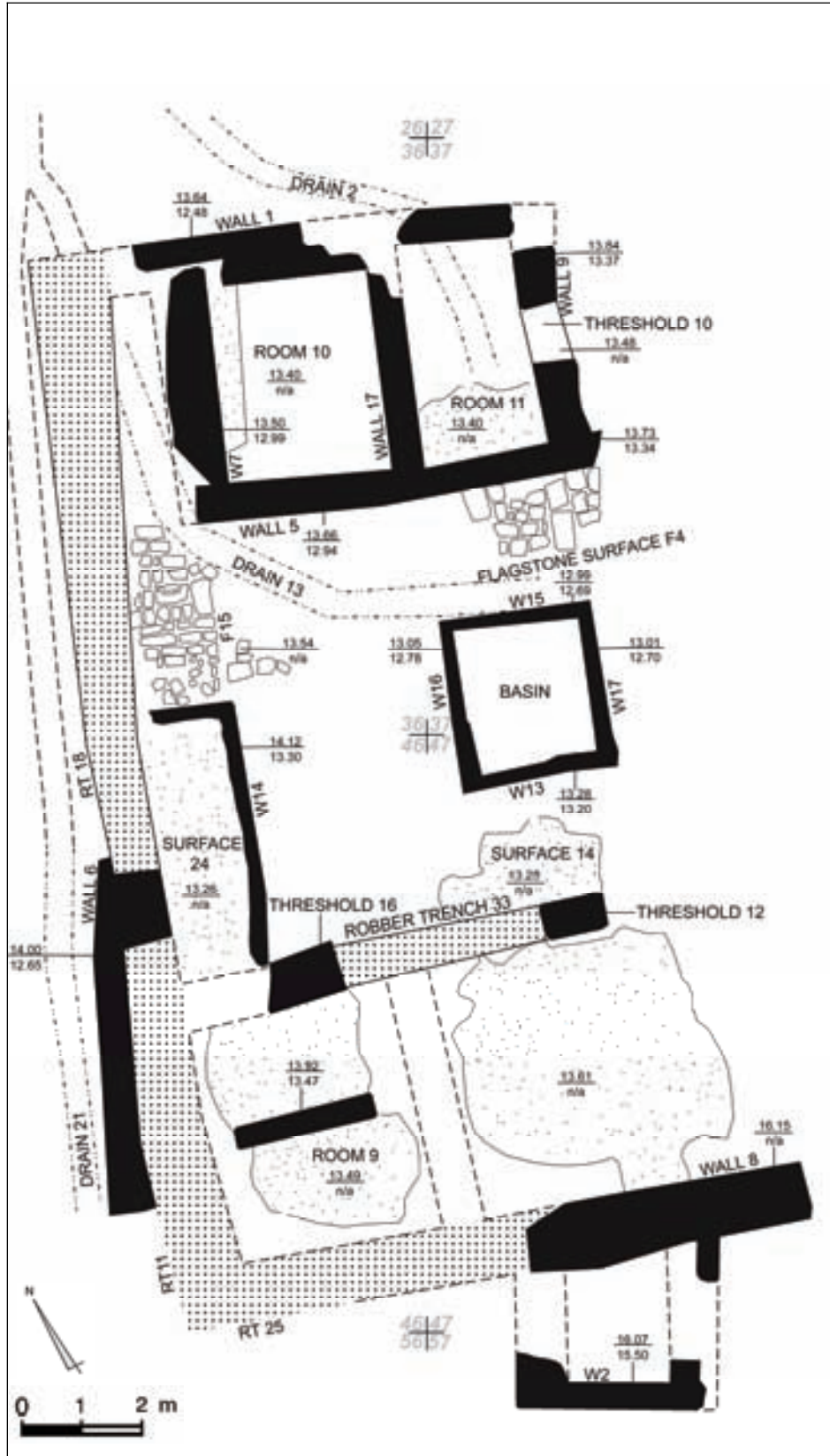
Figure 15.1: Block plan of Fatimid-period architecture in Grid 37 Phase 1

In some places, seven courses of *kurkar* sandstone ashlars, bonded with thick white mortar, remained standing. The eastern wall of the earlier Byzantine building was not excavated—it probably lies to the east of the excavation area. The northern closing wall was dismantled in the Fatimid period and covered by a two-roomed building.

This two-roomed building was destroyed by fire. Above the plaster floor was a destruction layer that contained abundant remnants of carbonized wooden planks, numerous iron nails and fittings, and a decorated marble mortar. This debris may include the remains of wooden structural elements that comprised the superstructure of the building. The absence of thermally-altered soil within the rooms of the building suggests that the fire weakened the superstructure without causing its immediate collapse.

The western room, **Room 10**, exhibited less evidence of burning than the eastern room, **Room 11**. But both rooms contained a number of restorable vessels of glazed Islamic pottery. Some sherds discovered in **Room 10** could be joined to those in the **Room 11**, which supports the idea that the destruction debris contains material from a collapsed upper story.

To the south of the two-room building, on the lowest terrace, sat a small plastered chamber. Although its floor had been robbed out, there are indications that it was originally coated with plaster. The interior wall faces retained traces of a plaster coating; two of the walls exhibited coloration with a red pigment.

It is likely that this red-walled compartment served as a small pool or water basin. The area surrounding the pool was probably plastered originally and later improved by the addition of flagstone paving, which is in evidence to the north and west of the pool. It is likely that the flagstones extended from the eastern face of the reused Byzantine wall across the open area toward the southern wall of the basin's terrace, which was later robbed (**Robber Trench 33**).

An intact wall structure consisting of sandstone ashlars bonded with gray mortar was found below the backfill in **Robber Trench 33**. This wall probably intersected the robbed wall perpendicularly on the south. **Threshold 12** consisted of finely cut sandstone ashlars that sprang upward from the intact wall structure and were capped by smooth limestone slabs. The threshold or step would have furnished access to the plastered basin on the adjacent terrace.

The uppermost terrace, located in the southern end of the trench, had a floor made of marble and limestone slabs. Some of the paving stones were in secondary use. Among the reused slabs was an inscribed marble fragment, found face down, that bears what appear to be Jewish personal names written in Latinate Greek characters. The character of the script suggests that the slab had originally been inscribed in the Byzantine period. Its original context is not known.

Three principal drainage features were discovered in this phase. **Drain 13** was capped with sandstone ashlars laid as headers. They descended southeastward from a narrow intake aperture located at the level of the flagstone **Surface 15**. A second drain was located some distance to the north beyond the two-room building. This drain had the same orientation as the central drain, but its sandstone capping had been removed. It continued through the northern wall of **Room 11** and extended under its floor as a capped channel similar to **Drain 13**.

The most impressive drain is **Drain 21**, which is a long channel (ca. 19 m) oriented north-south and capped with a combination of straight-sided sandstone ashlars, marble column segments, and other architectural fragments in secondary use. Among the blocks covering this drain were arched ashlars that had been carefully ground and trimmed to function as capstones for the drain. For a distance of ca. 9.5 m along its southern extremity, the eastern wall of **Drain 21** was formed by or directly abutted a reused Byzantine wall.

Although **Robber Trench 18** cut through **Drain 13**, enough of this drain remained to reveal its perpendicular (east-west) connection with the eastern side of **Drain 21**. The united drains then exited through an aperture located northwest of the two-room building.

Based on the material excavated from the debris that filled the drainage channels, the drainage system fell out of use sometime during the twelfth century. It is likely that all of the Phase 1 structures went out of use at the end the twelfth century A.D., during the Third Crusade, when Ashkelon was conquered by Crusader forces under Richard the Lionheart. Over the course of the next fifty years, these structures and their precursors were subjected to systematic demolition and quarrying, presumably to provide stone for rebuilding the city walls. Following the partial destruction of the upper level of **Wall 8** and the robbing of its lower level, there was no longer anything to hold back the earlier debris layers that contained material dating to the second and third centuries A.D., so this material spilled over onto the Fatimid-period floors. Finally, much of the area was deliberately backfilled, after which there was a gradual accumulation of natural colluvial deposits.
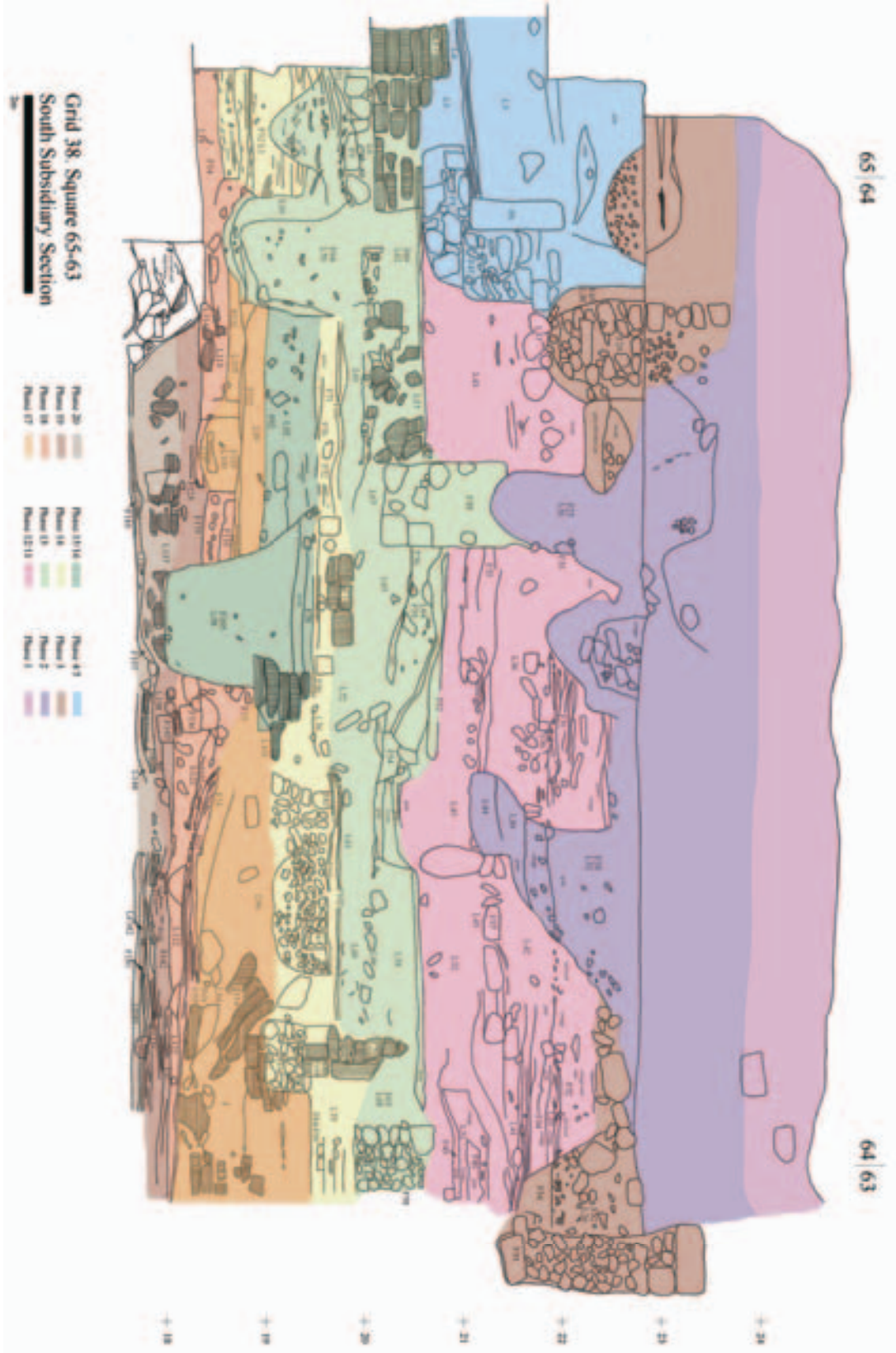
Figure 15.2: Grid 38 (Lower), south section

Scale on right side of drawing (at bottom of page) indicates meters above mean sea level.

The Grid 38 Excavation Area

T HE excavation trench in Grid 38 spans the north-ern slope of the South Tell (see the topographical map of the site in figure 1.4). For this reason, it was excavated in two operations: Grid 38 "Upper," at the south end of the trench on top of the South Tell mound, and Grid 38 "Lower," at the north end of the trench, extending down the slope to the base of the mound. The Grid 38 trench as a whole measures ca. 15–25 m (east-west) × 40 m (north-south).

GRID 38 LOWER

The operation in Grid 38 Lower was a step-trench intended to determine the sequence of occupation in the area by cutting into the northern slope of the South Tell (figure 15.3). This was where W. J. Phythian-Adams had made a sounding in the 1920s and discovered Bronze and Iron Age material (see Phythian-Adams 1921b and his section drawing, reproduced in figure 9.6 above; compare the section drawings in figures 15.2 and 15.4).

The step-trench provided a preview of the Middle Bronze, Late Bronze, and Iron I phases long before they were reached in the contiguous excavation area farther south, and higher up, in Grid 38 Upper, where excavation began from the crest of the South Tell and progressed downward through medieval, Byzantine, Roman, Hellenistic, and Persian levels before reaching the Iron Age (figure 15.5).

Unfortunately, the picture created by the step-trench is somewhat distorted because of large-scale digging activities in the Hellenistic and Roman periods, which removed large quantities of earlier material. This created a situation in which, in some cases, Byzantine remains lie directly on top of Middle Bronze remains, all of the intervening layers having been removed in antiquity.

At the bottom of the step-trench, a large sand dune marks a substantial break in the occupation of the area. While the dune itself is free of occupational material, the scattered Early Bronze Age sherds that regularly appear in the fills of this area lead us to believe that an Early Bronze Age settlement lies beneath this dune. In a layer above the sand dune, jar burials dating to the Middle Bronze Age were found. No substantial architecture was preserved in this limited excavation area in Grid 38 Lower, which was largely occupied by an open courtyard throughout the MB and LB. Most of the excavated material dates to the LB because the MB phases were only partially excavated.

Remains of walls were discovered on the edge of the courtyard, but these were rarely substantial. In LB I, at least, it appears that this area contained the southern ends of two rooms. But the MB–LB occupation is mainly indicated by courtyard deposits and associated features, including ovens ("tabuns"), hearths, silos, fire-pits, and plastered basins. Bone and ivory blanks, worked bone, and bone tools found throughout the area attest to a local bone carving industry. Cut into one of the LB I courtyard layers were two mudbrick cist tombs (see the plan and discussion of these tombs in chapter 27 below).

The area excavated in Grid 38 Lower thus appears to have been domestic in nature. In particular, the silos and installations, splays of ash, and the presence of grinding stones all suggest that grain was stored and processed in the courtyard. The courtyard presumably belonged to a house, only the southern (and poorly preserved) edge of which was found.

The series of courtyard surfaces provide a well-stratified sequence of pottery, with Cypriot imports (especially Base Ring II, White Slip II, and Monochrome) alongside locally produced LB II bichrome pottery in the later levels. Above the LB II level, additional courtyard layers contained Philistine Monochrome pottery (locally made Mycenaean IIIC), indicating that this area continued to function as a domestic courtyard after the Philistine incursion in Iron Age I.

Figure 15.3: Step-trench on the north side of Grid 38 Lower, in 1985 (view to the south)
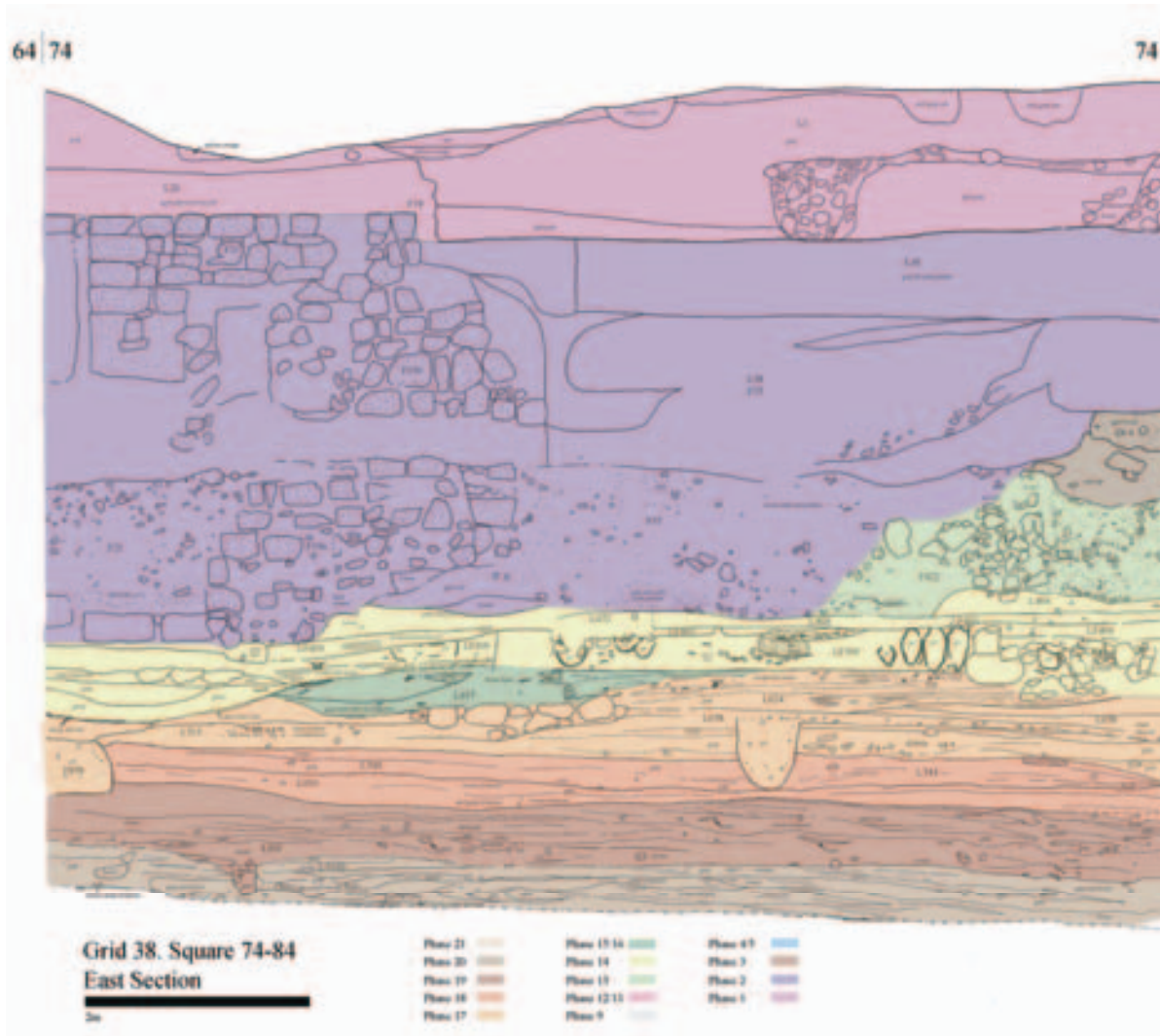
Figure 15.4a: Grid 38 (Upper), east section
(continued on facing page)
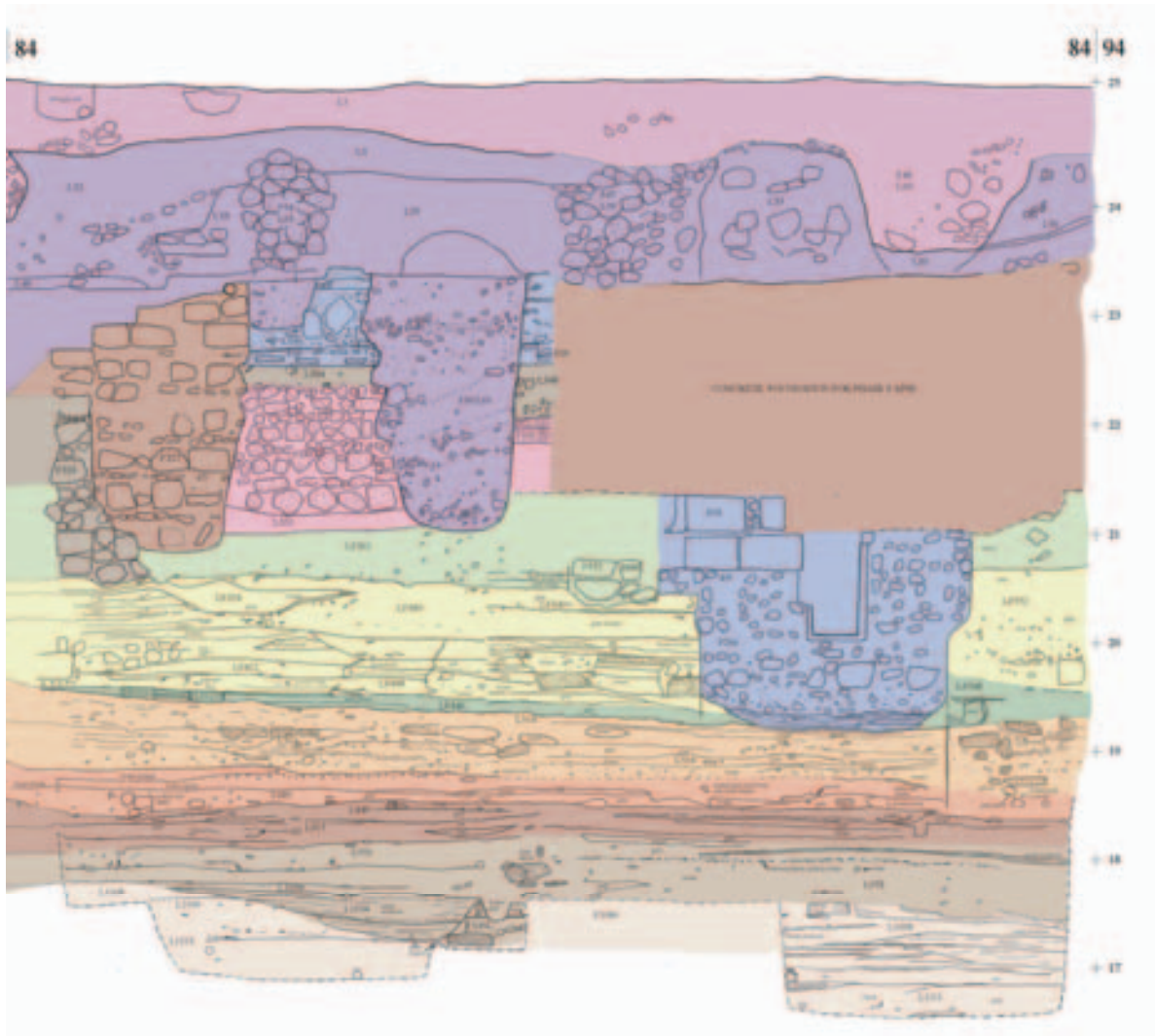
Figure 15.4b: Grid 38 (Upper), east section (continued from facing page)
Scale on right indicates meters above mean sea level.

Figure 15.5: Grid 38 at the end of the 1985 season, with step-trench on the north side of excavation area
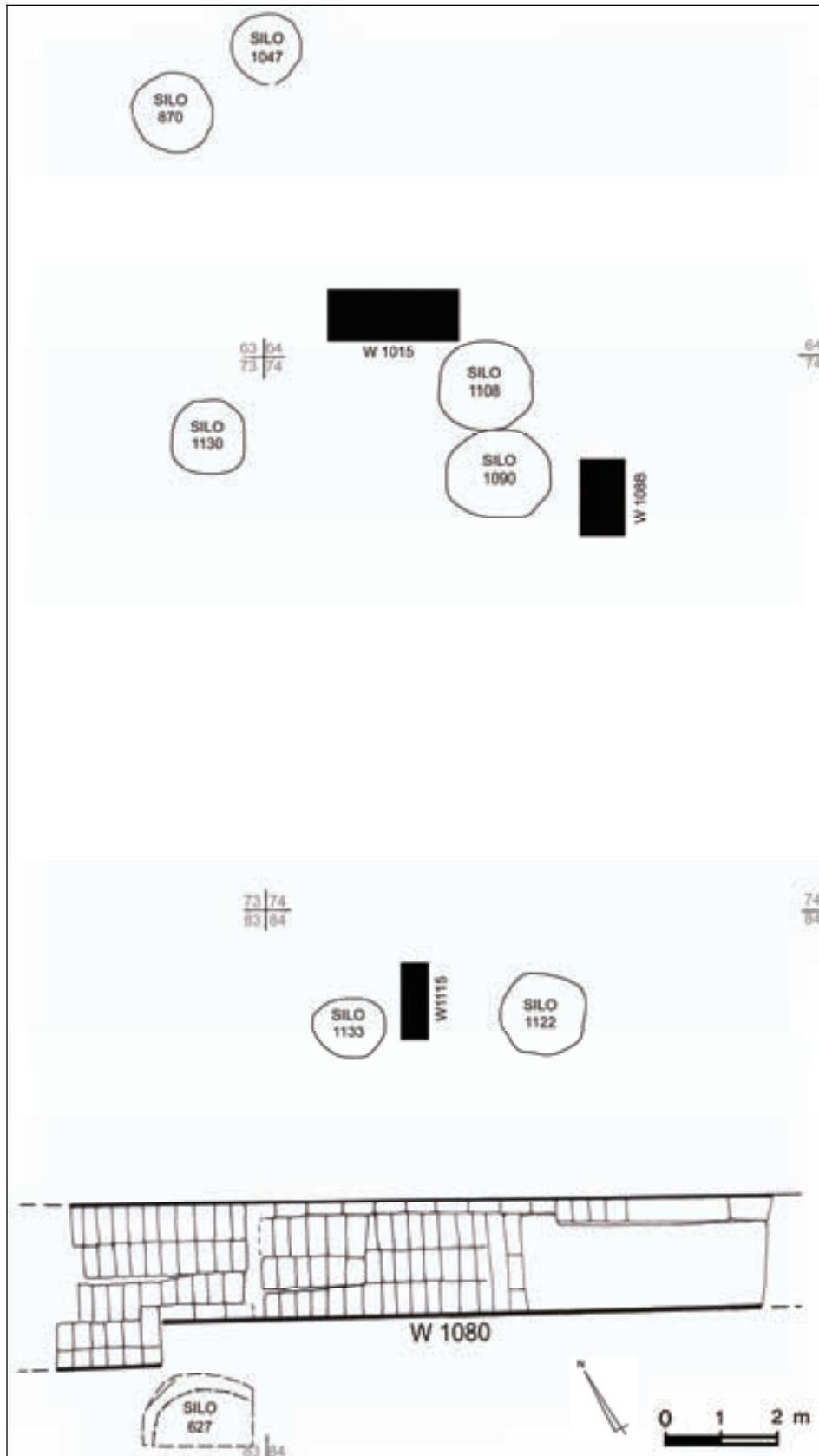
Figure 15.6: Block plan of Late Bronze Age architecture in Grid 38 Phase 21

GRID 38 UPPER

Over seventeen seasons of excavation (1985–2000 and 2004), a long series of stratigraphic phases was unearthed in the southern (upper) end of the Grid 38 trench. These are presented here in chronological order, from earliest to latest. Note that the oldest and deepest phases in Grid 38 Upper are contiguous with layers excavated some years earlier in Grid 38 Lower, in the northern end of the trench. In cases where there is direct stratigraphic continuity between Grid 38 Upper and Lower, the results of both operations are presented below in a unified fashion, phase by phase.

Phase 21 (figure 15.6)

The last phase of the Late Bronze Age in Grid 38 was dominated by the presence of a large building, probably an Egyptian fortress. The remains of this fortress consisted of a single mudbrick wall, **Wall 1080**, which was excavated for an extent of 15 m, from balk to balk (figure 15.7). Unlike the typical wall foundations used in earlier and later periods in this area, Wall 1080 was founded not on stone but on a layer of sand (figure 15.8). It was preserved to a height of three courses, with alternating courses of headers and stretchers. The building probably consisted originally of two stories and stood several meters high. The individual mudbricks are 0.54 m long (one Egyptian royal cubit), and the total width of the wall is 2.10 m (four Egyptian cubits). A small buttress along the west end suggests that the fortress continued to the north.

No occupational surfaces associated with this wall were found. The likeliest explanation is that this area was abandoned before the fortress was completed. Some mudbrick detritus was found, suggesting a period of abandonment; but the amount of detritus is not sufficient to account for a building as massive as this fortress, if it had been completed and used.

To the north of **Wall 1080**, a series of fills, walls, and surfaces were probably contemporary with the fortress. This area was cut by a later Phase 20 gully, however, severing the stratigraphic connections. In most of this area there were only scanty remains of occupation. The earliest consist of a sloping plastered surface, with possible remains of a vat for a pressing installation; however, this feature was uncovered only at the end of the last season of excavation and it is poorly understood. Above this, a coherent plan for one room (**Room 1105**) was identified, although its function has not been determined. The grain silos to the north were also probably in use in this phase.

Only one tiny Philistine Monochrome sherd was found in the excavation of this phase; it could be intrusive because it was in the sift of a fine grid immediately below later Phase 20 walls. The majority of the ceramic assemblage consisted of LB Canaanite forms; however, there was also a significant percentage (up to 30%) of Egyptian pottery (figure 15.9). The Egyptian pottery included some imports, particularly amphoras, but mostly consisted of Egyptian-style pottery that was made locally. (For a discussion of these Egyptian and Egyptianized pottery forms, see Martin 2004; 2005. Mario Martin's statistical analysis of the Egyptian pottery in this phase will soon appear in the Stager Festschrift edited by David Schloen.)

The Egyptian nature of the pottery is evident not only in the forms but also in the techniques, particularly in the use of large amounts of straw as temper. Most of the Egyptian-style vessels are bowls, but the assemblage includes a number of beer jars with perforated bases. Morphologically, the beer jars belong to the end of the Nineteenth Dynasty or the Twentieth Dynasty; that is, to the early twelfth century B.C.

An ostracon with an Egyptian hieratic inscription was found in the Phase 19 courtyard (discussed below), but it is probably residual, having originated in Phase 21. According to S. J. Wimmer (forthcoming), the likeliest reading is "H[e said: The]re is/was no seer/prophet."

In light of the Egyptian characteristics of the mudbrick wall and the Egyptian forms and techniques evident in much of the pottery, it is likely that there were Egyptians present at Ashkelon in this phase. The best interpretation of Phase 21, therefore, is that it reflects the establishment of an Egyptian garrison—presumably established by Pharaoh Merenptah after his conquest of Ashkelon in ca. 1207 B.C. (see Stager 1985c). The garrison was evidently short-lived because the fortress was apparently not even completed before it was abandoned. (For a more detailed discussion of the historical implications of this fortress, see Master 2005:339–40 and the forthcoming article "Ashkelon" by Lawrence Stager in a supplementary volume of *The New Encyclopedia of Archaeological Excavations in the Holy Land* edited by Ephraim Stern.) After a brief gap in settlement, the character of the occupation in Grid 38 changed markedly, as shown by the remains found in Phase 20.

Figure 15.7: Egyptian Wall 1080
in Grid 38 Phase 21

Figure 15.8: Section of Wall 1080; sand foundation
is visible, along with mudbrick decay
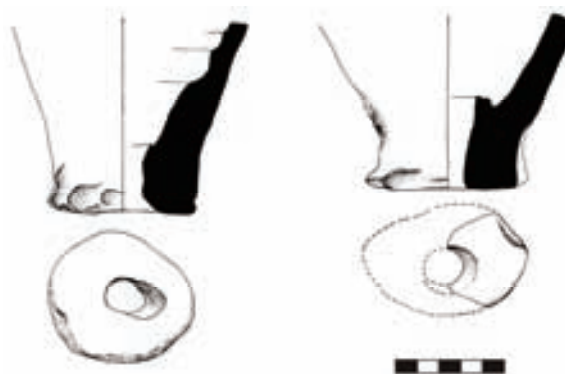
Figure 15.9: Egyptian pottery found in association
with Wall 1080 in Grid 38 Phase 21

Phase 20 (figure 15.10)

The nature of the transition from LB to Iron I in Grid 38 is unclear due to the incomplete excavation of these phases. The only clear conclusion that can be drawn is that there is no evidence of destruction. Mudbrick detritus from the Egyptian wall (**Wall 1080**) points to a period of abandonment, with the Phase 20 architecture built directly on top of or reusing the Phase 21 wall.

The Phase 20 settlement was of an entirely different character from the preceding LB phases, both in architecture and small finds. In place of the Canaanite open area and the Egyptian fortress, Phase 20 is characterized by a series of domestic rooms arranged around a courtyard. The material culture of this phase includes, for the first time, several locally made items that imitate Aegean or Cypriot artifacts. As opposed to the imported Mycenaean pottery of LB Ashkelon, locally made Aegean-style pottery—both fine ware

(Mycenaean IIIC or Philistine Monochrome; figure 15.12) and cooking ware (such as Aegean one-handled cooking jugs; figure 15.13)—now forms a significant part of the assemblage alongside Levantine wares (comparable to Lachish VI and Gezer XIV). Furthermore, the amount of Egyptian pottery in this phase declines sharply from Phase 21 (less than 5%, according to M. Martin) and is probably residual. Pig consumption rises from 5% of the faunal assemblage in the LB to 20% in this and the subsequent Iron I phases. This, together with a small but significant consumption of dogs, indicates new foodways with Aegean affinities. Beginning in this phase, clay loom weights in the form of unpierced cylindrical spool weights predominate, instead of the pierced pyramidal loom weights typical of the Levant (figure 15.14).

Among the most significant finds are four jar handles inscribed with signs that appear to be Cypro-Minoan, the script in use in Late Bronze Age Cyprus

and ultimately derived from the Linear A script of Minoan Crete (see Cross and Stager 2006).[37] One of these handles was made locally, suggesting that the inhabitants of Ashkelon were writing in this script in the early twelfth century. Most of the other Iron I jars with these signs found at Ashkelon were imported from the southern Lebanese coast, indicating ongoing trade with Phoenicia in the twelfth and eleventh centuries.

The northern architectural complex provides the best stratigraphic and architectural sequence in Phase 20. A series of floors with Philistine Monochrome pottery sealed the Phase 21 open area and silos. These floors were sealed in turn by Phase 19 floors with both Philistine Monochrome and Philistine Bichrome pottery.

The focal point of this building was a large east-west wall, **Wall 985**. At least two major subphases can be distinguished: in the first, the silos north of the wall were filled in and sealed by a thick plaster floor containing a scarab of Ramesses III (identified by Baruch Brandl; figure 15.15). A large stone pillar base, 0.75 m in diameter, marked the east end of this sizable room. On the basis of the scarab and the pottery, the establishment of Philistine Ashkelon can be securely dated to the early twelfth century, probably the second quarter of the century (Master 2005:337).

In the second subphase, a series of walls were built off of the main east-west wall, both to the north and south, forming a suite of rooms. The rooms to the north of the wall have a longer series of floors and occupational debris associated with them than those to the south, suggesting that the walls to the north were built first. **Room 1021** has the most detailed occupational sequence in this phase: a series of three floors and associated occupational debris. The room appears to have functioned primarily as a weaving room because a group of 71 spool weights lay on the lowest floor in this sequence and on a later floor was a pile of 52 spool weights along with bone spindle whorls (figure 15.16). Fire installations and grinding stones indicate other types of activity as well. Immediately to the north is another room (only partially excavated) that has a pillar base, from the first subphase, now in the center.

Most of the space of **Room 859** was taken up by a large mudbrick bin, whose function is unclear because it was not well preserved. In this room and its vicinity, in both subphases, there were several carved ivories comparable to those from Lachish VI and Megiddo VIIA. These include an ivory duck's head from a cosmetic box (figure 15.17); an ivory in the shape of an opium poppy bulb, originally part of a small scepter (figure 15.18); an ivory comb (figure 15.19); and an ivory fragment with the sacred tree (palmette) motif.

To the south of **Wall 985**, the rooms appear to have been partially enclosed. A series of ovens indicate cooking activity in this area.

The buildings to the west and south of the courtyard did not reveal such a sequence of substantial architectural changes. It appears that the Phase 21 Egyptian wall was still standing in Phase 20, perhaps serving as a walkway between the buildings in the south; a small stone revetment along its north face was probably built in this phase. South of the Egyptian wall, there was very little architecture preserved at all. Only **Room 1065** was identified in this area. It contained a small sunken jar, foreshadowing later sunken jar installations, but different in that it was placed top down into the ground and its base had been removed (figure 15.20).

A series of rooms was discovered north of the Egyptian wall, on the western side of the courtyard, but these were also poorly preserved. In the main room there were almost no extant floors; the only feature of note was a large bench and a partially preserved cobbled surface.

The courtyard consisted of an ashy outdoor deposit full of bone and pottery. The pottery assemblage was notable for the consistent presence of Philistine Monochrome pottery (figure 15.21). Two jar handles inscribed with Cypro-Minoan signs (Cross and Stager 2006: nos. 5 and 15) were found in the courtyard buildup, one of which was locally made. Also among the finds was an unusual fragment of a plaque figurine, with raised emblems on its body including a caprid, parallel to thirteenth-century figurines found at Aphek and Kibbutz Revadim.

Within the earliest deposits in the courtyard was the skull of a donkey set amidst the stones of a cairn, the earliest of several equid burials in the Iron I courtyard. Otherwise, the courtyard buildup contained several walls and platforms that did not form part of any coherent architectural plan. At the end of Phase 20, erosional activity on the northern side of **Wall 1080**, in the form of a gully filled with water-laid striations of sand, indicates that the area lay open for a time.

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[37] Six handles inscribed with Cypro-Minoan signs were found in LB and Iron I contexts at Ashkelon: in the Grid 50 necropolis (Phase 11), the Grid 50 Phase 10 settlement, and in Grid 38 Phase 21. The frequency of Cypro-Minoan inscriptions increases in the Iron I, with twelve inscribed handles found in Grid 38 Phases 20–18 and an ostracon in Phase 17. All of the LB jars with inscribed handles were imported, mostly from Cyprus. Most of the Iron I jars were also imported, though now from the Levantine coast, but one of them was locally made, as was the ostracon.

Figure 15.10: Block plan of early Iron Age architecture in Grid 38 Phase 20a
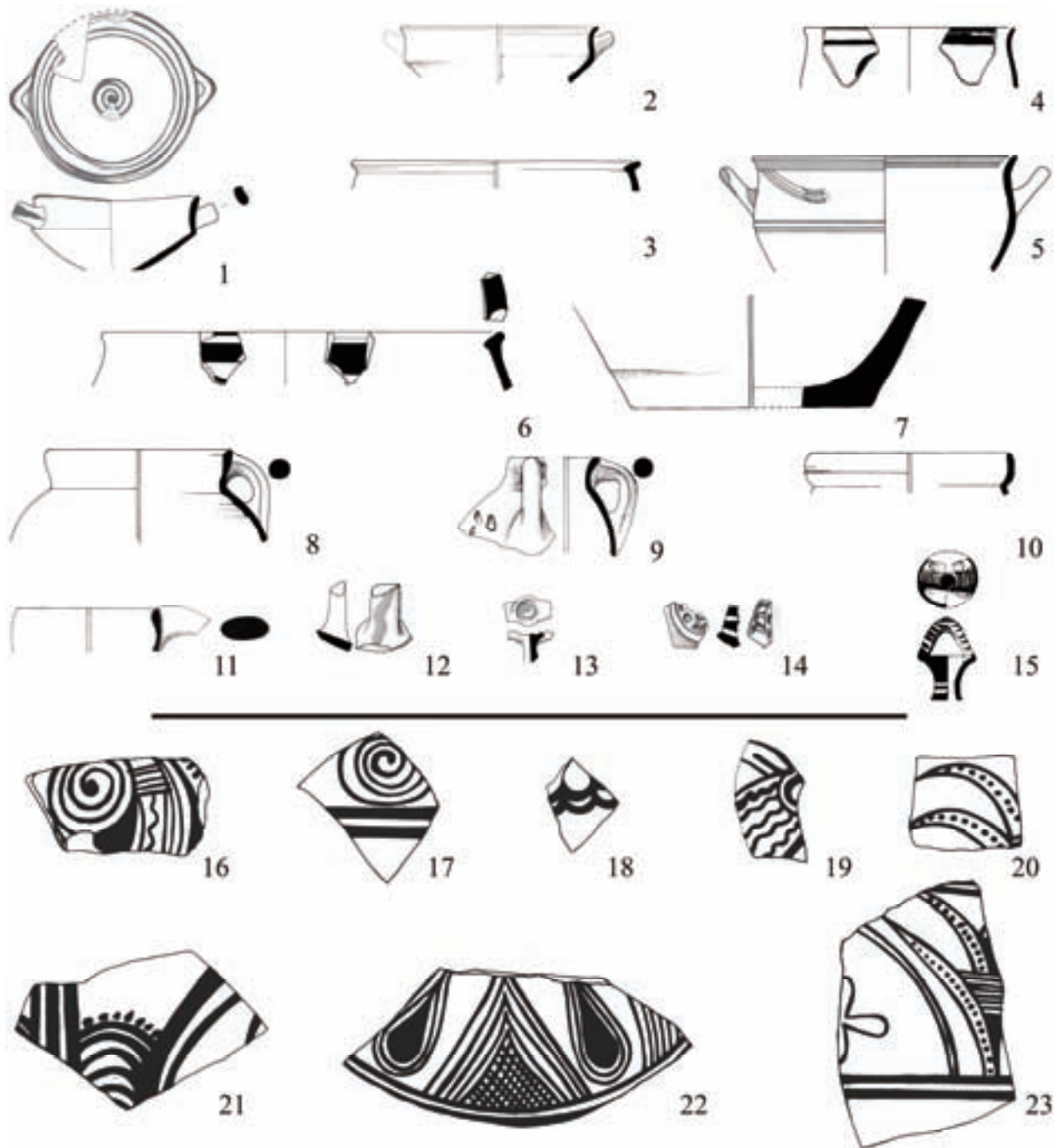
1 Carinated Bowl; A41/89 38.64 L139 B43 (1)
2 Carinated Bowl; A26/04 38.84 L973 B314 (10025)
3 Rounded Bowl with Everted Rim; A20/04 38.84 L973 B318 (10028)
4 Bell Shaped Bowl; A41/89 38.64 F174 B22 (3)
5 Bell Shaped Bowl; A40/90 38.64 L210 B42 (9)
6 Aegean Style Krater; A41/89 38.64 F200 B225 (4)
7 Coarseware Basin; A26/04 38.74 L1091 B194 (10096)
8 Cooking Jug with Flaring Rim; A81/00 38.74 L1020 B199 (9981)
9 Cooking Jug with Flaring Rim; A26/04 38.64 L1045 B177 (10052)
10 Cooking Jug with Gutter Rim; A26/04 38.74 L1052 B71 (10000)
11 Jug, A26/04 38.74 L1051 B102 (9994)
12 Aegean Style Jar; A81/00 38.74 L1020 B130 (1979)

13 Stirrup Jar; A26/04 38.84 L1018 B205 (10038)
14 Strainer Jug; A26/04 38.84 L1011 B233 (10041)
15 Feeding Bottle; A26/04 38.74 L1067 B26 (8151)
16 Decorated Body; A26/04 38.84 L973 B230 (8390)
17 Decorated Body; A26/04 38.84 L1074 B381 (8506)
18 Decorated Body; A26/04 38.74 L1067 B26 (8152)
19 Decorated Body; A26/04 38.84 L973 B234 (8545)
20 Decorated Body; A26/04 38.84 L1074 B290 (8457)
21 Decorated Body; A26/04 38.84 L973 B45 (8206)
22 Decorated Body; A26/04 38.84 L1074 B398 (8459)
23 Decorated Body; A26/04 38.84 L1074 B351 (8457)

Figure 15.11: Pottery from Grid 38 Phase 20
Nos. 1–15 are drawn at a scale of 1:5 and nos. 16–23 are drawn at 1:2.

Figure 15.12: Philistine Monochrome bowls

Figure 15.13: Aegean-style cooking jugs
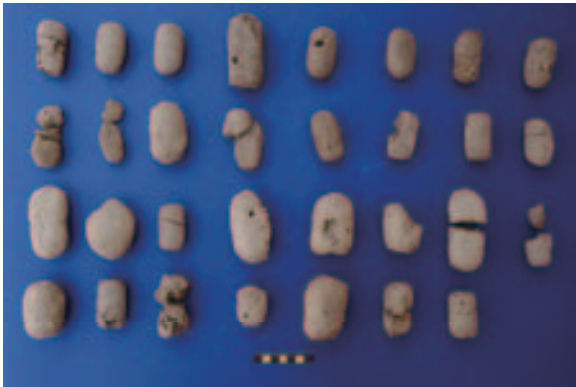
Figure 15.14: Unbaked clay spool weights

Figure 15.15: Scarab of Ramesses III (all views)
Photograph by Ze'ev Radovan

Figure 15.16: Pile of clay spool weights on floor
in Room 1021 in Grid 38 Phase 20

Figure 15.17: Ivory duck head
Photograph by Ze'ev Radovan

Figure 15.18: Ivory opium poppy bulb
Photograph by Ze'ev Radovan

Figure 15.19: Ivory comb
Photograph by Ze'ev Radovan
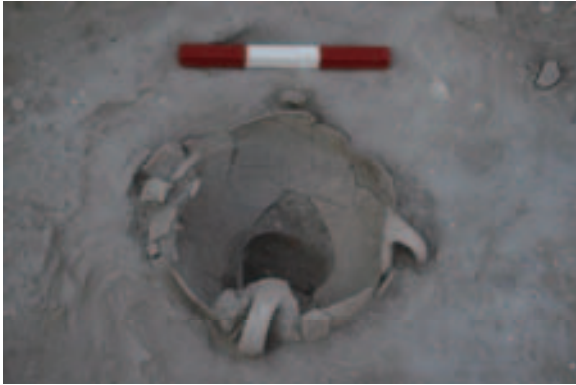
Figure 15.20: Sunken jar in Room 1065
in Grid 38 Phase 20

Figure 15.21: Philistine Monochrome pottery
Photograph by Ze'ev Radovan

Phase 19 (figure 15.22)

Phase 19 is the earliest Philistine Bichrome phase in Grid 38. It is to be dated from the middle to the end of the twelfth century B.C. During this phase, Philistine Monochrome was still in use alongside the Bichrome. Architecturally, this phase saw a fundamental change in the architectural plan. The basic plan was now two major buildings—the north and south "villas"—separated by a courtyard. The northern building was solidly constructed and saw extended use throughout various phases, while the southern building catastrophically collapsed at the end of Phase 19 (figure 15.24). To the east of these buildings, a street ran north-south. This street formed the basis of a general plan that stayed the same until the destruction of the city at the end of the seventh century (see figure 15.4 above). To date, we have only discovered buildings west of this thoroughfare in Phase 19.

The southern building (figure 15.25) consists of several peripheral rooms surrounding **Room 725**. The erection of this building was marked by a series of foundation deposits consisting of two donkey heads inside stone cairns (figure 15.26), which were buried just outside the northeast corner and north wall of the building, and three bowl-lamp-bowl deposits under the floor of **Room 725**. Almost every room had a pillar base in the center and a hearth in the center or on the side. **Room 1044**, located in the far northeast of the building, was an enclosed courtyard. Features including stone cobbling, a small bread oven, and a large stone flagstone indicate that it was most likely a food preparation area.

One would have had to step down from the courtyard **Room 1044** into the main room of the house, **Room 725**, which measured ca. 4.5 × 3.4 m. The walls of this main room were well constructed of yellow-orange mudbrick. Multiple layers of mud plaster, occasionally decorated with inset shells, covered the walls. The main feature of **Room 725** was a square hearth, composed of two mudbricks lined with small stones, which was located in the center of the room. Another significant feature in this room was a large cobblestone platform in the northeast corner.

The small **Room 850** contained a cobblestone floor covering roughly one-third of the floor space. The walls of the room were paneled with mudbricks set on edge, with the appearance and function of orthostats (figures 15.27–28). Beneath the mudbrick collapse which later filled this room there were five whole vessels: a large jug, a small storejar, a pyxis, a stirrup jar, and a spouted juglet (figure 15.29).

Room 1023 contained the remains of a human infant. The articulated skeleton currently represents our earliest Philistine burial. The child was less than six months old and buried on its side, facing west, with its arms lying straight at its side, unaccompanied by grave goods. The room also contained multiple hearths, one of which was associated with a basin.

While most of the southern building was an entirely new construction, the west wall of **Room 517** reused a Phase 20 wall, and a bin in the room along this wall was founded on the Phase 20 bench.

Exiting the southern complex, one would have entered an open courtyard. The sandy-silty striations there were filled with large amounts of discarded pottery, bone, shell, and stone. Among the refuse, numerous small finds, including jewelry, beads, and copper pins were discovered. There were also several inscriptional finds in the courtyard: an ostracon with a faint inscription in Egyptian hieratic and three Cypro-Minoan jar handles (Cross and Stager 2006: nos. 1, 6, and 9).

Figure 15.22: Block plan of early Iron Age architecture in Grid 38 Phase 19

1 Bell Shaped Bowl; A26/04 38.63 L830 B2 (8228)
2 Bell Shaped Bowl; A3/88 38.64 L116 B469 (3)
3 Shallow Angular Bowl; A26/04 38.64 L955 B3 (8135)
4 Aegean Style Krater; A3/88 38.64 F153 B457 (12)

5 Pyxis; A81/00 38.84 L682 B131 (1681)
6 Stirrup Jar; A81/00 38.84 L682 B106 (1393)
7 Feeding Bottle; A73/98 38.64 F871 B122 (1212)
8 Strainer Jug; A81/00 38.84 L682 B130 (1451)

Figure 15.23: Pottery from Grid 38 Phase 19 (scale 1:5)

Figure 15.24: Room 725 with mudbrick collapse
(note hearth at center)

Figure 15.25: South villa in Grid 38 Phase 19
(view to the south)

Figure 15.26: Equid skull at northeast corner of south villa

Figure 15.27: Room 850, with floor removed; mudbrick "orthostats" visible on left (view to north)
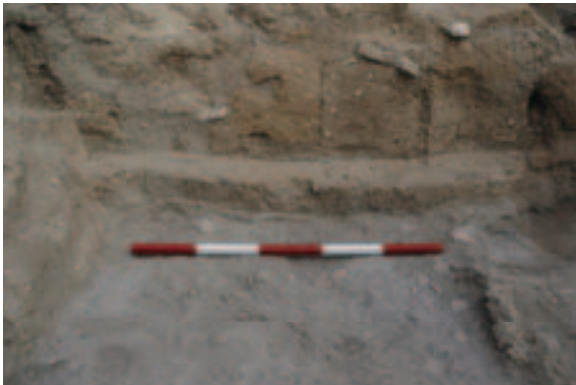
Figure 15.28: Mudbrick "orthostats" in Room 850

Figure 15.29: Complete vessels found in mudbrick collapse in Room 850

Figure 15.30: Bathtub in Room 25 of north villa

Figure 15.31: Keyhole hearth in Room 25

In contrast to the southern building, the north villa was constructed with deep, buttressed foundations that allowed it to remain when the southern building collapsed. Its northern end was lost to erosion at the north edge of the South Tell, but parts of three large rooms were identified. **Room 25** contained a chalk bathtub in its southeast corner (figure 15.30). Lugs on the bathtub suggest that it was built as a larnax and only reused as a bathtub in this phase. A keyhole hearth, in the form of a large mudbrick platform measuring 1.4 × 2.0 m, stood near the center of the room (figure 15.31). Between the bathtub and the hearth a row of cylindrical spool weights, indicating the place where spools of thread had hung from a vertical loom. Weaving activities in this room therefore continued from Phase 20 **Room 1021**.

Room 1033, the second large room in the northern building, was located immediately south of the tub-room and shared the same, deeply founded, load-bearing wall. The interior of **Room 1033** was organized around a central pillar. Two mudbrick and cobblestone hearths were found to the southeast of the pillar. Each was constructed at a different stage of the use of the room. Half of a Philistine painted bell-shaped bowl was discovered along the edge of one hearth, along with a goat horn-core and the teeth of a large pig. Three sunken storejars were also found, each cut off above the handles and surrounded at the level of their cut-off rims by a paved basin or curb composed of *Glycymeris* shells. A Cypro-Minoan handle (Cross and Stager 2006: no. 16), from a jar imported from the southern Lebanese coast, was found on the floor.

Phase 19 was impressive in its size and coherent in its architecture. The two buildings, while differing in construction, contained similar material culture. The constructional differences appear to have made the critical difference in the survival of these buildings. The southern building's east wall unexpectedly collapsed, covering a variety of whole vessels. A substantial section of the wall sheared off its foundations and shifted into the interior spaces. The upper courses of the wall then tumbled throughout the rooms. This collapse was the local phenomenon that signaled the end of this architectural phase. The rooms that were not covered with the mudbrick tumble were cleaned out, and the area was reorganized with a very different function.

Phase 18 (figure 15.32)

After the collapse of the Phase 19 southern building, the northern building continued to be used. When the area was remodeled, some of the walls from the well-constructed Phase 19 northern building were integrated into the next structures. But in both north and south, the use of the buildings was quite different from the beautiful residential spaces of Phase 19. Bins, pits, fire-pits, hearths, basins, and other industrial installations occupied most of the floor space in the majority of the rooms.

The accumulation of refuse in the courtyard and alley provides a rich assemblage of pottery, chert, bone, bronze, and miscellaneous items including pumice, jewelry, and objects of imported stone. Occupation was uninterrupted and activity areas persisted throughout the phase.

Some distinctive features of Phases 20 and 19 already reflect Aegean practices, and Phase 18 displays an increase in the number and variety of Aegean cultural elements. Some of these, such as the round central hearth, "Ashdoda" and *psi*-type figurines (figure 15.34), and unbaked clay spool weights, are attested in the Mycenaean world. Others, including the keyhole hearth, are found in Cypriot Achaean settlements. At the same time, several jar handles with Cypro-Minoan signs provide a link to the Late Bronze Age culture of Cyprus.

Other features, unknown from earlier or contemporary "Canaanite" sites, are attested at Ashkelon, as well as at other Philistine Pentapolis sites. They are also presumed to be of Aegean origin or inspiration. For instance, incised scapulae, stamp seals, pig consumption, sunken jars surrounded by a shell or sherd-covered curb, intramural infant burial in pits (figure 15.35), and benches and bins ringing rooms have all been found at Ekron and Ashdod.

Architecturally, Phase 18 followed the plan of Phase 19. It consisted of two buildings separated by a courtyard, with a street along the eastern side of both buildings. The walls of Phase 18 generally had mudbrick superstructures on stone foundations, but they were so poorly constructed and poorly preserved that it was difficult to know which walls bore the weight of the superstructure and which were merely the partitions of an enclosed courtyard.

The southern building consisted of a series of rooms surrounding **Room 667**, which had a large circular hearth in the center and the fragmentary remains of a plastered wine press in the southeastern corner. Two peripheral areas in this complex provide further evidence for the use of this building. At the northern and western ends of the complex, industrial areas were discovered that have an abundance of somewhat enigmatic installations. In both areas, there was a foundation deposit consisting of a puppy, which had been skinned and placed in a cooking pot (figure 15.41).
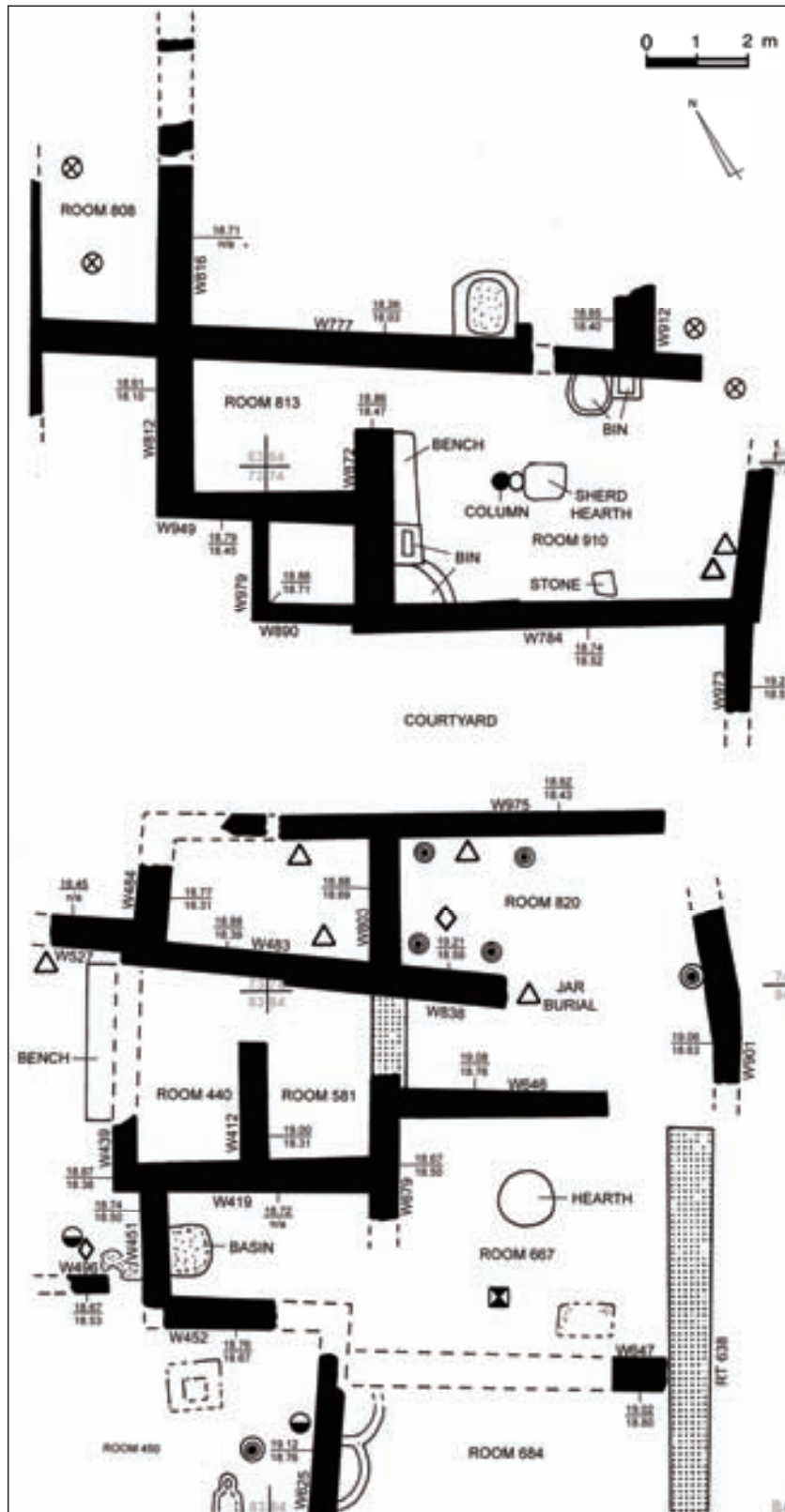
Figure 15.32: Block plan of early Iron Age architecture in Grid 38 Phase 18
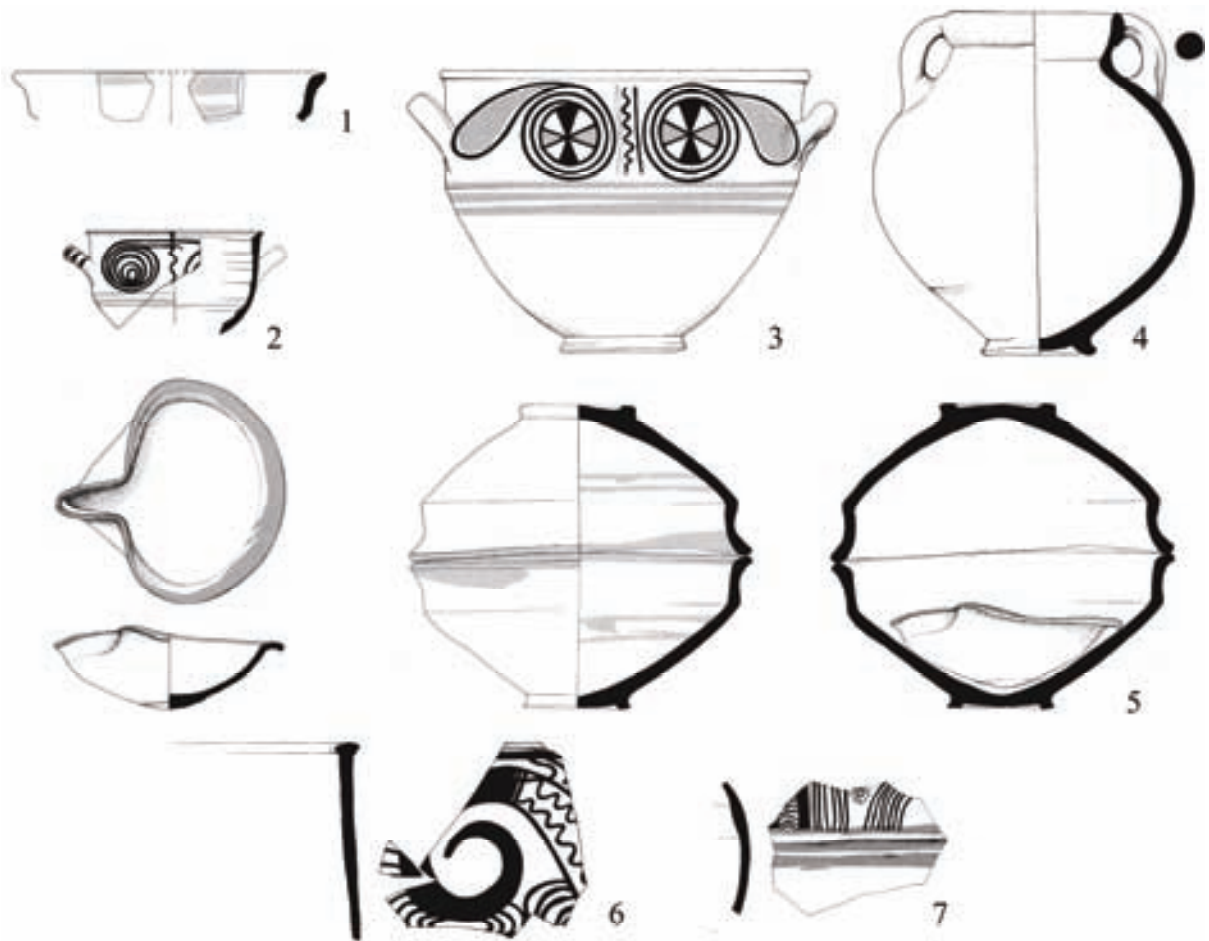
1 Carinated Bowl; A16/85 38.64 L22 B13 (30)
2 Bell-Shaped Bowl; A73/98 38.74 L756 B41 (2)
3 Krater; A28/99 38.84 L694 B142 (1117)
4 Cooking Jug; A73/98 38.74 L824 B141 (1)

5 Lamp and Bowl Deposit; A28/99 38.84 L689 B104 (1116, 1099, 1118)
6 Krater; A81/00 38.73 L476 B8 (1650)
7 Decorated Body; A73/98 38.64 L888 B40 (5)

Figure 15.33: Pottery from Grid 38 Phase 18 (scale 1:5)

Figure 15.34: Aegean-style female figurines (Ashdoda and *psi*-type) from Grid 38 Phases 19–17

Figure 15.35: Infant burial

Figure 15.36: Keyhole hearth and stone platform in Room 530

Figure 15.37: Sunken jar with curb of *Glycymeris* shells, open side down

Figure 15.38: Room 910

Figure 15.39: Keyhole hearth with sherds, Room 910
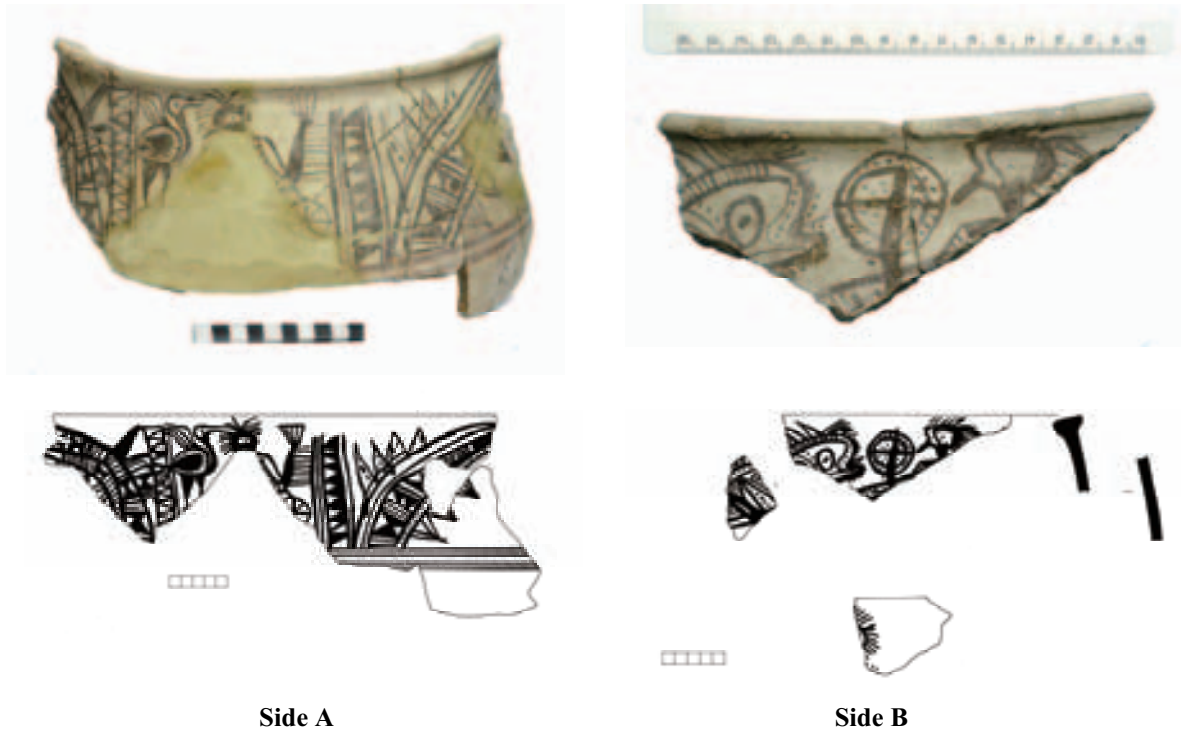
Side A   **Side B**

Figure 15.40: Philistine Bichrome krater
(Side A: dolphin sherd; Side B: panel with chariot)

Figure 15.41: Puppy in a pot   *Figure 15.42:* Hacksilber

In both areas, a series of jars was subsequently sunk into the ground. The top of each jar was surrounded by a paving of shells or flat-lying sherds (figure 15.37). All around these jars the debris consisted almost entirely of black ash. A keyhole hearth in the southeastern industrial area is the likely source of this ash.

The only explanation we have at present that encompasses the winepresses, the hearths, and the sunken jars is Lawrence Stager's suggestion that these installations were constructed to distill *grappa*, an alcoholic beverage produced from the grape residue that is left over after producing wine. The grape skins, seeds, and stems would have been heated and then placed on the shell- or sherd-covered basin (which itself might have been heated) around the sunken jar mouth, and then sealed with a dome of some kind—presumably metal or ceramic. Cold water poured on top of the dome, or placed in a bowl situated at the top to close off the opening into the dome, would have condensed the vapors from the heated grape residue, and the resulting liquid would have dripped down into the sunken vessel.

The northern building, although dissimilar in plan from the southern building, was quite similar in function. The central room, **Room 910** (figure 15.38), again had a central hearth (figure 15.39). To the north, the bathtub of Phase 19 had been broken up and rebuilt into the basin of a winepress. In various subsidiary rooms, jars sunk within concentric rings of shells completed a set of installations similar to those in the southern building. Under the floors in these subsidiary rooms were examples of a new type of foundation deposit: pits containing the right forelimbs of a two- or three-year-old sheep.

In the courtyard, a refuse pit (originally a tree pit) contained several sherds from a rare type of Philistine Bichrome krater dating to the late twelfth or eleventh century (figure 15.40). On one side, a warrior or sailor with a feathered headdress confronts a dolphin; on the other, another human figure with feathered headdress sits on a vehicle, probably a chariot (see Stager and Mountjoy 2007). Two Cypro-Minoan jar handles (Cross and Stager 2006: nos. 10, 13) were also found in the courtyard buildup.

The area underwent several changes as the ash buildup from the industrial installations forced a reworking of the architecture. This took place at various times throughout these buildings. This can be seen most dramatically in the street, where the continual abundant debris accumulation necessitated repeated rebuildings of the street curbs. The street buildup was a constant problem for the Philistine builders but it has provided an extensive ceramic and bone record to aid in our understanding of this phase (see figure 15.4 above).

Phase 18 consists of three subphases. Many of the functions of the two major buildings continued throughout these subphases, but in both the southern and northern buildings, the central rooms were substantially changed. In the southern building, **Room 667** was divided into **Room 556** and **Room 530**. It appears that **Room 530** became the central room because it was dominated by a keyhole hearth and stone platform (figure 15.36) on which were found two *Hacksilber* hoards (reg. nos. 50650, 50651; see figure 15.42). In the northern building, **Room 910** was divided into **Room 888** and **Room 854**. **Room 854** continued as the central room of the house, with a pillar in the center of the room and a firebox in the south, replacing the central hearth.

Phase 17 (figure 15.44)

The transition from Phase 18 to 17 is characterized by changes in construction techniques, the absence of sunken jar installations, and changes in the nature of occupation. Whereas in Phase 18 this area included industrial activities, in Phase 17 the area appears to have been primarily residential.

Ceramically, Phase 17 begins with the white-slipped Philistine forms and concludes with the introduction of red-washed forms and red-slipped and hand-burnished forms—the so-called Ashdod Ware or Late Philistine Decorated Ware (figure 15.43; see Ben-Shlomo et al. 2004). The ceramic range is roughly equivalent to Tel Miqne IV and Tel Qasile X (Master 2005:337).

Figure 15.43: Late Philistine Decorated Ware pyxis

The pottery forms and relative frequencies are typical of a residential area. Storejars, simple rim bowls, jars, jugs, craters, and cooking pots predominate. Small finds include bone, grinding stones, flint blades, bronze blades and jewelry, an iron blade with bronze rivets, gaming pieces, spool weights, beads, and an Egyptian amulet and scarab.

The characteristic cylindrical spool weights of the Sea Peoples continued in use through Phase 17, nearly two centuries after the Philistines first settled in the region. Spool weights most commonly lay in a row parallel to a wall (**Rooms 675** and **433**), where they would have fallen from the threads suspended from a loom. Their presence in virtually every room, not to mention individual examples discarded in courtyards, demonstrates that weaving was a widespread domestic activity. Other noteworthy finds include stamp seals and a number of Ashdoda and *psi*-type ceramic figurine heads.

Three buildings have been excavated from this phase: two "villas" on the west side of the street, separated by a courtyard, and a third building on the east side of the street. All three buildings were constructed using identical techniques. In each case, one or two rows of large yellow mudbricks (0.55–0.65 m × 0.30–0.40 m × 0.10–0.12 m) formed the walls. Below the walls, foundation deposits were laid. These consisted of a bowl with everted rim decorated with red concentric rings on the interior, a lamp, and a second identical bowl turned over and covering the lamp and bowl (figure 15.45).

All three buildings were carefully kept with extremely clean floors. On the west side of the street, the northern building had two subphases that are contemporary with three subphases of the southern building; but because of the haphazard accumulation of debris in the courtyard between the two buildings, it is stratigraphically impossible to determine the duration of the northern building's subphases in relation to the southern building's subphases. Similarly, the building on the east side of the street has several subphases that cannot be accurately correlated across the street to the subphases on the other side. The changes in each building were mostly internal and did not occur simultaneously across all three buildings.

Complicating the picture, the streets and courtyards built up so much more quickly than the interior surfaces that the courtyards and streets were always higher than the rooms inside the buildings. The elevated exterior areas may explain the complete lack of evidence of doorways into the Phase 17 buildings because the doorways were probably situated higher

than the preserved walls. In that case, poorly preserved mudbricks or robbed-out stones must have served as thresholds or stairs from street level down into the buildings.

The southwestern building is the most complete and most coherent (figure 15.46). It consisted of five rooms. Throughout the use of the basic structure, the rooms were subdivided in different ways, but the overall plan remained the same. In some cases, the floors were so clean that all that remained was a technical surface between subfloor and suprafloor fills. In no case could the change in the floor plan of the rooms be equated with a substantial change in the function of the area.

In the northwestern building, there was evidence of at least seven rooms. The northern half of the building was not preserved because it was cut away by the erosion of the South Tell. The most substantial room in the building was **Room 868**. This room had a long bench along its southern wall and a pillar in the center of the room. In addition, the room contained a series of ashy patches and small pits that contained ash. The positioning of these ashy spots throughout the room suggests that portable hearths were erected and cooking was done at different places in the room. Mordechai Kislev has identified carbonized lentils in one burned patch. **Room 114** to the north is notable for the find of a Cypro-Minoan ostracon (reg. no. 9794) on the floor, indicating this script was in use at Ashkelon for well over a hundred years (see chapter 17, inscription no. 4.5, and Cross and Stager 2006).

Across the street, six rooms were preserved in the eastern building. Although the mudbrick walls were preserved to a height of eight or nine courses, the floors were ephemeral. In **Room 141** not even a technical surface could be isolated. Fortunately, **Room 222** to the south yielded some good floor material, including red-washed and red-slipped and hand-burnished pottery.

The western wall of the eastern building is poorly attested. It may be that a robber trench removed the wall but no clear evidence for this was found. Some sort of partition must have existed to separate the building from the street, but at times it was not carefully maintained, because the ashy refuse from the street poured into the building in such a way that the street layers are often indistinguishable from the accumulation with the western edge of the building.

It is not clear why Phase 17 came to an end. There is no evidence of destruction and the cleanliness of the floors suggests a thorough sweep of the buildings before the area was abandoned.
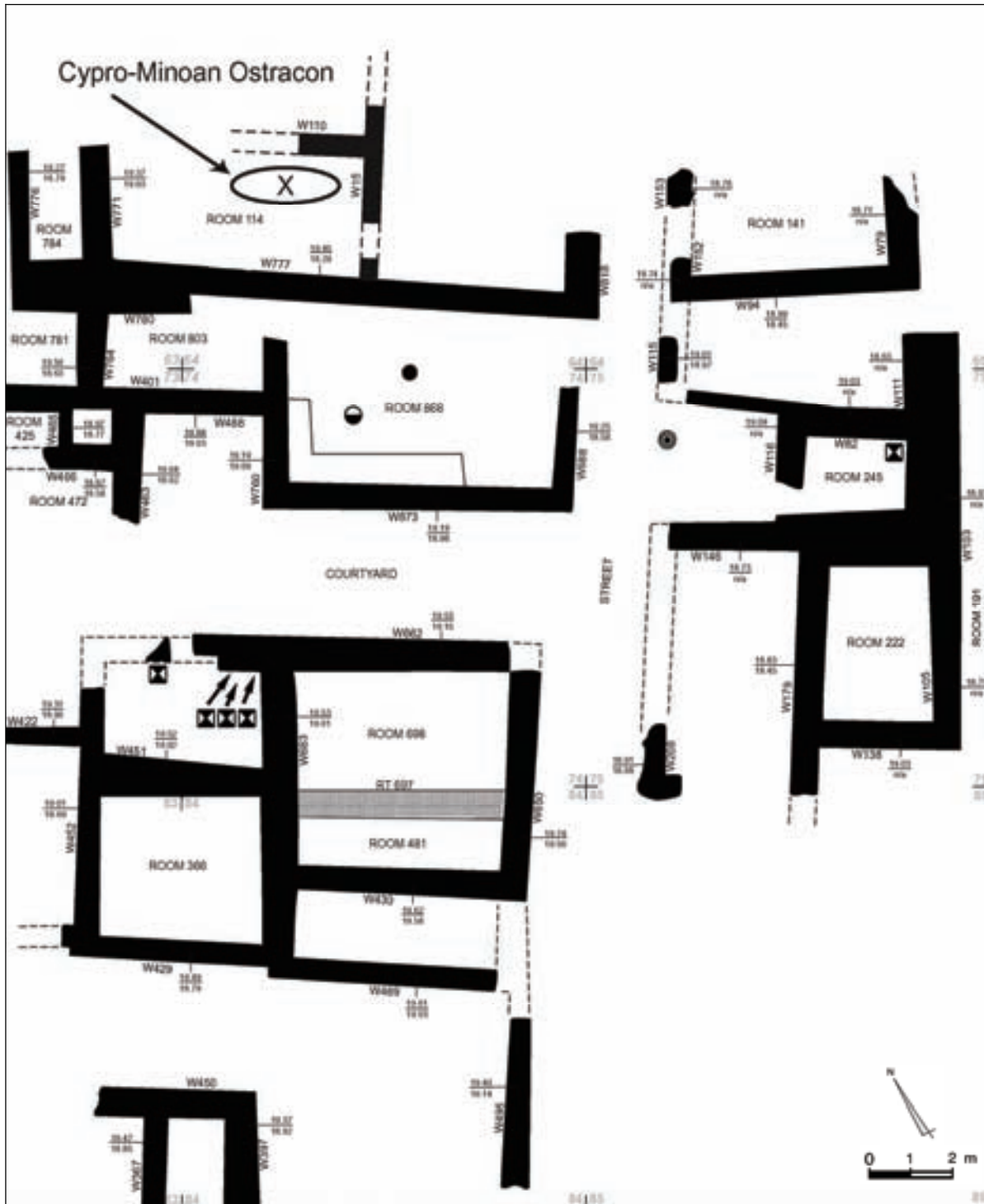
Figure 15.44: Block plan of early Iron Age architecture in Grid 38 Phase 17

Figure 15.45: Bowl-lamp-bowl foundation deposit, with top bowl removed, in Grid 38 Phase 17

Figure 15.46: Part of the southwestern "south villa" building in Grid 38 Phase 17 (view to the west)

Phases 16 and 15 (figure 15.48)

There were two architectural phases between the mudbrick buildings of Phase 17 and the Phase 14 winery of the seventh century B.C., but the deep foundations of the Phase 14 structures largely destroyed these intervening phases. Most of the ceramic evidence for these late tenth- to eighth-century phases came from a series of pits and silos located throughout the trench.

The lack of Iron Age II remains of the late tenth through eighth centuries was even more striking in the north-south street that ran through the area (see figure 15.4 above). In Iron I and in the seventh century, this street served as a garbage dump and so contains an extremely high concentration of broken bones and pottery. In this street accumulation, there is a sharp jump from the tenth to the seventh centuries (i.e., from Phase 17 to Phase 14, or in some cases from Phase 17 to Phase 13), with almost no intervening layers. Any substantial occupation in this area during this period would have left at least some record in the street. But even though the small finds are few, a series of walls does indicate two architectural phases (figure 15.49).

Phase 16

This phase was a building with at least four rooms. Floors were preserved in only two of the rooms, **Room 537** and **Room 495**, and in both cases they were only partially preserved. Furthermore, only **Room 495** (and its **Oven 432**) had late tenth- to ninth-century diagnostic pottery, on the basis of which we have assigned the rest of the building to this phase. Other late tenth- and ninth-century pottery was found in pits and silos surrounding the building.

Ceramically, the Phase 16 material represents a continued development of the late Iron I tradition, with parallels to Tel Batash IV and Lachish V–IV. Architecturally, however, Phase 16 demonstrates a new building plan: instead of two villas separated by a courtyard, there appears to be a single building in the center of the excavation area. A notable artifact from this phase was a gold earring (figure 15.47), which was found in two pieces—a loop and a pendant (reg. nos. 46604 and 46605). It has parallels to earrings found at Tell el-Farᶜah (South) in a "200 Cemetery" tomb, and at Tawilan in Transjordan. The earring was found in a pit in association with a Phoenician *oinochoē*.

Phase 15

Phase 15 is even less substantial than Phase 16. It is attested mainly in various fill layers. These deposits clearly date to the eighth century (contemporary with Grid 2 Phase 7). The assemblage is comparable to Tel Batash III, Lachish III, and Ashdod VIII. While this phase might have seen a rebuild of some of the Phase 16 walls, no floors can be associated with it. **Silo 2** in the north (figure 15.50) and a large pit in the south provided the best eighth-century pottery found in the entire Grid 38 trench (figures 15.51 and 15.52).

The phasing of the material assigned to Phases 16 and 15 is generally quite tentative. Some walls cannot be connected stratigraphically with the main sequence in the center of the trench and can only be assigned generally to the period between Phase 17 and Phase 14. These difficulties are indicative of the poor and flimsy remains of occupation in this area of the site from the late tenth century through the eighth century B.C.

Figure 15.47: Gold earring from Grid 38 Phase 16
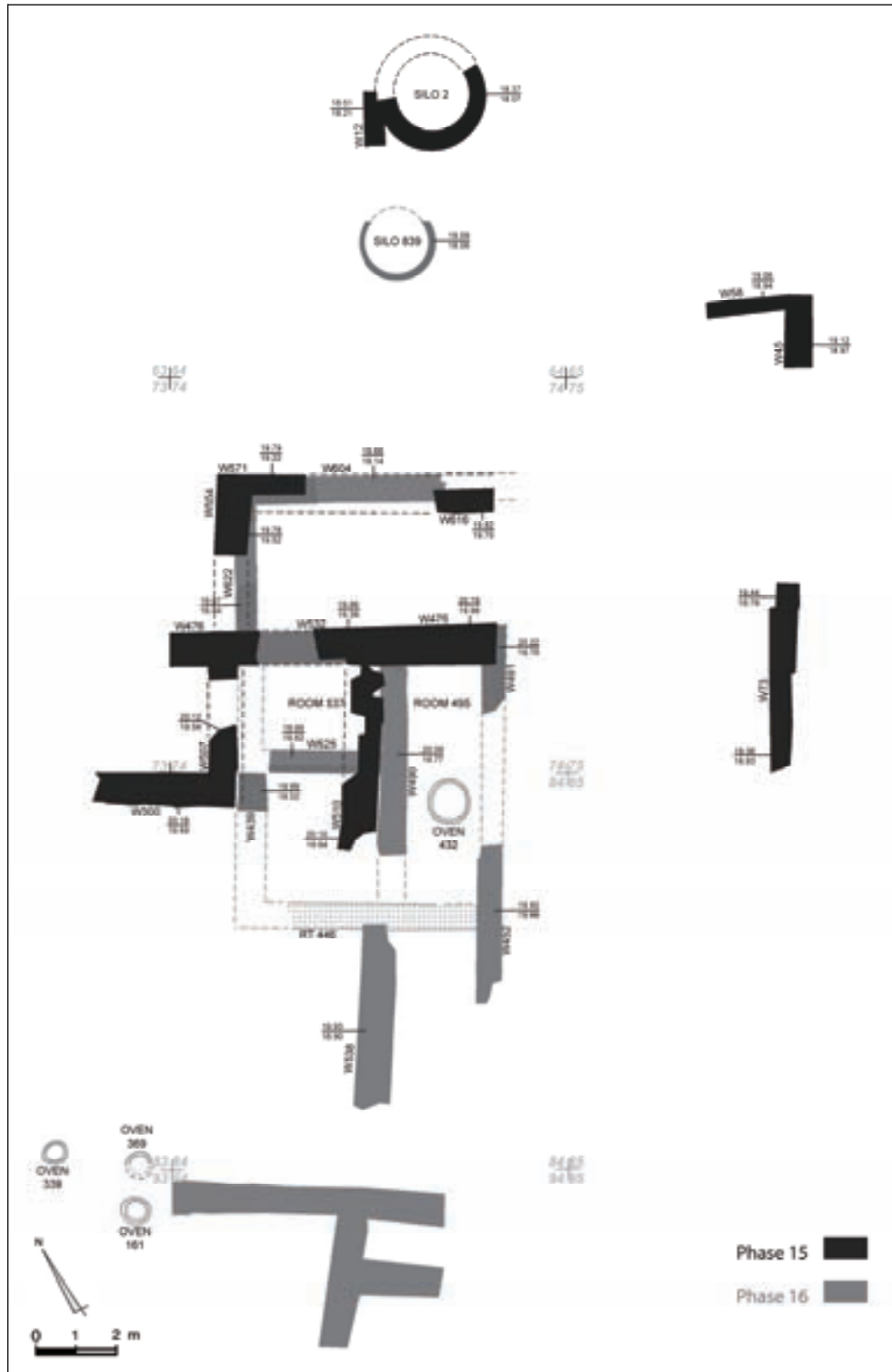
Figure 15.48: Block plan of Iron Age architecture and silos in Grid 38 Phases 16 and 15

Figure 15.49: Grid 38 Phase 16 building (view to the northwest)

Figure 15.50: Silo 2 containing eighth-century pottery in Grid 38 Phase 15
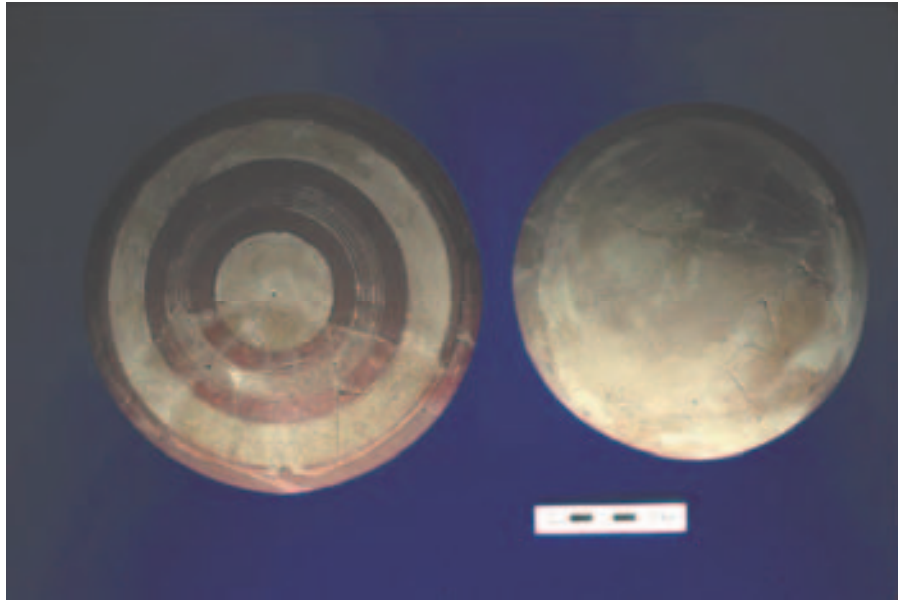
Figure 15.51: Samaria Ware bowls of the eighth century B.C. from Silo 2 in Grid 38 Phase 15
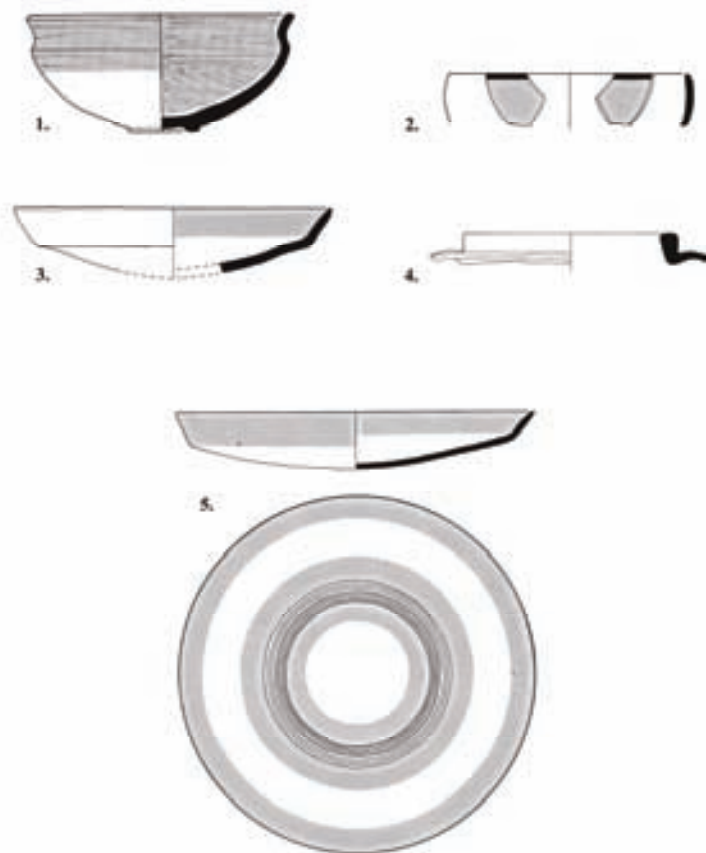
Figure 15.52: Pottery from Silo 2 in Grid 38 Phase 15 (scale 1:4)

Phase 14 (figure 15.55)

The next substantial architectural phase in the Grid 38 trench consisted of two coherent buildings, one on each side of the north-south street. These buildings contained abundant seventh-century pottery. In the final subphase of Phase 14, the buildings contained East Greek pottery that dates to the end of the seventh century B.C.

Phase 14 was destroyed in December 604 B.C. by the Babylonian army under Nebuchadrezzar II, and this quick and complete destruction preserved that phase better than any other we have excavated. The rich variety of artifactual material from the seventh century will be fully described in the third volume of the Ashkelon final report series, which is currently in preparation. What follows are some of the highlights of Phase 14 in Grid 38.

The building on the western side of the street was a large building with walls constructed of ashlar masonry. Four rooms in this monumental building contained wine presses, hence our designation of this building as a winery. On the east side of the street, the function of the building is not as clear. Its cobblestone floors and the green-stained soil matrix below the floors support the idea that it served as a storehouse for the wine produced across the street. The cobble bedding would have been needed to facilitate the drainage of spilled wine.

In the western building, the winery platforms, vats, and basins were lined with cobblestones and coated with smooth, shell-tempered plaster of unusually high quality. The best preserved wine press (figure 15.54) had a shallow plastered platform in which the grapes would have been trampled to squeeze out the juice. This platform had a low rim on all four sides; on one side, the rim had a small hole through which the grape juice flowed into a channel leading to an intermediate plastered tank or vat. From there, another channel drained the juice into a lower and deeper plastered vat, in the corner of which was a small sump or catchment basin in which the solid matter—pulp, seeds, and stems—would have settled.

The grape juice was presumably decanted from the lowest vat of the plastered press into wine jars and then left to ferment in adjacent storerooms. Dipper juglets and fat-bellied storage jars (wine amphoras) with pointed bases and protruding handles are the predominant pottery types found in the winery (figure 15.56).

Figure 15.53: Overview of Phase 14 in Grid 38 (view to the north), including part of the western building (the "winery"). The white-plastered pressing platforms are visible at the top right and middle.

Figure 15.54: Plastered pressing platform and sunken vat of wine press in Grid 38 Phase 14
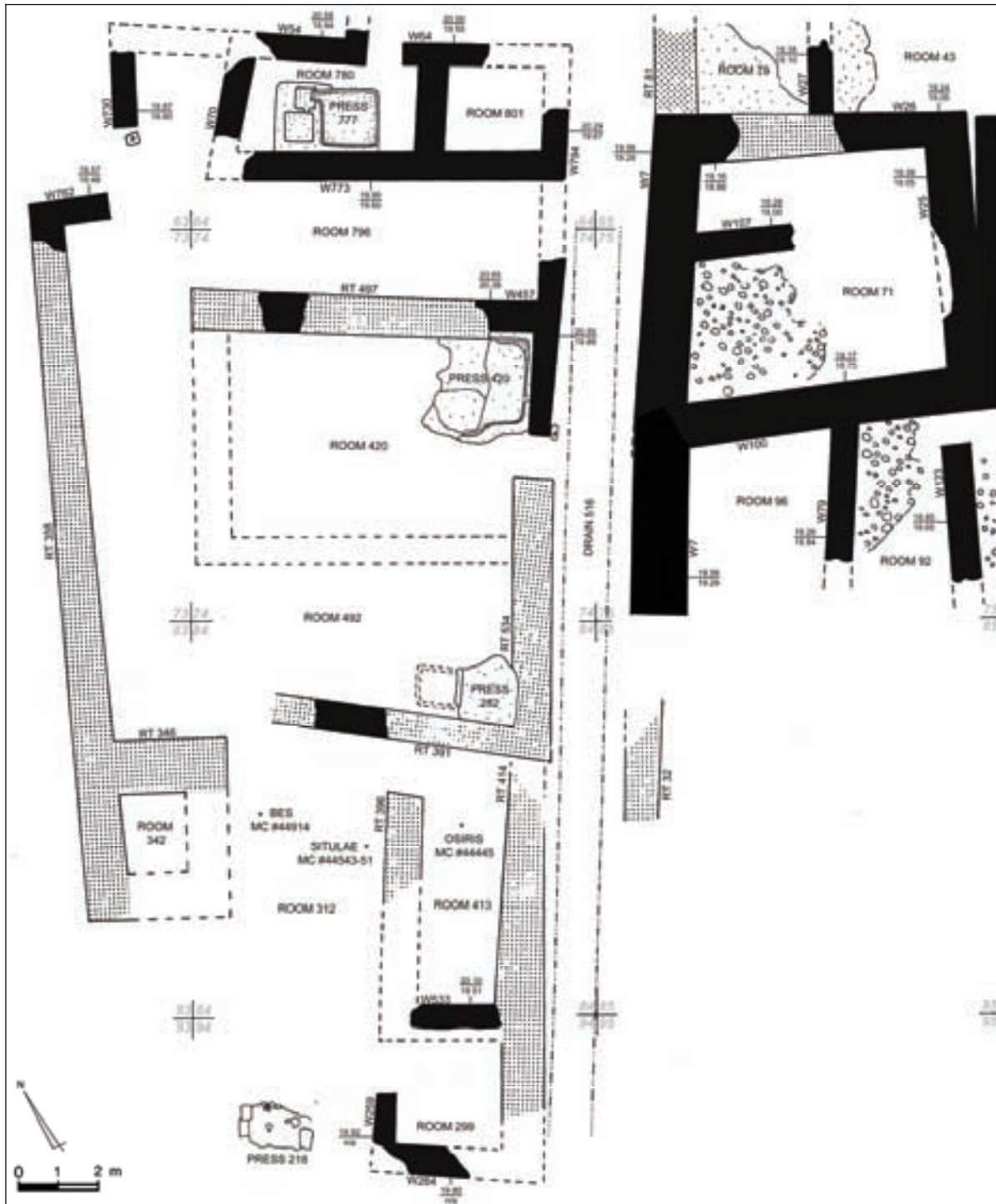
Figure 15.55: Block plan of late Iron Age (seventh-century) architecture in Grid 38 Phase 14

Figure 15.56: Assemblage of late Iron Age (seventh-century) pottery from Grid 38 Phase 14

Among the wide variety of objects sealed by the massive destruction at the end of this phase, of particular note are the Egyptian religious items found in **Room 402** of the winery. A bronze statuette of the god Osiris (figure 15.57) and a faience statuette of Bes lay near a cache of seven bronze bottles or *situlae* (figure 15.58). Shown in relief around the side of each bronze *situla* is a procession of deities. The most prominent deity represented on the *situlae* is the god Min, or Amen-Re, with erect phallus.

In the midst of the cache of bronze bottles was a bronze votive offering table engraved with what appears to be a loaf of bread flanked by libation flasks. Two baboons sit at opposite corners of the offering table. At another corner sits a falcon; a jackal crouches at the fourth corner. Between the jackal and the falcon is a frog.

A twin of our bronze Osiris statuette was uncovered more than sixty years ago in a small salvage excavation at Ashkelon. The excavator, J. H. Iliffe, dated it to the fourth century B.C. (see Iliffe 1936); but it is now clear that this statuette and 25 other bronze statuettes of Egyptian deities, as well as 14 other Egyptian bronze artifacts (including cube-shaped

Figure 15.57: Bronze statuette of Osiris (G. 38 P. 14)

Figure 15.58: A cache of Egyptian bronze *situlae* and a miniature offering table from Grid 38 Phase 14

weights), which were found in Iliffe's excavation, are contemporaneous with our bronzes—that is, they belong to the late seventh century B.C., not the fourth century. All of these Egyptian artifacts point to the presence of an Egyptian enclave in Ashkelon at the end of the seventh century.

We also found in the Phase 14 winery building several dozen rather puzzling unbaked clay spheres, some as large as grapefruits, which had a single perforation through the center of the sphere (figure 15.59). Many of the clay spheres are too large and heavy to have been loom weights. The more probable explanation connects them to wine production because these perforated clay spheres fit nicely into the mouths of the fat-bellied type of storage jar found in abundance in the winery and elsewhere in Ashkelon in this period. When wine ferments, it releases gases that cause a buildup in pressure inside the container. To prevent explosions, the gases must be released in some way. This effect would have been achieved if perforated stoppers such as these clay spheres were sealed in the mouths of the jars (for similar examples, see Homan 2004). The hole in the sphere would have been opened or closed at the appropriate time to release gases.

The Phase 14 winery building had two subphases. Although the ceramic assemblages of these subphases are very similar, one systematic difference is the complete absence of East Greek imports, which

date to the last quarter of the seventh century, in the earlier subphase. East Greek pottery is absent both from the floors of the earlier subphase and from the fill layers between the two subphases.

In the later subphase, walls were constructed over two of the grape-pressing platforms (**Basin 777** and **Basin 267**) and the newly created rooms were used for some other function. It is not clear whether there was a resulting diminution in wine production. The building on the east side of the street was also modified, but no functional changes could be discerned.

As time passed in the seventh century, the street between the buildings built up considerably, necessitating a complex drain construction as well as reinforced curbing to protect the exterior walls of the winery and storehouse (see figure 15.4). Prior to this buildup, one of the winepresses (**Basin 420**) had an outlet to the street, but with the rising street, this outlet was stopped up and a basin to the west was added.

Phase 14 ended in December 604 B.C., when the Babylonian army conquered and destroyed Ashkelon, razing the entire city. This total destruction is evident in the Grid 38 trench and everywhere else on the site where we reached Iron Age levels. The Phase 14 floors were sealed by collapsed roof and wall material, but the ashlar wall stubs remained standing to such an extent that later Persian-period builders saw them and systematically robbed their nicely cut stones.

Figure 15.59: Perforated clay jar-stopper placed in the mouth of a seventh-century wine jar (Grid 38 Phase 14)

Phase 13 (figure 15.60)

Ashkelon lay abandoned for a century or more after it was destroyed in 604 B.C. When the area excavated in Grid 38 was reinhabited during the period of the Persian Empire, the buildings were built on a completely different plan with a completely different function. The layout of the area, which had not changed from the twelfth to the seventh century, was now quite different, with a new north-south street located along the west side of the Grid 38 trench, several meters away from the earlier street. The only link to the Iron Age was the reuse of many cut stones from the Phase 14 winery. This ready supply of ashlar blocks made for a very nicely constructed Persian-period building in Phase 13.

In Phase 13, a building ("villa") was constructed consisting of a series of rooms arranged around a central courtyard. Several less coherent fragments of other buildings were discovered to the east and south. This building was occupied through the first part of the fifth century B.C., as shown by the presence of Attic Greek imports on the floors and in the fills of this phase.

The rooms themselves contained several bread ovens as well as domestic ceramic assemblages. There is a sharp contrast between the deliberateness of the constructional phases and the variety of material discarded in the occupational buildup. The deliberately laid floors were topped by an accumulation of occupational debris that yielded many small finds.

Alley 263 was carefully coated with shells to facilitate drainage. During the use of this alley, it was filled with all forms of domestic refuse, including substantial amounts of pottery and bone.

In both **Street 330** and **Courtyard 427**, the major open areas in this phase, numerous dog burials were discovered. As debris layers accumulated in the streets and courtyards, more dogs were buried in the same spaces, being placed into pits that were cut from successive street and courtyard surfaces. For a detailed discussion of the enigmatic dog burials of Persian-period Ashkelon, see chapter 30 below.

Phase 12 (figure 15.61)

Phase 12 was established over the ruins of Phase 13. The severity of the destruction that put an end to Phase 13 left an impact which was felt in the following two phases. In Phases 12 and 11, both the buildings and their associated artifacts were poor in quality. There was far less imported pottery in comparison to the preceding and subsequent phases and far fewer pieces of jewelry. Architecturally, the structures were less uniform. Walls were generally thinner and very little ashlar masonry was used. These impoverished phases have been dated to the late fifth century B.C.

Phase 12 was badly disturbed by later builders and only a few walls and installations remain. From what did survive, it appears that the basic architectural plan of Phase 13 continued in use, including a street on the

Figure 15.60: Block plan of Persian-period architecture in Grid 38 Phase 13
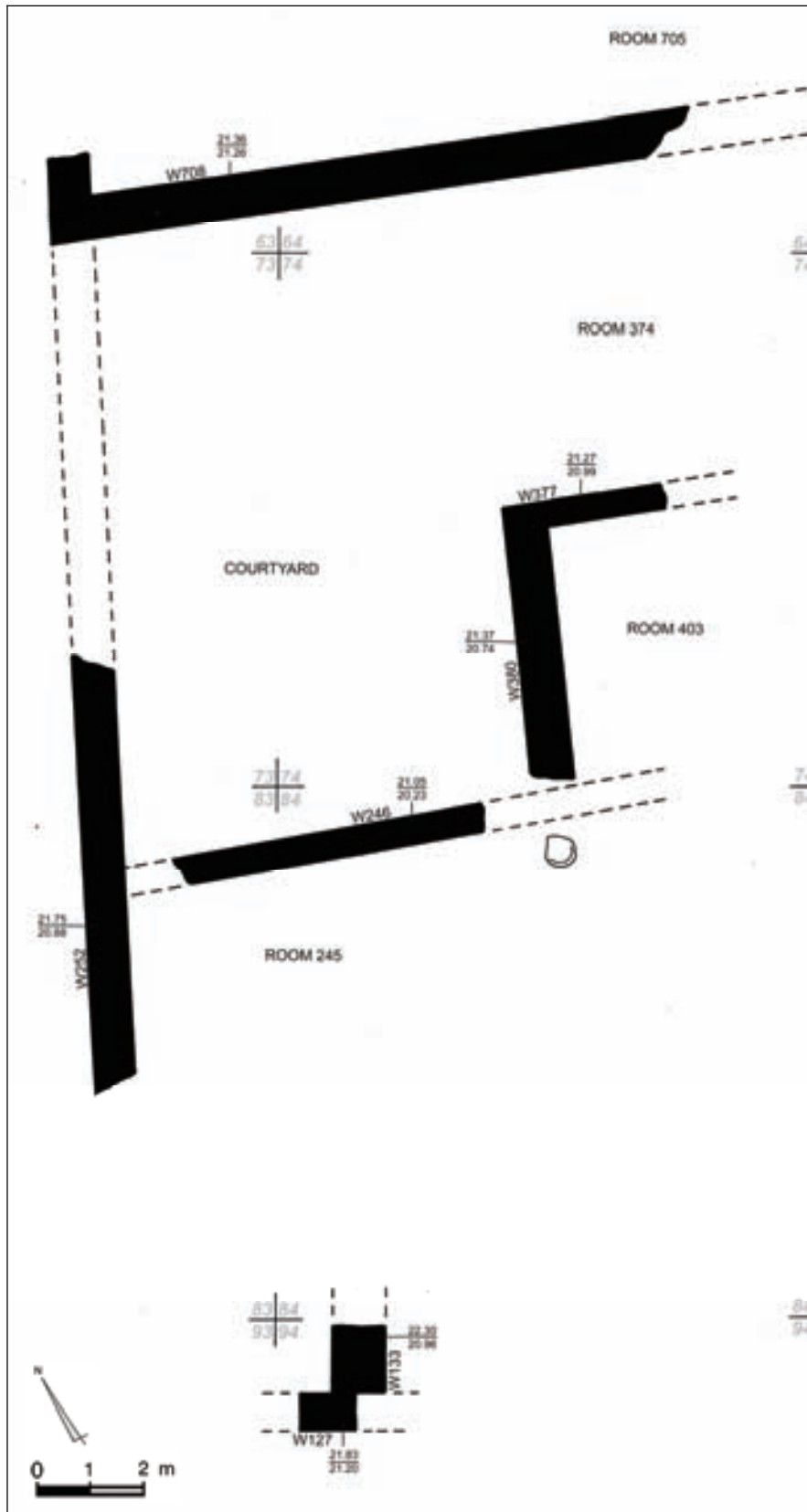
Figure 15.61: Block plan of Persian-period architecture in Grid 38 Phase 12
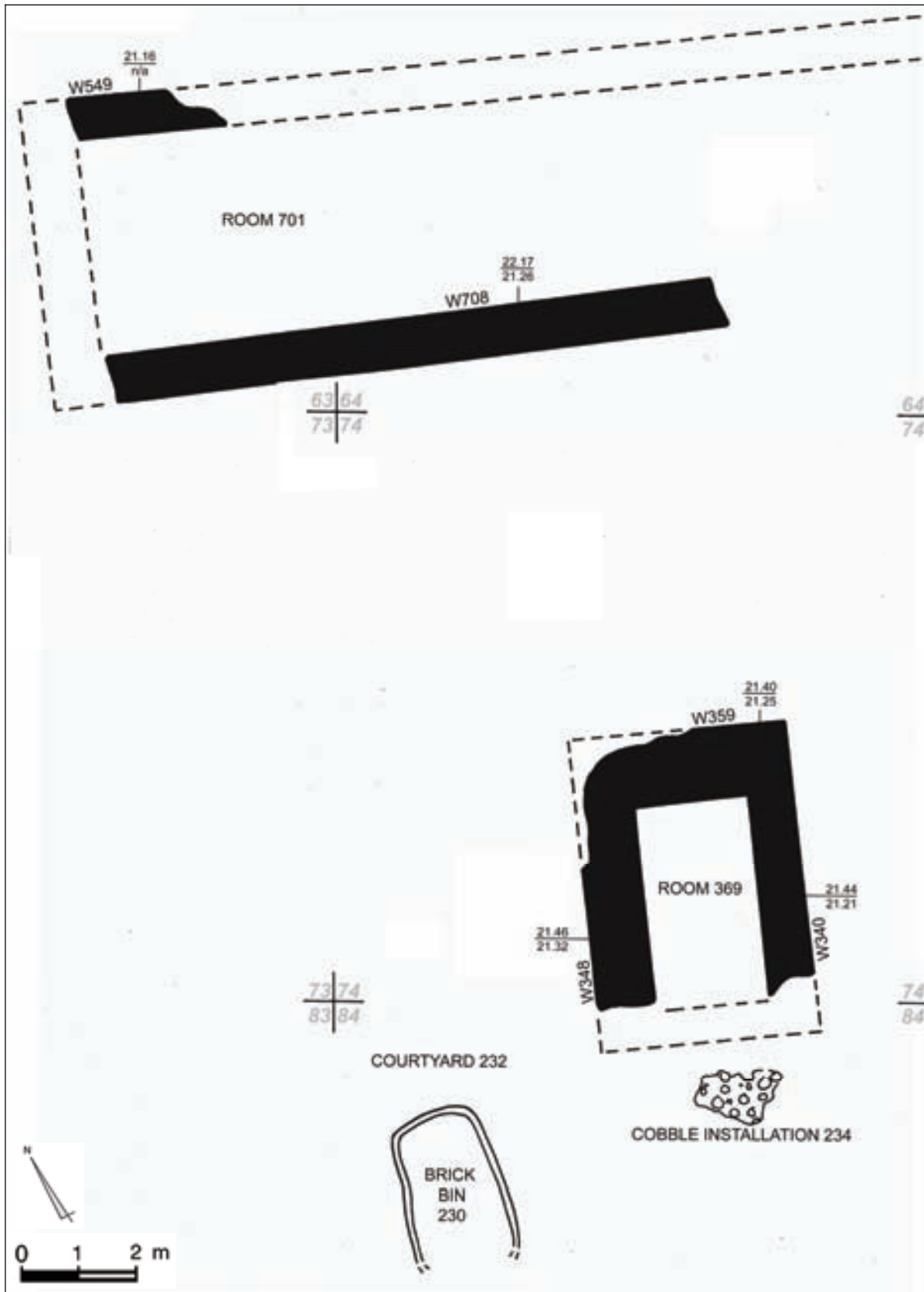
Figure 15.62: Block plan of Persian-period architecture in Grid 38 Phase 11

west side of the Grid 38 trench and a courtyard in the center. The small finds are domestic in nature. The dominant items are stone and clay loom weights, spindle whorls, chert blades, beads, stone hammers, and a few stone weights. Two bread ovens also indicate domestic activity in this area. In the outdoor spaces, dogs continued to be buried.

Phase 11 (figure 15.62)

In Phase 11, a thick fill layer accumulated over the Phase 12 material, into which a series of large pits was dug (not shown on plan). They were presumably garbage pits because they contained masses of broken pottery as well as camel and cattle bones. These pits have been distinguished as a separate phase. The architectural remains of this phase are poorly preserved because they were damaged by more substantial later structures, but the pottery of the pits in Phase 11 is clearly differentiated from that of Phase 12.

Phase 10 (figure 15.63)

Phase 10 belongs to the latter part of the Persian period and the first few decades of the Hellenistic period. It reveals the beginning of the orthogonal city plan that was retained through every subsequent phase down to Phase 5. Parts of three housing blocks (*insulae*) are present in the Grid 38 trench. They were divided by paved streets that had stone-lined drainage channels. The walls were built using the pier-and-rubble construction technique that is widely attested around the Mediterranean in this period. Finely dressed *kurkar* (sandstone) ashlars were used for the corners of buildings while cobble- and boulder-sized *kurkar* fieldstones set in mortar comprised the main part of the wall foundations. Peach-colored mud-bricks made up the wall superstructures.

Phase 10 exhibits much better architecture than the previous Persian-period phases and the small finds are richer as well. These include a large number of faience amulets, scale weights, worked bone objects, seals, coins, and imported pottery. The Phase 10 artifacts exhibit greater diversity and higher quality than the assemblages excavated in the earlier Persian-period phases; however, the excavation area clearly remained domestic in nature. Several rooms contained bread ovens and some weaving activity was detected.

The end of Phase 10 is marked by a substantial destruction layer. Heavily burned floors covered by loose gray and black ash were found in several rooms. Fallen mudbrick walls and roof collapse covered some of the burned floors. Some rooms exhib-

ited no apparent burning but had collapsed wall material that covered smashed pottery vessels. Among the most impressive discoveries in this destruction layer was a hoard of thirty-one "Philisto-Arabian" obols (reg. no. 26174) found in **Room 341**. This hoard is dated to the fourth century B.C. (see chapter 18).

The destruction of Phase 10 occurred much later than the fourth century, however, judging by the pottery found in this phase. Indeed, the heirloom coin hoard and other rich artifactual remains abandoned under the destruction debris indicate a sudden, violent destruction of the city. The same destruction event is attested in Grid 57, far away on the western side of the South Tell. Coins found in the contemporary Grid 57 Phase 3 destruction layer indicate that Ashkelon was destroyed around 290 B.C., early in the Hellenistic period, during the reign of Ptolemy I Soter—presumably in the context of a military campaign in which the Macedonian rulers of Egypt established their supremacy in Palestine.

Phase 9 (figure 15.64)

Phase 9 spans the period from the early third century to the mid-second century B.C. Several beaten-earth floor surfaces were distinguished in each of the Phase 9 rooms but it was not always easy to correlate these floors from one room to the next. The composition of a floor and its elevation do not necessarily indicate with which floors in adjacent rooms it was contemporary. In addition, some Phase 8 features cut into the latest Phase 9 floors, complicating the stratigraphy. The correlation of floors from room to room was therefore based on a comparison of the artifacts found in each room rather than on direct stratigraphic connections.

Walls in this phase were built using the pier-and-rubble technique. The piers consisted of ashlar blocks made of *kurkar* sandstone. The rubble fill between the piers consisted of cobble-sized *kurkar* fieldstones. Occasional bossed ashlars were reused from earlier phases and incorporated into the walls. Dark brown clay was used as mortar in between the cobblestone courses. Only the closing corners of the buildings were bonded; all other partition walls were simply built against the adjoining wall face. Brown and gray mudbricks were preserved in a few of the partition walls; such bricks were a major constituent of the superstructures of the buildings.

The painted plaster that must have adorned the upper-story rooms was not preserved *in situ* on any of the standing wall stubs, but nine of the excavated rooms contained fallen plaster fragments. These show that the walls of many upper rooms were painted with

21.16
n/a
W549

ROOM 546

22.17
21.26
W708

W547
21.24
n/a

63|64
73|74

STREET

21.73
21.03
W325

64
74

W339

ROOM 308

ROOM 324

*
OBOL HOARD
MC #26174
ROOM 341

21.59
21.25

OVEN

21.76
21.29
W248

W305

21.35
20.87

W240
21.75
21.08

ROOM
346

21.35
20.56
W138

ROOM 256

ROOM 321

ROOM 369

22.30
21.44
W221

W342
21.95
21.31

21.75
20.88
W252

W223
21.78
21.43

ROOM 229

OVEN

W233

OVEN

ROOM 225

21.71
21.30
W251

22.01
21.68

W227
22.02
21.58

N

FIRE
INSTALLATION
F246

0   1   2 m

Figure 15.63: Block plan of late Persian/early Hellenistic architecture in Grid 38 Phase 10
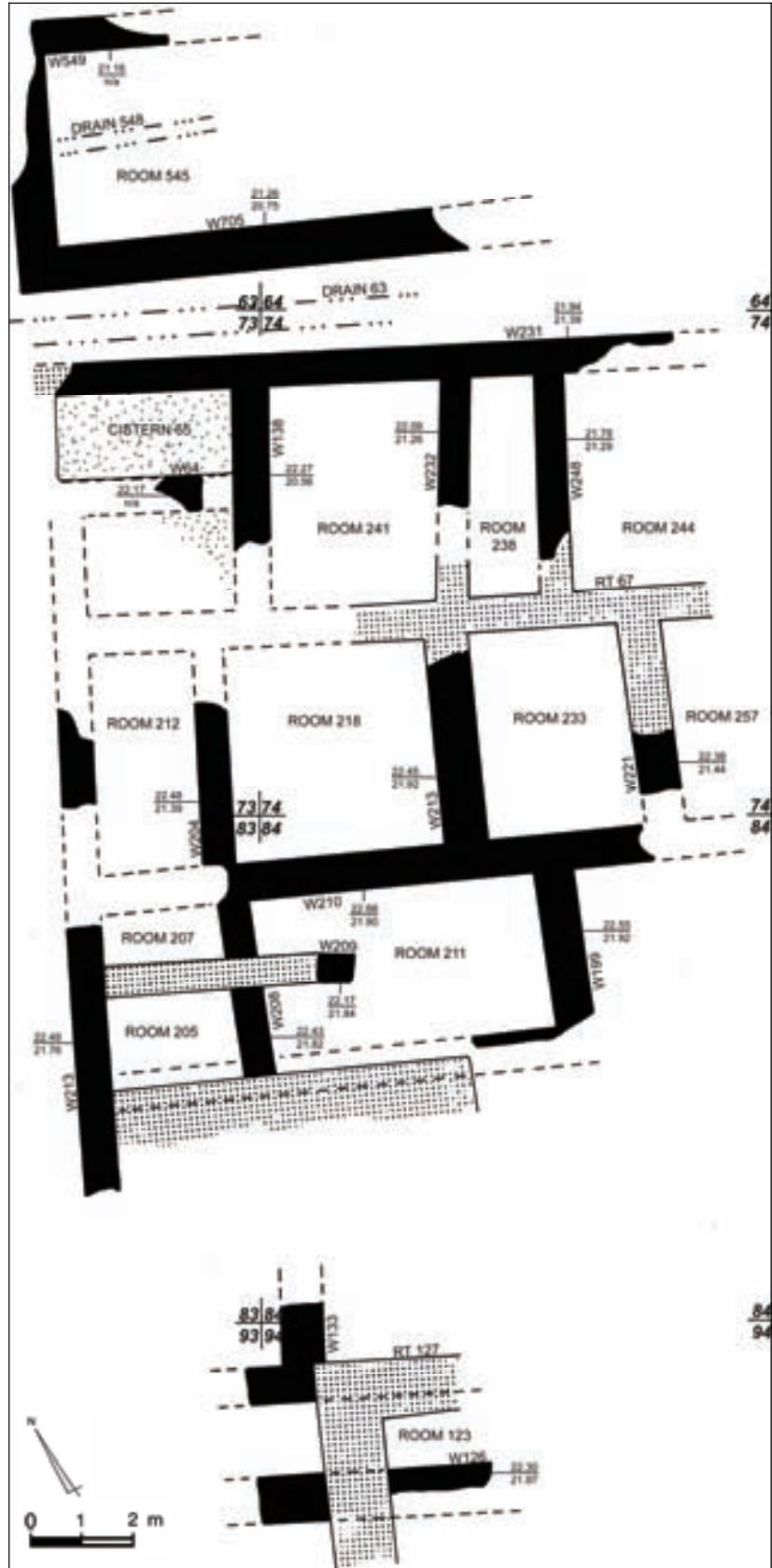
Figure 15.64: Block plan of Hellenistic-period architecture in Grid 38 Phase 9

red, yellow, and white panels. This plaster is often more than a centimeter thick.

The most noteworthy architectural feature in this phase is **Cistern 65**, which measures 1.65 × 3.30 m. The cistern's walls were coated with a thick impermeable plaster made of crushed shells. The pottery inside the cistern ranges in date from the third to the second century B.C. The room to the south was almost completely destroyed by later building activities in the Islamic period, but it is clear that it had also been plastered, so it presumably functioned as another basement cistern.

A final layer of mudbrick collapse in **Cistern 65** marks the end of Phase 9. This layer contained second-century Koan and "Brindisi" amphoras (see chapter 23, Amphoras 25 and 26), as well as a city coin of Antiochus IV from 169 B.C. The end of Phase 9 is therefore securely dated to the mid-second century B.C.

Phase 8 (figure 15.65)

A new complex of buildings was erected in Phase 8 over the leveled remains of Phase 9. The orientation of the streets and buildings was maintained, however, with new buildings founded directly on top of the stone courses of the Phase 9 walls. In most cases, the mudbrick courses of the Phase 9 walls were shaved off in order to use the brick debris as fill material and in order to reach the stone courses that would serve as foundations for the Phase 8 walls. In several rooms, the Phase 9 foundations were wholly or partially robbed away and the resulting trenches were backfilled with mudbrick debris.

Phase 8 is dated on the basis of the latest coins found in the subfloor fills. These coins range in date from the third to the second centuries B.C. Of course, it is only the latest coins that are relevant for dating. These are coins of Antiochus VII from 133–132 B.C. (reg. no. 24512) and of Demetrius II from 129–128 B.C. (reg. no. 24647). The construction of Phase 8 must therefore have occurred in the second half of the second century.

Three separate buildings were exposed in Phase 8. Their degree of preservation varies considerably. Their walls were constructed using both header-stretcher bonded masonry and undressed rubble. The foundations of exterior walls (average width 0.65 m) were made of dressed ashlar blocks set in courses with a thin layer of clay mortar between each course; in some cases, crushed chalk was used as mortar. Interior partition walls were founded on *kurkar* cobblestones bonded with clay mortar. As in Phase 9, closing corners were bonded whereas ordinary parti-

tion walls simply abutted the adjoining wall face. Scraps of plaster indicate that some of the rooms had painted walls.

Most floors were of beaten earth although some were coated with white lime plaster (probably made from crushed *nari* chalk). No remodeling or sub-phases are evident during Phase 8. **Room 225**, a northern room in the main building, has an artifactual assemblage that is typical for this phase, including bronze pins, a basalt bowl, a bone scapula, and a bone spindle whorl. In general, the small finds in this phase indicate domestic activities—confirmed by the presence of three bread ovens in the excavated area—with a possible emphasis on textile production, as shown by the large number of spindle whorls, stone weights, and worked bone implements.

Phase 8 ended in the late Hellenistic period when it was covered by clay leveling fills upon which were erected the stone foundations of a new ashlar building constructed in Phase 7. There is no evidence of destruction, so the transition from Phase 8 to Phase 7 was apparently quite peaceful and it is not clear why a new building complex was constructed.

Phase 7 (figure 15.66)

The complex of buildings in Phase 7 maintained the same orientation as in the previous phase. Once again, the mudbricks of the previous walls were shaved down and the stone foundations were reused, although, in some cases, new foundations were laid that consisted of *kurkar* cobblestones cemented with clay mortar.

Phase 7 is heavily disturbed by the Phase 5 bath-house and sewer construction. Many rooms were cut in pieces so that only patches of their floors survived. Moreover, most of the large foundation stones of Phase 7 were robbed out during the medieval period (Phase 1). In just seven walls of the whole complex are any stone courses preserved above floor level, and these courses survived only because they were used as foundations in Phases 5, 4, and 3 and so were inaccessible to the stone robbers in Phase 1. Nonetheless, the floor plan of Phase 7 is reasonably clear in much of the trench.

The northern building consisted of at least three rooms. Most of the north side and the eastern third of the building was cut by later pits, robber trenches, and a late Roman drainage system. **Street 144** separated this building from the much larger building just to the south.

The southern building complex consisted of at least fourteen rooms, the plans of which are very incomplete. This building extended into the east balk.
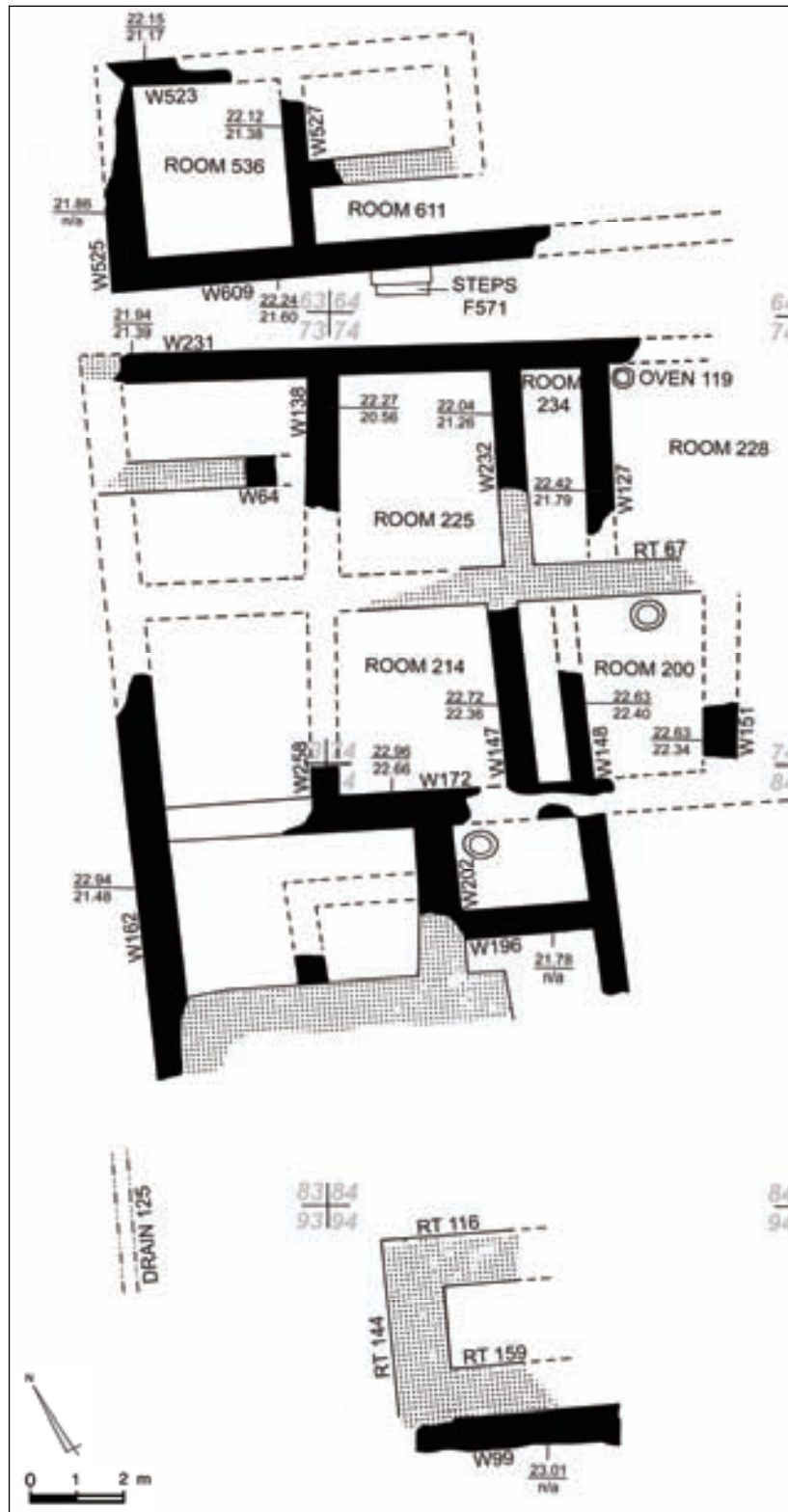
Figure 15.65: Block plan of Hellenistic-period architecture in Grid 38 Phase 8

Figure 15.66: Block plan of late Hellenistic architecture in Grid 38 Phase 7

Its west side was bordered by the Phase 6 drainage system. A street probably existed there, but this is unclear. The building may have extended as far south as the Phase 5 sewer that severed all connections with layers and features farther south.

Room 134 in the southern building complex contained a hoard consisting of coins from various cities along the coast of Asia Minor and the Levant (reg. no. 20040). The coins vary in date; the latest are from ca. 100 B.C. (see chapter 19). It is possible that the hoard was collected by a sailor early in the first century B.C.

Phase 6 (figure 15.67)

There were no major architectural changes between Phase 7 and Phase 6. Some new partition walls were introduced but, by and large, the Phase 7 building plan remained in use throughout Phase 6. Some of the Phase 7 walls were simply reused and new wall foundations were placed on top of the shaved down walls of Phases 7 and 8. Furthermore, Phase 6 is unevenly preserved. In most cases, only the wall foundations and fill layers remain because of later construction and stone-robbing activites in Phase 5 and Phase 1. In addition, late Roman pits often intruded into layers of the early and middle Roman periods. Thus the principal method of distinguishing Phase 6 from the preceding phase is by means of the pottery and coins found on the few undisturbed floors. These provide a date range for Phase 6 from the first century B.C. to the third century A.D.

Two separate buildings with at least seventeen rooms were identified in Phase 6. **Room 125** had a particularly rich assemblage, including an ivory ram's head inlay with a Greek monogram on the back (reg. no. 20105), a hoard of five coins, and another group of three bronze coins. Floors were made of beaten earth, sometimes coated with crushed *nari* chalk. Typical finds include glass fragments, beads, painted plaster, stone weights, and spindle whorls. The artifactual repertoire is not greatly different from that of the preceding phase, indicating that this area of the city remained a relatively affluent residential neighborhood.

Unfortunately, the bathing pool, hypocausts, sewer drains, and mosaic floor foundations of the Phase 5 bathhouse removed most of the Phase 6 layers, particularly in the southern half of the Grid 38 trench, where the Phase 6 deposits lay at a slightly higher elevation (the downward sloping northern half was covered by a shallow leveling fill in Phase 5 and is thus better preserved). As a result, the early and middle Roman period is poorly attested.

Phases 5 and 4 (figures 15.68 and 15.69)

Sometime in the third century A.D. a bathhouse was built in the area exposed by the Grid 38 trench. The original bathhouse complex consisted of at least twelve rooms. The eastern and southern rooms extend beyond the excavation trench, so the full dimensions of the bathhouse could not be determined. It is not clear whether this was a small public bathhouse or a large private one. In any event, it had a much-repaired mosaic floor, which indicates that it was used for many years. The bathhouse had a plastered bathing pool or tub, at the corners of which were four heart-shaped columns that probably supported a canopy. After a long period of use, the bathhouse was abandoned and then was eventually replaced by a monumental apsidal building that was built sometime after the fifth century A.D.

During its lifespan, the bathhouse underwent at least one major remodeling, prompting the distinction between Phase 5 and Phase 4. In Phase 5, the plastered bathing pool was larger. In the mosaic floor nearby was a *tabula ansata* border made of black tesserae surrounding a Greek inscription; unfortunately, the inscription was so badly damaged that it could not be read.

In Phase 4, after the remodeling, the bathing pool was smaller and there was another Greek inscription, also inside a *tabula ansata*, but in this case painted on the outer face of the plaster rim of the tub, above the place where the earlier, unreadable inscription had been located. We can surmise that the earlier and later inscriptions said the same thing. The later one reads as follows:

ΕΙΣΕΛΘΕ ΑΠΟΛΑΥΣΟΝ
ΚΑΙ . . . Ε . . .

Enter, enjoy, and . . .

At first it was thought that this inscription had a sexual connotation and that the bathhouse might also have served as a brothel. But inscriptions like this were not uncommon in bathhouses during the Roman period, and they did not have sexual connotations (see chapter 20). The inscription simply welcomed bathers, in a manner that was common in both public and private bathhouses.

In contrast to this warm welcome was a gruesome discovery in the large sewer that ran under the bathhouse. The debris in the sewer contained the bones of nearly one hundred infants that had apparently been killed and discarded in the sewer, reflecting the practice of infanticide (see the analysis of these human remains in chapter 29).
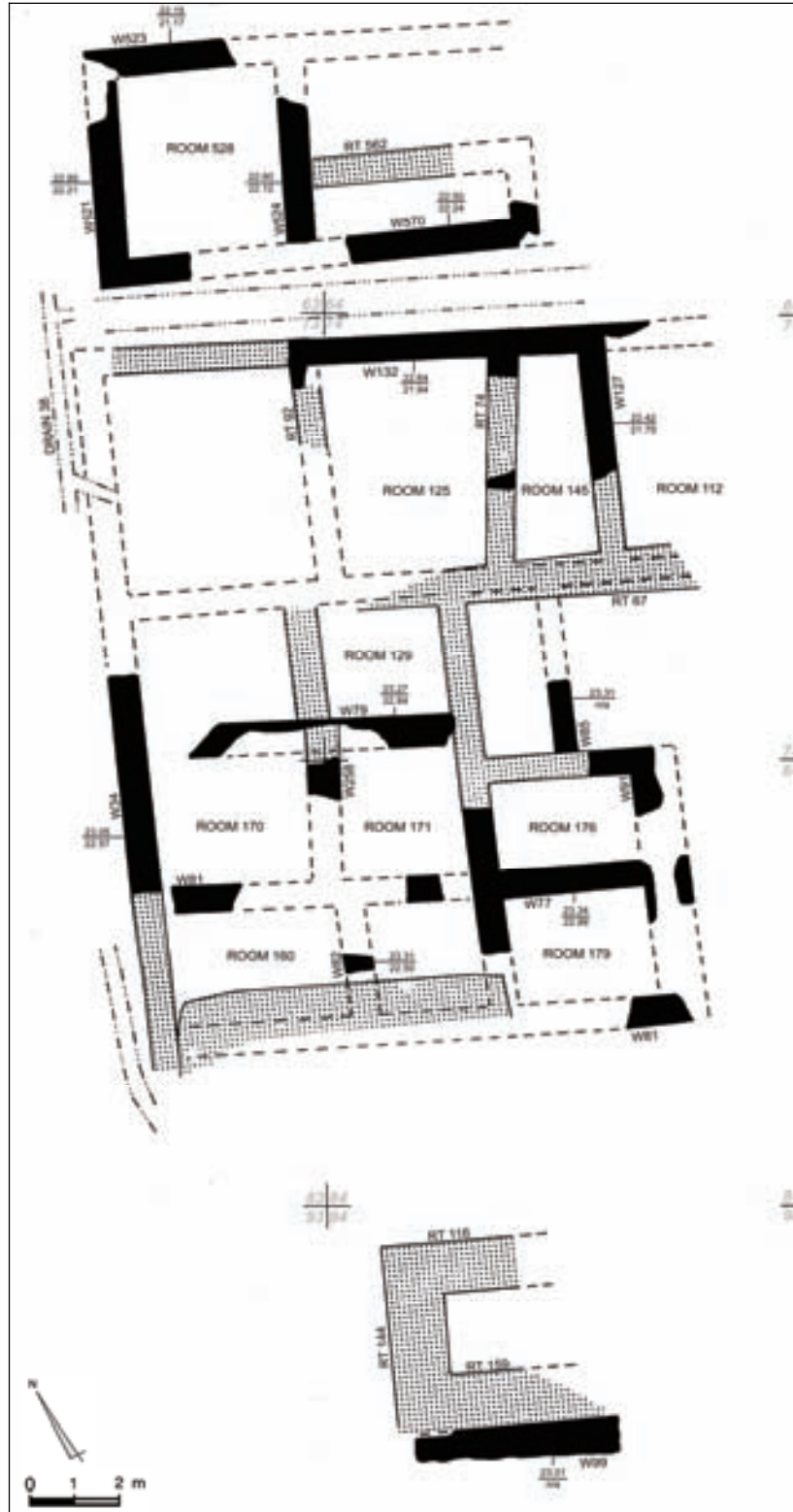
Figure 15.67: Block plan of Roman-period architecture in Grid 38 Phase 6
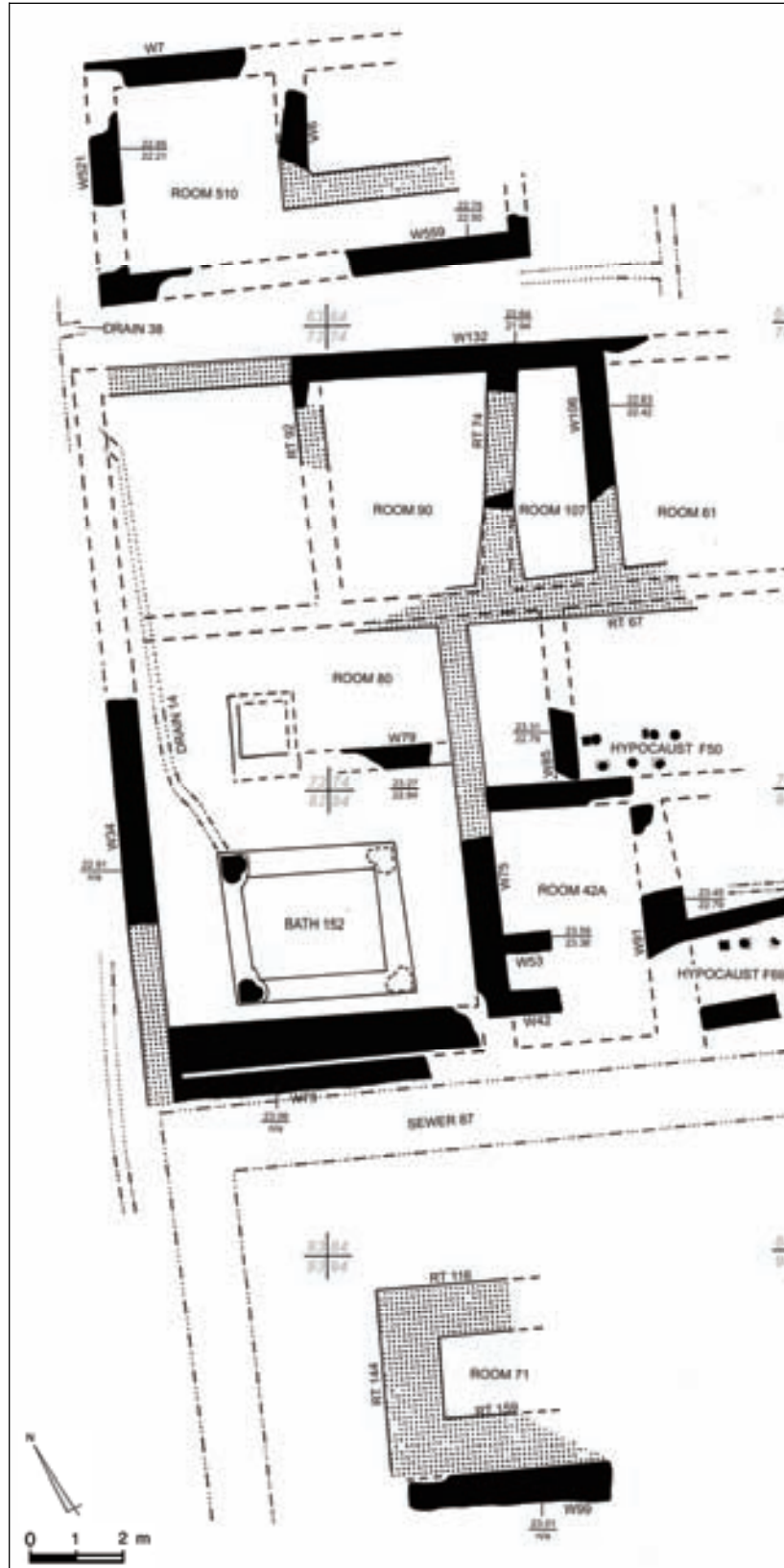
Figure 15.68: Block plan of Roman-period architecture in Grid 38 Phase 5
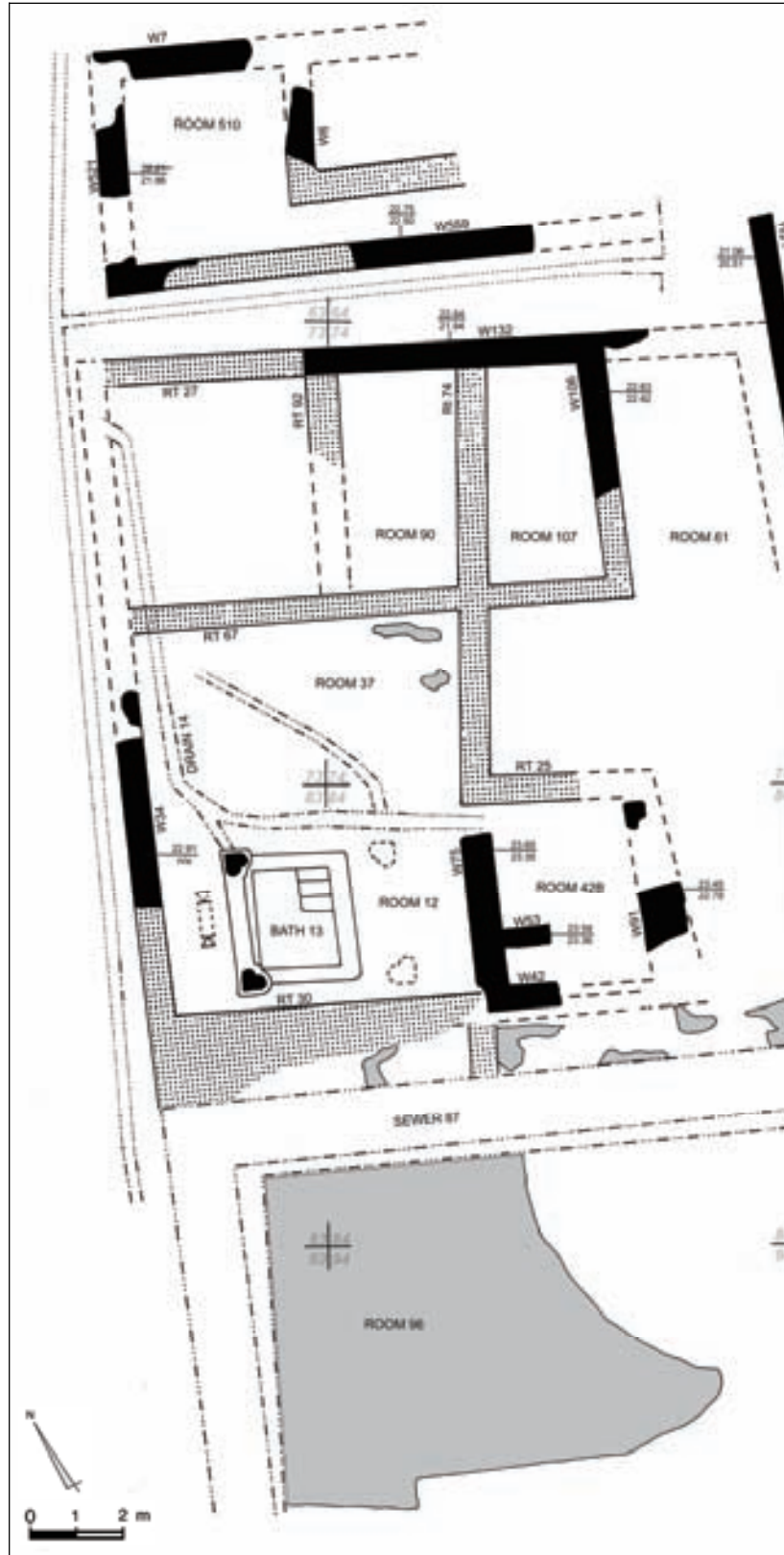
Figure 15.69: Block plan of Roman-period architecture in Grid 38 Phase 4

Fragments of a hypocaust system are preserved from Phase 5 but it was taken out of use in Phase 4. The mosaic floors of Phase 4 were installed after the hypocaust was no longer in use. In general, the Phase 4 bathhouse seems to have been of poorer quality than its Phase 5 predecessor. The inadequate foundations of the Phase 5 bathing pool presumably led to the decision to reduce the size of the pool so that it would be able to retain water. But no effort was made to rebuild the choked hypocaust systems in the rooms where it existed in Phase 5. New mosaic floors were laid in Phase 4, but they were set in such poor quality cement that repairs were constantly needed. All sizes and types of materials were employed in the floor repairs, but without adequate foundations, none was successful. Finally, even the smaller Phase 4 pool kept cracking. After four or five major replasterings over the cracks, the pool was finally abandoned. It was filled with amphoras and covered over sometime in the fifth century A.D., judging by the date of the latest pottery inside the pool. The drains were choked and neglected until the builders of the Phase 3 apsidal building leveled the area, sealing the bathhouse and its sewer.

Phase 3 (figure 15.70)

Phase 3 is characterized by a large apsidal building in the southern part of the Grid 38 excavation area. At the northern end of the trench, much of the architecture from this phase had been robbed out in the thirteenth century A.D., although **Room 70** contained many items of note, include objects made of faience and glass, a stone ax mold, painted plaster fragments, and various beads. Most striking is a cache of more than a hundred smashed ceramic oil lamps that were found embedded in a hard brown clay matrix. Most of the lamps were thoroughly crushed. The majority of them show no signs of having been used. Each lamp exhibits a different decorative motif. Motifs include gods, goddesses, chariot riders, animals, Zodiac signs, and erotic scenes.

The erotic lamps graphically depict various sexual positions (see Stager 1991:47, 51). They differ from the other lamps in that they have a cream-colored fabric without any preserved paint. The lamps were found in subfloor fill in **Room 70** of Phase 3, so they were probably used originally with the late Roman bathhouse of Phases 5 and 4.

At the southern end of the Grid 38 trench, an apsidal building was constructed in Phase 3. It remained the major architectural feature in this area from the time it was built, sometime after the fifth century A.D., until the time of its destruction by Saladin in 1191, when Ashkelon became a bone of contention between Muslims and Crusaders. Its walls escaped robbing because of the extreme hardness of their cement. This also protected some of the earlier walls in this area from being robbed.

The function of the apsidal building is unknown. Its orientation to the west is uncharacteristic for a church and nothing of a religious nature was found immediately inside or outside the building.

Phases 2 and 1

Phases 2 and 1 in Grid 38 span the period from the Muslim conquest in the seventh century A.D. to the Crusader capture of Ashkelon in the twelfth century (Periods III and II). These phases have been analyzed in detail by Tracy Hoffman in her University of Chicago dissertation (Hoffman 2003; see also Hoffman 2004), where she treats the architecture of this period in several different excavation areas at Ashkelon, including Grid 38.

In most places, the structures of this period appear to have a domestic function (see the discussion of Grid 37 Phase 1 above). In Grid 38, these phases are poorly preserved, so it is not clear how this area was used. The enigmatic apsidal building of Phase 3 continued in use and there is some indication that a portion of the previous bathhouse of Phases 5 and 4 was reused as a pottery kiln.

Despite the fragmentary nature of the excavated architecture of this period, Hoffman is able to shed considerable light on the urban environment of Ashkelon in the Byzantine and early Islamic periods by making use of a Greek legal text entitled *On the Laws and Customs of Palestine* that was written by Julian of Ascalon in the sixth century A.D. (see Geiger 1992; Saliou 1996; Hakim 2001). This document contains many useful details concerning the organization and architectural features of the city in the Byzantine period, many of which quite evidently survived into the Islamic period, as is shown by the excavated evidence of the continued use, or the renovation and reuse, of Byzantine-period structures for centuries after the Muslim conquest.
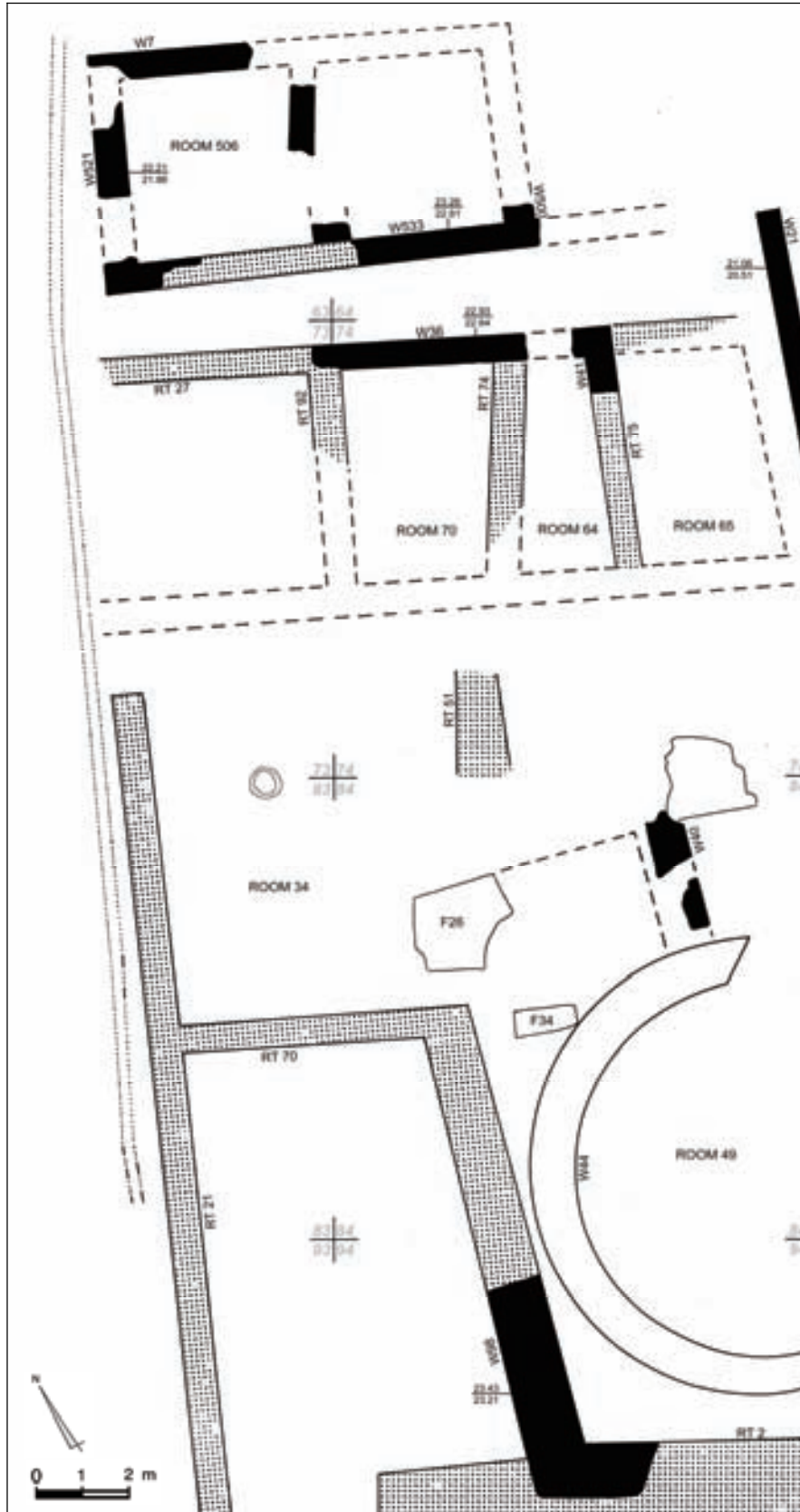
Figure 15.70: Block plan of Byzantine-period architecture in Grid 38 Phase 3

The Grid 50 Excavation Area

IN addition to the Grid 38 trench on the north side of the South Tell, the other major excavation area on the South Tell is in Grid 50, on the western side of the site abutting the Mediterranean shore. The Grid 50 trench measures ca. 60 m (east-west) × 20 m (north-south). The stratigraphic phases discovered there are presented below in chronological order from earliest to latest. These phases reflect the local stratigraphy in Grid 50 and thus are numbered independently of the phases in Grid 38. The correlations among the phases in the various excavation areas, and their assignment to occupational periods in Ashkelon, are given in the chart on pages 216–17 above.

In the *kurkar* bedrock at the bottom of the Grid 50 trench, we discovered a complex of rock-cut chamber tombs that date to the Middle and Late Bronze Ages (figure 15.71). Above the bedrock was a residential area contemporary with the tombs. After the tombs went out of use, an Iron Age quarry cut through the bedrock, uncovering the tops of the tomb chambers, at which point the quarry became a garbage dump that was filled in with a large mass of debris. Above this quarry fill, buildings were erected in the seventh century B.C. that were subsequently destroyed during the Babylonian conquest in 604 B.C.

After a period of abandonment in the sixth century B.C., this seafront area was reused during the Persian period to build a series of large warehouses. In the interval between two of the warehouse phases, the area lay open and was used to bury hundreds of dogs (see chapter 30). After the Persian period, the stone foundations of the warehouses were robbed and no further buildings were constructed in this area, although wells were dug and trees were planted.

Figure 15.71: Overview of the Grid 50 excavation area (view to north) showing rock-cut tombs of Phase 11
Tomb chambers are visible particularly at the top left, where the bedrock has been cut away by Iron Age stone quarrying, below the plateau (in foreground), where there is evidence of Bronze Age occupation contemporary with the tombs.

Phase 11

Phase 11 is the designation given to the Grid 50 sub-terranean tombs, which range in date from MB IIB to the transition between LB I and LB II. Sixteen tomb chambers were excavated, all in the northern half of the Grid 50 trench (squares 47, 48, 57, and 58). It is quite likely that additional chambers lie in the bedrock beyond the excavation area.

The tombs were cut into a very large *kurkar* (sandstone) slab that formed the bedrock beneath the Bronze Age habitation level. Much of this slab was later removed in extensive quarrying operations of the Iron Age, during which the roofs of most of the chambers were shaved off. The tombs were disturbed again in the Byzantine period by the construction of two wells. It appears that the Iron Age quarriers stopped their activity upon discovering the tombs and took care to restore disturbed offering groups; but the Byzantine-period well diggers paid little regard to the deceased: several burials were disturbed or even destroyed by their activity, which included the construction of a retaining wall directly on top of at least one skeleton. Despite these disturbances, the tomb chambers and the burials within them remained largely intact and most of the grave goods were found *in situ*.

The tomb complex is oriented roughly north-south. The chambers cut into bedrock are either square or rounded in shape. Four of the chambers (Chambers 5, 14, 15, and 16) had shafts or doorways that survived the later quarrying activity. These entrances are located in the southern walls of the tombs, indicating that the chambers were entered from the south and extended northward. Chamber 16 may have included a secondary shaft for offerings; the quarrying activity, however, has left only a trace of the shaft in the surviving section of the roof.

Overall, four subcomplexes of tombs have been identified. Three of these, chamber clusters 7–10–11, 1–2–4, and 13–14–16, all display the same basic plan, with a central chamber and two subsidiary chambers. The other subcomplex is Chamber 5, the earliest tomb found in the area, which consists of a single rectangular chamber with subfloor niches around its sides.

The organization of the remaining chambers is unclear. The destruction wrought by the extensive Iron Age quarrying has made the relationship of Chamber 8 to the surrounding rooms unclear. Chambers 3, 6, and 9 remained unexcavated because they extend beyond the Grid 50 excavation area. Chamber 12 was only partially excavated for the same reason.

Figure 15.72: East niche of Chamber 5 filled with pottery and bones in Grid 50 Phase 11

Altogether, the tombs we excavated contained more than 200 burials. Of these, 39 have been identified as male and 19 as female; it was impossible to determine the sex of the remaining individuals. The ages of the individuals ranged from neonate to adult.

On the basis of the pottery found in the tombs, four distinct phases of tomb use have been distinguished in the following ceramic periods: (1) MB IIB; (2) MB IIC; (3) LB I; and (4) LB I/II transition. Thus the cemetery appears to have been in continual use for roughly 300 years, from ca. 1700 to 1400 B.C.

Over this period, the tombs witnessed multiple changes in burial practice. Chamber 5 was built in MB IIB and continued in use through MB IIC. Originally, individuals and their grave goods were laid in one of the seven subfloor niches that lined the sides of this chamber. Most of the niches held between one and three primary burials; one niche contained seven individuals; and yet another contained only debris from later sweeps and no primary burials. At some point, the burial practice changed: corpses and their grave goods were now placed singly in the middle of the central floor, where the flesh was allowed to decompose. When the tomb was reopened for a new interment, the earlier burial was swept aside into one of the niches along the side (figures 15.72 and 15.73).

Figure 15.73: South repository of Chamber 5

The three other subcomplexes were built in MB IIC and continued in use until the LB I/II transition. They did not include subfloor niches; instead, corpses were placed at floor level around the perimeters of the chambers. During the funerary rites, corpses were placed in the central room of the chamber complex; after the ceremonies had ended and the body had been properly prepared, the corpse and its burial goods were removed to their designated resting spot on the perimeter of one of the chambers. In many cases, older burials were pushed aside in order to make room for a new interment.

Each burial was accompanied by ceramic vessels of various kinds—most likely, vessels used during the funeral ceremony and then left with the corpse. At the time of its final placement, the body was positioned in a specific way, with vessels carefully arranged around it, typically at the head, torso, pelvis, and legs or feet. Approximately 1,440 whole or partial ceramic vessels were discovered during our excavation of the tomb chambers. Many of these vessels were locally produced domestic pottery (storejars, plates, bowls, jugs, and juglets of various types). A substantial number, however, were imported. The number and type of these imports increased over time. Originally, they came primarily from Cyprus; but by the time the burials came to an end in the LB I/II transition period, they also included pottery of Egyptian, Syrian, and Mycenaean origin (figures 15.74 and 15.75).

The presence of grape seeds, olive pits, and the bones of sheep/goat and fish all attest to funerary meals and food offerings associated with the burials. In some cases, sheep/goat skulls were still in the bowls in which they had originally been placed.

Most individuals were buried with both a scarab (figure 15.76; see Keel 1997:688–735), which was probably worn as a pendant around the neck, and a toggle pin, which was used to fasten the burial garment. In addition to the usual set of grave goods—namely, pottery, food offerings, scarabs, and toggle pins—some individuals were also buried with personal items such as necklaces, daggers, spear heads, earrings, and finger rings (for more details, see Baker 2006).

Above the subterranean chamber tombs and concurrent with them are five LB I cist graves and two late MB jar burials found on top of the bedrock (figure 15.77). The cist graves are rectangular and made of mudbrick. The body was placed inside the mudbrick cist and associated pottery vessels were arranged both inside the cist and outside it in an adjacent pit. The jar burials held children and had very few grave goods.

Figure 15.74: Assemblage of pottery from tomb chambers in Grid 50 Phase 11

Figure 15.75: Assemblage of pottery from tomb chambers in Grid 50 Phase 11

Figure 15.76: Steatite scarab with Egyptian designs

The area above the chamber tombs has not yet been fully excavated down to the bedrock, so questions remain about the relationship between the subterranean necropolis and the settlement above it. Nevertheless, we have been able to obtain a basic picture of the Bronze Age sequence of occupation in this area. The lowest fill layers in the area above the tombs, which are MB in date, appear to be contemporary with the earliest burials in the necropolis below. Within these layers, two possible shafts down to the tomb chambers were identified. The material above the bedrock consists of a series of fill deposits that date from MB IIB to LB I and are therefore contemporary with the use of the tombs. These fill layers have been assigned to four ceramically defined subphases—MB IIB, MB IIC, LB I, and LB I/II—in a manner similar to the phasing of the tombs. The phasing could not be done stratigraphically but only on the basis of the pottery. Little of the architecture has survived because the foundations of the Phase 10 (LB II) buildings were deep and the area was disturbed again in the Iron Age, when the bedrock was quarried for building stone. As a result, a coherent plan of the occupational levels above the tombs in Phase 11 could not be constructed.

Figure 15.77: Mudbrick cist tomb in Grid 50 Phase 11

Phase 10 (figure 15.79)

Phase 10 is well preserved in those parts of the excavation area that were not affected by the Iron Age quarrying operation. The overall plan consists of a series of rooms surrounding a central courtyard (**Courtyard 630**). This central-courtyard house, or *Mittelsaalhaus*, dates to the thirteenth century B.C. It was excavated only in its northern half; the southern half fell outside the excavation area (figure 15.78).

In **Room 635** and **Room 639**, very little pottery was found on the floors, but what little there was includes Cypriot imports such as Base Ring and White Slip II wares. The rooms west of **Courtyard 630** were a later addition to this complex. **Room 532** contained pieces of a large Minoan oatmeal-ware pilgrim flask. **Room 514** was disturbed by later building activity. Above both of these rooms, a series of mudbrick collapse layers was excavated. It appears that this portion of the building went out of use and deteriorated gradually, filling up with decayed wall debris, prior to the next phase of occupation. Above the abandoned annex was a series of courtyard fills, which suggests that this later addition to the main building was used for a time and then simply left abandoned while the main building continued.

To the north of the courtyard building, most of the Phase 10 material was removed by the later quarrying, but in the northeastern corner of the excavation area, we found a cuneiform tablet fragment (reg. no. 49535) in a context contemporary with the use of this building. The tablet contained a lexical text written in Sumerian and Canaanite (see chapter 16).

The thirteenth-century courtyard building of Phase 10 was not connected to any of the Phase 11 mortuary remains. It was built later than the last remains found in the tomb chambers below. It appears that the area was no longer being used as a necropolis. This development coincides with a greater Egyptian presence in Canaan, suggesting that the cessation of burials in this area of Ashkelon may be linked to wider political and cultural developments in the region. It is significant that, together with the imported Minoan oatmeal ware, Mycenaean IIIB, and Cypriot Base Ring and White Slip wares, there is a small amount of locally made Egyptian-style pottery in Phase 10, including some of the distinctive beer jars with perforated bases (also found in Grid 38 Phase 21) that belong to the end of the Nineteenth Dynasty or the Twentieth Dynasty, which indicates that the Phase 10 courtyard building continued in use into the early twelfth century B.C.

Figure 15.78: Eastern half of the Late Bronze Age courtyard house in Grid 50 Phase 10
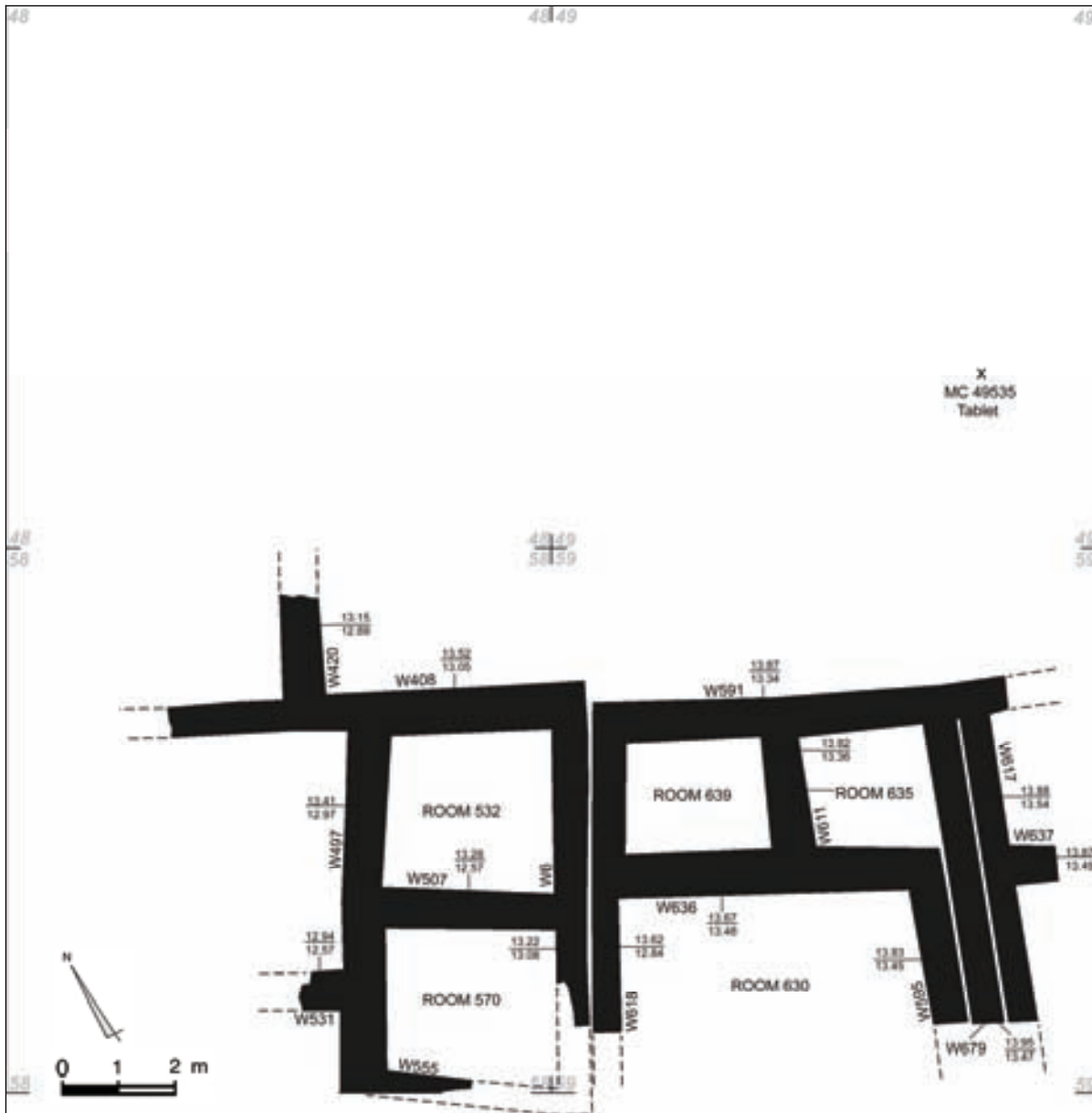
Figure 15.79: Block plan of Late Bronze Age architecture in Grid 50 Phase 10

Phase 9 (figure 15.82)

Phase 9 is the only phase from the Iron I period found in our Grid 50 trench. Although our excavation area is near the places where Mackenzie (1913) and Phythian-Adams (1923) identified a Late Bronze Age destruction level, no traces of this have been found, suggesting that they had detected localized patches of burnt debris rather than a site-wide destruction level (see Master 2005:337–39; Stager, in press). Instead, Phase 10—the latest LB phase, in which there is no sign of a destruction—was followed by a gap in occupation for the remainder of the twelfth century. This is shown by the fact that the Phase 10 material includes Egyptian pottery identical to that found in Grid 38 Phase 21, but has no Philistine pottery, which means that Phase 10 ended in the early twelfth century, before the appearance at the site of Philistine Monochrome ware. The ceramic assemblage of Phase 9, on the other hand, dates to the eleventh century B.C., roughly equivalent to Grid 38 Phase 18 and Tel Miqne Stratum V. The most common diagnostic pottery is Philistine Bichrome, which is found in almost every room in Grid 50 Phase 9 and in the foundation deposits below the walls. Sherds of a Philistine Bichrome pictorial krater were found in the bottom of a silo just north of **Room 503**. The Phase 9 building complex continued to be used into the time of Grid 38 Phase 17 and Tel Miqne Stratum IV.

The Phase 9 buildings themselves are, for the most part, poorly built stone walls with some mudbrick superstructure preserved. Parts of four buildings were found, but three of these were largely destroyed by the Phase 7 quarrying operation. In the southeastern part of the excavation area, the most substantial complex consisted of one or two structures. The walls of these buildings were not built simultaneously accord-ing to a well-defined architectural blueprint but were constructed and remodeled at various times.

In many cases, there were foundation deposits beneath the lowest course of the wall foundations. The most common type of foundation deposit consisted of a bowl, a lamp, and an overturned bowl. Other deposits consisted of a set of two pilgrim flasks, a single pilgrim flask, a Philistine "feeding bottle," and a conical weight.

Room 519, located in the southeastern corner of the excavation area, contained two sunken jar installations. In each case, a storage jar was cut off at the shoulder and placed in a pit. The area around the top of the jar was paved with a ring of flat-lying *Glycymeris* shells, just as in the similar installations in Grid 38 Phase 18.

Room 503 contained a pit filled with poorly fired clay spool weights, one of which had a clear string mark around the middle. The room also contained an unusual brick installation consisting of a rectangular brick depression lined with a thick plaster coating. The spool weights and other finds suggest a domestic function, but **Room 503** is also notable for producing two chariot fittings. At the southern end of the room, in the stub of a wall that protruded from the south section of the excavation area, we found a yoke saddle boss made of elephant ivory (reg. no. 53595; figure 15.80). This find is particularly interesting because it seems to be part of the same chariot kit as a bronze anthropomorphic linchpin (reg. no. 47971; figure 15.81) that was unearthed in the eastern corner of the same room (see Stager 2006a). The figure on the linchpin has a head reminiscent of the Ashdoda and *psi*-type figurine heads common at eleventh-century Philistine sites. Its long neck has a scale-armor corslet or necklace reminiscent of the Ashdoda figurine necks.

Figure 15.80: Ivory yoke saddle boss from Grid 50 Phase 9

Figure 15.81: Bronze anthropomorphic linchpin from Grid 50 Phase 9
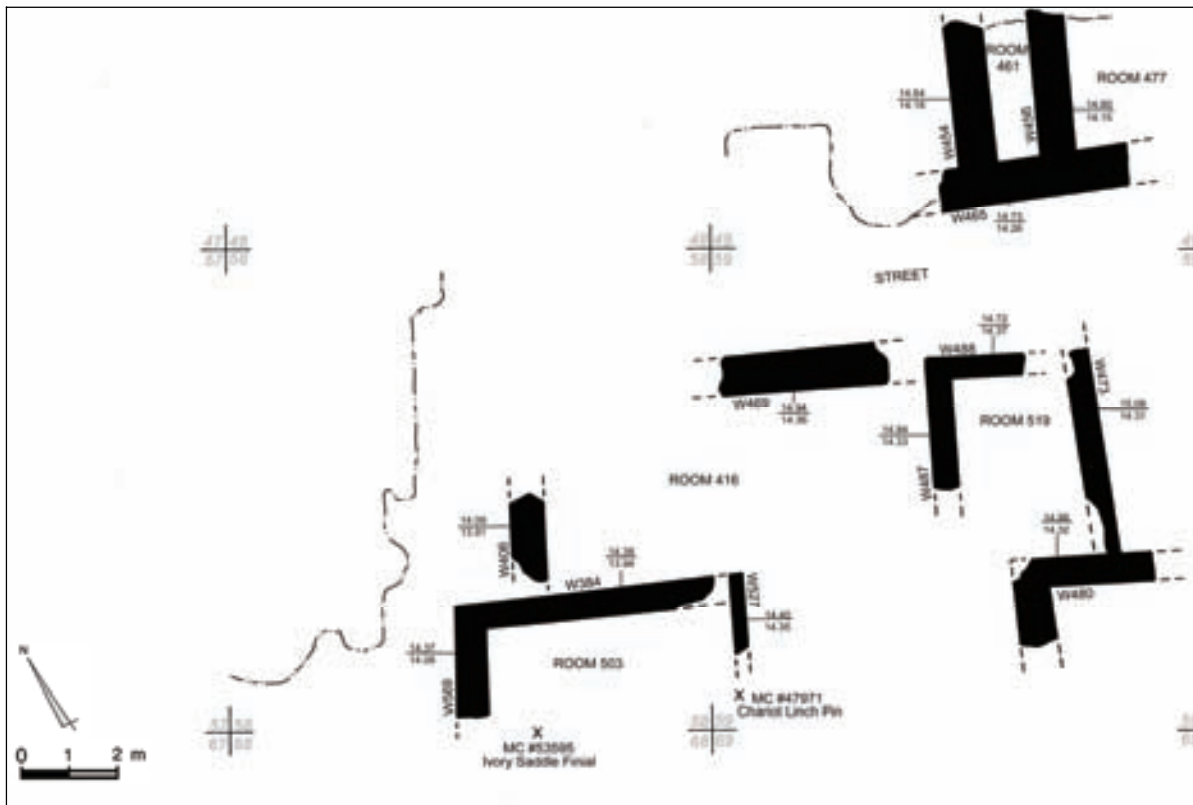
Figure 15.82: Block plan of early Iron Age architecture in Grid 50 Phase 9

Phase 8 (figure 15.83)

After Phase 9 in the Iron Age I, there seems to have been a substantial gap in occupation in the Grid 50 excavation area. Phase 8 is dated on the basis of late eighth- or early seventh-century pottery found inside walls. For example, the handle of a basket-handled amphora was found in the makeup of the most substantial north-south wall of this phase. Hardly any pottery attributable to the ninth or eighth centuries was found anywhere in the Grid 50 trench.

Phase 8 is difficult to understand because of the quarrying and building activity in the area during the latter part of the seventh century B.C. The northern half of the excavation area was cut by the quarry, which left fragments of architecture isolated from the overall building plan. Some coherent architecture remained in the southeastern corner of the excavation area, however. Here the walls were constructed of small cobble-sized *kurkar* fieldstones with a mud-brick superstructure. A substantial east-west wall was preserved with several north-south walls projecting from it. To the north of this building was an alley full of typical household waste, including broken pottery, shells, ash, and bones (mainly fish bones).

Just north of the alley, a silo was cut down into the bedrock. Perhaps this cut alerted the residents to the fact that the bedrock rose quite high in this area, making it a good location for a stone quarry. In any case, a massive quarrying operation was undertaken that destroyed Phase 8. The bedrock was systematically mined and the stonecutters eventually broke through into the Middle and Late Bronze Age tombs that had been carved deep in the bedrock. The roofs of many tomb chambers collapsed as a result but the tombs were not otherwise disturbed.

At that point, the quarrying ceased and the quarry was completely filled with debris. This massive trash deposit, which is up to 3 m deep in some places, contains abundant late seventh-century pottery, including Greek forms that date to the last quarter of the seventh century B.C.
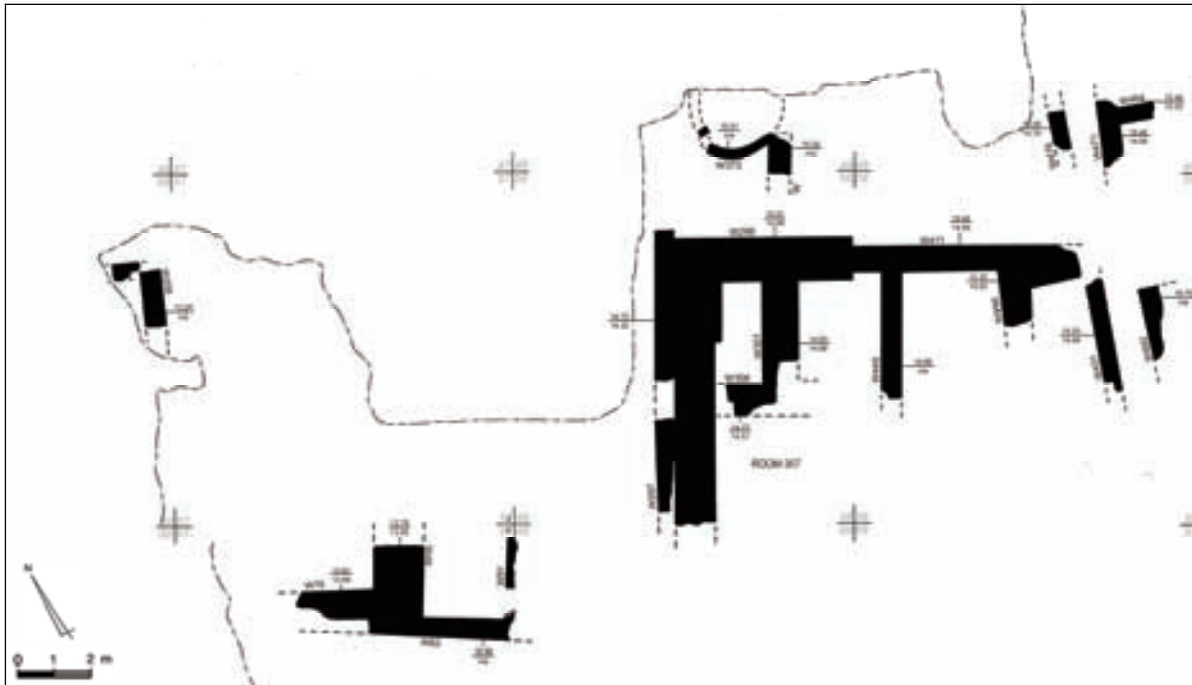
Figure 15.83: Block plan of Iron Age architecture in Grid 50 Phase 8

Phase 7 (figure 15.87)

In Phase 7, toward the end of the seventh century, a new building complex was built on top of the newly filled quarry. This complex has been interpreted as a marketplace. The excavated portion consists of four major buildings separated by drained streets and an open area (the "plaza"). To the south of these four buildings, two rooms of an additional building were excavated. Overall, the excavated area of the marketplace is over 500 square meters (figure 15.84).

In the northeastern corner of the excavation area, a row of four "shops" ran along one side of the eastern street. The goods sold in two of these shops were identified on the basis of the artifactual remains within them. The floor of **Room 423** was littered with dipper juglets and storejars (figure 15.85), suggesting that it was a wine shop. Just outside the shop lay an ostracon that lists quantities of red wine (*yn ᵓdm*) and *škr* (*šēkār*), which Stager (followed by F. Cross) understands to be *grappa* or "brandy" (reg. no. 42721; see chapter 17 below, inscription no. 1.5).

In contrast, **Room 431** on the western end of the building contained animal bones, which indicate the presence of large cuts of meat, including two complete forelegs of beef (figure 15.86); this was probably a butcher's shop.

The other special-purpose rooms or "shops" in the complex are less clearly identifiable. **Room 406** contained a variety of artifacts, including grinding stones and a row of loom weights against the wall, indicating the presence of a loom. The rear area of **Room 422** contained the bones of several birds.

Across the eastern street from the row of shops was the southeastern building, a large structure consisting of twelve rooms. This building has been identified as an "administrative center" (Stager 1996a), but some of the finds suggest that at least part of the building was used for residential purposes. The finds include a large number of small ceramic vessels such as juglets, jugs, and bowls. In addition, **Room 393** contained several basalt querns and grinders, as well as a basalt mortar, indicating that this room was used for the production of flour.

Figure 15.84: Overview of Grid 50 Phase 7 (view to the west), including many elements of the seventh-century B.C. marketplace

Figure 15.85: Room 423 with smashed pottery on the floor (view to the south)

Figure 15.86: Cow foreleg from the "butcher shop" (Room 431)

Figure 15.87: Block plan of late Iron Age (seventh-century) architecture in Grid 50 Phase 7

Figure 15.88: Bronze scale balance and weights from the "counting house"

The northwestern building on the west side of the plaza contained a series of long narrow rooms (**Rooms 421**, **276**, and **287**). These were probably magazines of a warehouse, where goods were stored before being put on sale in the shops. The function of this building is suggested mainly by the shape of the rooms; in none of the rooms of the "warehouse" was an occupational surface preserved.

The southwestern building was located across the western street from the "warehouse." This building was almost square in shape, with two rooms in the north half and one in the south half. The destruction debris in the northwestern room (**Room 206**) included a group of loom weights with strips of charcoal between them and a large vat that was partially sunk into the floor. It appears that this room was used for weaving and dyeing. But the finds from the rest of the southwestern building have suggested that it served as a "counting house." Two piles of carbonized wheat were found in it, one on the floor in the northeastern part of the building and the other in the street just east of the building (see Weiss and Kislev 2004). Dug into the street were two silos filled with grapes and figs. The destruction debris in the street contained a dozen weights made of bronze and stone, two bronze pieces of scale pans, and part of a bronze scale beam (figure 15.88). The scale and the weights would presumably have been employed to measure *Hacksilber* used to purchase goods in the marketplace. Moreover, in the destruction debris in the southern part of this street was a Neo-Philistine ostracon (reg. no. 39594; see chapter 17 below, inscription no. 1.2) that appears to be a receipt for the sale of grain for silver.

Only two rooms of the partially excavated building south of the "counting house" were excavated. **Room 42** contained two smashed storejars, one of which was filled with thousands of seeds of grass pea (*Lathyrus sativus*; figure 15.89). The destruction debris also contained thousands of seeds of wheat and hundreds of emmer and barley. In **Room 83**, the destruction debris contained even greater quantities of grain: more than 14,000 grains of wheat and thousands of emmer and barley, along with a number of seeds of bitter vetch (*Vicia ervilia*). This room was also notable for a subfloor structure that contained two restorable amphoras, one of which was imported from the Aegean island of Chios (figure 15.90). Overall, the finds in this room suggest that it served as a grain shop or storage area: the amount of wheat recovered from **Room 83** alone is more than four times the amount from either of the heaps of wheat found in and near the "counting house."

Figure 15.89: Seeds of grass pea (*Lathyrus sativus*)

Figure 15.90: Chian amphora from below Room 83

A drain ran along the middle of main streets in the Phase 7 marketplace, from east to west in the eastern half of the excavation area and then, after turning 90 degrees to the south, from north to south in the street between the "counting house" and the "administrative center." The structural components of the drain had been eroded away, leaving a gully filled with sandy wash.

The goods sold in the marketplace provide ample evidence of Ashkelon's trading connections in the late seventh century B.C. Petrographic analysis of the ceramic assemblage by Daniel Master (2003) points to trade with the Shephelah and northern Negev, and botanical remains from **Room 260** and **Room 406** in the southeastern "Administrative Center" also point to contact with the Negev (Weiss and Kislev 2004). From farther abroad, Phoenician storejars and Phoenician Fine Ware were imported from the Lebanese coast. East Greek amphoras were imported from the islands of Chios and Samos (and it should be noted that the debris filling the quarry beneath the marketplace contains large amounts of East Greek pottery, as well as some Corinthian pottery).

It is possible that much of Ashkelon's wheat supply was imported in this period. According to Mordechai Kislev and Ehud Weiss (Weiss and Kislev 2004), the piles of wheat in and near the "Counting House" contained weed seeds of particular species that indicate the grain was harvested not in the vicinity of Ashkelon but in Judah and the Sharon Plain. Possible connections with the Red Sea are shown by remains of the parrotfish, which lives in the Red Sea.

Ashkelon's far-flung trade connections disappeared suddenly when the city was destroyed by Nebuchadrezzar II's army in December 604 B.C. The Grid 50 marketplace was burned and covered with a layer of destruction debris that was filled with smashed pottery vessels (figure 15.91). Signs of destruction are particularly visible in the area of the "counting house," where a large jar of olive oil had apparently spilled on the floor, so that when the fires of the destruction reached that area, they burned so hotly that the mudbricks and other clay materials were vitrified. The destruction debris in this area contained reed-impressed roof clay, much of it still bearing a thatch pattern, and charred wood from the roof beams. On top of the roof collapse was a small incense altar, without horns, made of *kurkar* sandstone (figure 15.92). This altar vividly demonstrates the connection of commerce and cult in seventh-century Ashkelon and conjures up images of the prophet Jeremiah's condemnation of rooftop rituals such as incense offerings (Jeremiah 32:29; cf. Jeremiah 19:13; 2 Kings 23:12).

The most poignant evidence of the Babylonian destruction of Ashkelon came to light in one of the "shops" of the Grid 50 marketplace (**Room 406**), where we found the skeleton of a woman, who was about 35 years old when she died (see chapter 28 below). During the onslaught she had probably been crouching among the storejars, attempting to hide from the attackers. When we found her, she was lying on her back, her legs flexed and akimbo, with her left arm reaching toward her head (figure 15.93).

Figure 15.91: Smashed pottery from the 604 B.C. destruction by the Babylonian army

Figure 15.92: Rooftop incense altar found on top of the roof collapse of the "counting house"

Figure 15.93: Room 406 (view to the south) with the skeleton of a woman amid smashed pottery
in the 604 B.C. destruction level of Grid 50 Phase 7

Phase 6 (figure 15.94)

After the destruction of Ashkelon at the end of the
seventh century, the site lay abandoned for almost a
century. Its inhabitants fled or were deported and did
not return to rebuild their city. The site was resettled
late in the sixth century under the aegis of the Persian
Empire. Phase 6 is the first Persian-period phase of
construction in the Grid 50 excavation area. It con-
sists of a warehouse with six parallel, rectangular
rooms. These rooms were 8.25 m long (north-south)
and 3.50 m wide (east-west).

The destruction debris left over from Phase 7 re-
quired substantial leveling before the Phase 6 ware-
house could be built. Before construction began,
stones were robbed from the Phase 7 wall founda-
tions. The Phase 7 destruction debris sloped down
toward the north and west, so a clean, compact level-
ing fill was deposited to raise and flatten the surface.

The four easternmost rooms of the warehouse
were substantially intact, but the remains farther west
were much more fragmentary. The most substantial
and deeply bedded wall was the northern east-west

wall, which faced a 5-meter-wide street to the north.
The north-south walls that subdivide this structure
abut the northern and southern east-west walls.

All Phase 6 walls consisted of stone courses with a
mudbrick superstructure. The stone courses were
constructed with ashlar facings and a rubble core, as
in the contemporary buildings in Grid 38. None of
these walls had substantial foundation trenches. They
were cut into the earlier matrix on the western side,
then leveling fill was deposited, and finally a thin
clay layer was spread immediately below the wall
stones. The lateral north-south walls were not bedded
as deeply as the northern east-west wall and they
were terraced, with each wall up the slope from west
to east bedded at a level 25–30 cm higher than the
previous wall. Where preserved, the mudbricks of the
superstructure were laid in an orderly fashion, either
with three rows of mudbricks side-by-side, or, more
commonly, with a row of rectangular bricks laid in
the header orientation backed by a row of bricks in
the stretcher orientation.

Above the leveling fill were the bottommost floors
of the warehouse rooms. The floors were, for the

most part, quite clean, although some artifacts were recovered. In **Room 333**, several storejars were found on the floor. Other finds include a camel scapula, probably used as raw material for bone artifacts, and the impression of a basket that had contained red ocher. **Room 333** also yielded several bone artifacts and many bits and pieces of bone debitage that are the byproduct of boneworking.

Further clues concerning the activities that took place in the warehouse are provided by the pottery excavated in Square 57. Complete amphoras, or their upper or lower halves—many of them imported from Greece—were found in a depression, where they had either been discarded or were intentionally dumped as fill material to level the depression. It appears that imported wine was decanted into smaller, locally made storejars, and the larger imported vessels were then discarded. No cooking pots or other domestic pottery forms are represented in the assemblage.

North of the warehouse was a 5-meter-wide street or courtyard. The street, like the warehouse, slopes down toward the sea to the west, which facilitated the drainage of the area. The street layers consisted primarily of ash and sand and contained large quantities of bronze wasters, metallurgical slag, debris from bone working, and broken pottery. Among the potsherds were numerous fragments of fine imported wares, including an Attic bowl rim that dates to the mid-fifth century and Chian amphoras that are dated ca. 475–450 B.C. No material later than this was found, which suggests that the warehouse existed only in the first half of the fifth century B.C.
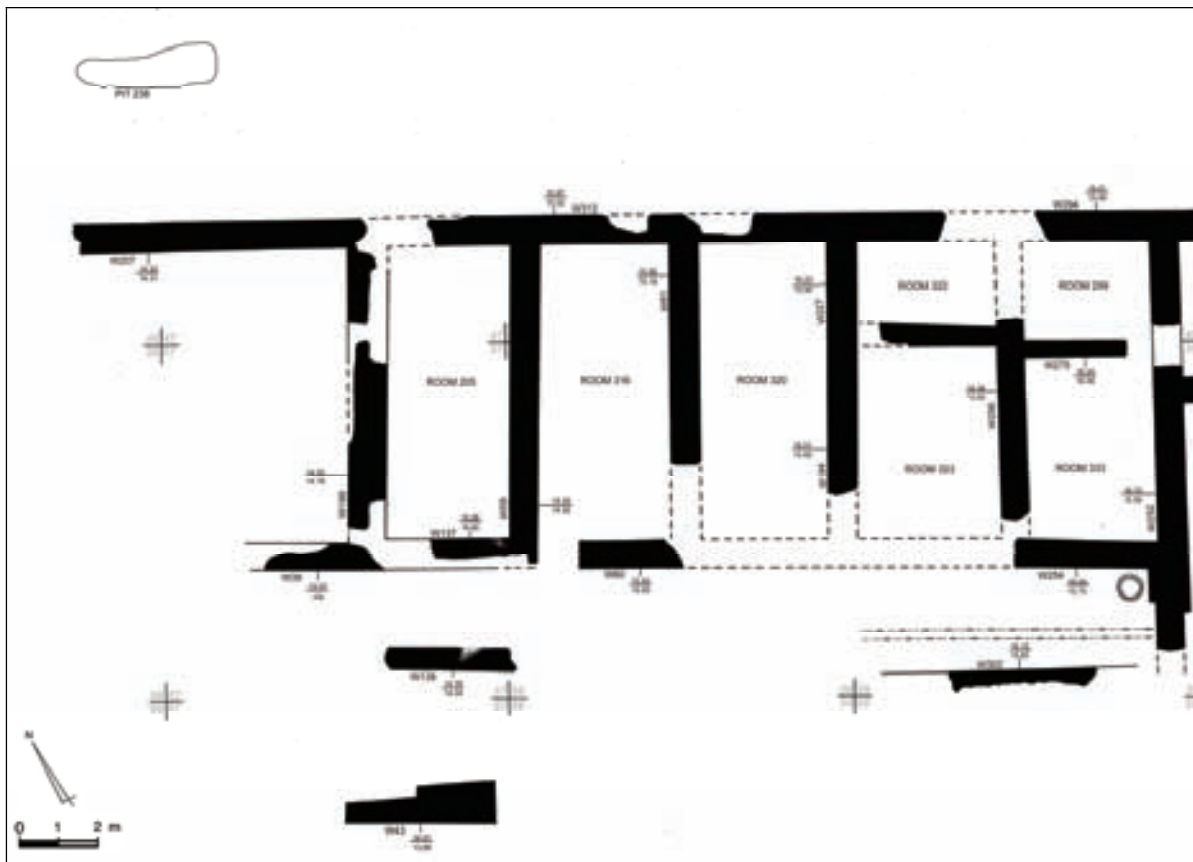
Figure 15.94: Block plan of Persian-period architecture in Grid 50 Phase 6

Phase 5 (figure 15.95)

Phase 5 had almost no architecture. After the Phase 6 warehouse went out of use, the area lay open for some time. The open area was used to bury hundreds of dogs—a striking phenomenon that is also attested in the same period in Grid 38 Phase 12 and Grid 57 Phase 5. Dogs continued to be buried as various soil layers accumulated over time. It is not clear whether the area was kept free of buildings in order to facilitate the dog burials, or whether it was simply an open space, and like other open spaces in the settlement at this time, it was used as a convenient canine burial ground.

The dog burials contained no grave goods and were apparently not marked on the surface in any way because subsequent burial pits were cut into earlier burials in a seemingly random fashion. Possible explanations for the presence of these numerous but enigmatic dog burials in Persian-period Ashkelon are discussed below in chapter 30.

In addition to the dog burials, there was little else in Phase 5. The accumulated soil layers in the area contained a substantial amount of slag and other metallurgical debris, but are otherwise unremarkable. The pottery found in these layers is dated to the middle and late fifth century B.C.
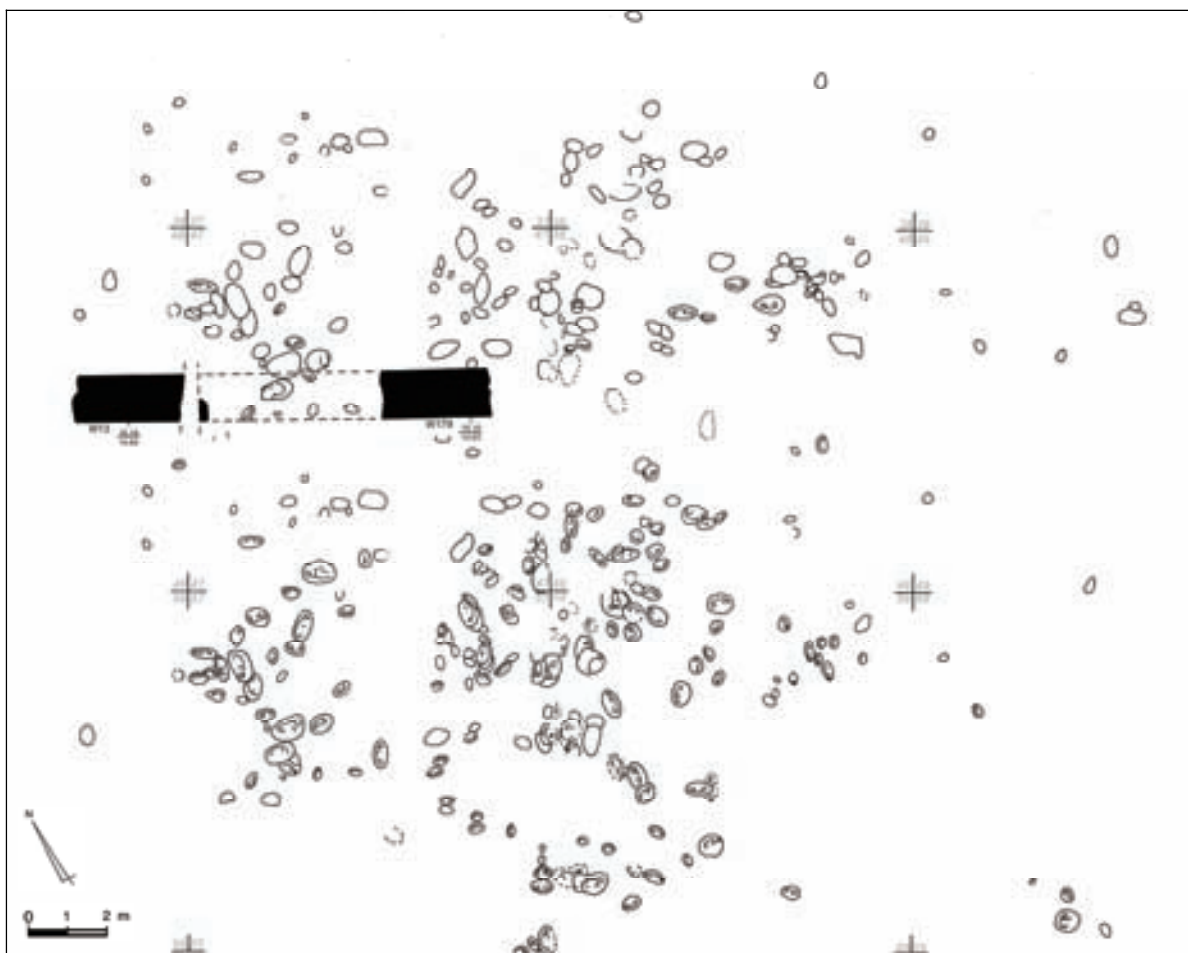
Figure 15.95: Plan of Persian-period dog burials in Grid 50 Phase 5

Phase 4 (figure 15.96)

At the end of the fifth century B.C., the open area in which dogs had been buried was covered by a new building that had mudbrick floors in many of its rooms. This building was greatly damaged by later constructional activity. The northwestern portion is almost entirely missing; its plan is reconstructed on the basis of a few preserved fragments of mudbrick flooring.

In addition, because the building sloped downward from north to south and from east to west, it is diffi-cult to make secure stratigraphic connections across the entire area. The reconstructed plan shows an insula with an alley running through its southwestern corner.

The mudbrick floors inside the building were made with bricks that were either square (ca. 25 × 25 cm) or rectangular (ca. 25 × 50 cm). The floors were relatively clean, although in some cases typical domestic assemblages of animal bones and smashed storejars were found. The pottery is in keeping with an approximate date for Phase 4 in the first half of the fourth century B.C.

Figure 15.96: Block plan of Persian-period architecture in Grid 50 Phase 4

Phase 3 (figure 15.97)

The next phase in the Grid 50 excavation area was part of an extensive seaside warehouse complex that might have extended as far as Grid 57. Most of the walls in this phase had been robbed out in the medieval period, but those that remained were preserved to a height of more than a meter. The floors associated with these walls spanned the second half of the fourth century B.C., covering the transition from the Persian to the Hellenistic period.

The abundance of robber trenches made it difficult to link floors to one another across the excavation area. The robber trenches were filled with Islamic-period pottery. After this later backfill was excavated, what remained were isolated plateaus of Persian-period floor material. The natural terracing or sloping of this seaside district makes it impossible to use absolute elevations to correlate the floors. As a result, even though the general plan of Phase 3 is clear, many stratigraphic details could not be reconstructed.

The Phase 3 building generally conforms to the architectural plan of the previous phase. An alley ran southeast of the main building and an east-west street ran north of it. The east-west street had a stone-lined drain running down its middle that must have drained into the sea.

The small finds in Phase 3 indicate a variety of activities. In the building north of the street, there was considerable evidence for the production of wine or olive oil, although the actual pressing platforms were not found. On the western side of the same building, a bread oven revealed another form of food production.

Throughout the excavation area, an unusual number of intact or restorable ceramic vessels had been left behind, even though there was no evidence of violent destruction. It is possible that this area was suddenly abandoned during a conquest of Ashkelon in ca. 290 B.C., when buildings were burned elsewhere on the South Tell, in Grid 57 Phase 3 and Grid 38 Phase 10.
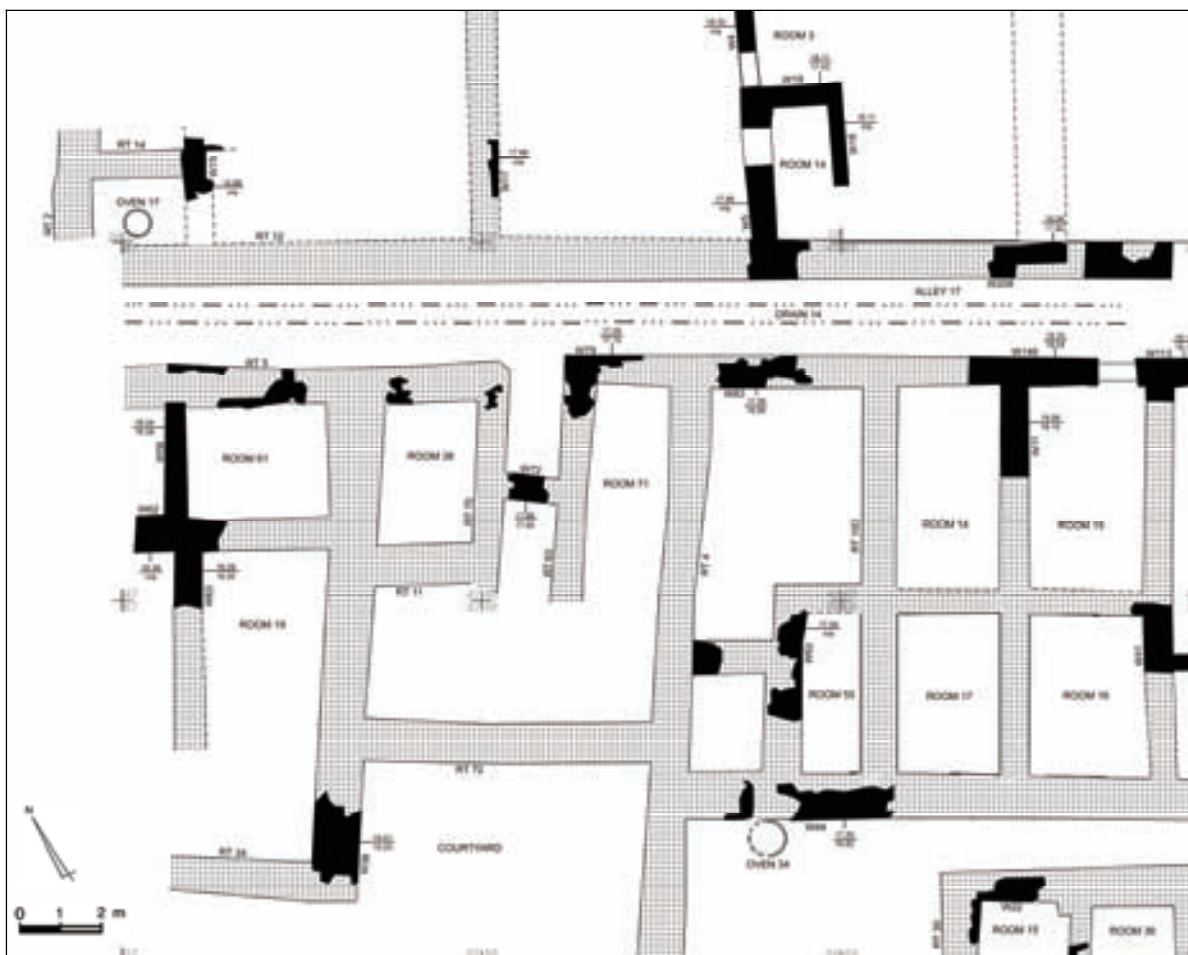
Figure 15.97: Block plan of late Persian/early Hellenistic architecture in Grid 50 Phase 3

Phases 2 and 1

No architecture was found in the Grid 50 excavation area that postdates the Persian period; however, the stone walls of the latest Persian-period building were not completely robbed out until the thirteenth century A.D. (judging by the date of the pottery in the robber trench backfill), so these walls may have stood for some time and been used in later periods, perhaps as retaining walls for open terraces along the seashore.

In the Byzantine period, a series of wells was dug in this area (see chapter 6 above). These have been labeled as Phase 2. The final phase, Phase 1, occurred in the Islamic period, beginning in the ninth or tenth century A.D. and continuing through the thirteenth century, when the exposed Persian-period walls were systematically robbed. In addition to robber trenches, Phase 1 is characterized a series of circular pits where trees had been planted to serve as a seaside wind-break for buildings to the east.

The Grid 57 Excavation Area

Tᴴᴱ fourth major trench on the South Tell is in Grid 57, which lies inland from the sea, a few hundred meters southeast of Grid 50. The Grid 57 trench measures 10 m (east-west) × 20 m (north-south). After several seasons of excavation, this trench had been dug down to the level of the Persian period, at which point excavation in this area ceased. Six phases were discovered. They are presented below in chronological order from earliest to latest; they are correlated with the phases in the other excavation areas in the chart on pages 216–17.

Phase 6 (figure 15.98)

Phase 6, which is the earliest phase excavated in Grid 57, dates to the Persian period. Portions of two buildings were found in this phase. In the southern building, **Room 272** had a thick plaster floor with two clay ovens set into it. **Street 362** ran along the northern edge of this building. In the street, two clay ovens were successively built against the north wall of the building. A layer of street buildup between the two ovens contained a fragmentary Greek ostracon.

The southern building had two subphases. In the earlier subphase, the function of the building is unclear. In the later subphase, the building seems to have been used for industrial purposes: in **Room 272**, the floor was ashy and contained traces of ground red ocher. At the end of the later subphase, the roof collapsed, as is indicated by a tumble of reed-impressed clay.

The fill layer between the two subphases in **Room 272** contained large amounts of pottery, perhaps indicating that the building was abandoned for a period of time during which the room was used as a pottery dump. Among the sherds in this fill layer were five ostraca with Phoenician inscriptions. The longest of these inscriptions reads *lmnwkyn*[*bw*] *bn* ᶜ*bdb*ᶜ*l*, "Belonging to Mannu-kî-N[abū] son of ᶜAbd-Baᶜl"—a man with a Babylonian name and a Phoenician patronymic (reg. no. 26227; see chapter 17 below, inscription no. 2.4).

The northern building in Phase 6 was heavily disturbed by later activity, so very little could be determined from it.
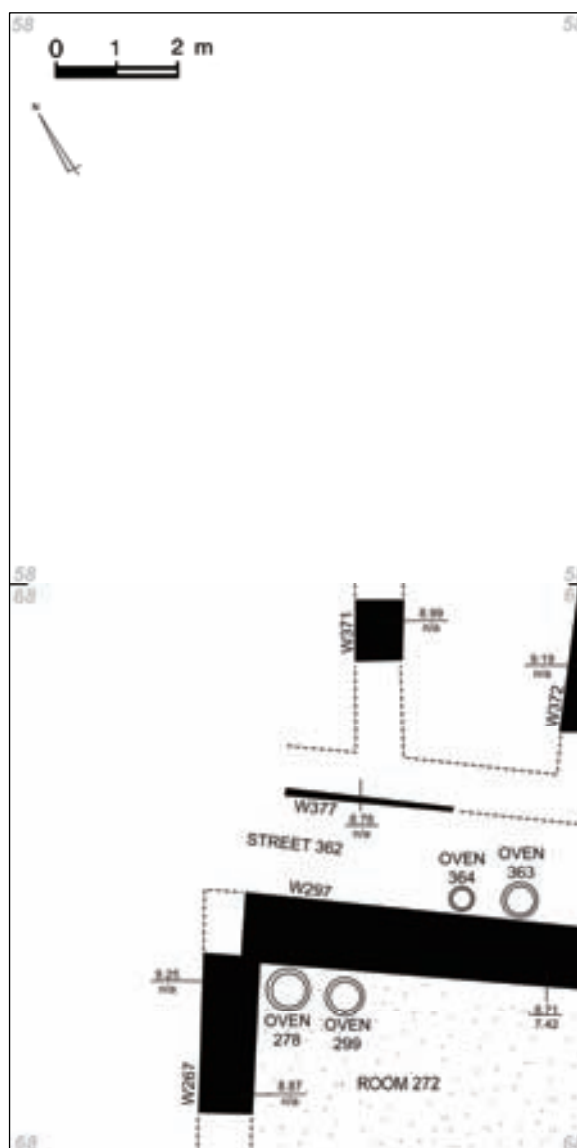
Figure 15.98: Block plan of Persian-period architecture in Grid 57 Phase 6

Phase 5 (figure 15.99)

As in the contemporary phase in Grid 50, the substantial building of Phase 6 was replaced in the succeeding phase by an open area consisting of fill layers and dog burials. In the Grid 57 trench, however, far fewer dogs were found. The Phase 6 street continued in use in this period, but the buildings were abandoned, and most of the stone walls were robbed out. Outdoor deposits were found both north and south of the street. Dogs were buried at random throughout the area; some of them were cut into the street itself.

In the soil layers that accumulated in the Phase 5 open area we found a Phoenician ostracon that has been dated to the late fifth century B.C., but there was little else of note. The pottery found in this phase also indicates a date in the fifth century B.C.

Figure 15.99: Plan of Persian-period dog burials in Grid 57 Phase 5

Phase 4 (figure 15.100)

In the late Persian period, a burst of new constructional activity in the Grid 57 excavation area followed the phase of dog burials. A new building was erected that partially followed the plan of the Phase 6 architecture. Parts of some walls that had survived the Phase 5 robbing were reused and a long room was added to the north. The rooms to the east were enclosed by walls built with extensive use of stone. No entrance was found in any of the western walls, so there was probably a street to the east of the excavated area with rooms opening onto it.

The western side of the Phase 4 building was largely destroyed by later building activities in Phase 3. It is therefore unclear whether the western half of the building extended northward as the eastern half did. A mudbrick floor was preserved, however, in **Room 166**, similar to the mudbrick floors found in Grid 50 Phase 4. **Room 358** contained two large amphoras resting on the floor. North of the building there was an open courtyard.

In a later subphase, the building was renovated and expanded. The major walls of the original building were reused, with an additional east-west mudbrick partition wall (**Wall 234**) added to subdivide the large room of the earlier subphase. A stone doorsocket was found at the east end of **Wall 234**, indicating a doorway between **Room 235** and **Room 228**. A room was also added to the north of the building, which now consisted of four rooms in a row— probably workshops that faced a street or yard.

These workshop rooms contained several installations, including mudbrick benches and bins. Notable among these was a clay installation of unknown function in **Room 235**. It was a block of mudbrick ca. 1 m wide and 2 m long. Carved into the top of it was a curved channel or trough that was lined with red clay. In this channel were found eleven nonperforated clay spheres, one perforated clay sphere, a smooth stone, and two small vessels. It is possible that the clay spheres were loom weights, in which case the installation would have been used in some way for textile production.

In another subsequent renovation a fifth room was added by the subdivision of **Room 235**. The building maintained its general shape and orientation, but many of the walls were rebuilt and offset somewhat from those of the previous two subphases. A shell-covered surface was added in **Room 264**. The industrial character of the building in this final subphase is clear. **Room 185** contained a fire installation, which consisted of a small mud- and brick-lined pit that contained several bronze nails and much pottery em-

bedded in an ashy deposit. Another small pit was cut into this installation and filled with part of an inverted jar and ashy material. Under both features was a semicircle of fieldstones. This succession of features indicates that the same installation had been raised and rebuilt several times as the floor accumulated around it.
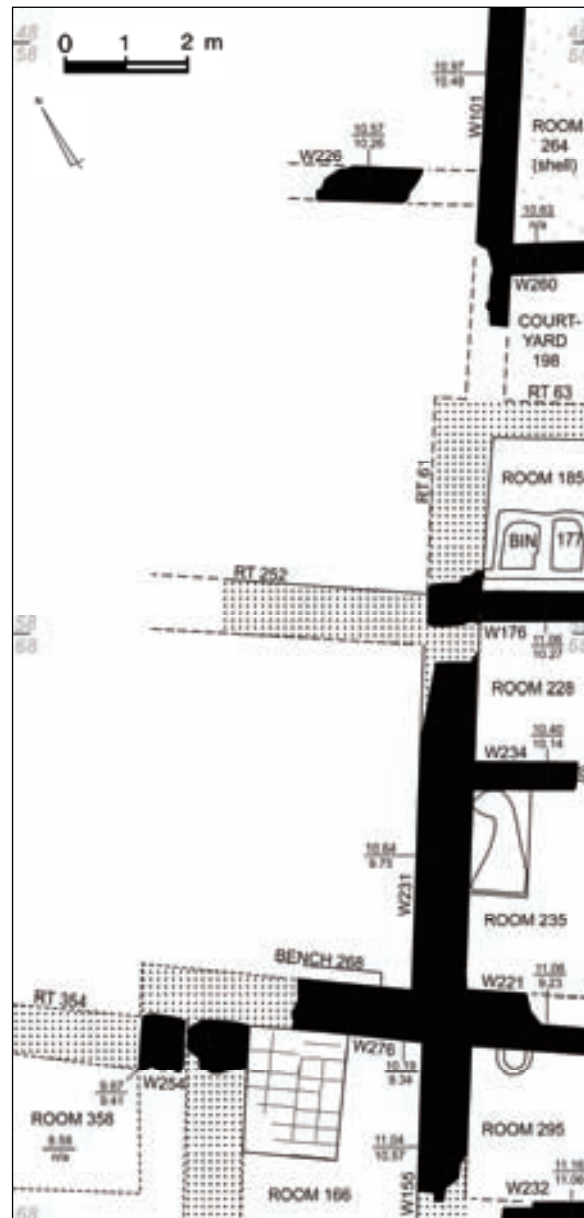
Figure 15.100: Block plan of Persian-period architecture in Grid 57 Phase 4

Phase 3 (figure 15.101)

During the course of the fourth century B.C., the Phase 4 buildings went out of use, making way for a new architectural phase that differed considerably in its floorplan. A square building with two rectangular chambers was constructed; each of the two chambers of the building had an east-west partition wall dividing it in turn into two rooms. **Room 306**, a deep mudbrick structure in the southwest chamber, was probably a basement because no entrance was discovered. This room had a fully preserved mudbrick floor that was composed of three rows of headers separated by two rows of stretchers and was two courses deep. The four walls of the basement seem to have been founded upon this thick mudbrick floor.

Extensions of the square building ran to the south, west, and north. On the west side, the walls of two smaller rooms were preserved. The remains of the building on the east side were situated at a higher elevation than those on the west; in fact, they were at a higher elevation than the Late Roman layers in the western half of the square. This was due to terracing, which was later masked by Islamic-period filling operations. A mudbrick bin (**Bin 155**) was built into the outer wall face on the north side of the square building. Another bin (**Bin 121**) was found in the northeast chamber.

The building went out of use after a partial but very intense conflagration. The burning was particularly visible in the basement room, where the inner faces of the walls were fired pink to a depth of several centimeters. The room itself was filled with a tumble of highly fired mudbrick fragments lying in a matrix of ash. Among the bricks were found a large number of smashed restorable vessels, several bronze and iron spikes, carbonized wooden beams, a number of coins, and many carbonized seeds. Above the destruction debris in the basement room (**Room 306**) was evidence of a collapsed second story, consisting of several restorable vessels as well as numerous iron and bronze spikes, all embedded in a matrix of ash and fired brick. **Room 103** also showed dramatic signs of destruction. The destruction layer there contained ten smashed restorable jars, some of which were lying on top of carbonized wooden beams and fired reed-impressed clay. These jars had presumably stood on the roof of the building or, more likely, on the floor of an upper story, and had fallen down onto the lower floor.

Strangely enough, these signs of destruction were completely absent from the southern half of the square building; however, two spear points found in **Room 86** provide evidence of military conquest. Fur-thermore, none of the peripheral structures of the building showed signs of a conflagration, except for part of **Wall 101**, where ash and fired mudbrick were encountered.

The pottery of the destruction debris included basket-handled amphoras and black-glazed Attic bowls, which are typical of the transition from the Persian to the Hellenistic period in the late fourth century B.C. In addition, several coins were discovered in the basement room (**Room 306**); one of them (reg. no. 15373) is clearly an early Hellenistic coin that dates to the years immediately following the death of Alexander the Great (ca. 323–315 B.C.). In Room **341**, a small pit cut into the floor contained a hoard consisting of a silver bracelet and 18 silver tetradrachmas of Alexander the Great and Philip Arrhidaeus (reg. no. 31620), whose latest date is ca. 290 B.C. Although the stratigraphic relationship of this room to the square building is not secure, the date of the coins suggests that they belong to the same phase. This provides a *terminus post quem* for the destruction encountered in the Grid 57 excavation area—and the presumably contemporaneous destruction that ended Grid 38 Phase 10—at the beginning of the third century B.C.

Following the fire, there is little evidence of occupation in the Grid 57 excavation area. The two partition walls of the square building (**Wall 132** and **Wall 85**) were cut by distinctive potsherd-lined installations. In each installation, the sherds were arranged in a herringbone pattern to a height of several courses, with a stone sitting at the base. These installations were perhaps silos or vats, but their precise character is unclear. **Room 341** was covered over by a pottery dump that yielded several pieces of crumpled lead. Another fill layer in this area contained an object made of copper alloy and gilded bone.

Phase 2 (figure 15.102)

As in Grid 50, a long gap in occupation followed Phase 3. The next architectural phase is dated ceramically to the Byzantine ("Late Roman") period. The layers in Phase 2, while not substantial, hint at more comprehensive structures that were obliterated by later stone-robbing activities in the Islamic period. It appears that several of the Phase 3 walls were reused, but little evidence remains to indicate the function of the Phase 2 building.

Room 36 contained the most substantial remains, including a plastered floor whose foundation consisted of coarse-ware body sherds standing on edge and aligned within blocks in a checkerboard fashion, with the sherds in alternating blocks oriented either

north-south or east-west. Below the floor was an east-west drain.

To the south of **Room 36** were three walls that enclosed **Courtyard 73**. The courtyard contained a layer of pebbles and cobbles, a fragment of what seemed to be a stairway descending to the east, and a basement room with a vaulted ceiling. This last feature appeared to curve toward a vaulted ceiling at its east and west end, leaving a hollow space just under the curvature. If a vaulted roof once existed, it was completely robbed out. To the east of the Phase 2 building were a series of clay ovens associated with a beaten earth surface, but no architecture was preserved in this part of the excavation area.

Phase 1

Phase 1 is dated to the Islamic period. No buildings were found in this phase, which consists of pits and robber trenches resulting from the removal of the stones in earlier Persian, Hellenistic, and Byzantine walls. A donkey skeleton was found in the backfill of the trench that had robbed out much of **Wall 124** from Phase 3.

Many carved bones were found all over the Grid 57 trench in this phase, suggesting that boneworking was an important craft in this period. Evidence of metalworking was also found, consisting of iron fragments found in an ash dump.
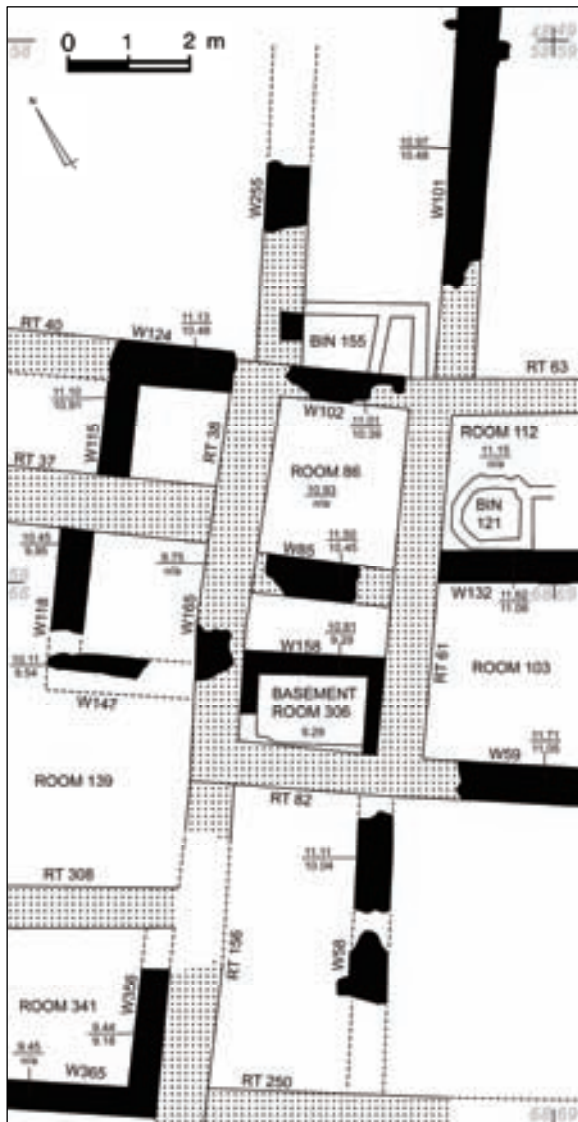
Figure 15.101: Block plan of late Persian-period architecture in Grid 57 Phase 3
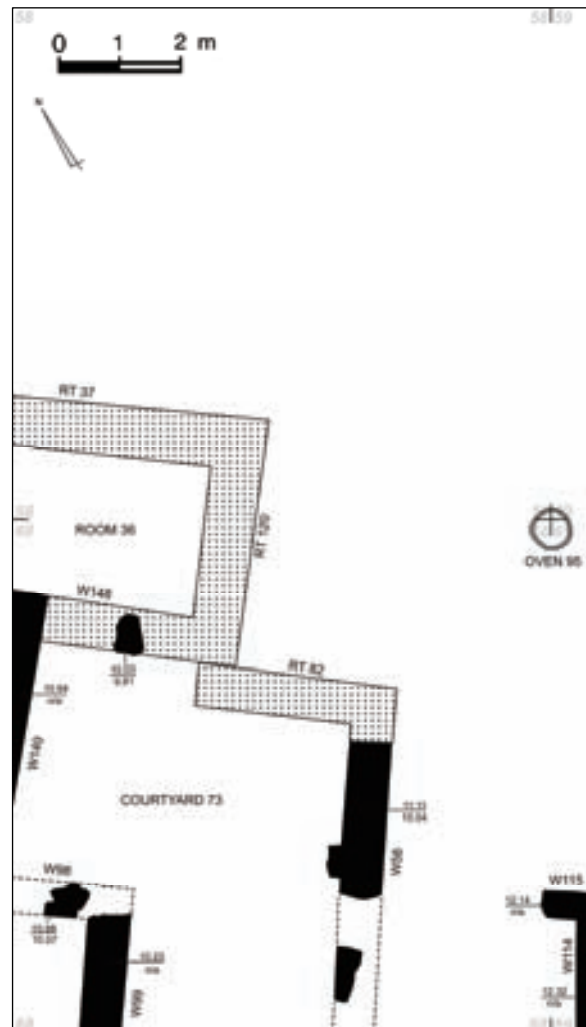
Figure 15.102: Block plan of Byzantine-period architecture in Grid 57 Phase 2

PART FIVE

INSCRIPTIONS AND COINS

16. A Cuneiform Lexical Text with a Canaanite Column

by John Huehnergard and Wilfred van Soldt

I. Background Information

In 1997 a small fragment of a cuneiform tablet was discovered at Ashkelon in Grid 50, Square 49. This is the first piece of cuneiform to be found at the site. The fragment was found in a clear Late Bronze II context, that is, the latest occupation prior to the Iron Age (see figure 15.79).[38] Thus, it probably dates from about the thirteenth century B.C. The palaeography of the cuneiform signs suggests a similar dating.

The unbaked fragment (figure 16.1) measures ca. 5.2 cm along its vertical axis and ca. 4.7 cm along its horizontal axis. Writing is preserved on only one side of the fragment; the other side is so damaged that it cannot be determined whether it was originally inscribed. The side with writing is fairly flat, a fact that suggests it was the obverse; this conclusion is borne out by the philological analysis of the text, which is presented below.

There are two vertical rulings on the inscribed side, roughly down the center of the fragment. Such vertical rulings are typically used to separate columns of text, as is the case with the fragment under discussion. To the right of the ruled lines there are the beginnings of eight lines of text. Each of the lower seven lines begins with the UGU sign, after which, at the right edge of the fragment, there follows the beginning of a vertical wedge belonging to a second sign. It should be noted that the right edge of the fragment is remarkably straight, and may have been cut for some reason.[39] Above the seven UGU lines, at the top of what remains of the right-hand column, there is a horizontal ruled line, indicating that the first of the UGU lines begins a new section of text. Above the horizontal line, there is the mere trace of the sign that began the last line of the preceding section. The left-hand column contains the ends of eight lines of text, three of which terminate in the same sequence of signs.

The string of UGU signs in the right-hand column suggests that we are dealing with a lexical text, that is, a text in which Sumerian signs in one column are explained by syllabically written words in another. It is likely, therefore, that the signs in the left-hand column of the fragment preserve the ends of glosses of a bilingual lexical text, or—given that the tablet is from a site in the western periphery of the cuneiform world—of a multilingual lexical text, such as the examples that have been found at Boğazköy (ancient Ḫattuša) and Ras Shamra (ancient Ugarit).[40] In other words, the tablet would originally have held four—or possibly six, or even eight—columns, namely, a column with Sumerian signs followed by another with the Akkadian equivalents of those signs—and if the text were multilingual, an additional column or columns for the other language or languages—and then the same sequence of columns repeated. Thus, the left-hand column of our fragment preserves the ends of the glosses of a missing set of Sumerian signs still further to the left, while the right-hand column of our fragment holds the Sumerian signs of a second set of columns, whose glosses further to the right have been lost. Our task, then, has been to identify the lexical text from among the many series of such texts preserved in Mesopotamian and western copies.

Again, the string of UGU signs in the right-hand column has been suggestive. As pointed out to us by Miguel Civil, in one Mesopotamian lexical text, the series ḪAR-ra–ḫubullu, Tablet I, we find the UGU sign repeated nine times. He also reminded us that this text was known in the west, since it is attested on a tablet found at Tell Meskene, ancient Emar (Arnaud 1986:part 4, text 541, lines 217'–24'.). It also appears on a still unpublished tablet found at Ras Shamra, ancient Ugarit (RS 20.133, cited below).[41]

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[38] The tablet was discovered in the undisturbed Layer 485 in Grid 50, Square 49, which once might have been inside the partially preserved building to the south. Later quarrying activity destroyed the extension of Wall 552 to the north, just missing Layer 485 and the cuneiform tablet. The tablet is labeled "MC 49535" on the plan of Grid 50 Phase 10 in chapter 15 above (figure 15.79).

[39] Similar straight edges can be seen in the ḪAR-ra–ḫubullu tablet from Hazor (see Tadmor 1977).

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[40] For the trilingual (Sumerian-Akkadian-Hurrian) and quadrilingual (Sumerian-Akkadian-Hurrian-Ugaritic) exemplars of the Syllabary A Vocabulary from Ugarit, see the Akkadian texts published by Jean Nougayrol (1968:nos. 130–38) and John Huehnergard (1987:21–45). For the trilingual (Sumerian-Akkadian-Hittite) exemplars of the same series from Boğazköy, see Landsberger and Hallock 1955, texts B₁–B₈. A trilingual list with Canaanite words was published by Anson F. Rainey (1976).

[41] Permission to cite these lines was graciously given by Béatrice André-Salvini, who is responsible for publishing the Ras Shamra lexical texts.
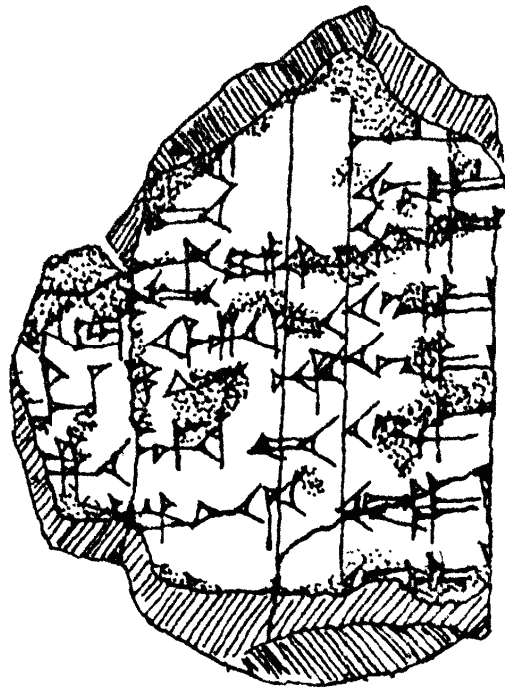
Figure 16.1: Fragment of cuneiform tablet found in Grid 50 Phase 10 (reg. no. 49535)
Photograph by Ze'ev Radovan. Drawing by John Huehnergard.

Copying lexical texts was one of the ways apprentice scribes learned their trade. This small fragment gives us a glimpse into scribal education at Ashkelon during the Late Bronze Age. As shown below, it also gives us an unexpected and brief (but extremely welcome) look at the Canaanite language of the city in that period.

II. THE TEXT

As discussed above, the tablet appears to contain a lexical text, in which Sumerian signs are explained by syllabically-written words. The only remaining side of the fragment preserves parts of two columns. Since the Sumerian signs in the right-hand column are indicative for the identification of the text, this column is discussed first.

Right-hand Column

1'	x	
2'	ugu [	
3'	ugu	x[
4'	ugu	x[
5'	ugu	x[
6'	ugu	x[
7'	ugu	x[
8'	⌈ugu⌉	x[
	(break)	

As noted above, the text to which these signs belong has been identified by Civil as ḪAR-ra–*ḫubullu*, Tablet I. In the canonical version, the section dealing with UGU covers lines 266–274 (Landsberger 1957: 28–29). In a forerunner, presumably from Larsa, it can be found in column iii of the obverse, lines 18–20 (Jean 1936). In Emar, we find this section in lines 217'–224' (Arnaud 1986:part 4, p. 44, text no. 541). In Ugarit, no available text preserves the UGU section.

Unfortunately, the line preceding this section is not preserved in any of the extant peripheral sources. The entry given by the canonical text, nu.gur.ru.dam, does not correspond to the traces on our tablet.

If the text in the right-hand column has been correctly identified, the left-hand column should also be part of the lexical list ḪAR-ra–*ḫubullu* I. Since we do not yet know whether the fragment gives us the obverse or the reverse of the tablet (although as noted above, the shape suggests the obverse), the left-hand column could either precede the right-hand one (if it is indeed the obverse), or follow it (if it is the reverse).

Left-hand Column

1'	[	]x
2'	[	]x
3'	[	]*ti ia ar*
3a'	[	]:? *x*
4'	[	*t*]*i*? *ia ar x*
5'	[	*a*]*l za x ti*
6'	[	*i*]*a ar x*
7'	[	]*x x ti*
8'	[	]⌈*x* (*x*)⌉

The first question to be answered is the reading of the sign marked *x* in lines 2', 3a', 4' and 6'. The sign consists of a Winkelhaken, followed by two horizontals and another Winkelhaken. Assuming for the moment that the tablet was written at Ashkelon itself (although it could also have been imported from elsewhere), the best place to look for parallels would be the small group of letters from the same period sent by the king of the city to the Egyptian pharaoh. Among the many letters found at el-Amarna there are seven that were sent by Yidya, the king of Ashkelon (EA 320–326). As far as can be made out from the copies of these texts, there is no sign that matches the sign in our text. However, in contemporary texts from Babylonia the sign occurs as a (more archaic) variant of the sign ḪI (Clay 1906:sign list no. 226), which in this period is normally written with four Winkelhaken.[42] We therefore suggest that the sign in our text is the sign ḪI in its archaic form. Whether the sign's shape points to a place of origin for the text cannot be determined.

We can now complete the word written in lines 2', 3a', 4', and 6' as *ia-ar-ḫi*. Since this word does not seem to be Akkadian we may be dealing with a word in the local dialect of the scribe. Since Ashkelon was situated in an area where a Northwest Semitic, probably Canaanite, dialect was spoken, we can tentatively assume the word to be Northwest Semitic.[43] If so, what we have here is probably a genitive *yarḫi* of the well-known Northwest Semitic word *yarḫu*, "month" (see our notes to the reconstructed text at the end of this article).

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[42] In contemporary Middle Assyrian, peripheral, and Hittite texts, only the variant with four Winkelhaken is attested. For Ashkelon, compare the copies of ḪI in EA 320:13, 321:14, 322:12, 323:7, 324:8, and 326:7.

[43] Although Yidya's letters (see previous footnote) do not contain any Northwest Semitic glosses, it is clear from the Akkadian that the native language of the scribe must have been a Northwest Semitic dialect (see the quotations listed in Rainey 1996:vol. 4, 179–80).

If our reading *ia-ar-ḫi* (*yarḫi*) in lines 2', 3a', 4', and 6' is correct, we must look for a passage in ḪAR-ra–*ḫubullu* I where the text deals with terminology centering around the word "month." There is indeed a section which begins with the word for "month" and continues to list legal terms associated with it. From the place of this section in the text it seems reasonable to assume that the Ashkelon text puts this part exactly one column before the section with UGU in the right-hand column. This positioning of the columns would suggest that this side is the obverse, rather than the reverse, which is consistent with our conjectures regarding the physical appearance of the Ashkelon fragment, as noted above.

In the following, we first discuss the various versions of ḪAR-ra–*ḫubullu* I and then propose a reconstructed text for the Ashkelon tablet.

1. *An Old Babylonian Forerunner, Presumably from Larsa* (Jean 1936:87–90)

Obv. ii 36	iti	(211 in the canonical version; see below, 2)
Obv. ii 37	iti.šè	(212)
Obv. iii 1	sag.⌜iti.šè$^?$⌝	(214?)

2. *The Canonical Version* (Landsberger 1957:24–25; only the part relevant to our text is quoted here)

211	iti	*ar-ḫu*	"month"
212	iti.šè	*a-na* MIN	"within a month"
213	u$_4$.iti.šè	*a-na* u$_4$-*mu* MIN	"within the period of a month"
214	sag.iti.šè	*a-na re-eš* MIN	"until the beginning of the month"
215	egir.iti.šè	*a-na ar-kat* MIN	"until the end of the month"
216	u$_4$ kaš$_4$.a	u$_4$-*mu li-is-mu*	"day of the running (to announce the new month)"
217	u$_4$.sakar	*ar-ḫu*	"new moon"
218	sag u$_4$.sakar	*re-eš ar-ḫi*	"new moon"
219	zag.mu	*za-muk-ku*	"new year"
220	zag.mu	*re-eš šat-tim*	"the beginning of the year"
221	iti bár.zag.gar	*ni-sa-an-nu*	Nisan
(etc.)			

3. *The Peripheral Version from Emar* (Arnaud 1986:part 4, p. 43)

173'	[it]i	(211 in the canonical version)
174'	[iti].šè^{44}	(212)
175'	[sa]g.iti.šè	(214)
176'	egir.iti.šè	(215)
177'	u$_4$ kaš$_4$.šè	(216)
178'	sag u$_4$$^!$(ITI).sakar	(218)
179'	zag.mu	(219–220)
180'	iti bár.zag.gar	(221)

As can be seen, the Emar version has a few lines less than the later canonical version.

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[44] The spacing of the signs in Msk. 74248a (= Arnaud 1986:part 2, p. 575) suggests that ITI was placed at the beginning of line 2' of the reverse, rather than in the middle.

4. *The Peripheral Version from Ugarit*

The monolingual versions found at Ugarit are either broken or very damaged (Virolleaud 1929:pl. 77, text 4b, last column [cf. Krecher 1969:137]; Thureau-Dangin 1931:pl. 49, text 6, last column on the reverse). The only complete text is provided by the bilingual text RS 20.133 (unpublished):

iv 3	iti	*ar*-[*ḫu*]	(211 in the canonical version)
4	[i]ti.šè	ŠU *x*	(212)
5	⌜u₄⌝.iti.šè	*a-na ú-mi* MIN	(213)
6	[sa]g.iti.šè	*a-na re-ši* MIN	(214)
7	[e]gir.iti.šè	*a-na ar*⌐(KA)-*kát* MIN	(215)
8	u₄ kaš₄.e	*ú-mu ka-ša*	(216)
9	u₄ u₄.sakar	*ú-mu li-is-mu*	(217+216)
10	[s]ag u₄.sakar	*re-šu ar-ḫi*	(218)
11	[za]g.muk	*ša-muk*	(219)
12	[za]g.muk	*pa-nu ša-ti*	(220)
13	[iti bá]r.zag.gar	*ni-sà-gu*	(221)
(etc.)			

Note that line 8 apparently gives the *pronunciation* of the signs kaš₄.a (see the canonical version; the Ugaritic text has kaš₄.e); in line 9, the *translation* of line 8 was given as an equivalent for u₄.sakar (= *arḫu*), obviously a mistake. The text is almost identical with the later canonical version.

On the basis of these versions, in particular those from Emar and Ugarit, we attempt a reconstruction of the text in the left-hand column of the Ashkelon tablet. For the probable existence of an Akkadian column, see the commentary.

Left-hand Column: Reconstruction

1'	[iti	*arḫu*	*ia-ar-ḫ*]*u*	"month"	(Emar 173')
2'	[iti.šè	*ana arḫi*	*li*? *ia-ar*]-[*ḫi*]	"within a month"	(174')
3'	[sag.iti.šè	*ana rēš arḫi*	*li*? *ri-*(ʿ)-*ši*]-*ti ia-ar-*/: ?*ḫi*	"until the beginning of the month"	(175')
4'	[egir.iti.šè	*ana arkat arḫi*	*li*? *aḫ-ri-t*]*i*? *ia-ar-*⌜*ḫi*⌝	"until the end of the month"	(176')
5'	[u₄ kaš₄.a?	*ūm lismi*	*yōmu ma-a*]*l-sà-*⌜*mu*⌝-*ti*	"day of the running"	(177')
6'	[sag u₄.sakar	*rēš arḫi*	*x x (x) i*]*a-ar-ḫi*	"new moon"	(178')
7'	[zag.mu	*rēš šatti*	*x x (x) š*]*a-an*?-*ti*	"new year"	(179')
8'	[iti bár.zag.gar	*Nisannu*	*x x x (x)*]⌜*x (x)*⌝	(month name)	(180')

NOTES

The Ashkelon text follows the Emar version exactly. The presence of an Akkadian column seems likely. In almost all multilingual lexical texts from peripheral areas, an Akkadian column is inserted before, for example, a Hurrian, a Hittite, a Ugaritic, or even a Canaanite column. There is, however, at least one case of a ḪAR-ra–*ḫubullu* tablet with a translation only in Hurrian (Thureau-Dangin 1931:234–35 and pls. 50–51).

Line 1': The restoration is based on the other versions and on lines 3', 4', and 6'. For the word *yarḫu*, "month," compare Ugaritic *yrḫ* and Hebrew *yeraḥ*. (Note the difference between the Heb. words *yeraḥ* < **yarḫ*-, "month," and *yārēaḥ* < **yariḫ*-, "moon.")

Line 2': The Northwest Semitic translation for Sumerian šè–Akkadian *ana* is based on parallels from Ugaritic (*le*),[45] Hebrew (*lə*), and Arabic (*li*).

Lines 3'–4': The equivalents for the Akkadian words *rēšu* and *arkat* both end in *-ti*. Compare the following Hebrew phrase in Deuteronomy 11:12: *mē-rēšît haš-šānâ wə-ʿad ʾaḥărît šānâ*, "from the beginning of the year to the end of the year."

Line 4': The Northwest Semitic column has been restored after the word *malsamu*, "running," which is attested as a translation for the Akkadian *lasāmu* in a Ugaritic vocabulary (Huehnergard 1987:143). The form attested here (*malsamūti*) appears to be an

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45 Huehnergard 1987:142.

abstract noun based on *malsamu* and formed with the afformative *-ūt* (attested in both Akkadian and Hebrew).

Lines 6′–7′: One expects the same word at the beginning of both lines as the word ending in *-ti* in line 3′; see the remarks to this line. The reading of the second sign in *š]a-an*?*-ti* is not entirely certain. Compare the Ugaritic form /šantu/ < **šanatu* with secondary posttonic vowel syncope; for the form, see van Soldt 1990; for the vowel syncope, see Huehnergard 1987: 282–83, where /šantu/ should be added to the examples on the basis of van Soldt's reading. The preservation of the *n* in these forms is due to the earlier (or underlying) presence of a following vowel; thus, they derive from earlier **šan-at-*, with feminine marker **-at*, as also in Biblical Hebrew *šānâ*, Aramaic (absolute) *š(ə)nā*, Arabic *sana*, in contrast with Phoenician, Moabite, and Northern Hebrew (Samaria) <ŠT> = /šat(t)/ < **šan-t*, with feminine marker **-t* (see Garr 1985:93–94).

17. Inscriptions in Phoenician and Other Scripts

by Frank Moore Cross

THE new texts in cursive Phoenician from Ashkelon, especially those from the 604 B.C. destruction level, permit us to revise the typological sequence of the Phoenician cursive script, from the Kition Tariffs (CIS 1.86b and 1.86a) of the mid-seventh century B.C.[46] to the late seventh-century texts from Ashkelon (specifically those from the 604 destruction debris: nos. 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11, and 1.12 below), then to the Saqqārah Phoenician Papyrus of the end of the seventh century or the beginning of the sixth,[47] and finally to the early and late fifth century B.C., attested by the Elephantine Jar Inscriptions (see Lidzbarski 1912 *passim*),[48] the ᶜAkko Ostracon (early fifth century; M. Dothan 1985), and the Elath Ostracon 2070.[49]

The *ᵓalep* of Ashkelon 1.4 and 1.5 is rather crudely made with thick strokes. The lower right arm does not form an arrow shape with the upper right arm, but strikes the vertical stroke below the upper stroke. This is more advanced than the *ᵓalep*s of the Kition texts and the Saqqārah Papyrus but not quite as advanced as the *ᵓalep* of the ᶜAkko Ostracon.

Bet in the Kition Tariffs has a round head, still preserving the opening in its middle. This opening disappears in late seventh-century forms (Ashkelon 1.3, 1.5, 1.8, 1.10, 1.12).

In fifth-century scripts, *bet* tends to shorten and curl a bit more tightly (ᶜAkko Ostracon, Elephantine Jar Inscriptions, Elath Ostracon).

Gimel changes little in this period.

The *waw*s of Ashkelon 1.4 and 1.6 have a broad head and a "curvaceous" vertical. The older *waw* in Kition and Saqqārah scripts is less broad-headed and their downstroke is virtually straight. The advanced form of *waw* in Ashkelon 1.4 is found also in no. 1.6, and in the ᶜAkko Ostracon and the Elephantine Jar Inscriptions.

The *ḥet* of the Kition texts is complex, showing still-vestigial remains of two horizontal strokes inside of two vertical strokes. In the Saqqārah Papyrus and Ashkelon 1.4 and 1.7, the shape of the horizontal strokes has changed into a continuous stroke moving up to a point and then down into the left vertical. The *ḥet* then evolved into a form in which the center element became a single, short, near-vertical stroke in the ᶜAkko Ostracon and in many of the Elephantine Jar Inscriptions.

Ṭet shows little development in this period. Note that the form in Ashkelon 1.3 is drawn by circling from right to left, with the hook downward in the center stemming from the end of the left stroke (*sic*). At first glance, the hook appears to originate from the right curve, until it is examined closely.

The *yod*s of the Kition Tariffs (mid-seventh century) exhibit some rotation counterclockwise. However, in the Kition Tariffs, the Saqqārah Papyrus, and Ashkelon 1.6 and 1.7, there is a tail hooked upward. In the Kition *yod*s, the "tail" (i.e., the upstroke on the right) is quite close to the right downstroke, a form which gives rise to the later form in which the two strokes merge. Later, in Ashkelon 1.4, the ᶜAkko Ostracon, and most of the Elephantine forms, the *yod* has developed until the former upward tail and the mid-arm have become a vertical stroke downward.

Kap, which has a hooked left arm and a long right vertical stroke, shows relatively little change from the seventh to the fifth century in the Phoenician cursive. However, the Neo-Philistine *kap* still retains a more complex form, preserving two short strokes coming together into the right downstroke (Ashkelon 1.2 and 1.14).

Lamed also shows little development in these centuries. The final hook downward is sometimes omitted early and late.

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[46] See the important treatment of the Kition Tariffs by Brian Peckham (1968b); cf. J. P. Healey (1974), who argues, correctly I think, that Peckham's dating of the Tariffs should be raised. Moreover, in view of the new data for dating the cursive series, even Healey's date (550 B.C.) is too low. I would date them now to ca. 650 B.C. The script of the Tariffs is conveniently portrayed in Peckham 1968a: pl. I.1 and I.2.

[47] The *editio princeps* is by Noël Aimé-Giron (1940); cf. Peckham 1968a:plate X.3. The papyrus was found with a deposit of Demotic papyri, one of which mentions the Saite king Amasis (568–526 B.C.).

[48] Lidzbarski protests, correctly I think, against these inscriptions being called "ostraca" because they were originally inscribed on whole jars; however, he has been generally ignored. I shall call them "jar inscriptions."

[49] This ostracon, first published by Nelson Glueck (1941), was correctly recognized by Joseph Naveh (1966) as having been written in the Phoenician cursive of the fifth century B.C. I should now read the ostracon as follows: (obverse) [l. 1] ᶜbdpls, [l. 2] ᶜbdᵓšⱶmⱶn, [l. 3] ᵓbšlm, [l. 4] šlmlḥy, [l. 5] šmrbᶜl; (reverse) [l. 1] psᵓ, [l 2] knšy, [l. 3] bdrⱶšpⱶ.

Mem shows a good deal of change in these centuries. In early forms, in the Kition Tariffs and in Ashkelon 1.6, the initial stroke is rather broad, and, after an initial slight hook downward, is nearly horizontal. Its right leg is long and only slightly slanted, right to left. The middle stroke breaks through above and below only slightly (Ashkelon 1.6). The breakthrough of this stroke may start slightly above the horizontal head, or even with it, and is drawn much longer below the horizontal (Kition Tariffs, Saqqārah Papyrus, Ashkelon 1.3 and 1.5). In the ᶜAkko Ostracon and in most of the Elephantine *mem*s, the former horizontal head and right downstroke has become a loose curve, the head no longer near the horizontal. The cross-stroke starts well above the head, as well as below it. The *mem* of the letter mentioning "my mother" in Ashkelon 1.4 is unusual. It has a high left stroke downward into the horizontal, a relatively short right leg, and a cross-stroke beginning well above the horizontal and breaking down through the horizontal.

The early cursive preserves the formal *nun*, a form in which the initial slanted downstroke is broken by a short horizontal stroke to the right and then continues with a long tail along the same line as the top stroke. This form is found in Ashkelon 1.5, 1.6, and 1.7, and survives sporadically as late as some of the early Elephantine texts. In Ashkelon 1.3 and 1.4, the lower vertical has straightened, that is, it has lost its slant. Still later, the formerly horizontal stroke becomes a curve, or actually straightens out so that the form

becomes a long, slanted, straight line (ᶜAkko Ostracon—slightly curved; Elephantine Jar Inscriptions—both the slightly curved and straight forms; and Ashkelon 4.1—straight).

ᶜ*Ayin* in the Phoenician cursive is a small circle, placed under the (theoretical) ceiling line in the seventh century B.C. (Kition Tariffs and Saqqārah Papyrus). It begins to open at the top as early as the end of the seventh century (Ashkelon 1.9), continuing to open in the sixth century, and is regularly open in the fifth-century texts (ᶜAkko Ostracon and Elephantine Jar Inscriptions). It is also open in the Neo-Philistine texts, Ashkelon 1.2 and Ashkelon 1.13.

Pe and *reš* show little evolution in this period.

The letter *šin* shows little change after the four-stroke form disappears in the early seventh century and the trident form becomes dominant, a form that continues little changed until the late fifth century, when a tick down develops on the rightmost arm of the letter (late Elephantine script and in the fourth- and third-century formal and cursive scripts).

The typological development of *taw* is rather subtle. The right-hooked arm of the *taw* moves upward on the left vertical from the seventh-century scripts, when it is well below the top of the left vertical stroke, to the fifth-century forms, in which the right hook is often drawn from near or at the top of the left vertical (ᶜAkko Ostracon, late Elephantine Jar Inscriptions). Ostraca from the 604 B.C. destruction at Ashkelon still retain the earlier form (Ashkelon 1.3, 1.4, 1.5, 1.6).

1. Inscriptions in Neo-Philistine and Phoenician from the 604 B.C. Horizon or Earlier

Ashkelon 1.1 A Jar Stopper Recording the Ownership (or Payment) of a Container of Oil (reg. no. 44447; Grid 50, Square 57, Layer 256, Bucket 74)

This inscription is scratched on a circular stone, slightly conical, that is pierced in its center. It was designed originally to be used as a wine-jar stopper (see Homan 2004:89–91), and to judge from the inscription, it was later given more general use as a stopper. It weighs 142.8 grams. It was dug up on June 5, 1994. The script is neither Phoenician nor Aramaic nor Hebrew, but what we have called "Hebreo-Philistine" or "Neo-Philistine" (Cross 1996: 64–65).

On the basis of the context in which it was found, it must be dated no later than 604 B.C. and may be earlier. There is a rather crude mixture of formal and semicursive forms. The *šin* is quite formal, as is the *ḥet*. On the other hand, the *yod*, fully rotated counter-

clockwise, and the *gimel*, with its long left leg, are advanced forms.

The inscription reads:

<div dir="rtl">ליגלח ׀ ש / מן</div>

There are problems in deciphering this little inscription. The different sizes of the letters is puzzling; we must assume that the person scratching the inscription was not a practiced scribe. The first letters of the text (*lamed*, *yod*, and especially the left leg of *gimel*) are lightly engraved compared with *ḥet* and *šin*, and the final *mem* and *nun* have shortened tails as well as being lightly drawn. However, the reading of the letters, I believe, is not in doubt. The vertical stroke between the *ḥet* and *šin* can be taken as a word divider, or, more likely in this period, as the sign for the numeral "1."

For both oil and wine, the arbitrary sign can be written before or after the product named. It is difficult not to suppose that the long diagonal used with oil stands for נבל, the term for a ceramic storage jar or a wine skin. It is the term repeatedly used of oil jars in the Samaria ostraca, in the expression נבל שמן רחץ, "a jar of washed oil."

As described to me by Lawrence Stager, olives were crushed (not pressed) and then water was added and virgin oil skimmed off (see King and Stager 2001:96f.).[51] It may be added that the arbitrary sign in the ᶜArad inscriptions and on this Ashkelon disk, used exclusively for oil, falls together in form and stance precisely with the cursive Phoenician letter *nun*.[52] It appears to be a Phoenician abbreviation in origin, borrowed into Israel—a phenomenon comparable to the Phoenician and Egyptian numbers and signs borrowed by Israelite scribes, including the winged sun disk on the *lmlk* handles and the *šeqel* sign on weights.

The sequence of letters and signs in the Ashkelon stopper is complicated. A *šin* is written, then the slash

Figure 17.1: Ashkelon inscription 1.1
Photograph by Ze'ev Radovan

After the *šin* is a long, high diagonal stroke. This sign is found also regularly in the ᶜArad inscriptions, always with the word שמן, "oil" (see Aharoni 1981, inscription nos. 4, 10, 12, 14, and 17 *bis*). Aharoni takes the symbol to stand for the number 1, but throughout the ostraca, the numbers 1 through 3 are written using one, two, or three short vertical strokes. In some cases, especially for the number 3, it is written with short, slightly slanting strokes, the third of which is frequently, but not always, longer than the first two. But the units are never written as a single, long diagonal stroke (downward right to left)—a stroke higher and longer than the symbol for units. It is a sign applied at ᶜArad only to oil.

In the case of wine, on the other hand, we find at ᶜArad the arbitrary sign *bet* plus a short diagonal (downward left to right) for *bat*, followed by short strokes—usually one, two, three, or four strokes.[50]

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[50] For a different interpretation of the *bat* sign, see Joseph Naveh (1992a). He takes the short, left-to-right diagonal as the number 1, and the following short, vertical strokes as numbering *hin*s (a *hin* is one-sixth of a *bat*). However, his interpretation does not provide an explanation for the reading in ᶜArad inscription no. 3, which, I believe, Aharoni reads correctly: תן מן היין /// ב \, "Give from the wine three baths." Further, in the major shipments of oil and wine, we expect only large storage jars to be sent. The *bat* in this period in this area appears to have been 32.5 liters, requir-

ing a very large storage jar for transport. Shipments of jars to the contingent of Kittiyîm mercenaries containing smaller amounts, measured in terms of the much smaller *hin*, in addition to the huge *bat*, would make little sense. Note that the oil is sent only one jar at a time—no fractions are indicated. Moreover, one expects the ratio of wine to oil to be lopsided in favor of wine. Naveh's interpretation lowers that ratio excessively. Further, the Aramaic dry measures of barley he cites are not precisely parallel. In the ostraca published by Ada Yardeni (1990), small rations of barley are normally listed with abbreviations: ש for barley, ס for *sǝʾāh*, and ק for *qab*. At Arad, however, there is no symbol for any measure of wine but *bat*; Naveh's putative *hin* is always without abbreviation or symbol.

[51] King and Stager (2001:96) note that the biblical locution שמן זית זך כתית involves a slightly different technique for producing virgin olive oil. The olives are crushed and the oil is drained off the pulp, but no water is used.

[52] The extreme cursive *nun*, especially in the final position, appears in the fifth-century ᶜAkko Ostracon published by Moshe Dothan (1985). The date of this text is now fixed by the group of inscriptions in cursive Phoenician from the 604 horizon at Ashkelon. This form of the *nun* is also found in Ashkelon inscriptions from the late seventh century. From the fifth century, see the many examples of the cursive *nun* in the jar inscriptions published in Lidzbarski 1912. See also the inscriptions published by A. Vanel (1967), especially Ostraca A and D, which Vanel dates to the end of the sixth or the beginning of the fifth century B.C. The Saqqārah Phoenician papyrus (*KAI* 50; Peckham 1968a:pl. 10.3) must also be raised in date to the end of the seventh century or the beginning of the sixth century B.C. The Ashkelon date is particularly strong, being fixed by Nebuchadrezzar's destruction of the city in 604, followed by a gap in occupation until the late sixth century.

we identify as the *nēbel* siglum, followed by *mem-nun*. The easiest interpretation, I think, is to suppose that the one who scratched the inscription (I dare not call him a scribe) wrote *š* for *šemen* followed by the sign for *nēbel*. Then, aware that the *šin* was ambiguous (it could be taken also as the sign for barley or *šeqel*), he added *mem* and *nun,* spelling out *šemen*, "olive oil."

The reading *lyglḥ* requires comment. As elsewhere, the preposition *l-* is ambiguous. It can mean "belonging to" (especially on inscribed seals) or "given to" or "credited to," as I have shown in the Ḥisbân ostraca (Cross 2003:75f.). Thus the inscription may express a claim to ownership or may record a receipt. The name *yglḥ* perhaps is to be taken as a Piᶜel (Arabic II) form. The root *glḥ* is not productive of names in Northwest Semitic, so far as our evidence goes. It does appear in personal names in Arabic, and in Minaean, Safaitic, Nabataean (*glḥn*), and Palmyrene. In Arabic, the root in the stative means "to be bald." In the active, it means (as in Hebrew) "to cut hair." These do not give a suitable meaning for a proper name, particularly not a theophorous personal name. However, in the derived verbal conjugations, a different meaning appears which suggests that two roots may have to be reckoned with. In Arabic the II (D) form of the verb means "to act boldly," and in Syriac the Paᶜel means "to declare, show forth." Such meanings could form suitable personal names.

To summarize, I would read:

lyglḥ | š / [=nbl] mn

Belonging to (or credited to) Yugallaḥ,
1 jar of oil.

Ashkelon 1.2 An Ostracon Recording a Sale of Grain (reg. no. 39594; Grid 50, Square 58, Layer 264, Finegrid 61, Bucket 217)

This ostracon is on the weathered body sherd of an Iron II jar with red slip and burnishing. It was dug out of the debris from the destruction level left by the Babylonian forces after their sack of the city in 604 B.C. It was found on May 26, 1992. The text of the inscription penned on the sherd is only partially preserved; it is broken off on both sides, and the ink is only faintly preserved in some words. What little we can read is of special interest, throwing light on the little-known language and script of the Philistines in the late seventh century.

1.]מעבר · ש · תש[
2.]כו · ישאן · ל[
3.]ע[·]עבר [·] זכר[

1.] from the grain that you [
2.]   they shall pay to[
3.]   grain of Zakar-[DN?

Figure 17.2: Ashkelon inscription 1.2
Photograph by Ze'ev Radovan

The ostracon appears to be an agreement for the purchase or delivery of grain.[53] The word ᶜ*b(w)r* is

[53] William H. Shea (2003) has written a paper on this ostracon entitled "Samson and Delilah in a Philistine Text from Ashkelon." His reading of the inscription is the most extraordinary exercise in imagination that I have ever seen in the field of epigraphy. He believes that the ostracon was a letter sent to עזא חאנו, which he translates "Ḥanno of Gaza," concerning the head of Samson, "(who belonged) to Delilah" (לדילילאה). For Shea, "head" is a pictograph, not the letter *mem*, which I read. He thinks the ostracon has three pictographs in place of words spelled out. Line 4 (according to Shea's count) has the *nun* that is missing on Samson's name in line 2. The king of Ashkelon is the recipient of the head of Samson (Ashkelon spelled אשקילון). In his conclusion Shea remarks (plaintively): "A technical question about the characteristics of the text is why there are

rather rare in Biblical Hebrew, but appears also in Middle Hebrew, in Imperial and later Aramaic, in Phoenician, and in Akkadian (*ebūru*) with the meanings, "produce (of the field)," "crop" (especially of a cereal), "grain."[54] The *waw* in the second line (וֹכ[·) is probably a vowel marker, an orthographic usage absent from Phoenician but familiar from Hebrew in this period. The verb in the second line may be used of the payment of silver, and indeed in the same form, *yšʾn*, "they shall/will pay (silver)," is found in a Phoenician text (*KAI* 60:6), as pointed out to me by John Huehnergard. Alternatively, it may mean "they shall deliver." Both meanings are also found in the use of the Akkadian cognate *našû*. The personal name in the final line is familiar from such names as biblical Zechariah (*zkryhw*) or Phoenician Zakar-baʿl (for the name *zkr* found in inscriptions from the City of David excavations, see Ariel et al. 2000:nos. 4, 6; pp. 34–36).

Ashkelon ostracon 1.2 was found associated with a dozen or so cuboid weights and a scale balance. These could well be the remains of a grain storage area and its "office" and records.[55]

Of more interest to the epigraphist than the rather banal content of the ostracon is the script in which it is inscribed. In the Persian remains of the city of Ashkelon, the considerable number of ostraca found have been inscribed in Phoenician and (in far lesser degree) in Aramaic and Greek scripts. The script of this ostracon, from the destruction level of 604 B.C., when Ashkelon fell to the host of Nebuchadrezzar, is neither Phoenician nor Aramaic. It stands very close to Hebrew, and is obviously derived from Hebrew. However, it shows distinctive typological characters and must be given its own name as a local or national script. I have been inclined to call it "Hebreo-Philistine" to underline its affinities with Hebrew, and to save the simple term "Philistine" for an older script, namely a derivative of Cypro-Minoan found in

Ashkelon inscription 4.5 and on inscribed jar handles from Ashkelon (see Cross and Stager 2006). Lawrence Stager has suggested the term "Neo-Philistine." This label has the advantage of following the practice of naming national scripts without hyphenated names denoting their origins—we do not speak of Hebreo-Edomite, Hebreo-Moabite, Aramaeo-Nabataean, or Aramaeo-Ammonite, but simply of Edomite, Moabite, Nabataean, or Ammonite.

Features of the script that diverge radically from the Phoenician cursives of the seventh–sixth centuries, and which have their inspiration in earlier Hebrew forms, include the *bet*, *zayin*, *reš*, and *taw*. The best script with which to make contrasting comparisons is the Phoenician papyrus from Saqqārah, which now must be dated to the end of the seventh or beginning of the sixth century B.C. An ostracon found in the debris of the 604 destruction level, inscribed in cursive Phoenician, exhibits a script uncannily like that of the Saqqārah Papyrus. The two skilled scribes certainly belonged to the same generation.[56]

The *bet* of the Neo-Philistine ostracon has a fairly large triangular head, while the head has become vestigial in the seventh- and sixth-century Phoenician cursives. Furthermore, the Phoenician *bet* of this period is curled; the form in this text is open.

The *zayin* is somewhat fuzzily preserved but most resembles the Hebrew "z-form," with the downward tick on the right of the lower stroke—a tick found in Hebrew also on *ʾalep* occasionally, on *zayin*, on *yod* frequently, and on *ṣade* regularly, appearing as early as the Samaria Ostraca. It is a unique development in Hebrew.

Reš has an open, triangular head that contrasts with the head of the Phoenician cursive *reš*, which has been reduced to little more than a curved tick.

Very striking is the "X-shaped" *taw*, a form that disappears in Phoenician formal and cursive scripts as early as the ninth century B.C., with the lengthening of the final stroke and the shortening of the first cross-stroke to form a "T-form" *taw*, and finally the shortening of the left part of the cross-stroke (*KAI* 30; on the date of the inscription, see especially Albright 1941).

On the other hand, the letter *yod* is rotated counterclockwise, a phenomenon absent from the Hebrew scripts (until one reaches the latest of the Qumran Palaeo-Hebrew scripts), but occurring also in the Phoenician scripts.

Joseph Naveh (1985), in an important essay entitled "Writing and Scripts in Seventh-Century B.C.E.

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three alternating lines of light and dark text" (p. 84). I can supply an answer: the "light lines" do not exist. Meanwhile, Professor Stager, the director of the Ashkelon excavations, having read this article (and called it to my attention), will realize that he has some more digging to do!

[54] The term עבור is found in two Aramaic ostraca from Beer-sheba (Naveh 1973:80, nos. 5 and 6, pls. 35.5 and 35.6). The reading in no. 6 should be filled out: מן עבור מסכנתא, "from the grain of the storehouse."

[55] Describing the area in which the ostracon was found, Professor Stager observes that two piles of charred wheat lay nearby: one inside the counting house, the other in the street. The sacks in which they had reached the marketplace were consumed during the 604 B.C. conflagration (see chapter 15 above concerning Grid 50 Phase 7).

[56] The ostracon in question is Ashkelon 1.3, relating to flax, discussed below.

Philistia: The New Evidence from Tell Jemmeh," collects a number of texts stemming from Philistine sites or having peculiarities in common with texts whose provenience is clearly Philistine. He proposes that the script of these texts be termed "Philistine." Noting, however, that all of these texts are not homogeneous, he suggests that the chancelleries of the great Philistine city-states may have had slightly differing styles, comparable to the situation in Transjordan with Ammonite, Moabite, and Edomite. The styles of the seventh-century texts from Tell Jemmeh, Tel Seraᶜ, Ashdod, Ekron, and Ashkelon do exhibit considerable stylistic variation, but they share some common traits that distinguish them from Hebrew and/or Phoenician.

The fact that the Neo-Philistine script and orthography of this period stem primarily from Hebrew—and not Phoenician—is surprising. Even more striking is the script of the Ekron Royal Dedicatory Inscription, and in lesser degree the storejar inscriptions from seventh-century Ekron (Gitin et al. 1997; Gitin 2003). The script of the monumental Royal Inscription derives directly from the early Hebrew script of the tenth–ninth century. Although it stems from a lapidary tradition, its script already shows the tendency to lengthen the vertical or lower strokes (e.g., of ᵓalep, bet, kap, and mem), over against the stubby forms of tenth- and ninth-century Phoenician texts. Compare, for example, the squat Byblus and Cyprian (Honeyman) scripts over against the scripts of the Gezer, ᶜAjrūd, and Meshaᶜ inscriptions.[57] The Royal Ekron Inscription also preserves the "X-form" *taw* with Hebrew versus the "T-form" *taw* that evolves in Phoenician already in the ninth century. On the other hand, it does not have the downward tick of final horizontal strokes familiar from the early eighth-century Samaria Ostraca (ᵓalep, zayin, yod, samek, and ṣade).[58]

Unlike Phoenician, the Neo-Philistine of Ekron uses final *matres lectionis*, notably *he*, to mark the third masculine singular suffix: *-uhu > -*uh > -ōh*, as in Preexilic Hebrew (see my discussion in Cross 2003:351–356).

This Neo-Philistine inscription from Ashkelon, and *a fortiori* the Royal Inscription from Ekron, point to a period of strong Israelite cultural influence on—and most likely political or economic domination of—the Philistines. The era of the United Monarchy of David and Solomon provides the appropriate context for the borrowing. This is the period when, ac-

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calls attention to the Maᶜṣub Inscription (*KAI* 19), which has the phrase *lᶜštrt bᵓšrt ᵓl ḥmn*: "for·Astarte in the sanctuary of ᵓEl Ḥamon." On the dedications, "in the time of the new moon," compare the beginning of the Kition Tariffs (CIS 1.86a and 86b; *KAI* 37a and 37b), which introduce payments to temple personnel and workers as occurring on the new moon of a given month. In addition to this evidence for the term ᵓšrt to mean "shrine" or "cella," we note the parallel dedication *lmqm*, "for the sanctuary," which may, in fact, specify the same shrine as the inscription *lᵓšrt*. It now seems inevitable that we also treat the term ᵓšrth in the phrase *yhwh wᵓšrth* in a like fashion, "Yahweh and his shrine" (cf. Meshel 1979). We have long known that the Akkadian term *asīrtu*, the precise cognate of Hebrew ᵓăšērā, means "sanctuary (as a general designation of a temple, originally the cella) . . . socle (in the form of a sanctuary, for images, symbols, etc.)" (*CAD* A ii: 436). The attempts of many scholars to take this as a reference to Yahweh's consort, the goddess Asherah, in the Kuntillet ᶜAjrūd and the El-Qôm texts have always labored under the burden of supposing that in this expression the normative syntax that forbids attaching a pronominal suffix to a proper noun does not operate. The use of a divine name followed by a place name is not a good analogy. We know from Ugaritic that divine names and the place names of their cult were not juxtaposed as a construct chain, but that the place name was in a locative relationship, often explicitly marked by the locative particle *h*; e.g., *dgn . ttlh* (*KTU* 1.100:15), *ktr-wḫss . kptrh* (*KTU* 1.100:46), *mlk . ᶜttrth* (*KTU* 1.100:41). The phrase "Yahweh Teman" is to be translated "Yahweh at Teman," not "Yahweh of Teman." Those sensitive to the requirements of historical Canaanite and Hebrew syntax have sought other solutions to the puzzle. As a matter of fact, when attempting to clarify a problematic expression, one is forbidden on methodological grounds from breaking normative rules. In the past, I have been inclined to accept Kyle McCarter's interpretation of the phrase—which still may be correct—that "his asherah" must be understood in the context of the extensive hypostatization of qualities or functions of a major deity in Israelite and West Semitic religion (his view is stated succinctly in McCarter 1996:106–8). A careful overview with extensive bibliography may be found in Emerton 1982; more recent bibliography can be found in Hadley 2000:210–34. See also my fuller discussion forthcoming in the Stern Volume of Eretz-Israel: "The Phoenician Ostracon from ᶜAkko, the ᶜEqron Inscriptions and אשרתה."

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[57] It must be noted that the script of the Mesha Inscription is also a direct borrowing from the Hebrew script of the tenth-ninth centuries.

[58] See also the inscriptions published by Gitin (1993). My reading for Gitin's Inscription 3:a is mentioned by Gitin: *qdš lḥq qdš*, "Holy according to the prescription of the sanctuary." I also prefer to translate Inscription 2:a *lᵓšrt*, "Belonging to/ dedicated to the sanctuary." The term ᵓšrt, "shrine," or better "sanctuary," appears in the ᶜAkko Ostracon published by Moshe Dothan (1985). The first lines of the text read *bᶜt . lbn ḥdš . ᵓš . ytn* [.] *ᵓgr wbᶜlš<ᵓ>lt . ᵓš ᶜl ᵓšrt glnm 10*, "In the time of the new moon. That which (the things which) ᵓAgūr and Baᶜl-ša<ᵓ>altî, who are over (in charge of) the sanctuary, gave: basins 10 . . . ." Dothan, who misses the reference to the feast of the new moon, correctly recognizes the meaning here of the phrase ᵓš ᶜl ᵓšrt, translating "the overseer of the shrine(s)." He also

cording to biblical accounts, Israel exercised hegemony over the Philistine city-states. This datum is, of course, one more bit of evidence against the so-called "minimalists," who are skeptical of the historicity of the United Monarchy.

Ashkelon 1.3 An Ostracon Recording an Assignment of Flax or Linen (reg. no. 41095; Grid 50, Square 48, Layer 405, Finegrid 17, Bucket 446)

This brief inscription, found in 1992, is inscribed in ink on the sherd of a storage jar. Clearly, the ostracon is not complete, but preserves the lower right portion of the original ostracon. It is inscribed in a Phoenician cursive, almost exactly the same as the Phoenician cursive of the Saqqārah Papyrus. Since it comes from the debris of the 604 destruction, it must be dated to the late seventh century B.C. The Saqqārah (Phoenician) Papyrus, as well as a number of other cursives, must therefore be raised in date—in the case of the Saqqārah Papyrus, to ca. 600 B.C. The highly evolved state of the Phoenician cursive, beyond that of the conservative formal or lapidary scripts, has misled scholars, as we have seen, in their attempts to date scripts on the basis of a purely palaeographic typology without fixed absolute dates. For example, the date of the Kition Tariffs must be raised from Peckham's date of 450–400 to c. 650 B.C. The script of Ashkelon 1.3, which records an assignment of flax or linen, is clearly earlier than that of the early Elephantine Jar Inscriptions and of the ᶜAkko Ostracon of the fifth century B.C.

The inscription reads:

פשתם · טרן̇ · בת · מ[ן

Flax [or linen]: the tyrant of Bet M[   ]

The ostracon is written in consonantal Phoenician orthography as expected, the writing בת reflecting the contracted diphthong, with the omission of an internal vowel marker in פשתם. There is only one problem in the reading of this truncated text: the letter *nun* has become dim. However, there are traces of a slightly bent top and a long vertical stroke. This verticality is found also in contemporary texts, notably Ashkelon 1.4 and 1.6. The word is set off by word dividers and we have read טרן̇, "lord" or "tyrant," Greek τύραννος, Hebrew סרן. There is no problem with the alternative consonants *ṭet* and *samek* used to transcribe the Greek term τύραννος. We have long known that *samek*, originally an affricative, was early an appropriate letter to transcribe the initial consonant; later, the dental stop became a better transcription than the

evolved sibilant value of *samek*. The writings טורן, טוריא appear in the Targum where in Biblical Hebrew the term is written סרן, סרנים (e.g., in the Targum to Judges 3:3).

Unfortunately, we cannot fill out the name of the Phoenician village of the town lord who owned or received the linen. It is not impossible that the site in question is the maritime port and trading depot called in Greek sources "Maiumas Askalon." It lies south of Ashkelon at the mouth of the Wâdī el-Ḥasi (Abel 1938:375; Avi-Yonah 1976a:77).

Figure 17.3: Ashkelon inscription 1.3
Photograph by Ze'ev Radovan

Ashkelon 1.4 An Ostracon Containing a Letter Mentioning "My Mother" (reg. no. 40848; Grid 38, Square 64, Feature 776, Bucket 71)

This ostracon, found on July 22, 1992, is written on the outside of a red-burnished Iron II bowl fragment. Only the right side of four lines is preserved. A fifth line is broken off on both sides. It is written in a highly developed Phoenician cursive from the end of the seventh century B.C.

1. אמי שמ[ע   [
2. ושלח מ[ן   [
3. ואם אי שח[ת   [
4. על גלמך שפ[ר   [
5. [   ] [תפש[ט   [

1. my mother. [PN] hea[rd.   ]
2. and sent from[   ]
3. And as for mother, she has not spo[iled   ]
4. concerning your beaut[iful] cloak [   ]
5. [   ]she will be strip[ped (naked)]

Figure 17.4: Ashkelon inscription 1.4
Photograph by Ze'ev Radovan

Line 1. The word אמי, "my mother," is clearly written (on the writing of these pronominal suffixes, see Krahmalkov 2001:50–74). Whether it comes at the end of a sentence, or is the stressed subject of a verb [שמ[ע (*šamǝˁā*), we cannot be sure. However, I prefer the former. We do not have preserved the address and greetings i.e., the usual *praescriptio* of a formal Phoenician, Hebrew, or Aramaic letter of this period (see Pardee 1982:145–49, 153–55). If we had the

address, it would be introduced by the preposition אל, absent in our text, but regularly used in both Phoenician and Hebrew. Unhappily, [שמ[ע, if this is the correct reconstruction, is capable of several readings. It could be a finite verb, an infinitive absolute (much liked in Phoenician), or possibly a noun, "tidings."

Line 2. Again, the subject of ושלח is uncertain.

Line 3. The use of אי negating a finite verb is well known in the Phoenician of this period (Krahmalkov 2001:277–78). We take ואם to be a *casus pendens*, elegant in Hebrew, and presumably also in Phoenician. The singular third-person-feminine perfect would be written with the final a-vowel unmarked (Krahmalkov 2001:160). We have reconstructed the verb as שח[ת]. No other suitable verb is found in Phoenician, and the only alternative in Hebrew is שחט—less suitable, presumably, in this context.

Line 4. For the word גלם "cloak" see Ezekiel 27:24, גלום תכלת, "a cloak of blue" (cf. Akkadian *gulānu* (*gulēnu*), "woolen garment"). Hebrew שפר,[59] Phoenician שפר, and Aramaic שפיר, "beautiful," seems an appropriate adjective.[60]

Line 5. The root is probably פשט, "to strip off"; in the Hipˁil (Phoenician Yipˁil), "to strip one of a garment." Compare Hosea 2:5, פן אפשיטנה ערמה והצגתיה כיום הולדה, "Lest I strip her naked, and set her as on the day she was born." One cannot be certain who is doing the stripping, or whether to read "you shall strip" or "she shall strip," or, my preference, *Nipˁal or *Yupˁal, "she shall be stripped." Stripping naked was a punishment for infidelity or harlotry, or in the case of a widow who proposes to marry "a stranger" —someone outside the family—she is to be sent forth naked, even her clothing left behind. Parallels to the biblical materials have been found in documents from Ḥana and Nuzi, and more recently from texts from Emar documented by John Huehnergard (1985).

The little ostracon contains a tantalizing message. What has mother not spoiled? To whom does the beautiful cloak belong? Has one of the family (or of the larger household) taken it, and the threat is being made that the perpetrator will be stripped, not only of the garment, but naked? We shall never know unless another piece of the ostracon turns up—a highly unlikely happening.

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[59] The Hebrew שפר occurs only on a jar published in Deutsch and Heltzer 1997:65–67.

[60] On the anarthrous use of the descriptive adjective with a determined noun (i.e., a noun in this case with a pronominal suffix), see Krahmalkov 2001:144f.

Ashkelon 1.5 An Ostracon Noting a Receipt or Assignment of Quantities of Brandy and Wine (reg. no. 42721; Grid 50, Square 49, Layer 389, Bucket 7)

This ostracon, found in 1993, is inscribed in an advanced Phoenician cursive, dating close to the time of the destruction of the city in 604 B.C. The ostracon may be complete. Lines 1 and 2 are legible, if difficult to read at first glance. After a virtually blank line (or a completely eroded line) is a third line written along the broken, lower edge of the ostracon. This last line is exceedingly difficult to decipher.

1. שׁכר · | | | | | · תאׄםׄ
2. יׄן אדם ׄ[·ׄ]ׄ זך · עקׄבׄ
3. ○○[
4. ○○○[ ] ׄצׄ[   ]○○○[

1. Brandy 5: Tôm
2. Fine red wine: ᶜAqqūb
3. [   ]
4. [   ]

Line 1. We have translated the term שׁכר, usually translated "strong drink," with the term "brandy." The Italian term *grappa* would probably be more accurate, a beverage distilled by a primitive process from the pomace of grapes after wine-making.[61] The number 5 no doubt indicates the number of jars or bottles, or the measures of the liquid named. תאם appears elsewhere in Phoenician and Punic as a personal name, meaning "twin," Greek Θωμᾶς. In the Gospel of John (11:16 et al.), we read after the name Θωμᾶς, ὁ λεγόμενος Δίδυμος, "who is called the twin" (see Benz 1972:427).

Line 2. The word יׄן is difficult to read, as the diacriticals suggest. The letter *yod* is damaged, but much like the *yod* of Ashkelon 1.6 (reverse, line 2). The letter *nun* after the hooked top is a dim, vertical stroke clear only at its base—again, much like the form on Ashkelon 1.6. The word אדם, "red," is quite clearly preserved; cf. Hebrew ᵓ*ādōm*. Compare Proverbs 23:31, translated by the New JPS Bible: "Do not ogle that red wine / As it lends color to the cup."

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[61] See King and Stager 2001:101–102. Stager (pers. comm.) points out further that the identification of שׁכר as a product of the vine, and not, for example date liquor (as sometimes suggested), is reinforced by the specifications of the vow of the Nazirite in Numbers 6:2–4. All products of the vine are forbidden, and the list includes שׁכר and חמץ along side of יין and חמץ יין, as well as fresh grapes, raisins, and grape seeds.

Figure 17.5: Ashkelon inscription 1.5
Photograph by Ze'ev Radovan

Lawrence Stager has called my attention to the evidence that white wine was also produced in this area, to judge from findings at Late Bronze Aphek. The term *ḥemer* has been taken to mean "red wine"; however, the Ugaritic *ḥamru yêni*, an expression echoed in Phoenician (cf. Arabic *ḥamr* and Aramaic *ḥamrā*, both of which are the ordinary words for wine, not red wine), prove the etymology wrong (*pace* Krahmalkov). The laryngeal ḥ (as well as the Arabic and Aramaic meaning of the term) separates the term from the root *ḥmr*, "to be red." The noun *ḥemer* < *ḥamr* is best related to the root *ḫmr* < *ḫmr* meaning "to ferment" or "to foam," hence bubbling or sparkling wine.[62] The adjective זך follows, meaning "pure" or "clean," hence "fine," modifying "red wine." The letter *zayin*, rare in the cursive of this period, is derived from the "Z"-form, the lowest stroke now vestigial. This stroke will disappear completely in the fifth-century cursive.[63] There follows

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[62] See already Cross 2003:287, note 13. One may compare also the Portuguese "green" wines that retain carbon dioxide after fermentation and bubble.

[63] The letter *zayin* appears three times in the Elephantine Jar Inscriptions (see Lidzbarski 1912:nos. 5, 6, and 45,

what I take to be a personal name: ᶜAqqūb, a well-known name parallel to Tôm in line 1. The name is known from, *inter alia*, the Bible, Elephantine, and Ugarit. It is a hypocoristic pattern from the root ᶜ*qb*, "to protect," derived from such names as אלעקב or עקביה.

Line 3. While there seems to be a smudge or two of ink near the beginning of the line, nothing is legible, and I suspect the line was left blank.

Line 4. Separated at a distance from the first two lines of the ostracon, there is another line of traces of script along the edge of the ostracon. The line curves upward to the left, and indeed on the far left side there may be the remnants of a fifth line of script, also totally illegible. I suspect that this ostracon was reused, and is in effect a palimpsest. This would explain the smudges on line 3. Moreover, I think the earlier text was on a larger ostracon, the lower side now broken off. This would explain how line 4 is so close to the bottom of the ostracon and, indeed, the anomaly of a putative line 5.

Ashkelon 1.6   An Ostracon with a Document Beginning "For Paḥûra" (reg. no. 49681; Grid 50, Square 48, Layer 444, Bucket 75)

This ostracon, found on July 5, 1994, in the debris of the 604 B.C. destruction, is inscribed on two sides in what appears to be a single hand. Like Ashkelon 1.5, it appears to have been written over an older message; that is, the ostracon appears to have been reused, making its decipherment quite difficult. To add to our problems, the ostracon appears to have been secondarily broken off along its long, left dimension. Probably it has not been broken on the right side, although we cannot be sure.

Obverse:

1.   לפחור · בון֗ · שֿלך
2.   ]○○○○ זֹבֿח · [   ] תֿן[
3.   ]○ אֿקם

1.   For Paḥūra son of Šillēk
2.   [ ] Give(?) a sacrifice [   ]
3.   I shall fulfill(?) [ ]

_____

Tafel I and V). This precise *zayin* is found in another context, coincidentally having to do with wine, יין עז, "wine of Gaza," found on a jar inscription published by Joseph Naveh (1987).

Reverse:

1.   בעֿלֿזֿכֿרֿ · זֿבֿחֿ
2.]○א כלמי · ין   [   ]
3.   מכא ובֿן {מֿןֿ}

1.   Baᶜl-zakōr, a sacrifice (?)
2.   [   ]wine · All who [ ]
3.   from the son of Mîkaᵓ

Figure 17.6: Obverse of Ashkelon inscription 1.6
Photograph by Ze'ev Radovan

Figure 17.7: Reverse of Ashkelon inscription 1.6
Photograph by Ze'ev Radovan

Obverse, line 1. The name Paḥūrā is a well-known Egyptian name, Egyptian *pȝḫȝrw*, "the Syrian." It is the name of the notorious Egyptian commissioner in the Amarna Letters, where the name is spelled variously "Pa/i/u/ḫura/u" (for references, see Moran 1992:383). In Aramaic orthography, the name is spelled פחורה, and in Greek transcription, Παχουρις (see Kornfeld 1978:86).

The spelling of the name requires comment; the *waw* appears to be a *mater lectionis*, not expected in Phoenician, while the final ā-vowel is not marked, following Phoenician practice. It is one of two Egyptian names found in the Ashkelon corpus. His father's name, interestingly enough, is Phoenician, appearing here in hypocoristic form; the element *šlk* also is found combined with various divine names (see Benz 1972:416). The root means "to nourish, provide."

Line 2. The letters תן are next to the edge of the ostracon on the second line under the *pe* of *paḥūrā* of line 1. It is possible that a piece of the ostracon has been broken off, but there is no evidence of this on the Reverse. Either we must read an imperative, "give," if the line is complete, or, at most, add one letter, broken off the margin, in which case we could read תן[י], "(he) gave," or even "I/you/we shall give." The first-person verb in the next line might support a reading "I shall give."

Line 3. The beginning of the line appears to be blank. This may be chance obliteration of the ink in this portion of the ostracon; in any case, the line becomes fairly legible, with a rather awkward ʾalep inscribed with a broad, angled downstroke, and then a clear *qop* and *mem*. I take אקם to be a Yipʿil, perhaps "to fill a religious obligation."

Reverse, line 1. While it is somewhat difficult to read, the ostracon appears to begin with a personal name familiar in Phoenician sources: Baʿl-zakōr, "the god Baʿl remembered."[64] There follow some letters, not precisely in line with the first word of the line, but following the curve of the ostracon break: זבֹּח "(a) sacrifice." It may be that an additional word, now virtually blotted out, preceded the word זבֹּח along the edge of the ostracon. There are traces of ink. The reading may parallel that on the Obverse: תן, יתן, or the like. The different alignment of the words on this line raises acutely the question of whether we are dealing with a palimpsest or merely with a sloppy scribe.

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[64] The name occurs with the verbal element written *zkr* and *skr* in Phoenician; see Benz 1972:305f.

Line 2. The beginning of the line has not been preserved in a legible state. We do see smudged traces of ink. The first legible word is ין, "wine," followed by a clear word divider, probably marking the end here of the sentence. There follows כלמי, best read, "Everyone who . . .," followed by an ʾalep and a trace of another letter on the edge of the ostracon. מי, the interrogative pronoun, is regularly written with *yod*, and was probably pronounced *miya*.

Line 3. Again we perceive evidence of an underwriting and of reuse. The initial מֹן on the far right of the ostracon cannot go well with the following, and we have placed it in brackets. The following וב]ן is not certain. Finally we have written clearly the personal name Mîkaʾ, a hypocoristicon parallel to מכי, מיכא, and מיכה (see Kornfeld 1978:57f.). Full versions of the name, found in the Bible, include such names as מיכיהו and מיכאל.

Ashkelon 1.7 An Inscribed Jar Rim Mentioning a Temple Official (reg. no. 45357; Grid 50, Square 48, Layer 452, Bucket 17)

This brief one-line text was probably written on a large amphora and mentioned its contents and the occasion for the provision of oil. The piece, now broken into two pieces, was found on June 21, 1995, in the debris of the 604 destruction of Ashkelon. The script is the expected Phoenician cursive of the late seventh century B.C.

The inscription reads as follows:

בְּים לחֹן : ○○○ שֹׁ \ ‖ ·

[ ] O[il] \ two (bottles) · On the day of (the) Laḥḥēn

The first letters of the inscription are beyond recovery, and several letters have almost been expunged. After the letter *šin* (which is partially damaged), standing presumably for *šamn* (Hebrew *šemen*), "oil," there is the diagonal slash which we have identified as the siglum for נבל, "bottle" or "jar." The term נבל may have become simply a term of measure. See our discussion of the sign and its distribution in Ashkelon 1.1 above. The phrase בּים לחֹן is set off by an initial word divider, and the final word of the inscription is punctuated with closing double dots. The phrase itself is puzzling. The word לחֹן does not appear, to my knowledge, in Phoenician; however, it is frequent in the papyri from Elephantine, and the feminine plural, לחנת (*ləḥēnōt*) is found in the sense of "maidservants" of the king in Daniel 5:2, 3, 23

(see esp. Kraeling 1953: 1:2; 2:2; 3:3, 25; 4:2, 6:2; 9:2; 10:1; 12:1, 10). It is difficult to separate the term לחן from the Akkadian term *laḫḫinu* (*alaḫḫinnu*), "an administrative officer," feminine *laḫḫinatu* (*alaḫḫinatu*), "an official at the queen's court." At Elephantine, it appears regularly in the phrase, *lḥn zy yhw*, "Laḫḫēn of Yāhû." In one passage, there is mention of the wife of the Laḫḫēn who receives the title *lḥnh zy yhw*, "Laḫḫēnā of Yāhû." The title לחן is, no doubt, that of a functionary in the Temple of Yahu, but we are unable to specify the office precisely (see the discussion of the term in Kraeling 1953: no. 2.2). One is reminded of the title of a certain "Miqnêyaw, Servant of Yahweh" on an early eighth-century Hebrew seal. He was neither king nor high priest, so far as we know, but rather a high official whose function is unclear (see Cross 2003:107–13). We do not know what the "day of the temple official" may be, but the expression points to the importance of the title *laḫḫēn*—that he has a special "day."

Figure 17.8: Ashkelon inscription 1.7

Photograph by Ze'ev Radovan

Ashkelon 1.8 An Ostracon Containing a Letter or Message to an Aggrieved Person (reg. no. 44650; Grid 50, Square 48, Layer 444, Basket 16)

This poorly preserved ostracon, broken off at the base, was found on June 22, 1994, in the debris of the 604 B.C. destruction of the city.

1. את · עצב ושׁ]
2. יִפְעַל · ל]○[
3. אֹיֵב · ודן]
4.]בֹ[ ]

1. You are aggrieved and [
2. He will do (evil?) to [
3. enemy and [
4. [   ]

Line 1. We take the form עצב to be a Qal passive participle, "aggrieved," "hurt," in view of its position following the personal pronoun.

Line 2. The idiom פעל ל– quite often expresses evil doing, which apparently fits well into this context.

Lines 3 and 4. The word אֹיֵב seems to be on the ostracon followed by the conjunction and the letter *dalet* before the ostracon breaks off. Only the right side of the original ostracon is preserved. Line 4 is beyond recovery, save for the letter *bet* in the middle of the line. Below line 4, the ostracon appears to have been blank. However, the condition of the ostracon permits us only to speculate about some of these readings, and we are able to perceive only hints of its somber content.

Figure 17.9: Ashkelon inscription 1.8

Photograph by Ze'ev Radovan

Ashkelon 1.9 An Ostracon with a Message Concerning a Tithe (reg. no. 45209; Grid 50, Square 56, Layer 205, Bucket 11)

This ostracon, inscribed on the body sherd of an amphora, was found on July 21, 1994, in the destruction level of 604 B.C. It is in poor condition, with black smudges that obscure the writing. To complicate further the problems of decipherment, the left side of the ostracon is missing.

1. את · מֹעשׂ]ר
2. כֹֿ · אֹנֿ · בדר]
3. ו 10 ⊥ ח
4. [ ]מֹ[ooo] ooo[

1. You are taki[ng] the tithe [
2. For, I am in the household of [
3. and 10 ḥomers (?) of w(heat) [
4. [ ] m [[

Line 1. We have reconstructed מֹעשׂ]ר, a Piᶜel participle. Alternatively, we could reconstruct a familiar personal name, Maᶜăsê-DN, assuming direct address.

Line 2. The beginning of the line is difficult to read. The *kap* is clear, for *kî*; ᵓalep-nun is poorly preserved and obscured by secondary black smudges. The first person pronoun in Phoenician appears both as אנכ and as אנ, the latter to be vocalized ᵓanī. The term *dōr* in Phoenician can mean "generation," "family," or "household." I have taken the last mentioned meaning here in view of the context.

Line 3. The ten(?) ḥomers(?) of wheat presumably are the amount of the tithe. The symbol we have taken for ḥomer follows Yoḥanan Aharoni's suggestion for the meaning of the same symbol used for the measurement of grain in the ᶜArad Letters.[65] The number 10 is confused by extra strokes beneath, for which I have no explanation.

Line 4. Only a letter or two can be made out, and none is certain.

Figure 17.10: Ashkelon inscription 1.9

Photograph by Ze'ev Radovan

[65] See Aharoni 1981:13f. (commenting on line 7 of inscription no. 1; cf. also the chart of symbols, p.138).

Ashkelon 1.10 A Red-Slipped Sherd with the Name: רפאבעל (reg. no. 21608; Grid 50, Square 57, Layer 134)

This inscription, found on the base of a red-slipped plate, was in a layer of debris from the 604 B.C. destruction. The script is formal. It reads:

רֿפֿאֿבעל[ר]

Rapōʾ-baʿl
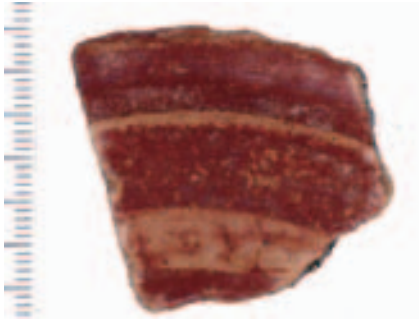
Figure 17.11: Ashkelon inscription 1.10

Photograph by Ze'ev Radovan

Traces of *pe* may be seen with the use of a light-box. All of the letters are somewhat abraded, but *bʿl* is certain, and the *ʾalep* is preserved in clear traces. We have reconstructed a *reš* as the most likely completion in order to make a common personal name. It is also possible to reconstruct יר]פאל[(compare Amorite *Ya-ar-pa-*ᵈIM and Elephantine *yrpyh*. The element *rpʾ*, "to heal," is widespread in personal names; there are examples in Amorite, Hebrew, South Arabic, and Palmyrene, as well as Phoenician (see Huffmon 1965:263f.; Kornfeld 1978:54; Ryckmans 1934:202; Stark 1971:50). The name Rəpāʾēl is biblical, found in 1 Chronicles 26:7, and later becomes familiar as the name of an archangel. *Rpʾyhw* was found in the City of David (Ariel et al. 2000: no. 17, p. 40).

Ashkelon 1.11 A Fragment of a Jar Containing an Account (reg. no. 45210; Grid 50, Square 56, Layer 205, Bucket 11)

This ostracon, from a storejar, is rather crudely written and preserved. It was found on July 21, 1994, in the context of the 604 destruction level.

```
]        ○ 1+20 חֿ        1.
]○  רֿכֿל | | | | ○ | | |○     2.
```

1. W(heat) 21 (measures)
2. [   ] 3 [   ] 4 merchandise [

Line 1. The first letter is probably *ḥet*, the usual abbreviation for wheat (חטים). It could also be read as a *qop*. However, *qop* (as an abbreviation) regularly stands for *qab*, and 21 *qabbîm* would be a strange, if not impossible, rendering because the *qab* is one-sixth of a *səʾāh*. That is to say, we should expect a reading 3 seahs + 2 qabs instead. At the end of the line of script we have a gouge in the ostracon with a grit in its center. It seems to have some ink on its edges, but if a letter (or an arbitrary symbol) were once there, it is now impossible to decipher. Immediately below it on line 2 is a similar gouge, equally illegible.

Line 2. There may be a letter—a symbol—at the beginning of the line; if so it is illegible. After the numbers there is the sequence רכל. We take it to be the cognate of Hebrew *rəkullā*, "merchandise," "trade goods."

Figure 17.12: Ashkelon inscription 1.11

Photograph by Ze'ev Radovan

Ashkelon 1.12 A Fragment of a Storejar with the Letters אב and Numbers (reg. no. 43619; Grid 50, Square 49, Layer 418, Finegrid 29, Bucket 60)

This extremely fragmentary inscription from a 604 B.C. layer can be read as follows:

]| | | + 5   1.
]| אב [2.
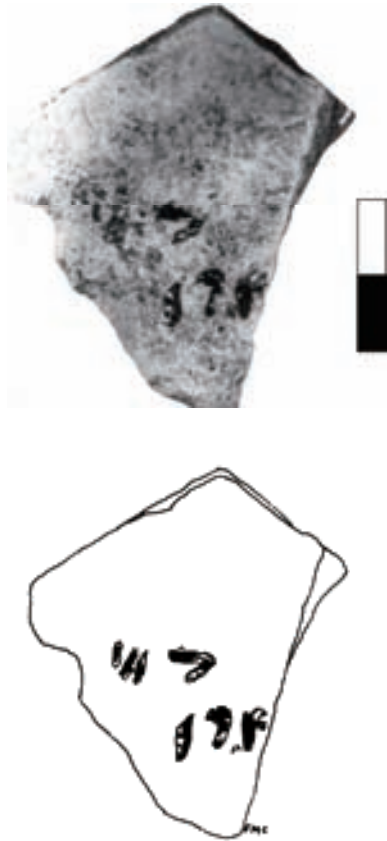
Figure 17.13: Ashkelon inscription 1.12

Line 1. The hieratic number 5 is followed by 3 strokes = 8 items of a commodity.

Line 2. The letters אב[are presumably the second element of a name like אחאב (Zadok 1977:52; Noth 1928:66–82 and no. 74; אחיאב Kornfeld 1978:40).

Ashkelon 1.13 An Ostracon Containing a List of Names Beginning with אחמלך (reg. no. 45207; Grid 50, Square 57, Layer 289, Bucket 143)

This well-preserved ostracon, inscribed in the Neo-Philistine character, found on July 20, 1994, comes from the post-destruction level of Ashkelon. However, it is evidently a "residual" sherd, found in a secondary context, and is to be dated to 604 B.C. or before. Note the typologically old letters in its script. For example, the *mem*, utterly unlike the contemporary Aramaic and Phoenician forms of the letter, immediately reminds one of the Hebrew *mem*s in the Samaria Ostraca of the early eighth century B.C., or of the Siloam Inscription and the *lam-melek* jar handles of the late eighth century. To be sure, there are differences (e.g., the relatively straight rightmost vertical of the *mem*), but the kinship with the early Hebrew script is clear. On the other hand, the head of *bet* and the top of ᶜ*ayin* are beginning to open as in other Neo-Philistine exemplars from the 604 horizon.

Figure 17.14: Ashkelon inscription 1.13

The ostracon reads as follows:

אחמלך · שׁפטֹ[	1.
ואחבעל ·]	2.
וכברוב[ע]לֹן	3.
מכבעל]	4.

1. ʾAḥî-milk, Šipṭi[-baʿl
2. and ʾAḥî-baʿl
3. and Kabbīr-ʿbʾaʿl
4. Mî-kā-baʿl

We have vocalized these names following Hebrew forms, save for the documented Phoenician *Šipṭi-*. Note that the Philistine form of the first name is אחמלך, while in the Phoenician list of names (Ashkelon 2.6) we find חמלך.[66] This latter spelling also appears in most of the occurrences of the element "brother" in Phoenician and Punic names. A notable exception is אחרם on the Ahiram Sarcophagus of the early tenth century B.C. (*KAI* 1.1); however, the name of the king of Tyre comes into Hebrew as *Ḥîrām* and (with the late Phoenician shift) *Ḥîrōm* (see the discussion, and references cited, in Benz 1972:263). I have been bold in supplying the divine name *baʿl* in the name *Šipṭi-baʿl*. The element *Šipṭ* occurs in Phoenician and Punic only in combination with the god name Baʿl, including two kings of Byblos with this name. The vocalization is based on cuneiform transcriptions. On the other hand, compare biblical *Šəpaṭyāhû*, with a verbal rather than a nominal form, and, indeed, the name with a deity other than Baʿl. The fourth name is unusual, appearing elsewhere in Phoenician only in the form <ל>כברבעל, "Baʿl is great" (see Krahmalkov 2000:223f.). The last name, מכבעל, *Mî-kā-baʿl*, "Who is like Baʿl?," is an alternative orthography to מיכבעל; cf. Elephantine מכיה, City of David מכיהו (Ariel et al. 2000: no. 8, p. 36; no. 32, p. 45), and biblical מיכיה and מיכאל.

Ashkelon 1.14 A Fragment of a Storage Jar Inscribed: "Belonging to Kanūpî, the Man-at-Arms" (reg. no. 31458; Grid 50, Square 48, Layer 233, Bucket 86)

This ostracon, found on June 13, 1990, came from a post-destruction context. However, it is written in an elegant Neo-Philistine hand that requires an earlier date, in the late seventh century or earlier. Evidently,

the ostracon was found in a secondary context. The bottom of the ostracon is broken off, evidently in antiquity. It reads:

לכנפי	1.
הֹחֹלֹ[ץ]	2.

1. Belonging to Kanūpî
2. the man-at-ar[ms]

Figure 17.15: Ashkelon inscription 1.14
Photograph by Ze'ev Radovan

Line 1. The name Kanūpî is Egyptian, a reflex of *kꜢ-nfr.w* "(My) soul is kind." The name, spelled כנופי, is found several times in the Elephantine papyri (Kornfeld 1978:82), and once in the Jar Inscriptions from Elephantine (Lidzbarski 1912: no. 45). In Greek it is spelled Κονοῦφις or Χονοῦφις (for references, see Kornfeld 1978:82). One suspects that Kanūpî was an Egyptian mercenary in Ashkelon. Professor Stager has stressed that Egyptians were present in Ashkelon, based on the discovery of Egyptian *situlae* and bronze figurines of Egyptian deities, as well as many Egyptian amulets, dating to the latter part of the seventh century (Stager 1996a:68*–70* and fig. 13). He observes further that Ashkelon no doubt called on Egypt for military aid in the face of Nebuchadrezzar's host marching on Philistia, citing the Saqqārah

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[66] The name אחמלך is found also in the Idumaean Aramaic inscriptions (see Lemaire 1996:113.1). חמלך is also found there (Lemaire 1996:114.1).

Aramaic Papyrus (*KAI* 266) as a parallel—if indeed the papyrus was written by the scribe of the king of Ekron, as argued by B. Porten (1981); the reading "Ekron" is not wholly certain, and the papyrus may have come from Ashkelon. In any case, Stager contends, whether the city is Ekron or Ashkelon, it is still clear that the Philistines were calling on their superiors to help ward off the Neo-Babylonian threat.

Line 2. The break at the bottom of the ostracon runs through the letters of the second line, removing the base of each letter preserved, and in the case of the end of the line, removing an entire letter. With the article and the top of the letters *he*, *ḥet*, and *lamed* easily identified, the reconstruction [ץ]הֹחֹל imposes itself.

Presumably, the passive participle would be vocalized *ḥālūṣ*, as is usually the case in Hebrew and Phoenician, or perhaps *ḥālīṣ*, an alternative pattern for the passive participle often used for professional terms in Hebrew and sometimes used in Phoenician—for example, *bārīk*, "blessed" (later with vowel harmony, *birīk*; see Waltke and O'Connor 1990:88 §5.3c). Compare also the name in a fragment of the Samaria Papyri, בריכשמש (see Gropp 2001: plate 35, fragment 6.2).

The script of this ostracon requires comment. As noted above, the script is elegant and sure, and must be assigned to the Philistine hand. Note in the *kap* the two short strokes form a small horizontal "v" with the point touching the long sloping downstroke. In the cursive, the "v" has simplified into a single, short, curving stroke. This form, reminiscent of old formal *kap*s, is largely absent from the Phoenician cursive from the early seventh century onward. *Nun* and *pe* are long graceful forms that survive in the cursive as late as the Saqqārah Papyrus (ca. 600 B.C.). They have disappeared in the Phoenician cursive long before the Persian period, the context in which this ostracon was found. The *yod* has shifted stance counter-clockwise, a shift found in the cursive but also in the Neo-Philistine script of Ashkelon 1.2 and in more extreme form in Ashkelon 1.1. Three horizontal strokes are preserved in the *he*, traits that do not appear in Phoenician cursive after the time of the Kition Tariffs (ca. 650 B.C.). The *ḥet* is an advanced form, distant from the formal *ḥet* of Ashkelon 1.1 and quite like those of the ostraca from the 604 destruction (e.g., Ashkelon 1.4 and 1.6). It is less developed than the *ḥet* of the Persian period. In sum, we are inclined to date the ostracon to the years before the 604 B.C. destruction.

2. Inscriptions in Phoenician from the End of the Sixth Century through the Persian Period

Ashkelon 2.1   A Piece of a Storejar with the Label "Temple Personnel" Engraved before Firing (reg. no. 43579; Grid 50, Square 57, Layer 194, Bucket 11)

The inscription on this piece of an amphora, discovered on June 20, 1993, was deeply engraved. Where the stylus penetrated and stopped in making a stroke it has left piled-up clay, making obvious the fact that the inscription was done when the clay was leather-hard, before firing. Evidently the pot was made for the patrons whose identity is on the jar. The inscription reads as follows:

עמת ח

Female personnel (of the god) Ḥ

Figure 17.16: Ashkelon inscription 2.1

The term עמת means literally "kinswoman (of a god)," and here the term is probably plural, applying to female functionaries in a temple.[67] The letter *ḥet*, separated slightly from ʿ*mt*, evidently is the abbreviation for the god's name, perhaps Ḥôrōn, a god whose temple is known from an inscription from Tel Qasîle (B. Mazar 1956: Ostracon no. 2, p. 209). An alternative would be the popular Egyptian god Horus (*Ḥr*).

The script of the inscription, unlike most of the jar inscriptions recovered from Ashkelon, is the formal or lapidary character. Comparison can be made with the formal script of the Tabnit Inscription of Sidon (*KAI* 13), which is probably to be dated toward the end of the sixth century B.C.[68]

Ashkelon 2.4   A Fragment of a Jar Inscribed "Belonging to Mannu-kî-N[abū]" (reg. no. 26227; Grid 57, Square 68, Layer 269, Bucket 857)

This little inscription, once declaring possession of a storage jar and its contents, is now preserved on a small, broken fragment of the jar. It was among the early finds, dug up on July 25, 1989. The script is an advanced Phoenician cursive familiar from the Elephantine Jar Inscriptions and probably dates to the fourth century B.C. It reads:

למנוכינ[בו] 1.
בן עבדבעל 2.

1.   Belonging to Mannu-kî-N[abū]
2.   son of ʿAbd-baʿl

Figure 17.17: Ashkelon inscription 2.4

Photograph by Ze'ev Radovan

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[67] See the discussion by Krahmalkov (2000:380f.). The term is frequently used in personal names of women in the pattern ʿ*mt*-DN, "Kinswoman of DN," parallel to the pattern ʿ*m*-DN in names of men. Contrast the unconvincing analysis of R. S. Tomback (1974:251).

[68] See, conveniently, the script chart in Peckham 1968a (plate 5.1). On the disputed date of the inscription, see J. C. L. Gibson 1982:101f. and the literature cited, to which should be added Mullen 1974.

Names made up with the element *mannu-kî*, "who is like __?," are known from Old Babylonian to Late Babylonian times. They are popular in Assyria as well as Babylonia, and are commonly taken by West Semites in the Chaldean and Persian periods (Tallqvist 1966:124a–127a; Kornfeld 1978:58 and references there). I have filled in the name "Nabū." Two letters rise above the (theoretical) ceiling line from which most letters are hung: *lamed* and *nun* (cf. the *nun* on line 2). There is no Mesopotamian god popular in the West in the Late Babylonian and Persian periods whose name begins with the letter *lamed*. On the other hand, the god Nabu is extraordinarily frequent in the Aramaic onomasticon, which includes many Babylonian names.[69] Further, the letter *nun* fits perfectly the high beginning of a stroke on the edge of the jar inscription. The name of the father of Mannu-kî-N[abū] was ᶜAbd-baᶜl, a popular Phoenician name, and we judge that the son was also Phoenician and had adopted a Babylonian name (Benz 1972:153f.). Compare the Babylonian names of proper Jews: Šešbaṣṣar (< Sin-ab-uṣur) and Zerubbabel. Another example is Sanballaṭ (< Sin-uballaṭ), the governor of Samaria, who had two sons with Yahwistic names and hailed from Bet-Ḥoron in Palestine.

Ashkelon 2.5 An Ostracon with a Message Concerning ᶜAmos (reg. no. 45211; Grid 50, Square 58, Layer 310, Bucket 61)

This fragmentary ostracon, dug up on July 25, 1994, in a Persian-period stratum, was once a fairly large document; now it is broken off on its right and left sides, and probably also at the top. Its script is a rather crude Phoenician cursive, developed only slightly beyond the script of the Saqqārah Phoenician Papyrus and coeval with the earliest of the Elephantine Jar Inscriptions. In short, I should date it to the early fifth century B.C. It reads:

1. [ולא · פ]
2. [· ען · אש · ב
3. ל[· עמס ו∘ו ישלם · לן
4. [∘ מֹבֹאכם · בלן
5. ∘ ∘ לֹ]

1.]and not . . . [
2.] · his eye (?) that . . . [
3. ᶜAmos. He will make recompense to [
4. . . . your entrance. (You will) not[
5. [l   [

Line 2. The word ען is capable of several interpretations; it could be derived from the verb "to answer," the noun "spring," the noun "eye," or even the noun ᶜanî "poor." I am inclined in this context, with the relative pronoun following, to read ᶜênō, "his eye," which would be written without a *mater lectionis* (except in the genitive case).

Line 3. The proper name ᶜAmōs is found widely in personal names and was used as an element in theophorous names in Hebrew and in Phoenician and Punic (Benz 1972:172f.; Kornfeld 1978:67; Krahmalkov 2000:378f.). I take the name to complete a sentence, with the finite verb ישלם coming first in the next sentence, following normal sentence word order. The phrase ישלם ל–, "to make restitution to (someone)," "to make recompense for injury to (someone)," would make sense if we are dealing with a legal or quasi-legal memorandum. The negatives in lines 1 and 4 suggest that we are dealing with injury and restitution, not reward. Compare the use of *yəšallēm l-* in such legal contexts as Exodus 22:8, 11.
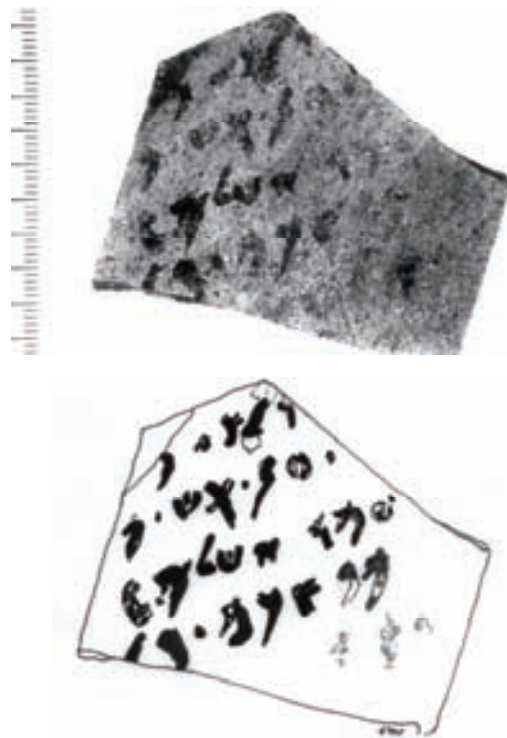
Figure 17.18: Ashkelon inscription 2.5
Photograph by Ze'ev Radovan

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[69] Kornfeld (1978:60–62) lists twenty-five Nabu names in Elephantine and other Egyptian Aramaic texts. Vinnikov (1964:206–7) lists some twenty-nine such names in Aramaic inscriptions. See also Lemaire 1996:37.B4; 75.1; 82.1. To these can be added the name עבדנבו (Lemaire 1996:86.1).

Line 4. The reading of the first two letters of מבאכם is somewhat less than certain. However, כם–, the second person plural pronoun, is clear, one of the few occurrences of this suffix in Phoenician. The significance of a reference to "your entrance" is not clear. We need the lost pieces of the ostracon to make sense of it.

Line 5. Two or three smudges appear below line 4. However, I cannot discern letters underlying the smudges, save for the letter *lamed*, and it is not clear.

Ashkelon 2.6   An Ostracon Inscribed with a List of Names (reg. no. 45019; Grid 50, Square 56, Layer 203, Bucket 1)

This ostracon is the body sherd of a storage jar found on July 14. 1994. It is written in a fairly early Phoenician cursive dating to Late Babylonian or early Persian times. Unfortunately, it is broken on three sides, preserved complete only on the right side, with the beginning of the lines intact. It reads as follows:

1.   [בן מנש בן
2.   [בן   חימלך
3.   [בן יצח בן

1.   Son of Mənašše, son of [
2.   Ḥî-milk son of [
3.   Son of Yiṣṣaḥ, son of [

Line 1. This line and line 3 begin with "Son of PN" and it appears that several persons, if not all, are named by their father's name. That is to say, they belong to the category of "Nameless People," to use Joseph Naveh's (1990) term, or "Menschen ohne Namen," in Albrecht Alt's usage.[70] We should not suppose that this list of names is a continuous genealogy. One is reminded of similar jar inscriptions from the port of Shiqmona, which list the name of Ben Mattōn, a "nameless man," the date (by regnal year), and the jar's contents, "wine of Gat Carmel" (see Cross 2003:286–89; cf. Delavault and Lemaire 1979:14–16; Naveh 1987:28) The name מנש is evidently identical with biblical Mənaššeh, in form a Piᶜel participle (< *manaššī). In Phoenician elsewhere we find the name written מנשי, with an unex-

pected *mater lectionis*, or better a gentilic ending (Lidzbarski 1912: no. 52).[71]

Line 2. חימלך, "Milk is my kinsman," is one of the most common names in Phoenician and Punic sources; it is found as well in an Idumaean ostracon (Lemaire 1996:114.1). Noteworthy is the fact that, with its Phoenician spelling (omitting initial ᵓalep), it stands in contrast to the Neo-Philistine form, אחימלך, in Ashkelon 2.2 above.

Line 3. The name *Yiṣṣaḥ* is new. The only comparable name is biblical נציח. The root, *nṣḥ* in Phoenician and Late Hebrew, means in the Qal "to be victorious," in the Piᶜel "to defeat, conquer." The form *Yiṣṣaḥ*, a Qal imperfect, would be the hypocoristicon of a name such as *Yiṣṣaḥ-DN, "May DN be victorious."
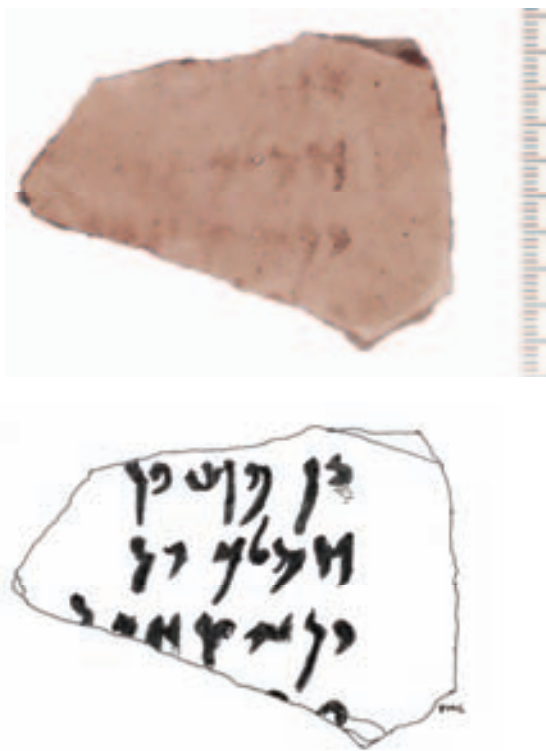
Figure 17.19: Ashkelon inscription 2.6
Photograph by Ze'ev Radovan

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[70] Naveh's brilliant paper solves the problem of such names "son of X," demonstrating that it is an informal usage with no pejorative connotations, as Alt (1959) had argued.

[71] The gentilic afformative is written with *yod* in Phoenician (Krahmalkov 2001:148); e.g., אשקלני (*KAI* 54.1; cf. the biblical gentilic, מנשי). See also Lemaire 1985:31f., no. 12.

Ashkelon 2.7 A Fragment of a Storejar Inscribed with the Name Bin-Rēmšu-ʾēl (reg. no. 39968; Grid 50, Square 47, Layer 164, Bucket 329)

This brief inscription, now on a broken piece of the body of a storejar, probably was inscribed originally on an intact jar in use. The piece was found in 1992 in a Persian-period stratum. Jar inscriptions with name and date are familiar. See Ashkelon 2.6 and references. The inscription reads:

בן רמשאׄל 1.
לירח פ · 10+1 2.

1. Son of Rēmšu-ʾēl
2. For the month of P: 11
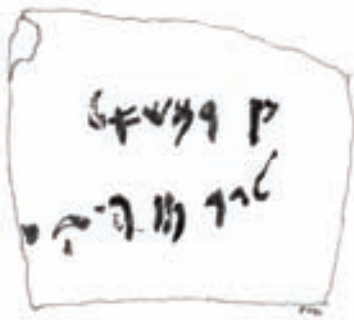
Figure 17.20: Ashkelon inscription 2.7
Photograph by Ze'ev Radovan

Line 1. I have taken *Rēmšu-ʾēl* to be an Akkadian name, "O God, show him mercy." The name is documented in the form *Re-en-šu-ilu* < **Rēmšu-ilu*, and has such parallels as *Ili-rēmanni*, "God, show me mercy," *Šamaš-Rēmanni*, "Show me mercy, O Shamash" (see Stamm 1939:167f.). The name does not conform to West Semitic patterns. There seems to be no suitable root in Northwest Semitic—*rmš*, *rmś*, or *rmṯ*—which is productive of personal names. Thus I have turned to Akkadian. However, I am troubled that the partial assimilation of the *mem* before *šin* that

normally takes place in Akkadian does not occur in the Phoenician transcription of the Babylonian name.

Line 2. After לירח there is a *pe* followed by what appears to be a word divider, and finally the number 11, no doubt the day of the month. The *pe*, I believe, is the abbreviation of a month name. The Phoenicians were particularly fond of such abbreviations. As it happens, we know a Phoenician month name beginning with *pe*, namely פעלת, that occurs several times in inscriptions (Krahmalkov 2000:403). Its vocalization and precise meaning are uncertain. However, we do not know all of the Phoenician month names, and there may very well be another name beginning with *pe*.

Ashkelon 2.8 A Fragment of a Storejar Inscribed with the Name Šekwî (reg. no. 30824; Grid 50, Square 59, Layer 210, Bucket 13)

This brief inscription was found in a Persian-period context on April 24, 1990. It is inscribed on a fragment of a storage jar. The upper portion of the sherd is broken off, and perhaps broken off on all sides, if, as I believe likely, the name indicating ownership was inscribed on an intact storage jar. The script is rather early; the piece must date toward 500 B.C. It reads:

שׄכוי

Šekwî

Figure 17.21: Ashkelon inscription 2.8
Photograph by Ze'ev Radovan

The name is known from the Bible, Job 38:36, vocalized *śekwî*. In Job it occurs in a bicolon, translated by Marvin H. Pope: "Who put wisdom in Thoth? Who gave Śekwi understanding?" (Pope 1973:290 and 302f.). The juxtaposition of the Phoenician hierophant Taauth, who invented writing (according to Philo of Byblos, quoting Sanchuniathon), thereby laying the foundation of all wisdom, to Śekwî, suggests that at the very least, the original Śekwî must have been a famous ancient sage. The rabbinic identification of the name with a cock—still the meaning of the word in Modern Hebrew—is mysterious.[72] I suspect that the name is without Hebrew etymology. Phoenician orthography—wholly without the marking of internal vowels—guarantees, I believe, that the *waw* is consonantal, and that it is wrong to try to change its vocalization to make it conform to a Hebrew pattern, i.e., *śakkūy* (cf. Naveh 1992b:18, n. 15). The name has turned up on an Aramaic ostracon from ᶜArad (Aharoni 1981: no. 8.2, p. 156), on a Hebrew seal with the Hebrew legend לחנן בן שכוי (Avigad 1997: no. 162, pp. 99f.), and in an Aramaic slave contract from Samaria: ד[לה[אל בר שכוי (Gropp 2001:3.11, pp. 58 f. and plate 3).

Ashkelon 2.9 An "East Greek" Bowl with an Incised Inscription: עגמ (reg. no. 14450; Grid 50, Square 56, Layer 1, Step 5, Bucket 1)

This inscription is on a so-called "East Greek" bowl. Fragments of the bowl were found on June 28, 1987, and were pieced together to make a fairly well preserved bowl measuring 182 mm in diameter, with a base diameter of 74 mm. Above the inscription are two holes piercing the bowl near its rim. No doubt they were used to permit stringing the bowl up on a wall. The inscription is incised in an elegant formal Phoenician character of the Persian period. It reads:

עגמ

"Cookies"

The term עגמ is new, to be vocalized ᶜūgîm or ᶜuggîm. In Biblical Hebrew, the term עגה refers to a disc of bread or cake made of the finest flour. The root seems to mean "to be round." I am inclined to think that this beautiful bowl with its elegant inscrip-

tion was designed for ritual purposes, namely, to contain small cakes or round wafers used in the cult. One calls to mind the cakes (כונים) made for the Queen of Heaven (Jeremiah 7:18; cf. 44:19). The term כונים is a loanword from Akkadian *kamānu*, meaning cakes sweetened with honey or figs (*CAD* 8:110f.). The cult is that of ᶜAštart-Ḥōr, or Ištar-Ḥurri, Astarte of the Hurrians, who became a special cult under the name Ištar of Nineveh, and whose popular cult in late Assyrian times swept over the empire, and indeed reached all the way (with the Phoenicians) to Spain (see Cross 1971). Here, with this inscribed bowl, we believe we have testimony to the existence of the cult of Hurrian ᶜAštarte in Ashkelon (see Stager 2000).

Figure 17.22: Ashkelon inscription 2.9

Figure 17.23: Interior of bowl on whose exterior Ashkelon inscription 2.9 is incised

Photograph by Ze'ev Radovan

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[72] I find the explanation of the name by W. F. Albright clever, but far fetched (Albright 1968:214f.). He argued that Śekwî meant "sailor," which came to be a nickname for a rooster.

Ashkelon 2.10 A Jar Handle Stamped with the Seal Impression of ᵓĒlî-rapōᵓ (reg. no. 42722; Grid 50, Square 47, Layer 213, Bucket 81)

The seal impression on this jar handle is crudely made, and, surprisingly, contains a corrected error. It was found on June 22, 1993. The inscription reads:

אל{פּ}ר
פא

ᵓĒlî-rapōᵓ

Figure 17.24: Ashkelon inscription 2.10
Photograph by Ze'ev Radovan

Apparently the engraver made a spelling mistake, blotted out a *pe*, which he had anticipated—the seal impression shows clearly the attempt to expunge the *pe*—and continued with ר, and then, running out of space, continued the letters of the name, פא, squeezed in below. Apparently the owner of the seal was too ignorant—or too poor—to have a better seal made. The script is fashioned after the formal character, resembling typologically the script of the Tabnit Inscription of the mid-fifth century B.C. The name is made up of thoroughly familiar elements: אל, "god" or "ᵓEl," and רפא, "to heal." There are the biblical names רפאל (1 Chronicles 26:7), ירפאל (a place name, Joshua 18:27) and רפיה (1 Chronicles 3:21). There are

a number of Amorite names using the root *rpᵓ*, including the name *Ì-lì-ra-pí* (see Huffmon 1965: 263f.). In Phoenician there is the hypocoristicon רפא and as well the names in Ashkelon 1.10 and here. רפאל is also a popular name at Palmyra (Stark 1971:50).

Ashkelon 2.11 A Large Jar Fragment Inscribed with the Name Baᶜl-naqōm (reg. no. 40404; Grid 50, Square 47, Layer 169, Bucket 391)

This large fragment of a storejar was found on June 30, 1992. The ink of the inscription is badly preserved, but the cursive Phoenician letters can be made out. The inscription reads as follows:

בֿעלנֿקֿם

Baᶜl-naqōm

Figure 17.25: Ashkelon inscription 2.11
Photograph by Ze'ev Radovan

The broken edge of the sherd cuts off the right side of the *bet*, but what remains of the head conforms to *bet*, and the context favors this reading. The tail of the *qop* is faint, but the head is characteristic. The only alternative is to read an *ᶜayin* but the closed circle fits ill with the open *ᶜayin* of *Baᶜl*. Names with the element נקם, "to take vengeance," are found in Phoenician and Ugaritic. Take, for example, the Phoenician name נקמאל (Benz 1972:363 and references). Typological elements in the script suggest a late Persian date.

Ashkelon 2.12 A Storage Jar Inscription with the legend למלך (reg. no. 40433; Grid 50, Square 47, Layer-Feature 181, Bucket 468)

This inscription, found on July 9, 1992, equivalent to *lam-melek* in Hebrew, presumably *lam-milk* in Phoenician, is familiar from its appearance on many storage jars in Judah, Phoenicia, and Egypt, the latter in Phoenician inscriptions, frequently with the added "*ṭet*" sign (Lidzbarski 1912: plate 6, nos. 56, 57, 58, 59, 61, 62, 63, 64). Literally, it means "belonging to the king," but apparently it is the king's standard measure which is indicated or claimed.[73] The script is an elegant Phoenician semicursive, showing conscious shading, heavily influenced by the formal character, notably the *lamed* with the final downward tick and the *mem* with a full downward crossbar. Compare the formal script of the Tabnit Inscription (see the chart of Peckham 1968a: plate 5.1).
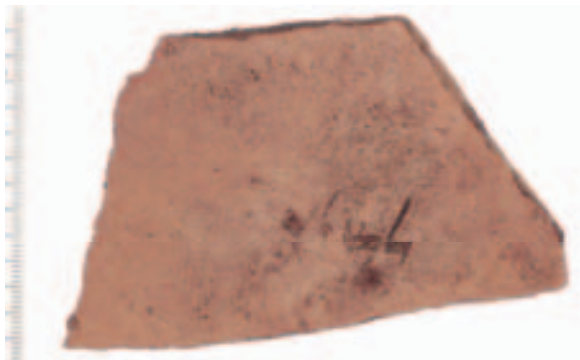
Figure 17.26: Ashkelon inscription 2.12
Photograph by Ze'ev Radovan

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[73] See my discussion of *lmlk* + "*ṭet*"-symbol in Cross 2003: 288, where I contend that: "Theories which supposed the *lmlk* handles had to do with crown property or military stores exclusively have been unable to assimilate these data [listed above]. The most parsimonious explanation of the jar-handle stamps [and inscriptions on storage jars] with *lmlk*, *lmlk* plus *ṭet*, *yhd* plus *ṭet* . . . is that they designate jars of official or royal measure."

Ashkelon 2.13 A Large Piece of a Jar Engraved with the Personal Name Ḥî-ᶜanō (reg. no. 19789; Grid 50, Square 57, Layer 63, Bucket 279)

The inscription, found on May 23, 1988, is written חענ in Phoenician orthography, which eschews marking vowels; the name is to be vocalized *Ḥî-ᶜanō*, "The Divine Brother has answered (my plea)." Compare biblical *ᶜănāyāh`*, Phoenician ענבעל, as well as such names as *ᶜnny*, biblical *ᶜănānî*, hypocoristic for *yhwᶜnny* (*yəhô-ᶜănānî*), "YHWH has answered me" (Gropp 2001: 3, 1.3.7.10; 5, 2; 11; 12). Transcriptions in Late Babylonian and Neo-Babylonian give *anani-ᵓil* (Zadok 1977:358; Coogan 1976:32) alongside *ᶜanāᵓēl* (*a-na-ᵓ-il*); cf. Elephantine *ᶜnny* and *ᶜnnyh* and Ammonite *ᶜnᵓl* (Naveh 1980:1–2).

Figure 17.27: Ashkelon inscription 2.13
Photograph by Ze'ev Radovan

Ashkelon 2.14 A Piece of a Jar with the Engraved Inscription: [   ] ע חט (reg. no. 38636; Grid 50, Square 57, Layer 190, Bucket 143)

This puzzling inscription is on an amphora sherd found on July 22, 1991, in Persian levels. Its script is lapidary, incised into the jar after firing. The first two letters are in a clear and elegant formal hand. The first letter, *ᶜayin*, occurs after a long space and must be considered the beginning of the inscription. This is awkward since the following letter, *ḥet*, forms a phonetic sequence impermissible in Phoenician (or Hebrew) words. We are thrown back on the explanation that the inscription is an abbreviation of a name, a very frequent phenomenon in Phoenician. The third letter is not complete. If the scribe has not made a mistake—unlikely in such excellent script—the rounded shape preserved before the ostracon is broken off can only be the right side of a *ṭet* written in the style of the form found in the Šipṭibaᶜl or Batnoᶜam inscriptions of the fifth and early fourth centuries B.C. (see Peckham 1968a: pl. 4.1 and 4.5).

Figure 17.28: Ashkelon inscription 2.14

The ᶜ*ayin* can be taken, as often, as the abbreviation of ᶜ*bd*, "servant of." We then expect a divine element beginning *ḥṭ*–. In Phoenician I know of only one such name, *Ḥṭr-mskr*, the binomial name of the god usually called simply *Mskr* (*KAI* 145:5 and 146:1; cf. Krahmalkov 2000:181 and Benz 1972:351). The name ᶜ*bd-mskr* occurs in a Phoenician name once, and in Punic three times (Benz 1972:162). Unfortunately, we know nothing of the god, neither the origin of his name nor his function. Over against such speculation, we could argue—on the basis of the principle that the banal reading is to be preferred—that we should read *ḥṭm* (*ḥiṭṭîm*), "wheat," and take the ᶜ*ayin* as an abbreviation of a word like ᶜ*ōmer*, a measure, or ᶜ*ŏmrê*–, "ears of (grain)." However, an ᶜ*ōmer* of wheat is a small amount to put in a large amphora, and ears of wheat are equally an odd commodity to store in a jar. Perhaps we should abandon the entire reading as an unknown abbreviation.

Ashkelon 2.15 An Attic Black-glazed Kylix with the Name דתין Incised on Its Base (reg. no. 26701; Grid 50, Surface, Basket 13)

The name דתין, perhaps to be vocalized *Datyōn* or *Datyūn*, is scratched on the glazed surface in formal, but crude letters. The script typologically matches closely the script of the Bodᶜastart Inscription (second half of the fifth century B.C.; see Peckham 1968a: pl. 5.4 and 5.5), and in turn this conforms to the date of the Black-glazed ware, late fifth to early fourth century B.C. The name can to be compared with the biblical personal name Dātān, with the place name Dōtān, and with Ugaritic *bn dtn*, ᶜ*m dtn*, and *qbṣ dtn*

(*KTU* 4.422:52 [*bn dtn*]; *KTU* 1.124:2, 11 [ᶜ*m dtn*]; and *KTU* 1.15.iii:4, 15). The latter passages are interesting; there is in parallel cola, *btk rpiᵓ ᵓarṣ* // *bpḫr qbṣ dtn*, "in the midst of the shades of the Underworld, in the assembly of the company of DTN." In Akkadian, there is the term *datnu*, which means "strong, warlike," that has been suggested as cognate. There is also the term *ditānu*, "aurochs," in Akkadian (*CAD* 3:164f.). None of these is identical with *dtyn*. However, we do have the rare variation between names such as Ṣîdōn ‖ Ṣîdyōn.[74]
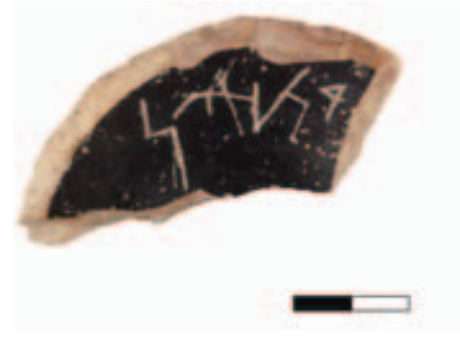
Figure 17.29: Ashkelon inscription 2.15

Ashkelon 2.16 A Personal Name Incised on a Fragment of a Black-glazed Vessel: עבדׄל (reg. no. 19701; Grid 50, Square 49, Layer 187, Bucket 513)

The inscription reads:

עבדׄל

Figure 17.30: Ashkelon inscription 2.16

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[74] In the "Kirta (KRT) Epic" (*KTU* 1.14.iv:35–49), the king vows by Asherah of Tyre and ᵓElat of Sidon, in Ugaritic *ṣdyn-m*.

While portions of the last two letters of the name are partly broken off, enough of the two letters remain to ensure the reading of a *dalet* and a *lamed*. The same name spelled עבדל appears once on a jar inscription from Elephantine (Lidzbarski 1912: no. 17.1). It may be an abbreviation for such a name as עבדאל, עבדאלם, or even עבדבעל.[75] More likely, the spelling reflects the pronunciation of the name with the ᵓ*alep* elided. Compare the Phoenician names עבדלם and עבדלת, each with a missing ᵓ*alep*—that is, written phonetically. The character of the script and the type of the Attic Black-glazed pot require a date late in the Persian period.

Ashkelon 2.17 A Fragment of a Red-glazed Skyphos with the Letters עב] (reg. no. 13159; Grid 50, Square 59, Layer 50, Bucket 283)

The inscription on the base of the skyphos consists of only two letters, ᶜ*ayin-bet*. It is probably the beginning of an ᶜ*abd* name: -עב]ד; see Ashkelon 2.16 above (עבדל). However, the letters could also stand for עבד-בעל, the abbreviation being the first letters of each element of the name. The well-incised letters are in formal Phoenician. The script and the cup date to the Persian period.

Figure 17.31: Ashkelon inscription 2.17

Ashkelon 2.18 A Fragment of an Attic Black-glazed Cup with the Letters אם (reg. no. 30812; Grid 50, Square 59, Layer 206, Bucket 40)

This cup, found on May 2, 1990, is neatly incised with the letters ᵓ*alep* and *mem* in formal script. It is interesting, but not surprising, that the inscriptions on fine Black- and Red-glazed ware are in formal Phoenician characters while most of the jar inscriptions are in the Phoenician cursive. The vessel was broken, cutting through the right side of the ᵓ*alep*; the *mem* is intact, and followed by a large space so that it is clear that the *mem* is the final letter of the inscription.

Figure 17.32: Ashkelon inscription 2.18

Probably we have the abbreviation of a Phoenician name etched on the cup base. Attic Black-glazed tablewares, especially cups (σκύφοι) and plates, were brought into the ports of the Levantine coast in the Persian period, documented from Al-Mina on the coast of northern Syria to Ashkelon in the south, and distributed as well throughout inland Palestine.[76] From Al-Mina come a large number of Black-glazed cups and plates with Phoenician inscriptions, most bearing only a letter or two, abbreviations of names, a practice to which the Phoenicians were—unfortunately for us—most addicted (see Benz 1972: 235–37; Bron and Lemaire 1983:678, n. 5). The patterns of forming abbreviations, when we know both the abbreviation and full name (knowledge gained especially from coins of known Phoenician kings with their abbreviations on their coins), included: (1) taking for an abbreviation the first letter of a name, or the first and second letters of a name; (2) taking the first and last letters of a name; or (3) taking for the

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[75] The name עבדאל is found in Idumaea (see Ephᶜal and Naveh 1996:175.3).

[76] On the broad distribution of Black-glazed wares, see Stern 1982:139–41 and appendix 2 ("Distribution of Imported Greek Ware in Palestine"), pp. 283–86.

abbreviation the first letter of each element of the name.[77]

The same letters, אם, appear on the bottom of a Black-glazed dish found at Al-Mina (Bron and Le-maire 1983: no. 9, pl. 117.3). Bron and Lemaire pro-pose the possibility that the letters are an abbreviation of one of such documented names as *ʾbqm*, *ʾbšlm*, *ʾḥrm*, or *ʾḥʾm*. An alternative analysis is possible. We can propose that before אם– was a missing divine element such as *ʿaštart* or *ʾšmn*. Compare Ugaritic *ʿttr-ʾm* (Gröndahl 1967:46, 99), and Phoenician *ʾm-ʾšmn* (Benz 1972:269). The use of the feminine *ʾm* with a masculine divine name (in the case of a female name-bearer) would not be surprising.[78] Another ex-ample of such usage is the Phoenician name found twice in the Samaria Papyri, *ʾsytwn*, "Isis has given" (Gropp 2001:8.1, pl. 37.33), and at Al-Mina (Bron and Lemaire 1983: no. 5, pl. 116.5), where it is fully written out on the base of a Black-glazed plate.[79] There exists yet another possibility, certainly the simplest if an entire name were on the sherd, namely, to reconstruct [*t*]*ʾm*, a name found above in Ashkelon 1.5 as well as elsewhere in Phoenician and Punic (Greek Θωμᾶς). Most likely, however, the first ex-planation is correct, and we are dealing with a two-letter abbreviation paralleled in the Al-Mina inscrip-tion.

Ashkelon 2.19 A Sherd of a Black-glazed Cup with the Letters ע ש (reg. no. 26522; Grid 50, Square 49, Layer 229, Bucket 594)

This inscription, incised on the ring base of a sky-phos, was found in a Persian-period context on June 20, 1989. Evidently, it is the abbreviation of a com-mon name. Candidates include עבד-שחר, עבד-שמש, עשתרת-יתן, עשתרת-שלך; of these, עבד-שמש and עשתרת-יתן are perhaps the most likely.[80] Ashkelon 2.30 has the same two-letter inscription.

Figure 17.33: Ashkelon inscription 2.19

Ashkelon 2.20 A Fragment of a Black-glazed Cup with the Incised Letter א (reg. no. 30206; Grid 50, Square 49, Layer 232, Basket 10)

This very small fragment, found on April 25, 1990, may contain the full inscription, a one-letter abbre-viation. See Bron and Lemaire 1983: no. 26 (pl. 120.2) for a single א on the base of a Black-glazed plate. It could stand for the initial element of a num-ber of names including the popular elements: *ʾb*, *ʾḥ*, *ʾdn*, *ʾl*, *ʾm*, *ʾmt*, *ʾrš*, and *ʾšmn*.

Figure 17.34: Ashkelon inscription 2.20

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[77] For example, see the abbreviations on the coinage of Sidon, which can be matched with the full names of known kings, in Betlyon 1980:3–38; cf. Bron and Lemaire 1983: 678f. and references.

[78] See Coogan 1975:194, n. 2, who cites such names *ʾtʿqb* and *bltyḥn* for Palmyrene examples, and for Akkadian ex-amples such as ᶠIštar-damqat, cites Edzard 1963.

[79] See also the name *ʾsytn* in the so-called "Molk Stele" republished by B. Delavault and A. Lemaire (1976: col. ii.1 [pl. 44] and pp. 574 and 581).

[80] These two names are the most popular of this group. For עבד-שמש, see Benz 1972:164; Tallqvist 1966:4a; and compare Wuthnow 1930:51 (Greek Ἡλιόδωρος). For עשתרת-יתן, see Kornfeld 1978:68; Benz 1972:175.

Ashkelon 2.21 The Base of a Black-glazed Cup with an Incised Letter צ (reg. no. 9769; Grid 38, Square 74, Layer 28, Finegrid 24, Basket 61)

This fragment of an Attic Black-glazed cup was found on July 26, 1987. The one-letter inscription—there is nothing before or after—is also found on an Al-Mina example (Bron and Lemaire 1983: no. 19, pl. 119.1). The צ is incised in an elegant formal script. The name it represents may have possessed one of the elements popular in name giving: *ṣdq* or *ṣd*.

Figure 17.35: Ashkelon inscription 2.21
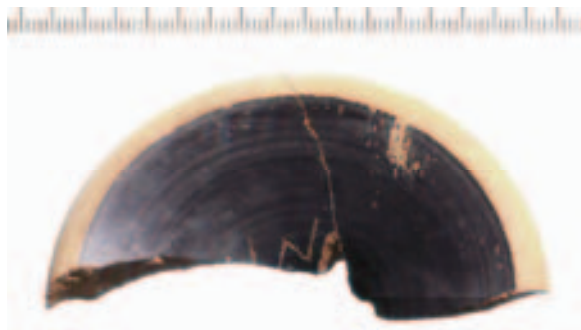
Figure 17.37: Ashkelon inscription 2.23

Ashkelon 2.22 A Base of an Attic Black-glazed Vessel Incised with the Letter ר (reg. no. 16032; Grid 64, Square 87, Layer 49, Finegrid 47, Bucket 110)

This sherd of Black-glazed ware was found on July 26, 1987. The broken base is cut off immediately before the letter ר, so that there probably was a letter before it off the sherd, perhaps אר. At Al-Mina there is a similar sherd of a Black-glazed cup with the incised letters אר (Bron and Lemaire 1983: no. 11, pl. 117.5). Such an abbreviation provides several possible names including: ארש, אשמנשמר, אשמנעזר (an extremely popular name), et al. The *reš* is inscribed in the formal character.
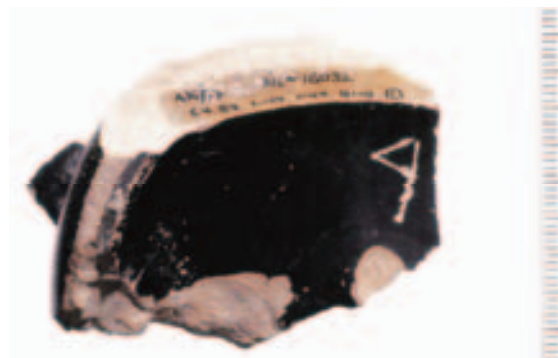
Figure 17.36: Ashkelon inscription 2.22

Ashkelon 2.23 A Base of a Black-glazed Cup with an Incised letter שׁ (reg. no. 38369; Grid 50, Square 57, Layer 190, Bucket 119)

The one-letter inscription, שׁ, seems to be complete. It was found on July 16, 1991. The formal Phoenician *šin* is surprisingly archaic, although "four-stroke" or "W-shaped" exemplars occur sporadically in lapidary inscriptions, and even as late as the cursive Elephantine Jar Inscriptions. The letter does not conform to alternative readings, neither to Greek *mu* (see below Ashkelon 3.3) nor to Greek *sigma*, as they evolved in the fifth century B.C. On the analogy of other Phoenician abbreviations on Black-glazed ware, we expect it to be the abbreviation of a name—although it is not impossible that it is the abbreviation for *šeqel* (cf. below, Ashkelon 3.1). Phoenician names, preferably hypocoristic names, beginning with *šin* include שלם, שלמי, שמעא, שמר, and שפט. Of these, שפט is by far the most common in Punic inscriptions (Benz 1972:182–84). The inscription must be dated by the date of the Attic Black-glazed cup: last half of the fifth or the early fourth century B.C.

Ashkelon 2.24 A Sherd of Black-glazed Ware Inscribed with the Personal Name: [ן]מגן (reg. no. 33275; Grid 57, Square 68, Layer 309, Bucket 27)

This inscription, found on June 25, 1990, is crudely scratched in Phoenician cursive script—unlike most of the abbreviations on Attic Black-glazed ware. The letters מג must almost certainly stand for מגן, or מגנבעל, "Ba‛l has given." Magōn is an exceedingly common name (Benz 1972:133–37 and 339; cf. Krahmalkov 2000:270). The script and ware point to an early fourth-century date for the piece.
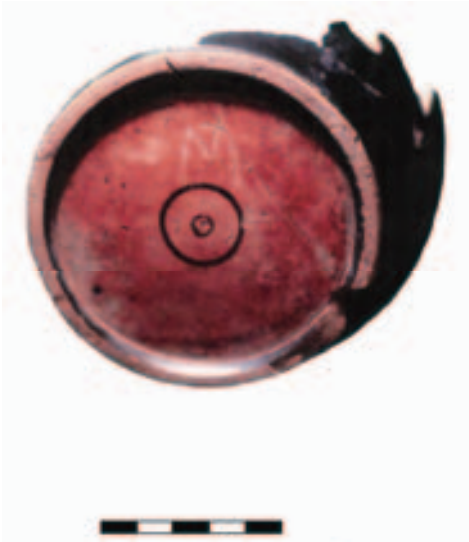
Figure 17.38: Ashkelon inscription 2.24

Figure 17.40: Ashkelon inscription 2.26

Ashkelon 2.25 A Fragment of an "East Greek" Pot with the Incised Letters כא (reg. no. 26228; Grid 57, Square 68, Layer 269, Bucket 857)

This two-letter inscription, כא, found on July 25, 1989, is written in a remarkably skilled hand. Though engraved, it exhibits shading and precision of form. It probably dates to the sixth century B.C. Few names begin with *kap*. Possible candidates include כלבאלם, "hound of God," which would account for both letters of the inscription. The name occurs once in Phoenician, twice in Punic (Benz 1972:131). Another candidate is כלבא with hypocoristic ʾ*alep*. At Elephantine, we find כלבא (Kornfeld 1978:56); cf. biblical *kālēb*. Still another candidate would be names formed with the element *kabbed*, "give honor," or *kābōd*, "glory"/"glorious," plus a divine name beginning with ʾ*alep* or a hypocoristic suffix ending in ʾ*alep*. At Elephantine, we find כבדא and כבודיה (Kornfeld 1978:55f.).

Figure 17.39: Ashkelon inscription 2.25

Ashkelon 2.26 A Fragment of a Storage Jar with the Letter פ in Black Ink (reg. no. 30807; Grid 50, Square 49, Layer 286, Bucket 181)

This one-letter inscription פ is on an amphora sherd found in Persian-period levels on June 18, 1990. Evidently it is an abbreviation. There are far too many possibilities, among them names formed from *pdy*, *plṭ*, *pls*, *pmy*, *p‛l*, *p‛m*, *ptḥ*, et al., for us to even guess at the owner's name.

Ashkelon 2.27 A Handle of a Storage Jar Stamped with a Circle (reg. no. 30811; Grid 50, Square 48, Layer 258, Bucket 204)

This handle with its stamped or engraved circle was found on May 31, 1990. The circle (as symbol or the letter ʿayin) is perfectly made and penetrated deeply into the handle before firing. I am inclined therefore to think that the circle was stamped, not engraved. Perhaps it is merely a potter's mark (compare, e.g., the circular impressions in the section "Unclassified Stamped Handles" [L 146–70] in Ariel et al. 2000: 165f.).

Figure 17.41: Ashkelon inscription 2.27

Ashkelon 2.28 A Fragment of a Storage Jar with the Legend שמ and a Symbol (reg. no. 26231; Grid 57, Square 68, Layer 269, Bucket 837)

This crude sherd found on July 21, 1989, evidently came from a storage jar, which is labeled שמ, an abbreviation of *šamn*, Hebrew *šemen*, "(olive) oil." There follows an arbitrary sign, probably the hieratic numeral 30.[81] If we reckon that 72 logs make 1 bath, and that in this period the bath was about 32 liters, 30 logs would be about 15 liters, a large amount of oil. The script is a very advanced Phoenician cursive, to be dated no earlier than the early fourth century B.C.

Figure 17.42: Ashkelon inscription 2.28

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[81] See the Kadesh-Barnea report by Rudolph Cohen (1981b), especially the ostracon found in 1979 bearing a full listing of hieratic numerals pictured in the addendum, pp. 105–107. A superb photograph of the ostracon may be found in Cohen's paper, "Did I Excavate Kadesh-Barnea?" (Cohen 1981a:26). See also Lemaire and Vernus 1980:342–44 and pl. 72.

Ashkelon 2.29 An Account on a Sherd of a Storage Jar (reg. no. 31711; Grid 50, Square 49, Layer 304, Bucket 288)

This brief text was found on July 8, 1990, in a Persian-period context. The intact margins of this inscribed sherd suggest that we are dealing with an ostracon, not a jar inscription. The content underlines this judgment. While the inscription appears to be complete, it is very badly preserved; the ink on the surface is almost entirely washed or weathered away. What can be read consists of a few Phoenician cursive letters followed by hieratic numerals.

<div dir="rtl">

1.　נ 6 שׂכר
2.　ב 5 ע ○
3.　שׂ נ 5

</div>

1. Brandy 6 bottles (lit. skins)
2. Baths 5, ᶜōmers [x]
3. Oil, jars 5

Figure 17.43: Ashkelon inscription 2.29
Photograph by Ze'ev Radovan

Line 1. The *kap* and *reš* are certain. The *šin* is damaged, and the middle vertical marred by a secondary mark, but the traces fit the reading *šin*. *Šĕkār*, a primitive brandy, appears also in Ashkelon 1.5, where its meaning is discussed. There follows a *nun* (or diagonal stroke) that we take to be the abbreviation of *nēbel*, "skin" or "jar." See my discussion of the use of the diagonal stroke as a symbol in Ashkelon 1.1, where it is used with quantities of oil as here in line 3. The hieratic symbol for 6[82] has been squeezed in between the *reš* of *šĕkār* and the *nun*, at a lower level. My only explanation is that the scribe at first omitted the number and then made a correction.

Line 2. The failure to name a commodity here is puzzling. Perhaps "wine" is understood, or better, "wheat" or "barley," especially in view of the large quantity specified. The *ᶜayin* we take to be an abbreviation of *ᶜōmer*, a tenth of a bath. A number following has left only a trace and cannot be read. The term *ᶜōmer* is ordinarily used in dry measure, reinforcing the suggestion that the commodity is grain.

Line 3. Initial *šin* is badly damaged; only the left side is clear. *Nun* follows, an abbreviation for *nēbel*, followed in turn by the hieratic numeral 5: five jars of (olive) oil. See our discussion above and on Ashkelon 1.1.

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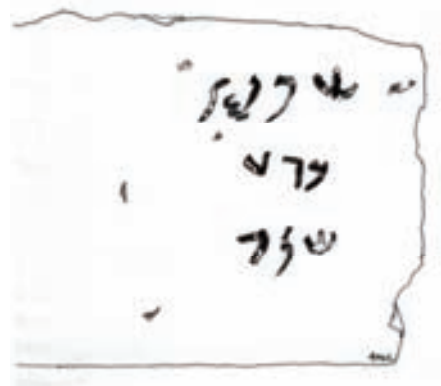
[82] On this interpretation of the hieratic number, see Aharoni 1981: no. 25, line 3 (p. 50).

Ashkelon 2.30 A Sherd Incised in Double-lined Technique with the Letters שׁ ע (reg. no. 26228; Grid 57, Square 68, Layer 269, Bucket 857)

This small sherd, found on July 25, 1989, is incised with the letters: שׁ ע. It is crudely done in a double-lined technique familiar elsewhere in the Persian period (see Herzog et al. 1989:453, pl. 84). The double-pronged stylus dug into the leather-hard clay of the pot leaving telltale ridges as well as the deeper double lines. For possible names abbreviated שׁ ע, see Ashkelon 2.19 above. It is interesting that Bucket 857 produced this ostracon and also Ashkelon 2.4 and Ashkelon 2.25, all three of which are early fourth century B.C. in date, to judge from their scripts. The script is formal Phoenician.

Figure 17.44: Ashkelon inscription 2.30

Ashkelon 2.31 An Incised Inscription on a Body Sherd with the Letters ע שׁ (reg. no. 30815; Grid 50, Square 59, Layer 249, Basket 295)

This jar inscription is somewhat surprising following שׁ ע in Ashkelon 2.19 and 2.30. Presumably, it reads in Phoenician lapidary script: ע שׁ. The *šin* is not quite right for the Phoenician formal script in the late sixth or fifth century, to which the sherd must be assigned. However, some forms from sixth-century Akhziv and from Amrit are similar (see Cross 2002:169–73, esp. no. 2, the stele of ᶜ*Abdšamš son of* ʾ*šy*; and Peckham 1968a: plate 9.1, 2). A second problem: the neck of the jar is upward (where most of the blank top area exists), the base of the jar downward; this is clear from an examination of the artifact itself, not seen in the photograph. The 5-cm marker is placed correctly on the photograph. If the jar were intact when the inscription was made, then the *šin* is upside down. One solution would be to suppose that we should read שׁ ע, and that the person who neatly incised the letters for some reason rendered the strange *šin* upside down. This solution has the merit of giving a reading identical with Ashkelon 2.19 and 2.30. However, it is at best a *pis aller*. It is not impossible to read the inscription as consisting of two Cypriot Syllabic signs, *yo-ti* (reading from right to left). The *yo* is a circle in this script and the *ti* is a vertical stroke topped by an inverted "V." This syllabary flourished in the fifth–fourth centuries B.C., when we must—on other grounds—date this find.
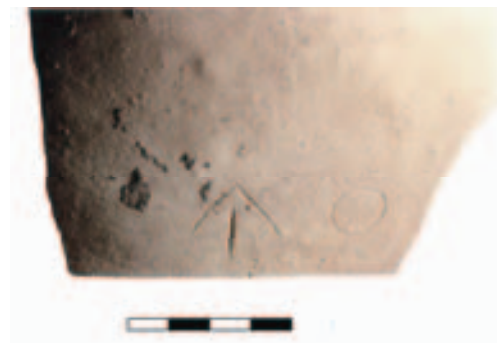
Figure 17.45: Ashkelon inscription 2.31

Ashkelon 2.32 A Plain-Ware Sherd with an Inscription in Phoenician Script:]אֹל·מבן[(reg. no. 26391; Grid 38, Square 74, Layer 248, Feature 239, Bucket 655)

This inscription, found on July 25, 1989, is inscribed in an unusual semiformal Phoenician hand. It reads as follows:

<div align="center">אֹל·מבן]</div>

After the break of the sherd on the right are the clear traces of a letter, most probably ʾ*alep*. It could be the extremely frequent theophorous element of a personal name in אל–, "god" or "ʾEl". On the other hand, it could be the preposition אל "to" or even the pronoun אל "these." There follows a short, vertical stroke, clearly a word-divider, followed by]מבן. If one reads a personal name before the word divider, it is possible that we have the preposition מ– plus the beginning of a place name, "from B–." However, many other readings are possible.

The script is interesting. The *lamed* is written with a flourish, the top very high above the (theoretical) ceiling line, after the fashion of such texts as the ʾEšmunᶜazor and Bodᶜaštart Inscriptions, and with a developed hook downward at the base. Although written fluidly, all the letters are formal in shape, similar to the forms in these fifth-century Persian-period texts.
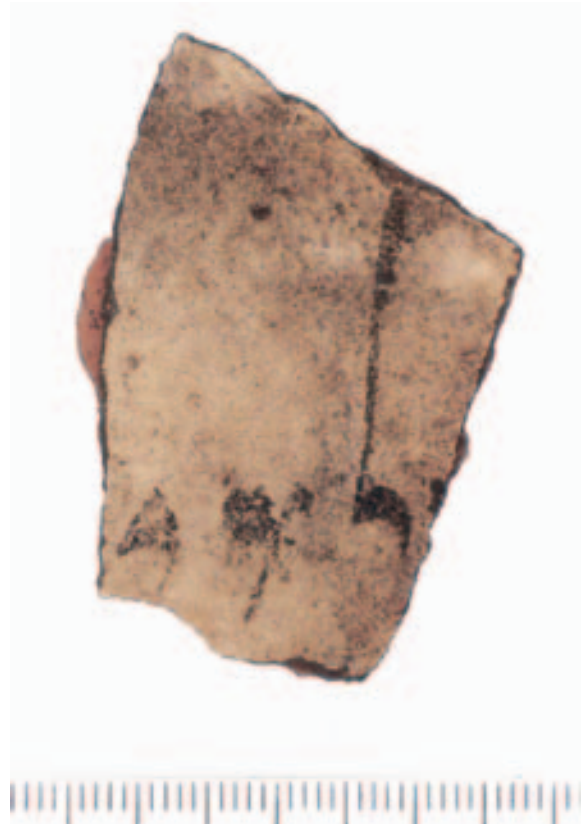
Figure 17.46: Ashkelon inscription 2.32
Photograph by Ze'ev Radovan

3. Inscriptions in Other Scripts from Seventh-Century and Persian-Period Contexts

Ashkelon 3.1 A Storage Jar Fragment with the Name יבנבעל (reg. no. 30146; Grid 50, Square 49, Layer 264, Bucket 14)

This inscription is one of the rare pieces found written in Aramaic script at Ashkelon. It comes from Persian levels dug on April 26, 1990. The *yod* is obviously late-Persian Aramaic, as are the *bet* and *ᶜayin* with wide-open tops. The symbol for the number 20 is also clearly Aramaic. The text reads:

1. יבנבעל
2. מֹ ש 20 1

1. Yibnəbaᶜl
2. 20 m[inas], 1 š[eqel]
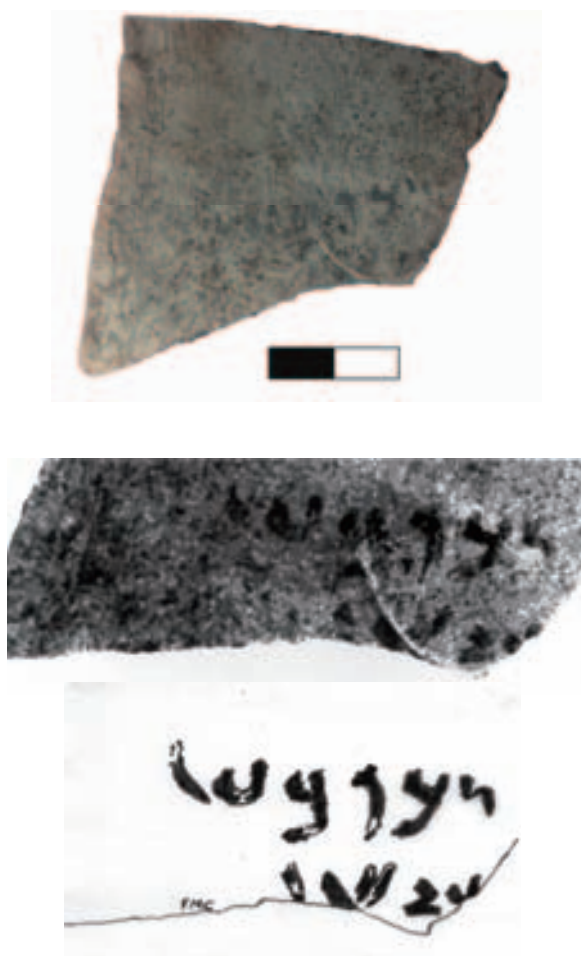
Figure 17.47: Ashkelon inscription 3.1
Top: Jar fragment *Bottom:* Close-up of inscription

The name Yibnəbaᶜl is paralleled by a number of biblical names: בנוי, בניהו, as well as יבניה, יבנאל, יבנה, and בני. From Elephantine come יבנה and בניה (Kornfeld 1978:52, 44) and יהובנה (Gropp 2001:18.3; see also Noth 1928:172f.; Avigad 1997:488; Deutsch 2003:387; Ariel et al. 2000: no. 31, p. 45). The name means "Yahweh has built (i.e., formed a family member)." The amount, 20 minas, is very large. In Egyptian Aramaic, the letter *mem* can also be an abbreviation of מעה, "obol" (Degen 1978:45). See also the discussion below, on Ashkelon 3.2. However, this leaves the abbreviation ש, *šeqel*, in the wrong position; normally numeration goes from large to small denominations.

Ashkelon 3.2 A Base of a Black-glazed Cup with a Greek Inscription: ΔΠ | | | (reg. no. 8388; Grid 50, Square 58, Layer 22)

The inscription is in beautifully incised Greek script, followed by three strokes, clearly numerical units. It reads:

ΔΠ | | |

Figure 17.48: Ashkelon inscription 3.2

The Greek letters are the expected forms for ca. 400 B.C. I am inclined to think that we are dealing here with the Greek use of the acrophonic abbreviations for numbers, a system in use in this period: Δ = δέκα, Π = πέντε, | = unit. The inscription ΔΠ | | | thus would read 18. Is this the price of the skyphos?

If so, the unit is obols. If obols, the cup would cost about a Phoenician shekel, perhaps not too steep a price for a fancy, imported wine cup. Then one wonders why write 18 obols rather than the equivalent 3 drachms. Bron and Lemaire (1983: no. 30, pp. 683f. and pls. 120.6, 121.1) have published an Attic Black-glazed skyphos with Phoenician letters and numbers.[83] The interpretation of the inscription, as the authors state, remains uncertain.

Ashkelon 3.3   An Inscription on a Large Pot Fragment Incised in Greek Script: ATATO EMI (reg. no. 56927; Grid 50, Square 57, Layer 240, Bucket 62)

This inscription on a thick body sherd of a storage jar reads:

ATATO EMI

I am Atatos's[84]

The style of self-identification, the personal name plus the verb εἰμί, characterizes many archaic Greek inscriptions and graffiti indicating ownership, for example, ownership of ceramic ware—vases, plates, cups—as well as other personal possessions. The formula also is frequently used to record the name of the deceased on gravestones. The spelling EMI for classical εἰμί is not infrequent on these archaic Greek monuments and graffiti (see Jeffery 1963:384). The script also exhibits the expected typological features that characterize seventh-century Attic Greek. The letters *alpha*, *epsīlon*, and *mu* show archaic features. A seventh-century dating finds confirmation in the context from which it was dug up, in the 604 B.C. destruction level. I have not been able to find this Greek personal name in the handbooks collecting ancient Greek names (e.g., Pape and Benseler 1959: vol. 1:168).

Figure 17.49: Ashkelon inscription 3.3

Photograph by Ze'ev Radovan

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[83] Among their comments is the suggestion that the *mem* of line 2 is an abbreviation for מעה, an Aramaic term equivalent to "obol" found especially in Egyptian Aramaic documents (cf. Lidzbarski 1908:243–47, esp. p. 245).

[84] I am informed by my colleague, Professor Helmut Koester, that Ἀτατο is a genitive of the name Ἀτατος (or possibly Ἀτατας). Professor Dieter Knibbe, a Greek epigrapher, comments on the Greek forms further. The -o for later -ου is to be explained as the written diphthongization of o to ου that had not yet taken place in the era when the cup was inscribed. Similarly, ἐμι is an intermediate form between earliest Greek ἐσμι and classical Attic Greek εἰμι. I am in debt to both of these scholars for their help.

Ashkelon 3.4 A Sherd with Inscription in Jewish Script, a Dipinto with the Letters טל] (reg. no. 21397; Grid 38, Square 74, Layer 100, Bucket 210)

The inscription טל] with a complete flat-bottomed *ṭet* and the hooked base of a *lamed* is on a late jar fragment. The context of the find and the advanced *ṭet* and *lamed* in the sequence of late Jewish scripts (used to write both Hebrew and Aramaic) place the inscription no earlier than late Roman times, probably in the first or second century A.D. We are inclined to fill out the broken-off word with the name of a commodity that could be stored in a jar. About the only candidate is the Aramaic four-radical word טלפחין, "lentils."
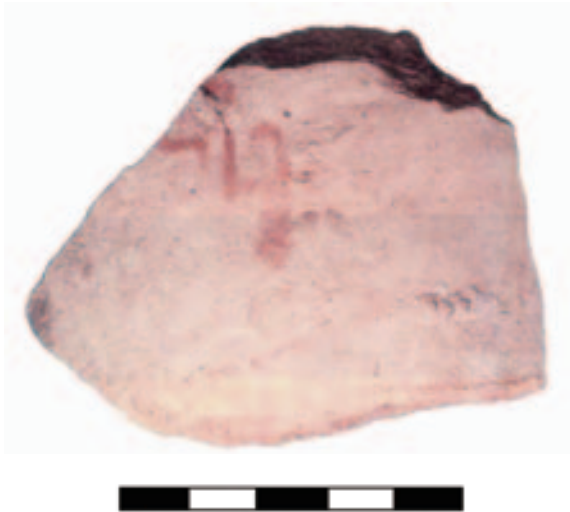
Figure 17.50: Ashkelon inscription 3.4

Ashkelon 3.5 A Jar Fragment with Cypro-Syllabic (Classical Cypriot) Signs (reg. no. 31273; Grid 50, Square 49, Layer 293, Basket 255)

The two signs, reading from right-to-left, read *so-lo* in the Cypro-Syllabic script. The sign *so*, a "V" with two horizontal lines beneath, is a variant found in Eteo-Cypriot texts (Masson 1961: fig. 4). The second sign *lo* is a variant of the usual simple cross ("+"), rotated to form an "×." The variant is found earlier in Cypro-Minoan inscriptions of Class I from Kourion (Daniel 1941: Signs 1a and 1b; cf. page 274, fig. 14, nos. 187, 19, and 20). The inscription was incised before firing. The context in which it was found suggests that it dates to the early Persian period.

Figure 17.51: Ashkelon inscription 3.5

4. Miscellaneous Pieces of Pottery with Illegible or Problematic Inscriptions

Ashkelon 4.1 A Jar Fragment with Incised Marks and/or Letters (reg. no. 50688; Grid 50, Square 67, Layer 65, Bucket 68)

The letters have been deeply incised (after firing) on a worn sherd of a storage jar found on June 30, 1998. If the sherd contains Phoenician letters, they are very advanced in date. The *taw*—if it be a *taw*—with the right arm low on the left leg does not appear to my knowledge before the ꜣUmm el-ꜥAmed texts of the third–second centuries B.C. (see Peckham 1968a: pl. 6.4, 6.8 and 6.9). The next letter can be read as a cursive *nun*. The final sign is best read as *he*. Parallels can be found in the ꜣUmm el-ꜥAmed texts. Taking the inscription to be Phoenician, we read:

[תן הן

Figure 17.52: Ashkelon inscription 4.1

The letter *he* is not used in Phoenician as a *mater lectionis* in the final position. Thus it is probably the article modifying a noun, or conceivably the theophoric element in a proper name. The latter possibility is remote; only Hadad really qualifies, and it is exceedingly rare in Phoenician proper names. It may be that we should reconstruct תן[מ] or תן[י], both popular name elements in Phoenician, or such a name as עשתרתיתן or בעליתן, or the like, a theophorous element with the element יתן. The article *he* would then introduce a gentilic or a professional noun: e.g., הצרי, or היצר, הכהן, et al. Such proposals are, of course, thoroughly speculative.

Ashkelon 4.2 A Jar Fragment with Incised Marks in Double-Line Technique (reg. no. 20478; Grid 38, Square 74, Layer 142, Bucket 396)

The potsherd, found on July 20, 1988, contains a double-lined configuration incised before firing. On the double-line technique, see my discussion of Ashkelon 2.30. It is not clear, however, whether we are dealing with mere decoration or a fragment of an inscription. What may be construed as a lapidary form of the Phoenician letter *nun* can be separated out among the incised strokes. However, before the putative *nun* there is a horizontal stroke, quite broad, but not double, plus a unilinear diagonal stroke below the broad line. To the left of the putative *nun*, the broad horizontal seems to continue to the edge of the sherd. The piece is a puzzle.

Figure 17.53: Ashkelon inscription 4.2

Ashkelon 4.3 A Black and Red-glazed Skyphos Base with a Possible Cypro-Syllabic Sign (reg. no. 38224; Grid 50, Square 59, Finegrid 224, Bucket 31)

The inscribed sign does not resemble a Phoenician letter; it is not an ꜣ*alep*. It does resemble the Cypro-Syllabic sign *pa*. We noted above that Ashkelon 2.31 could be taken to read two Cypriot signs, *yo.ti*. Alternately, we may be dealing here with an arbitrary owner's mark. The vessel type and its find-context place the sherd in the Persian period.

Figure 17.54: Ashkelon inscription 4.3

Ashkelon 4.4 A Jar Fragment with a Poorly Preserved Inscription in Red Ink (reg. no. 21397; Grid 38, Square 74, Layer 100, Bucket 210)

This problematic inscription, painted in washed-out red, actually stems from the 604 B.C. stratum. It is possible that the two lines of text be read as seventh-century cursive Phoenician:

ו̇פ̇ע̇ל̇ע̇ן 1.
ב̇\ן 2.

Figure 17.55: Ashkelon inscription 4.4
Photograph by Ze'ev Radovan

If our proposed reading in Line 1 is correct—and there are problems with the *waw* and the two ꜥ*ayin*s—a proper name such as פעלעשתרת can be read. However, other possibilities exist. For example, the second ꜥ*ayin* is faint, and, indeed, may begin a new word. In this case it is possible to read, "and he made . . ." Line 2 perhaps can be read "*b*(*at*) 1," that is, "one bath (of wine)." For this abbreviation, see Ashkelon 1.1 above.

Ashkelon 4.5 An Inscription in a Modified Cypro-Minoan Script from the Eleventh Century B.C. (reg. no. 9794; Grid 38, Square 64, Layer 54, Basket 11)

This dipinto, inscribed in red, is badly weathered, but thanks to our gifted photographer, it can generally be made out. Several of the signs fall together with Cypro-Minoan signs and others can derive easily from Cypro-Minoan, either simplified or slightly altered. While Cypro-Minoan is generally thought to be read from left to right, the cramping of signs on the left side of the ostracon, and a sign in reverse orientation, suggest that we read the text from right to left. The later Cypro-Syllabic script is, of course, read from right to left. It may be that texts in this modified script could be written either from right to left or from left to right, as in Old Canaanite and early Phoenician. In any case, we shall describe the signs reading from right to left. We shall cite Cypro-Minoan signs by the numbers assigned in Masson 1974.

The first sign is identical to a sign in Cypro-Minoan, namely Sign 104. The second sign appears to be a slightly simplified version of Sign 20 (a sign in right-to-left orientation; cf. Sign 19). The third and fifth signs may be compared with Signs 23–25, especially 25, but simplified by omitting the short, internal vertical stroke, leaving a sign like an upper-case A. The fourth sign and probably also the sixth sign (sloppily made) resemble closely Cypro-Minoan Sign 6. The seventh sign may be equated with Cypro-Minoan Sign 1. The following sign, second from last, appears to be identical with Sign 97. The last sign on the left may be compared with Sign 59, although it appears to be more complex; compare also Sign 42.

The archaeological context in which the inscription was found places it in the eleventh century B.C., no later than 1000 B.C. The ceramic material of the pot on which the ostracon was inscribed was subjected to petrographic analysis by Professor Yuval Goren of Tel Aviv University, who determined that it was made of "loess soil as clay with typical sand of the southern Israeli plain as temper," and he concluded that it is most likely local to Ashkelon (Goren,

pers. comm.). Perhaps it is not too bold to propose that the inscription was written at Ashkelon in a form of the Cypro-Minoan script that had been modified by the Philistines; in short, that we are dealing with the Old Philistine script.[85]
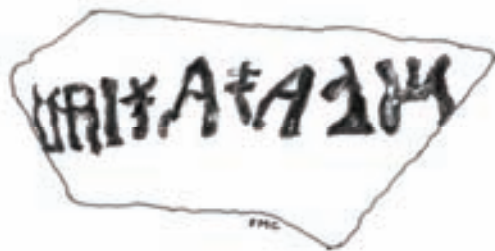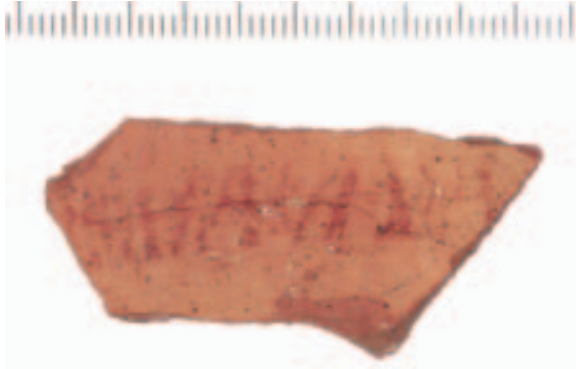
Figure 17.56: Ashkelon inscription 4.5

Photographs by Ze'ev Radovan

The Cypro-Minoan script, in use in a few tablets from Ugarit, as well as extensively in Cyprus, is related ultimately to the older Linear A script, and also, but to a lesser degree (so it has been argued), to Linear B. Cypro-Minoan is most easily reckoned to be the script immediately available for use by the early Philistines, with their Sea Peoples' heritage (and probably Greek or Indo-European language). If it was in wide use in Philistia, one would expect some evolutionary changes such as those few apparent in the Ashkelon text.

Figure 17.57: Cypro-Minoan signs for comparison with the signs of Ashkelon inscription 4.5

Added to the evidence of this ostracon are a group of eighteen inscribed jar handles bearing Cypro-Minoan signs that were incised after firing (see Cross and Stager 2006). They belong to two periods. Five of the handles date to the Late Bronze Age; their clay places their origin probably in Cyprus. Thirteen other inscribed handles date to the twelfth–eleventh centuries B.C., seven with clay from the Phoenician coast (between ꜥAkko and Tyre), one with clay from in or near Dor, and one with clay from in or near Ashkelon itself (the rest come from unknown sources or have not been analyzed).

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[85] The clay tablets from Deir ꜥAllā show few traits in common with this Ashkelon text. The former have been described by W. F. Albright (1975:510) as probably Philistine, or written in a script of some other Sea People. The frequent repetition of signs in the Deir ꜥAllā texts suggests that its script is alphabetic rather than syllabic. However, the paucity of the preserved texts prevents us from making any definitive judgments.

Ashkelon 4.6   A Potsherd with Two Letters: ‏לה[‏
(reg. no. 56950; Grid 38, Square 65, Layer 90,
Bucket 83)

While going through Iron II pottery in 2005, an addi-
tional sherd was found with a short inscription en-
graved in leather-hard clay (before firing). The two
letters preserved are ‏לה[‏. The script appears to be
either seventh-century Neo-Philistine or seventh–
sixth century Hebrew. Two ostraca from Tell Jem-
meh exhibit both the sharply hooked *lamed* and a *he*
that, while not as broken through at the top right as
far to the right as the *he* of our inscription, does ex-
hibit similar horizontal strokes (see Naveh 1985).
The script of Ashkelon 4.6 also has remarkable paral-
lels with the sixth-century B.C. script of the Beit Lei
(Bayt Layy) inscription, which was presumably a
script used by Jews fleeing the onslaught of Nebu-
chadrezzar (see Cross 2003: 166–70).

Figure 17.58: Ashkelon inscription 4.6

18. COINS OF THE FIFTH AND FOURTH CENTURIES B.C.

by Haim Gitler

THE difficulty in the attribution of the so-called Philisto-Arabian coins struck in Palestine during the Persian period—roughly between 450 and 333 B.C.—stems mainly from the fact that these coins lack inscriptions which clearly identify the place of minting.[86] Initially, scholars assigned these silver coins to the mint of Gaza; however, evidence gathered over the last few years leads to a broader view of the "Philisto-Arabian" issues,[87] verifying the existence of coinages of Gaza, Ashdod, and Ashkelon.[88]

Like Gaza, Ashkelon was an important Philistine city already in the twelfth–tenth centuries B.C. It is repeatedly mentioned in the Amarna letters and in the Hebrew Bible, and was known to Herodotus (Schürer 1979: 105–6; Abel 1938:252–53). By the late sixth or early fifth century B.C., Phoenician culture—and probably the Phoenician population—appears to have dominated the city, as indicated by the Phoenician inscriptions, iconography (especially the sign of the goddess Tanit), and pottery found there (Stager 1991:22, 31; Elayi 1990:25–26). Later, in an ancient sailor's handbook from the first half of the fourth century B.C. known as the *Periplus* of Pseudo-Scylax, Ashkelon is described as a Tyrian town (Müller 1855:78; M. Stern 1984:8–12; Galling 1964:204; Elayi 1989:94, 104 and n. 112; Aharoni 1979:415). It is also referred to as a *basileia*—a royal (Persian?) citadel, which may indicate that it was the seat of the Persian governor at that time (E. Stern 1982:244; 1990:221–26), although André Lemaire (1990a:54 n.

121) disagrees with this view (see also Katzenstein 1989:74 and Lemaire 1987:56).

I. A HOARD OF 31 OBOLS FROM ASHKELON

In 1989 a hoard of 31 obols of Athena/owl type, wrapped in a linen bag, was found in the excavations of Ashkelon.[89] (See figure 18.3, I and II, which show the coins before cleaning.) All the coins in the hoard are of the same type:

Obv. Head of Athena r., helmeted.
Rev. Owl standing r., facing; on l., olive spray and crescent; in field r.: AΘE; all in shallow incuse square (sometimes not preserved).

The coins are of irregular shape, appearing more square than round, and the flans were always cut smaller than the dies.[90] In the following discussion the 31 obols have been divided into five groups based on their reverse die links.

Group 1, the first and largest group, includes 21 coins with the same reverse die. The strong deterioration shown in the reverse die in such a limited group suggests a relatively short-lived die.[91] The first coins in this group (nos. 1–4) are in a very good state of preservation. Deterioration of the reverse die is first noted on coin no. 5. A small die flaw appears as a vertical line below the owl's left tarsus and a small dot is visible in the field left of the owl's head and above the crescent.

On coin no. 11 the reverse die shows slightly more wear than it did in nos. 5–10. The crescent is hardly visible and the die break now continues upward along the outline of the owl's breast to the left side of its bill.[92] The die flaw is seen with particular clarity in the last three coins of this group (nos. 19–21).

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[86] "Philistian" coins first appeared in a scholarly publication in 1779, when Joseph Hilarius Eckhel (1737–1798), the founder of modern numismatics, published a drachm of Ashkelon under the section *Nvmi Incerti* (Eckhel 1779:289, no. 32, pl. 6, 9). See Gitler and Tal 2006 for a comprehensive and up-to-date publication about Philistian coins that examines and reviews past definitions and chronological and terminological aspects.

[87] For the history of the numismatic research see Meshorer 1989:287–88. See also Mildenberg 1994 (esp. the note on p. 63) and Mildenberg 1995. This group should be compared with the coinage of Jerusalem (Meshorer 1982:13–34; 1990–91:104–6) as well as that of Samaria (Meshorer and Qedar 1991).

[88] It is now generally accepted that the abbreviation *aleph* and *nun*, appearing in a homogeneous group of drachms and obols, stands for the first and last letters of the name "Ashkelon" (ʾŠQLWN); see Meshorer 1989:287–91 (English summary on p. 205*).

[89] I am indebted to the Leon Levy Expedition to Ashkelon for giving me the opportunity to analyze and publish the hoard. The discovery of the hoard, found in a context of finds of the fourth century B.C. (license no. A41/89; Grid 38, Square 74, Layer 249, Feature 244; reg. no. 26174) was mentioned by Stager (1991) and by Elayi and Elayi (1993: 207, no. 45, "Trésor d'Ascalon, 1989").

[90] See the remarks on the preparation of the flans in Meshorer and Qedar 1991:67.

[91] In this case the die may have been made from a soft material (Meshorer and Qedar 1991:67).

[92] For similar examples of die flaws see Mildenberg 1984, tetradrachms nos. 45, 50–59, and 70–72.

Figure 18.1: Print of a bitmap scan of five reverses from Group I (resolution of 600 dots per inch).
This method makes it possible to discern the main signs of die deterioration because it shows, with high contrast, an unabridged and exact contour map of the coin.

Figure 18.2: Print of a bitmap scan of the last two reverses from Group I.
The die flaw extends from the left side of the owl's bill to just below the left tarsus.

At least five different dies were used for minting the obverses of the coins in this group. There are obverse die links between nos. 2–4, 20, and 21; nos. 5–13; nos. 14–16; and nos. 17 and 18. Coin no. 1 has no obverse die link. The head of Athena on coin no. 19 is off-center, precluding determination of a die link. The obverse and reverse dies have been numbered, and these are indicated beside the enlarged illustrations in figures 18.3–18.6 below.

It has been suggested that in the hammer-striking process, most commonly employed in antiquity, the upper or reverse die wore down more rapidly than the lower or obverse die, as it received the full impact of the hammer blow, while the obverse die embedded in the anvil was better protected (Hill 1922:30–32; on the strain and energy dissipation during the striking, see Michaux-Van der Mersch and Delamare 1987:

11–12 [nn. 18–22] and 15–32). For this reason we usually find in ancient coins more reverse dies than obverse dies.[93] On the contrary, in Group 1 of this hoard there is a continuous use of a single reverse die, while the obverse die was changed several times. It has been noted that other coins from this period were minted from a limited number of dies,[94] usually from one pair only, as is the case in the third and

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[93] Twenty-five obverse dies and 78 reverse dies were used for the minting of the 104 four tetradrachms appearing in Mildenberg's corpus (1984:123–72).

[94] For example, the coins of Samaria in the Samaria hoard are all from a limited number of dies. Most specimens are struck from one pair of dies, while coins 101–143 seem to have been made from two pair of dies (Meshorer and Qedar 1991:67 and pls. 19–22, nos. 37–65; pls. 23–26, nos. 71–100; pls. 26–29, nos. 103–137; etc.).

fourth groups of the present hoard. The obverse dies used in the first group, however, were changed frequently, even though in some cases (obv. 1 and obv. 2)[95] the die was in a good state of preservation. This phenomenon is probably related to a peculiar minting praxis that is difficult to reconstruct.

Groups 2 and 3 consist of five and two coins, respectively, which each used a single reverse die and probably a single obverse die as well. In Group 4, which contains two coins, a single reverse die was used, but it is not possible to determine an obverse die link for the coins in this group. Group 5, which consists of a single coin (no. 31), seems to have an obverse die link with nos. 14–16 of the first group.[96]

The most common coins in the "Philisto-Arabian" series are the Athena/owl obols, which imitate an Athenian prototype (Meshorer and Qedar 1991:37). The prototypes were tetradrachms of the fifth and fourth centuries B.C. This is evidenced by the fact that local obols, as well as smaller fractions (as small as quarter obols) and larger denominations (drachms and tetradrachms), depict a small crescent above the owl's right wing. This small waning moon first appears in Athenian issues of the fifth century and is confined to the tetradrachm alone.[97] The Greek inscription AΘE was also copied from the Athenian original and is therefore part of the decorative design, having no informative meaning for the "Philisto-Arabian" issues. Imitation "owls" sometimes also include a mint mark or an abbreviation of either the name of a city or a person, in one or several Aramaic or Phoenician letters (for a general description of the "eastern owls," see Mildenberg 1993:62–63).

As has been previously mentioned, the coins of this Ashkelon hoard lack an inscription or mark assigning them to a specific mint. This general type has been attributed to the mint of Gaza. However, the fact that only five different reverse dies were used for the minting of the 31 obols and that 21 coins made with the same reverse die were found in such a small cache suggests that these obols may have been minted at Ashkelon and probably buried shortly after they were minted.[98]

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[95] The obverse die used for nos. 2–4 reappears in a deteriorated state on nos. 20 and 21.
[96] The obverse of coin no. 31 is in a better state of preservation than those of nos. 14–16.
[97] The addition of an olive wreath on the helmet of Athena on the obverse, and of a small crescent on the reverse, probably occurred ca. 479 B.C. (Kraay 1956:55–58).
[98] Athena/owl obols and hemiobols without an inscription or mint mark were also minted at Samaria (Meshorer and Qedar 1991:nos. 94–99, 105, and "Samaria Hoard," nos.

Group 1

1. 0.80 ← (single obv. die)
2. 0.71 → (obv. die link 3, 4, 20, 21)
3. 0.70 ↖ (same obv. die as no. 2)
4. 0.71 ↘ (same obv. die as no. 2)
5. 0.68 ← (obv. die link with nos. 6–13)
6. 0.68 ↓ (same obv. die as no. 5)
7. 0.61 ↓ (same obv. die as no. 5)
8. 0.75 ↓ (same obv. die as no. 5)
9. 0.68 → (same obv. die as no. 5)
10. 0.81 ← (same obv. die as no. 5)
11. 0.66 ↓ (same obv. die as no. 5)
12. 0.59 ↑ (same obv. die as no. 5)
13. 0.72 ↑ (same obv. die as no. 5)
14. 0.72 ↙ (obv. die link with 15–16)
15. 0.72 ↓ (same obv. die as no. 14)
16. 0.69 ↖ (same obv die as no. 14)
17. 0.62 ↖ (obv. die link with no. 18)
18. 0.62 ↖ (same obv. die as no. 17)
19. 0.67 ↗ (indiscernible die link)
20. 0.70 ↖ (same obv. die as no. 2)
21. 0.70 → (same obv. die as no. 2)

Group 2

Obv. Crude head of Athena r.
22. 0.59 ↓ (obv. die link? 23, 24, 25, 26)
23. 0.63 ↑
24. 0.68 ←
25. 0.75 ←
26. 0.63 ↗ (double struck)

Group 3

27. 0.66 ↑ (same obv. die as no. 28)
28. 0.63 ↖

Group 4

29. 0.74 ↑ (indiscernible obv. die link)
30. 0.74 ↙ (indiscernible die link)

Group 5

31. 0.62 ↘ (obv. die link? with 14–16)

269–334). It seems that coins of this type were reproduced by several local mints.
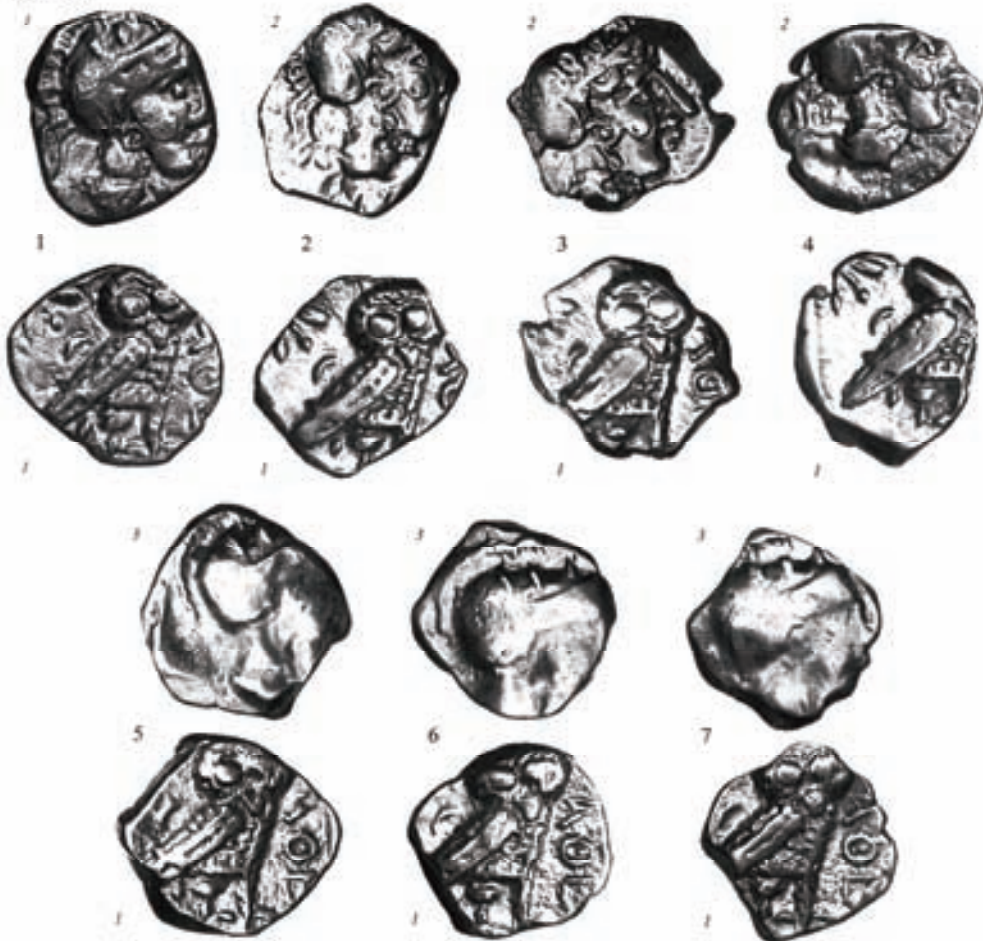
Figure 18.3: Coin nos. 1 to 7
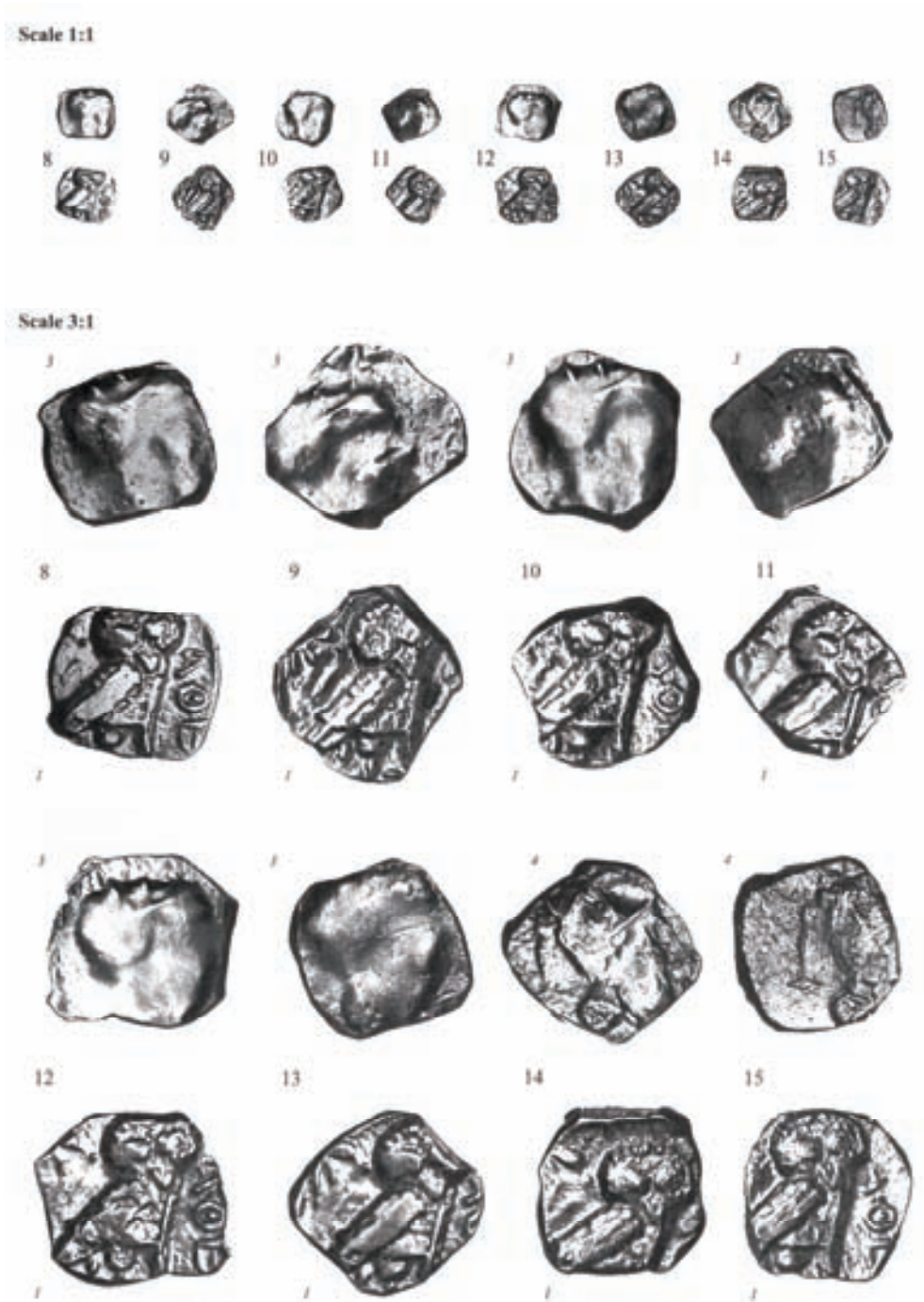
Figure 18.4: Coin nos. 8 to 15
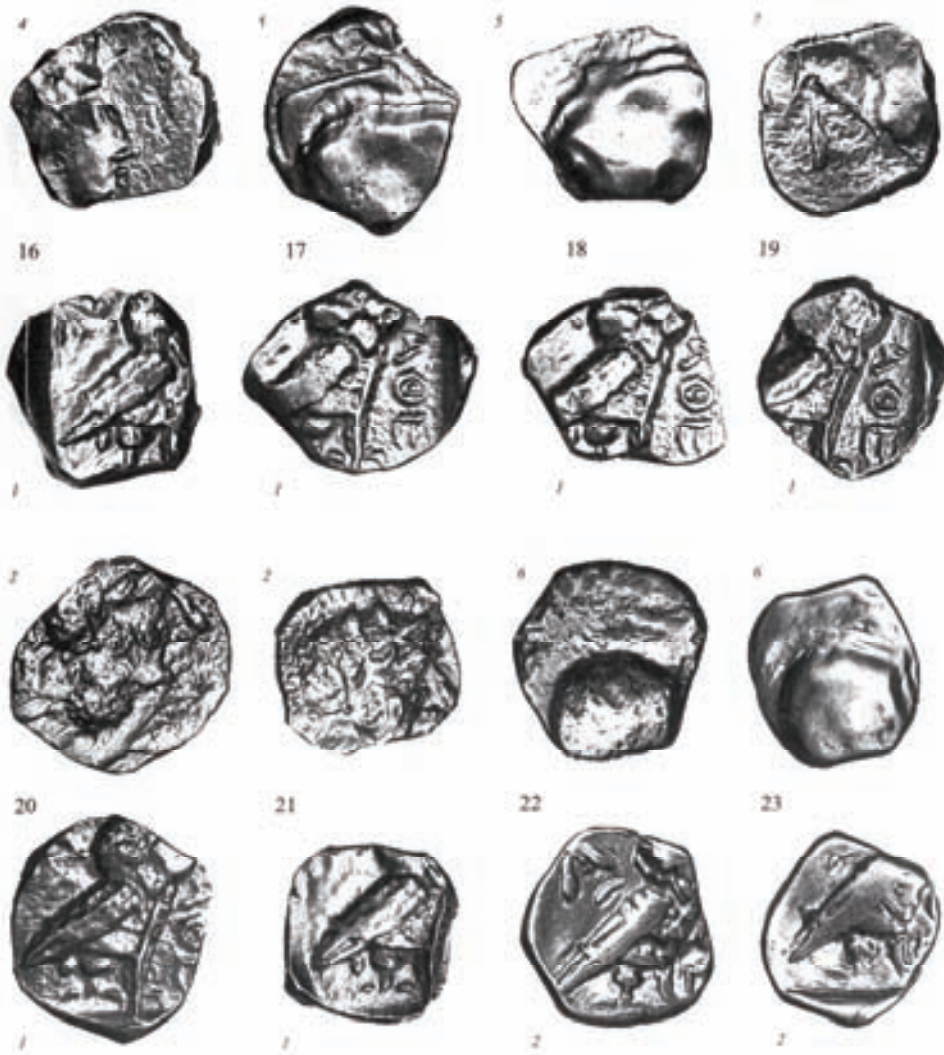
Figure 18.5: Coin nos. 16 to 23

Scale 1:1

Scale 3:1

Figure 18.6: Coin nos. 24 to 31

AUTHOR'S NOTE (January 2008): We can no longer accept the ideas put forward by several scholars who tried to link certain coin types that lack an identifiable minting authority legend to specific minting authorities on the basis of shared or similar motifs (e.g. Meshorer 1989:nos. 8–9a [Ashdod], 15–16 [Ashkelon]; Lemaire 1990b:257–262 [Ashdod]; Kindler 1995:nos. 2–6 [Ashdod]; Gitler 1996:nos. F-G, I-L [Ashkelon]; 2000:83–84, nos. 3–6 [Ashdod]; Mildenberg 2000:pl. 55, 25–26 [Ashdod], pl. 56, 33 [Ashkelon], pl. 57, 41 [Gaza]). Scholarly attributions of early Palestinian issues that lack municipal legends specifying a minting authority, while done on the basis of common motifs and in accordance with traditional numismatic practices, fail to see that these issues were intended to circulate as inter-city coinage and for this reason the moneyers in charge deliberately avoided adding specific municipal legends. If we follow their use in ancient times, which shows that it was not relevant to specify the minting authority, then we, in modern times, may be missing the point by imposing an attribution (see Gitler and Tal 2006:70). Accordingly, the 31 anepigraphic Athenian-styled obols of the Ashkelon hoard must be defined as Philistian issues and not, as previously suggested, obols of the mint of Ashkelon.

II. Rare and Unpublished Coins of Ashkelon from the Fourth Century b.c.

A. *Obv.* Male head (?) r. with oriental headdress; wears small circular earring.

Rev. Owl standing r.; on field r. palm branch; on upper r. corner, lotus bud (?). On field r. and l., two retrograde Phoenician letters ᛏ ᚠ (אז); all in incuse square.

Drachm, 3.75 g ↑

Israel Antiquities Authority no. 51385.[99]

B. *Obv.* Female head (?) r. with oriental headdress; wears small circular earring.

Rev. Same as coin A, but the branches of the palm are directed downward instead of upward.[100]

Obol, 0.72 g ↑

Private collection. Unpublished.

C. *Obv.* Female head (?) r. with oriental headdress; wears small circular earring.

Rev. Owl standing facing, wings spread; on upper l., retrograde Phoenician letters: ᚠᛏ (אז). In upper r. corner Wedjat Eye hieroglyphic sign[101] and above the owl, a waved line ornament, representing the hieroglyphic sign for a ripple of water.[102] On l. and r., seven lotus buds[103] inwards; below the owl two of them outward. All in incuse square.

Drachm, 4.05 g ↓

Private collection.[104]

D. *Obv.* Female head (?) r. with oriental headdress; wears small circular earring.

Rev. Owl standing facing, wings spread; in field r., traces of double-struck *aleph* and in field l.: ᛀ (ן); all in incuse square.

Didrachm 7.81 g ↑[105]

Private collection. Unpublished.

This is the first known "Philisto-Arabian" coin of this denomination. The issue of didrachms in this region as a whole was very unusual and only a few specimens of this period are known.[106] The issue of didrachms was also limited in Athens. While they were in use until the mid-fifth century b.c., they were rarely minted thereafter.[107]

The reverse type of the Athenian decadrachm[108] was the prototype for this didrachm, as well as for smaller denominations. Two Athenian decadrachms have been found in the Palestine area. Bliss and Macalister (1902:26) mentioned a decadrachm found in the excavations of Tell Zakariya (Azekah). The other specimen, a decadrachm broken in half, was part of a hoard discovered in 1967 in the Hauran area (Kraay and Moorey 1968:181–85, pl. 20, no. 41).

E. *Obv.* Female head (?) r. with oriental headdress; wears small circular earring.

Rev. Owl standing facing, wings spread; in field r., Phoenician inscription: ᛀᛏ (אז); in upper r. corner dolphin;[109] all in incuse square.

Drachm, 4.05 g ↑

Bibliothèque Nationale, Paris.[110]

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[99] Meshorer 1989:290, no. 10; Meshorer 1978:34, no. C.

[100] For a similar palm branch but on a drachm with the same reverse type as coin A, see Svoronos 1975:pl. 110, no. 40.

[101] This sign is a human eye with the markings of a falcon's head ("Eye of Horus"; see Gardiner 1957:sign list D 10). A sacred eye amulet, of the type which was very common in this period, is said to have been part of what is usually called the Abu Shusheh hoard (Lambert 1933:8, no. 49 and pl. 2). Hieroglyphics appear in other "Philisto-Arabian" issues; see Meshorer, *SNG* (American Numismatic Studies 6, Palestine–South Arabia), 28 and 29.

[102] Gardiner 1957:sign list N 35.

[103] An obol of this type, without a Wedjat Eye in the right corner, was published by Ernest Babelon, who describes the design around the owl as "trois fleurs de lotus espacées" (Babelon 1910:647–48, no. 1042, pl. 123, 18, 0.81 g ↑). Another obol of the same type was published in *BMC Palestine*, p. 178, 12, pl. 19. The lotus bud, which might be represented also in coin A, appears in another "Philisto-Arabian" example (*SNG* (ANS 6), 27).

[104] For similar type drachms, see *BMC Palestine*, p. 178, 10–11, pl. 19.

[105] For a drachm with the same types, see *BMC Palestine*, p. 177, 8, pl. 19, 3.89 g ←; Svoronos 1975:pl. 110, no. 20.

[106] For example, there is a didrachm of Hierapolis with the same MBYG (Israel Museum Catalogue no. 1178, 8.18 g ↘; Meshorer and Qedar 1991:14), and another specimen (7.77 g), possibly from the mint of Gaza (E. S. G. Robinson 1960: 35, no. 9).

[107] For the didrachms minted before 450 b.c., see Svoronos 1975:pl. 8, nos. 24–32 and pl. 9, nos. 13–20. Svoronos mentions only one didrachm of a later date (pl. 11, no. 18).

[108] These decadrachms are dated to ca. 467 b.c.; see Starr 1970: 31–34, Group 2c, nos. 52–62.

[109] Dolphins appear frequently on Tyrian issues of the Persian period.

[110] Babelon 1910:647–48, no. 1040, pl. 123, 16; and Meshorer 1989:290, no. 11.

Coins A and B depict a palm branch, the probable mint mark of Ashkelon. Palm branches also occur on most of the following coins, which may likewise be associated with the mint of Ashkelon.

F.   *Obv*. Bearded head r. with oriental headdress.
      Rev. Owl standing r.; on l., olive spray; in field r.: AΘE and narrow palm branch; to lower r. facing lion's head (for a similar lion's head cf. coins H and L).[111] Above the owl's left eye, a chisel cut. All in shallow incuse square.

      Drachm, 3.37 g ↖

      Museum of the Studium Biblicum Franciscanum, Jerusalem.[112] Unpublished.

G.   *Obv*. Bearded head l. with oriental headdress.
      Rev. Owl standing r.; on l., olive spray and crescent; in field r., narrow palm branch; all in incuse square with dotted border.

      Obol, 0.66 g ↑

      Private collection. Unpublished.

H.   *Obv*. Head of Athena r., helmeted.
      Rev. Double-protome horse. Between the heads, a lion's head. In field beneath, Phoenician letter ✝ (א); all in shallow incuse square.[113]

      Obol, 0.59 g ↘

      Private collection. Unpublished.

I.   *Obv*. Head of Athena r., helmeted
      Rev. Owl standing r.; on l., olive spray and crescent; in field r.: AΘE and palm branch.

      Obol, 0.73 g ↑

      Private collection. Unpublished.

J.   *Obv*. Head of Athena r., helmeted.
      Rev. Owl standing r.; on l., olive spray; in field.: AΘE and palm branch; all in shallow incuse square.

      Obol, 0.40 g ↓

      Israel Antiquities Authority no. 54673 (from what is usually called the Abu Shusheh hoard; former Palestine Archaeological Museum registration no. 65 of Hoard 7).[114] Unpublished.

K.   *Obv*. Head of Athena r., helmeted.
      Rev. Owl standing r.; on l., olive spray; in field r., palm branch; all in shallow incuse square.

      Obol 0.65 g ↑

      Private collection.[115]

Uncertain Mint

L.   *Obv*. Head of Athena r., helmeted
      Rev. Owl standing r., head facing; on l., olive spray; in field r., facing lion's head; all in shallow incuse square.

      Obol 0.47 g ↑

      Private collection. Unpublished.

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[111] See also a tetradrachm with a facing lion's head: *SNG* (ANS 6), 2.

[112] I am indebted to Father M. Piccirillo, O.F.M., director of the Museum of the Studium Biblicum Franciscanum, Jerusalem, for his kind permission to publish this coin.

[113] For a similar depiction of a double-protome horse, see Mildenberg 1990:pl. 7, no. 23. The appearance of the Phoenician letter *aleph* of the same type as that used in other issues from Ashkelon suggests that this "Philisto-Arabian" coin may probably be attributed to the same mint.

[114] In the index of the Palestine Archaeological Museum (Hoard 7, card 4) appears the following note: "In February 1933, the museum acquired from Dr A. Reifenberg of the Hebrew University, Jerusalem, 16 coins [nos. 64–79] that he had bought from F. Salahi, a dealer in Jaffa. These seem to belong to the same hoard as nos. 1–63. See also C. 1530–43 & 1507, which may also belong to this hoard." Nos. 1–63 of this hoard were published by Lambert (1933: 1–10). However, the other remaining coins were mentioned neither in Lambert's publication nor in Kraay 1978 and Lemaire 1990.

[115] Meshorer 1989:290, no. 15.

Figure 18.7: Coins A, B, and C

AUTHOR'S NOTE: For an updated treatment of these coins, see now:

A Gitler and Tal 2006, Ashkelon III.7Da
B Gitler and Tal 2006, Ashkelon III.7Oa
C Gitler and Tal 2006, Ashkelon III.4Da

Scale 1:1

D   E

Scale 3:1

D

E

Figure 18.8: Coins D and E

AUTHOR'S NOTE: For an updated treatment of these coins, see now:

D Gitler and Tal 2006, Ashkelon III.2DDa
E Gitler and Tal 2006, Ashkelon III.3Da

Figure 18.9: Coins F to L

19. A LATE HELLENISTIC COIN HOARD

by Haim Gitler and Ya'akov Kahanov

IN 1988 a hoard of forty-six bronze coins and one silver diobol (reg. no. 20040) was found by the Leon Levy Expedition in Grid 38, Square 74, Fine Grid 22 (Phase 7, Room 134; see plan in figure 15.66 above). This hoard was recovered from a building dated to the first century B.C. The hoard was sealed under a floor in a subfloor fill layer. At the time of their discovery the coins were stuck together, indicating that they may have been originally stored in a purse or small container that has since disintegrated.

All of the coins in this hoard are bronze except no. 18, which is silver. The catalogue below is arranged according to the geographical distribution of the mints that produced the coins. The only exception is coin no. 44, minted at Sardis, which is listed with the Seleucid group.

Twelve additional coins were recovered in the same subfloor fill layer in which the hoard was found. Only four of these coins are identifiable; three of them coincide with the later time span of the hoard. A bronze coin from Samos (reg. no. 20086) belongs to the hoard, in our opinion, and appears in the catalogue as no. 6a. The remaining three identifiable coins are issues of Ashkelon itself:

A. **Reg. no. 20205** (Fine Grid 43)
5.24 g　22 mm　↑　Antiochus IV
Uncertain year, either 168/7 or 166/5 B.C.
SNG Israel 1, no. 1161.

B. **Reg. no. 20153** (Fine Grid 23)
1.61 g　13 mm　↑
Mid-second century B.C.
BMC Ascalon 9.

C. **Reg. no. 20006** (Fine Grid 23)
5.86 g　17 mm　↑
A coin from the time of Nero (this coin is apparently intrusive).
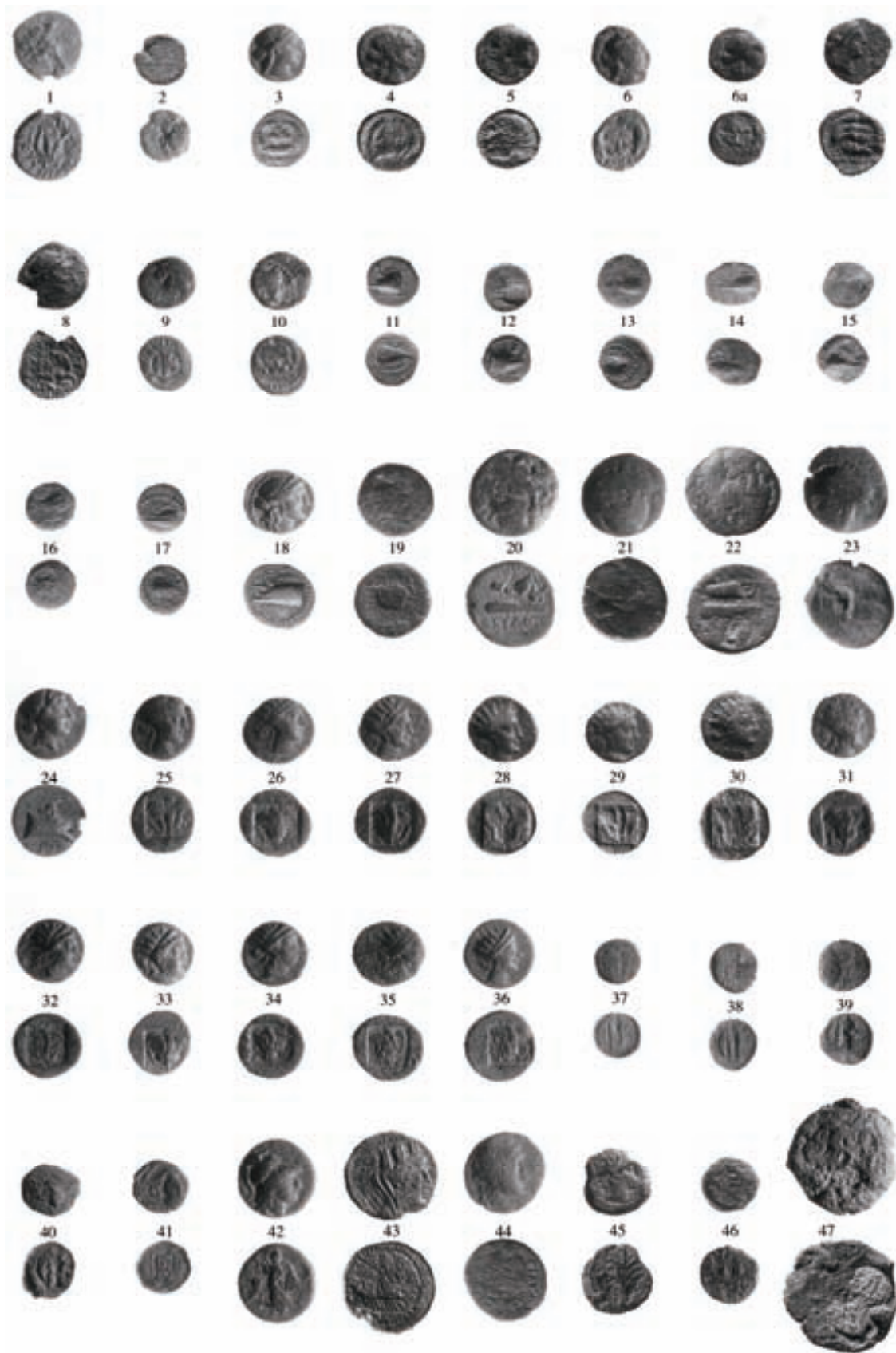
Figure 19.1: Coin nos. 1 to 47 (obverse and reverse) from the late Hellenistic hoard

Catalogue of Coins in the Late Hellenistic Hoard

(Figure 19.1, page 386)

Teos

ca. 310–250 B.C.

1   *Obv.*   Griffin seated, l. forepaw raised.
     Rev.   Lyre; around legend written outward: ΤΗΙΩΝ [–] ΤΟΥ
     2.09 g   12 mm   ↑

For general type, see Kinns 1980:517–18, nos. 109–19; Æ issue 7: *SNG Cop.* nos. 1461–65 (different magistrates' names). Kinns knows of no other example which has the legend written outward, or with magistrate's name ending in ΤΟΥ. The genitive case is also exceptional, but occurs elsewhere on the coinage of Teos of the given period (P. Kinns, pers. comm.).

Samos

412–404 B.C.

2   *Obv.*   Prow of a Samaina to r.
     Rev.   Amphora between the letters Σ[Α], surrounded by an olive wreath.
     1.21 g   9 mm   ↘

Barron 1966:99 no. 5; *SNG Cop.* no. 1691.

281–221 B.C.

3–6 *Obv.*   Head of Hera r., wearing stephane.
     Rev.   Lion's scalp; below, ΣΑΜΙΩΝ
     0.92 g   10 mm   ↑
     1.38 g   11 mm   ↑
     1.18 g   10 mm   ↑
     1.37 g   11 mm   ↑

BMC Ionia, p. 368, no. 190; *SNG Cop.* nos. 1717–18; Barron 1966:142 (with pl. 31, 8–9).

According to Barron (1966:142), "the silver coins were probably accompanied by an issue of bronze in two sizes having a full profile head of Hera on the obverse, a lion's mask on the reverse, surmounting the full ethnic." The silver coins are octobols, tetrobols, and diobols and are dated by Barron to 281–221 B.C.

6a   Same as no. 3.
     1.05 g   10 mm   ↑

This piece was recovered in the same subfloor fill layer where the hoard was found (fine grid 22; reg. no. 20086). We assume that this coin belonged to the hoard and slipped out of the purse of small container where the coins were kept before the rest of the pieces were stuck together by corrosion.

7–8 Same as no. 3 but smaller head of Hera.
     0.87 g   11 mm   ↑
     1.05 g   12 mm   ↓

9   Same as no. 3 but the lion's scalp is rendered in a less conservative way.
     1.16 g   10 mm   ↖

10   Same as no. 3 but border of dots both on the obv. as well as on the rev.
     1.36 g   11 mm   ↓

ca. 200 B.C.

11–16 *Obv.*   Prow of galley r.
      Rev.   Prow of galley l.; below, ΣΑΜΙ; all within a border of dots.
      0.56 g   9 mm   ↑
      0.81 g   8 mm   ↓
      0.73 g   9 mm   ↑
      0.96 g   10 mm   ↑
      0.62 g   9 mm   ↑
      1.02 g   9 mm   ↑

SNG Cop. no. 1720.

17 Same as no. 11 but border of dots on obv. as well.
0.90 g   8 mm   ↑

18 *Obv.* Head of Hera r., wearing stephane, earrings and necklace, within border of dots.
Rev. Prow of Samian galley to l.; above, a trident; below, ΣΑΜΙΩΝ; l. 🔲 ; all within a border of dots.
AR, diobol   1.33 g   13 mm   ↖

Barron 1966:147–48, 227 no. 2; *BMC Samos* 185.

Kos

ca. 300–200 B.C.

19 *Obv.* Head of young Heracles in lion's skin to r.
Rev. Crab; above, [ΚΩΙΟ]Ν; below, [Α]ΙΣΧΡΙΩ[Ν] and club.
2.48 g   13 mm   ↑

BMC Cos 86 (worn).

ca. 200 B.C.

20 *Obv.* Head of young Heracles in lion's skin three-quarter facing to r.
Rev. Bow in case and club; above, [Κ]ΩΙΟΝ; below, ΘΕΥΔΟΤΟ[Σ].
3.66 g   16 mm   ↗

BMC Cos 104. According to Ashton (1998b:227 n. 14), the 1932–34 Kalymna hoard (*IGCH* 1320), which contained some of the Koan bronzes (apparently displaying some wear), was buried in the 170s B.C.

21 Same as no. 20 but magistrate's name illegible.
3.17 g   15 mm   ↑

22–23 *Obv.* As last.
Rev. As last; countermark, crab.
3.12 g   16 mm   ↗
2.65 g   15 mm   ↗

These coins are very worn and the magistrates' names are illegible. For the countermark, see Ashton 1996:278–79.

Knidos

ca. 300 B.C.

24 *Obv.* Head of Aphrodite to r., hair rolled.
Rev. Prow r.; below, club; beneath, [–] AMOI [–] or [–] AMOK [–]. Only the upper left part of the fourth letter is visible. In its present state it looks like the letter I, but of course it could also be the letter K.
1.36 g   13 mm   ↙

cf. *SNG Cop.* nos. 306–10.

This type of Knidian issue is part of J. H. Nordbø's Series 11, which he dates to ca. 250–210 B.C.: "Utmyntningen på Knidos, 394 f. Kr.–ca. 210 e. Kr." (University of Oslo, unpublished M.A. thesis, 1972). The name of the magistrate mentioned on this issue does not occur on the Aphrodite/prow coins of Nordbø's Series 8 and 11. However, ΔΑΜΟΚΡ[. . .] does occur on a single coin in Nordbø's Series 12 with Apollo head/prow (Bibliothèque nationale de France 513). Nordbø dates his Series 12 to 310–210 B.C., i.e., broadly contemporary with Series 8 and 11. Ashton (pers. comm.) believes that Series 8 and 11 (which he combines into one series) were *dichalka* and Series 12 were *chalkoi*, and that to some degree they complemented one another. Furthermore, he suggests that Nordbø's Series 8 and 11 do not extend much, if at all, beyond the end of the fourth century (see Ashton 1999:Appendix 1).

Rhodes

Early second to early first century B.C.

25–36 *Obv.* Helios head radiate to r.
Rev. Rose with bud on stem on either side; in field, P – O; all within incuse square.
1.38 g   11 mm   ↖
0.98 g   13 mm   ↖
1.33 g   12 mm   ↗
1.46 g   12 mm   ↖
1.57 g   12 mm   ↖

1.58 g	13 mm	↑
1.20 g	11 mm	↑
1.39 g	12 mm	↑
1.18 g	11 mm	↑
1.25 g	12 mm	↑
1.57 g	13 mm	↑
1.91 g	12 mm	↖

SNG Cop. no. 860.

These bronze coins apparently accompany the plinthophoric silver series. G. K. Jenkins (1989:101, 105) thought that the series began in the 170s and ended in 84 B.C. A similar date appears in Troxell 1982:98. Ashton argued briefly for an earlier starting date of about 190 B.C. in Ashton 1994:58 (with references), and again in more detail in Ashton 2001. A hoard of Rhodian bronzes was published by Weiser (1986). In Ashton's opinion, however, this assemblage of coins was not a hoard (it contained Rhodian bronzes of the fourth and the second century B.C. in roughly the same state of wear). See his comments in *Coin Hoards* 8 (1994): 597.

LYCIAN LEAGUE

ca. 180?–167 B.C.

37–41   *Obv.*   Radiate bust of Apollo facing; to r. cithara.
       Rev.   Bow and quiver; in r. field legend: ΛΥΚΙΩΝ.

1.04 g	8 mm	↑
0.77 g	8 mm	↑
1.17 g	9 mm	↑
0.74 g	11 mm	↗
1.59 g	9 mm	↑

Troxell 1982:17–23, Period I, Series B:4.

For the general dating of the Lycian League's first period of coinage, see Troxell 1982:13. Troxell's Series B, to which our coins have been assigned, appears to be the later one in the Period I Bronze series (ibid., p. 19). Troxell (1982:227) assumes that this series was minted at one of the cities of the Xanthus Valley.

SIDE

ca. 200 B.C.

42   *Obv.*   Athena r. in crested Corinthian helmet.
     Rev.   Nike advancing l., holding wreath in extended r. hand; on l. pomegranate; across lower field: [Σ]Ι[Δ] – [
     2.96 g   13 mm   ↑

SNG Deutschland, Pfälzer Privatsammlungen nos. 504–9.

TYRE (autonomous)

126/5–ca. 100 B.C.

43   *Obv.*   Head of Tyche r. wearing turreted crown and veil; behind, palm branch; border of dots.
     Rev.   Galley l. with stem curving forward in volute and aphlaston at stern, on which Astarte standing l., r. hand
           outstretched; in l. cruciform standard; date illegible; in exergue: ⬛⬛⬛.
     2.53 g   15 mm   ↖

BMC Tyre 248.

SELEUCID ISSUES

241–228 B.C.

44   *Obv.*   Laureate head of Apollo to r. with hair in formal curls.
     Rev.   Apollo standing to l. holding arrow in extended r. hand and resting l. elbow on tripod.
           [B]ΑΣΙΛΕΩ[Σ] Α[ΝΤΙΟ]Χ[ΟΥ], no visible control marks.
     2.09 g   14 mm   ↑   Antiochus Hierax   Mint of Sardis

Newell 1941:no. 1438; *SNG Israel 1*, nos. 489–91.

145–130? B.C.

45 *Obv.* Diademed head of a king r.; dotted border.
   Rev. Palm tree; date across lower field not visible; dotted border.
   1.78 g   12 mm   ↗   Mint of Tyre
   cf. *SNG Israel 1*, nos. 1680–83, 1691–95, 1710–14, 1723–25, 2039, 2042, 2059–60, 2237.

138–129 B.C.

46 *Obv.* Prow of galley r.; dotted border.
   Rev. Pilei of Dioscuri, surmounted by stars; around from top r.: [ΒΑΣΙΛΕ]ΩΣ Α[ΝΤΙΟΧ]ΟΥ.
   1.45 g   9 mm   ↙   Antiochus VII   Mint of Antioch
   SNG Israel 1, undated issue, nos. 1973–78.

PTOLEMAIC ISSUES

114/3–107/6 or 105/4 B.C.

47 *Obv.* Head of Zeus-Ammon to r., diademed.
   Rev. Traces of eagle standing l., in the field l. T with star of eight rays above.
   7.69 g   20 mm   ↗   Mint of Paphos

   Nicolaou 1990:46–48, nos. 358–65, 367–75.

   The condition of the coins is such that it is impossible to be certain of the reverse type. The traces that remain are also consistent with there having been two eagles. In this case, an alternative identification is possible (see Nicolaou 1990:nos. 324–56). This coin type has been attributed to either Ptolemy X Alexander I, king in Cyprus, 114/3–107/6 B.C., or to the very beginning of Ptolemy IX Lathyrus's second rule over Cyprus, i.e., 105–104 B.C. (Gitler and Kushnir-Stein 1994).

Table 6. Chronological List of Coins in the Late Hellenistic Hoard

Coin	Mint	Description	Date Range	Wear[†]	Reference
2	Samos	Prow/Amphora	412–404 B.C.	U3	Barron 1966:99 no. 5
1	Teos	Griffin/Lyre	ca. 310–250	U3	Kinns 1980:nos. 109–19; Æ issue 7
19	Kos	Heracles/Crab	ca. 300–200	U4	*BMC Cos* 86
24	Knidos	Aphrodite/Prow	ca. 300	U2	cf. *SNG Cop.* nos. 306–10
3–10	Samos	Hera/Lion's scalp	281–221	U2-3	*BMC Samos* 190
44	Sardis	Apollo/Apollo standing	241–228	U4	Newell 1941:264, no. 1438
11–16	Samos	Prow r./Prow l.	ca. 200	U2-3	*SNG Cop.* no. 1720
18	Samos	Hera/Prow	ca. 200	U2	Barron 1966:147–48, 227 no. 2
20–23	Kos	Heracles/Bow and club	ca. 200	U4	*BMC Cos* 104; Ashton 1996:278–79
42	Side	Athena/Nike	ca. 200	U3	*SNG PfPs.* nos. 504–9
25–36	Rhodes	Helios/Rose	ca. 190–84	U1-3	*SNG Cop.* no. 860
37–41	Lycia	Apollo/Bow and quiver	180–167	U3	Troxell 1982:Period I, Series B:4
45	Tyre	King's head/Palm tree	145–130	U4	cf. *SNG Israel 1* no. 1680 ff.
46	Antioch	Prow/Pilei	138–129	U4	*SNG Israel 1* nos. 1973–78
43	Tyre	Tyche/Galley	126/5–100	U2	*BMC Tyre* 248
47	Paphos	Zeus/Eagle	114–104	C4	Nicolaou 1990:nos. 358–65, 367–75

[†] For definitions of the terms used to describe the state of wear of the coins, see "Usure et corrosion," *Bulletin ITMS* 2 (1995), Supplément (Lausanne), pp. 10–11 and 18–19: "U1" = quite fresh; "U2" = slightly worn; "U3" = worn; "U4" = very worn; "C4" = heavily corroded.

Numismatic Commentary

A date around 100 B.C. for the concealment of the hoard is provided by the Ptolemaic issue (no. 47). In a normal situation it would be expected that the latest coin in a hoard be in a relatively good state of preservation as compared to the other coins in the hoard. Our Ptolemaic piece is in poor condition, but this was probably not caused by extensive wear but rather is due to the fact that the coin is made of a highly leaded alloy, as is evident from the large lead encrustation on the reverse. In coins made of very highly leaded alloys, discrete globules of lead are formed near or at the surface of the coin, which is a consequence of the insolubility of lead in copper alloys (Cope 1972:14). This type of lead encrustation preferentially corrodes because lead is more chemically reactive than copper, thus coins made from such an alloy will appear more heavily corroded than their less leaded counterparts.[116]

Excavations carried out in Israel have shown that coins from the fourth to the end of the second century B.C. from the mints of western and southern Asia Minor rarely reached ancient Palestine. Other than a relatively large number of bronzes from Side, only a handful of coins from this area have been found in excavations so far.[117]

Isolated coins found in the course of excavations at Ashkelon show the same general pattern. The best represented mint is that of Side, with seven examples of the Pomegranate rev. type (cf. *SNG PfPs.* nos. 471–75). In addition, one bronze of Rhodes (*SNG Cop.* nos. 858–59) and one of Ephesus (*SNG Cop.* no. 256) have been found.

There are other finds from Palestine that can be compared to the Ashkelon hoard. A Rhodian amphora containing about 100 kg of bronze objects was discovered during underwater excavations at a site dated to ca. 100 B.C. near Megadim, off the Carmel coast close to Haifa (Misch-Brandl and Galili

1985:12–13; see also Parker 1992:273 no. 689).[118] The bronze objects in the amphora were part of a larger cargo destined for scrap. Seven coins were found among these objects: a Lycian League issue (same type as our nos. 37–41); Seleucid bronzes of Antiochus V (from Tyre) and Antiochus VII (from Antioch); and two Ptolemaic issues from the mint of Paphos, assigned to Ptolemy VIII, IX, and/or X (same type as our no. 47). One of these two Ptolemaic coins is related to the same series as *Paphos II* (Nicolaou 1990), nos. 358–65, 367–75, while the second can be identified with *Paphos II*, nos. 324–56.

Two hoards discovered in the same geographical area as Ashkelon contain Rhodian plinthophoric and Attic-weight drachms. One hoard was allegedly found in 1982 at Beth Likiah near Jerusalem, and the other was bought in Cairo in 1923 and is said to have been found at Sakha in the Nile Delta (Ashton and Weiss 1997:24–26).[119] A third hoard of Rhodian plinthophoroi was claimed to have been found in Gaza in the early 1980s but no record of these coins exists. Until the discovery of the Ashkelon hoard, none of these Rhodian drachms had been found in controlled excavations.

Historical and Archaeological Commentary

Coin issues of western and southern Asia Minor are rarely found in Israel, thus it seems unlikely that someone could have gathered such a variety of small bronzes while remaining in a single place. It is generally accepted that bronze coinage was issued for local use and rarely circulated much beyond the boundaries of the issuing state (T. Jones 1963:313–24; Ashton 1998a:44–46). For example, the excavations at Sagalassos in Turkey yielded 85 Greek autonomous and imperial coins, of which 39 (46%) were from the mint of Sagalassos and 18 (21%) were from Perge, the nearest seaport (Scheers 1997:338).

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[116] We are grateful to Matthew Ponting for this information.

[117] Donald T. Ariel, the head of the coin department of the Israel Antiquities Authority (IAA), has compiled a list of 73 bronze Hellenistic coins of Side found in excavations in Israel, Syria, and Cyprus (Ariel 2000:47*). Seven additional coins have been found in the excavations at Ashkelon. Most of these issues are of the Pomegranate rev. type and the rest are of the Nike rev. type. Ariel suggests that most of the Side coins found in the Levant date from the end of the third to the beginning of the second century B.C., based on their appearance at the short-lived site of Korazim, in which the latest coins belong to the reign of Antiochus III (Ariel 2000:35*).

[118] According to the latest coins found within the ship (issues of Ptolemy IX and X), a date of ca. 100 B.C. seems reasonable. The responsibility for preparing a final report on the coins in the Rhodian amphora has been given to Donald T. Ariel, who kindly provided us with information on the coins.

[119] The Beth Likiah hoard (*Coin Hoards* 8.550) included 169 Peloponnesian triobols, 96 plinthophoric drachms of Rhodes (all of Jenkins's final group E, which he dated to 88–84 B.C.), 66 Attic-weight Rhodian drachms, and one denarius of Augustus. The Sakha hoard consists of Greek and Roman coins. Relevant to our discussion are six plinthophoric drachms of Rhodes (two of Jenkins's final group E, four apparently illegible) and six Attic-weight Rhodian drachms.

Table 7. Western and Southern Asia Minor Coin Issues Found in Excavations in Israel

Mint and Date	Provenience	Reference	IAA Inventory No.
Pergamum ca. 200–133 B.C.	Stray find, seashore at Ashkelon	R. Kool (pers. comm.) *SNG Cop.* no. 387	75339
Chios 190–133 B.C.	Yavneh	Vitto 1998:118–20	58661
Chios 3rd–1st cent. B.C.	Ḥammama, near modern Ashkelon	D. T. Ariel (pers. comm.)	57310
Colophon 4th cent. B.C.	Yafo (Jaffa)	D. T. Ariel (pers. comm.)	47728
Ephesus end of 4th–2nd cent. B.C.	Jerusalem	Ariel 1982:278	—
Miletus 3rd–2nd cent. B.C.	Yafo (Jaffa)	D. T. Ariel (pers. comm.)	81803
Rhodes 350–300 B.C.	Caesarea	G. Bijovsky (pers. comm.) *SNG Cop.* nos. 750–51	65833
Rhodes 304–166 B.C.	Beth-zur	Sellers 1933:90	—
Mopsus 3rd–2nd cent. B.C.	Jerusalem	Ariel 1982:278	—
Lycian League 3rd–2nd cent. B.C.	Megadim, off the Carmel coast	Misch-Brandl and Galili 1985:13	81239

Our hoard contains two so far unrecorded coins of Teos (no. 1) and Knidos (no. 24). Such uncommon pieces are more likely to have been picked up in their place of origin. Indeed, their place of origin offers a suggestion as to how the coins of the Ashkelon hoard came to be collected. Teos, Samos, Kos, Knidos, Rhodes, Lycia (Xanthus Valley, with Patara as its seaport), Side, Paphos, Antioch (Seleucia), and Tyre are all located along a known seafaring route that is both natural and logical (figure 19.2). At all of these sites remnants of ancient harbors can be traced (see, e.g., Akurgal 1973:139–42, 252–53, 255–62, 336–41). Some are used as harbors or anchorages to this day (see Heikell 1989:100–2, 142–43, 179 [map], 204–5, 219, 224–27; and Heikell 1987:292–95, 313–15, 320–24).[120]

Merchantmen as well as warships sailed along the western and southern coasts of Turkey and the adjacent Greek islands. Thus we can suggest that the coins in our hoard were gathered by a crew member aboard a ship that sailed along the western coast of Asia Minor on its way to Cyprus and Phoenicia, and eventually arrived at Ashkelon around 100 B.C. Ships of this period called at various ports and sailors were involved in what may be defined as a "private sailor's trade," taking advantage of the voyage to make a profit for themselves. At some these ports the owner of the hoard may have obtained several local bronze coins, which he probably intended to use on his return voyage.

Archaeological evidence from excavations both on land and underwater complements the literary evidence for the vitality of this trade route throughout antiquity, and in so doing provides interesting comparanda for the Ashkelon hoard. Only a few wrecks have been extensively excavated along the Turkish coast, the eastern Greek islands, Cyprus, and the eastern coast of the Mediterranean; however, a large number of records have been preserved that may point to shipwreck sites. Two examples require special attention.

The Kyrenia Ship. This wreck was found in 1967 about 1 km north of Kyrenia in Cyprus, in water 30 m deep. It was excavated under the direction of Michael Katzev. The ship's timbers were lifted to the surface, conserved, and reassembled in the Kyrenia castle, where the ship is exhibited today.

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[120] See Casson 1991 on the use of maritime trading routes. A reconstruction of a voyage on the basis of numismatic finds, similar to what we present here, has been proposed by W. W. Sheridan (1971). We thank P. van Alfen for this reference.

Figure 19.2: Map of the eastern Mediterranean showing locations of seaports and mints
Cities marked by a circle had mints that produced coins found in the Ashkelon hoard.

According to ¹⁴C analysis of the wood, combined with analysis of the ceramic vessels and coins found on board, the Kyrenia ship is dated to about 306–300 B.C. The cargo included 404 amphoras of different origins, millstones that probably served as ballast, and about 10,000 almonds. Specialists concluded that the amphoras originated in Samos and Rhodes, while the millstones were quarried on the island of Nisyros. The almonds were identified as having originated in Cyprus (Katzev 1969; 1970a; 1972; Katzev and Katzev 1974; 1989; Gianfrotta et al. 1997:168).

Katzev suggested a possible route for the ship's last voyage that passed through these places (Katzev 1970b:844; Katzev 1990:245, 256; Gianfrotta et al. 1997:170). This route closely resembles the route that connects the places of origin of the coins from the Ashkelon hoard.

The Maᶜagan Mikhael Ship. This ship was discovered in 1985, in shallow water off the shore of Kibbutz Maᶜagan Mikhael, 30 km south of Haifa, on the Mediterranean coast of Israel. Ceramic and ¹⁴C dating methods have dated it to about 400 B.C. It was a small merchantman that may have sunk only a short time after its launching. The ship carried about 13 tons of stones and rocks, the majority of which are at present ascribed to the island of Evia, and a portion of the remainder most probably to the southern coast of Cyprus. Some remnants of food have been identified as having their origin in southwest Turkey or the nearby Aegean islands, while most of the 70 ceramic vessels have been attributed to Cyprus. A few decorative wooden boxes and small ceramic wares found on board may be interpreted as "sailor trade" items used in barter by the crew along the coast (Linder 1992;

Linder and Rosloff 1995; Kahanov 1996; Artzy 1985). Although the research has not yet been completed, it may tentatively be suggested that at least the last part of the ship's voyage was along a route close to the points of origin of the coins in our hoard.

Shipwreck evidence for trade connections between western Asia Minor and Palestine in the second and early first century B.C. is corroborated by the discovery of large numbers of imported stamped amphoras (in most cases only the stamped handles are found) in excavations throughout Israel. The evidence catalogued by Gérald Finkielsztejn (2001) shows an increase in trade from Rhodes and the cities of western Asia Minor to the Levant in the second half of the second century B.C. Particularly noteworthy are the stamped amphoras from the following sites:

1. *Shiqmona:* Excavations by J. Elgavish found amphora stamps from Samos (Elgavish 1968: pl. 61, nos. 147–48), identified by V. R. Grace (1979b:183), as well as from Rhodes (Elgavish 1974:pls. 37–38, nos. 343–49, 351–60) and from Kos (ibid., no. 350).

2. *Gezer:* Excavations by R. A. S. Macalister found many amphora stamps from Rhodes (Macalister 1912:350–64), as well as from Thasos (p. 350, fig. 467, nos. 6 and 11), Chios (no. 10), Paphos (no. 19), Knidos (no. 25), and Pamphylia (p. 356, no. 175).

3. *Giv'at Yasaf (Tell er-Ras):* Ariel 1999:25*–30*, nos. 1–12 (Rhodes), no. 13 (Chios).

4. *Jerusalem (City of David):* Excavations by Y. Shiloh found hundreds of amphora stamps from Rhodes (Ariel 1990:29–76, nos. S 1–450), as well as stamps from Knidos (S 451–52), Chios (S 453–57), and Kos (S 458–63). See Ariel 1990:13–25 for additional information on the distribution of stamped handles in Israel and elsewhere.

5. *Ashkelon:* The Leon Levy Expedition has found stamped amphora handles, mainly from Rhodes but also from Chios and Kos (L. E. Stager, pers. comm.).

6. *Akko:* Excavations by E. Stern and M. Hartal found amphora stamps from Thasos, Sinope, Chios, Kos, Knidos, Rhodes, Paros, and Kourion in Cyprus. A major group of Phoenician amphora stamps from Tyre was also found in these excavations (Naveh 1997).

7. *Jaffa:* Excavations by J. Kaplan found amphora stamps (now in the Jaffa museum collection) from Amphipolis in Macedonia, Chios, Kos, Knidos, Rhodes, and Kourion.

8. *Samaria:* The Joint Expedition to Samaria found amphora stamps from Thasos, Sinope, Chios, Kos, Knidos, Rhodes, Kourion, and Paros (see Finkielsztejn 2001).

9. *Maresha:* Excavations by A. Kloner found amphora stamps from Thasos, Sinope, Chios, Kos, Knidos, Rhodes, and Pamphylia.

In addition to archaeological discoveries, we can draw upon literary sources. These provide evidence not just for the routes used by ships but also the duration of sea voyages (for an overview of the literary evidence, see Casson 1995:ch. 12). Josephus (*Antiquities of the Jews* 16.17–20) mentions a sea voyage by King Herod in ca. 14 B.C. from Palestine to Byzantium via Rhodes, Kos, Lesbos, Chios (where he waited a few days for a better wind), and Mytilene.

The sea routes traveled by St. Paul during the second third of the first century A.D. are also of interest.[121] In Paul's first missionary journey, as described in the New Testament book of Acts, the ports of Seleucia, Salamis (Cyprus), Paphos, Perga, and Attalia are mentioned (Acts 13:4–5, 13; 14:26). In his second missionary journey the relevant ports are Troas, Thessalonica, Ephesus, and Caesarea (Acts 16:11; 17:13–14; 18:18–22). In his third missionary journey he called at the following ports: Troas, Assos, Mytilene, Chios, Samos, Trogyllium, and Miletus; and he passed by Chios, Ephesus, Kos, Rhodes, Patara, Cyprus, Tyre, Akko, and Caesarea (Acts 20:6, 13–16; 21:1–3, 7–8).

Later, Paul was taken to Rome by ship. The locations mentioned for this trip are Caesarea, Sidon, Cyprus, Myra, and Knidos (Acts 27:1–7; see also Gianfrotta et al. 1997:10–13). It is clearly that these ports were used by ships which plied these waters on a regular basis (Acts 21:2; 27:6; 28:11).

Finally, although it is dated much later, to the end of the fourth century A.D., it is worth mentioning the round trip by sea from Thessalonica to Ashkelon and back to Thessalonica that is recorded by Marcus Diaconus (*Vita Porphyrii* 6).

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[121] For the locations mentioned in connection with Paul's voyages being ports in antiquity, see e.g. Akurgal 1973:62, 64–69, 142–44, 157, 206–22, 263–64, 324.

If the coins of the Ashkelon hoard were indeed gathered by a sailor during the voyage (or voyages) of a merchantman, it would seem that all of the issues represented in the hoard were in circulation at that time in the places concerned. This would imply that in ca. 100 B.C., in the cities and islands of the western coast of Asia Minor, coins in circulation ranged in date from the late fourth century to the beginning of the first century B.C. This wide temporal distribution seems rather unusual. Further evidence is needed either to confirm the simultaneous circulation of coins of such varying dates, or to suggest an alternative explanation for the composition of our hoard.

20. THE GREEK INSCRIPTION IN THE GRID 38 BATHHOUSE

by Vassilios Tzaferis

A GREEK inscription of two lines was written within a plain *tabula ansata* using reddish-brown paint (figure 20.1). The first line contains two intact and readable exhortation verbs, both used in the imperative aorist. In the second line only three or four letters are preserved from what was originally one, or more likely two, short words set between two stylized ivy leaves.

There is considerable variation in the height of the letters, especially in the first line. The letters are oval in form and were made using a double band of paint. The location of the inscription, near the main entrance of the bath, indicates that it was intended as a greeting to visitors entering the building, which is confirmed by the content of the inscription, which reads as follows:

ΕΙΣΕΛΘΕ ΑΠΟΛΑΥΣΟΝ
ΚΑΙ . . . Ε . . .

Translation:
Enter, enjoy, and . . .

The reading of the first two words of the first line presents no difficulty. The letters are well preserved and the words are easily read. The first word, ΕΙΣΕΛΘΕ, "enter," invites the visitor to enter the bath. The second word, ΑΠΟΛΑΥΣΟΝ, "enjoy," exhorts him to enjoy himself once he is inside.

The second line, however, is nearly illegible. If we are correct in reading the first three letters as ΚΑΙ, "and," then this line must have contained two words. The second word would have been a very short one with an *epsilon* as one of its component letters, although the reading of an *epsilon* here might be questioned because it is written in the square form, in contrast to the other letters of the inscription, which are written in the oval form.

In any case, it is plausible to suppose that the second line originally read "and have a good bath." Such a greeting—or the equivalent *bene lava* in Latin—was very common in early Byzantine bathhouses. (For information about the use of such greetings, as well as parallels from various late Roman and Byzantine contexts, see Russell 1974 and Russell 1987:22–34).

Figure 20.1: Greek inscription in the Byzantine-period bathhouse found in Grid 38

Another possible reconstruction is "and drink." A grave inscription from Aizanoi in Asia Minor, which invites the reader to "bathe, drink, and eat . . . and enjoy while one is alive," is a close parallel (Robert 1965:184). Either of these proposed restorations of the second line would suit an inscription that obviously reflected the function of the building and made reference to the pleasures it offered the visitor.

This inscription, in either of its two possible readings, takes its place among a group of greeting inscriptions widely used in Late Antiquity. Inscriptions of this sort are found on the lintels of graves and on various public buildings, especially bathhouses. But there are no exact parallels to the inscription found at Ashkelon. Indeed, this inscription does not so much greet the reader as prompt him to come in and enjoy himself (and have a good bath or drink).

The exhortation to come in and enjoy oneself may indicate that the enjoyment to be expected was not simply a matter of bathing but involved pleasures of a different sort. As is well known, practices other than bathing flourished in Roman and Byzantine baths. Under the porticoes of the bathhouses lurked vendors of food and drink and prostitutes of both sexes. Those who frequented the baths could eat and drink to excess and indulge various disreputable tastes. Such bathhouses were to be found in every large town, especially in port cities such as Ashkelon. Even so, the inscription itself need not have had this meaning.

On epigraphic grounds the Ashkelon bathhouse inscription can be dated approximately to the period from the mid-third to the fourth century, when this kind of greeting inscription was most common. Particularly noteworthy is the elaborated form of the letter *upsilon*. In discussions of the Greek inscriptions discovered at Anemurium (Russell 1987), as well as of similar material discovered at Antioch (Levi 1947: 627–29), the elaborate *upsilon*, which first appears in the second half of the third century, is considered to be a chronological criterion.

21. The Church by the Jerusalem Gate

by Vassilios Tzaferis and Lawrence E. Stager

A SMALL church was built in the fifth century A.D. on the northeastern edge of the city of Ashkelon, in Grids 34 and 41 just inside and to the south of the "Jerusalem Gate" (figure 21.1). The remains of this church were exposed during the first season of excavations by the Leon Levy Expedition in 1985. It was determined that the building had remained in use for several centuries, with some architectural modifications, until the total destruction of Ashkelon in A.D. 1191.

The church was originally laid out as a basilica, following a plan that was widely used for both secular and sacred architecture during the Roman period. Its interior was divided into three aisles by two rows of three columns each, which would have supported a gallery and a pitched roof (figure 21.2). These columns were made of Aswan granite; they had probably been imported centuries earlier and were reused in the construction of the church.

When the basilica plan was adopted by church architects, the church's apse was usually oriented toward Jerusalem, the Holy City. Thus the apse of our church was located at the east end of the building, next to the city wall. From the apse, water flowed through a lead pipe and settling basin before reaching a marble-lined cruciform baptistery built into the earliest marble floor. The small size and shallowness of the baptistery indicates that baptism was done by sprinkling rather than immersion.

The building continued in use as a church long after the Muslim conquest, which attests to the continued presence at Ashkelon of a community of Byzantine Christians. It was not until the mid-tenth century, when Ashkelon came under Fatimid rule, that the church was turned into a mosque. A century later it was restored as a church, after the Crusader conquest of Ashkelon in 1153. At that time its plan was changed, however: only four of the original six columns were used, suggesting a cruciform vaulted ceiling above the apse. Wall paintings were added to the central apse and two side niches: above the robbed-out bench and bishop's chair (*cathedra*) in the central apse we found remnants of colorful paintings depicting four saints—notable bishops of the Byzantine church—holding Greek scrolls. Each scroll contains an excerpt from a liturgical text attributed to St. John Chrysostom or St. Basil the Great (the wall paintings and their Greek texts are described further below).

During the Crusader occupation of Ashkelon in the second half of the twelfth century, and probably in earlier Byzantine times as well, our church was known as the church of "Saint Mary the Green."[122] This reference to "green" may indicate that Mary was considered by the Christians of Ashkelon to be the matron saint of the city's abundant crops. Alternatively, the term may refer to a sporting faction: the "Greens" were the rivals of the "Blues" throughout the Byzantine world. Charioteers from many localities vied to compete in "world championship" races in Constantinople, where sports, religion, and politics were intertwined. A victory by a team was often interpreted as a victory for its city's deity or patron saint; thus a victory for the "Greens" of Ashkelon might have been seen as a victory for the Christians and for Saint Mary the Green.

The Wall Paintings and Their Liturgical Texts

The remnants of wall paintings preserved in the apse of the church, although faded and incomplete, are an exceptional archaeological discovery in the field of medieval Christian iconography in the Holy Land (see figures 21.3 and 21.4). Because of the fragmentary state of preservation of the paintings, it is not possible to identify with absolute certainty the persons who are represented or to make any sort of artistic evaluation of the depiction, but the identity of the figures can be deduced from their position at the center of the semicircle of the main apse of the church and from the inscribed scrolls they hold in their hands.

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[122] There were five churches in Ashkelon during the time of the Crusaders. Four of these were Latin churches and the fifth—the one called in Latin *Santa Maria Viridis*, "Saint Mary the Green"—was a Byzantine (Greek) church. Before the excavations of the Leon Levy Expedition, it was thought that the church of Saint Mary the Green was located next to the sea (in Grid 50), near a Muslim *weli* called Maqām al-Khadra, "shrine of the Green (Lady)," from which the South Tell took its name. On the basis of the wall paintings in the church we have excavated, it now appears that the Byzantine Greek church of Saint Mary the Green was on the other side of the city, by the Jerusalem Gate.
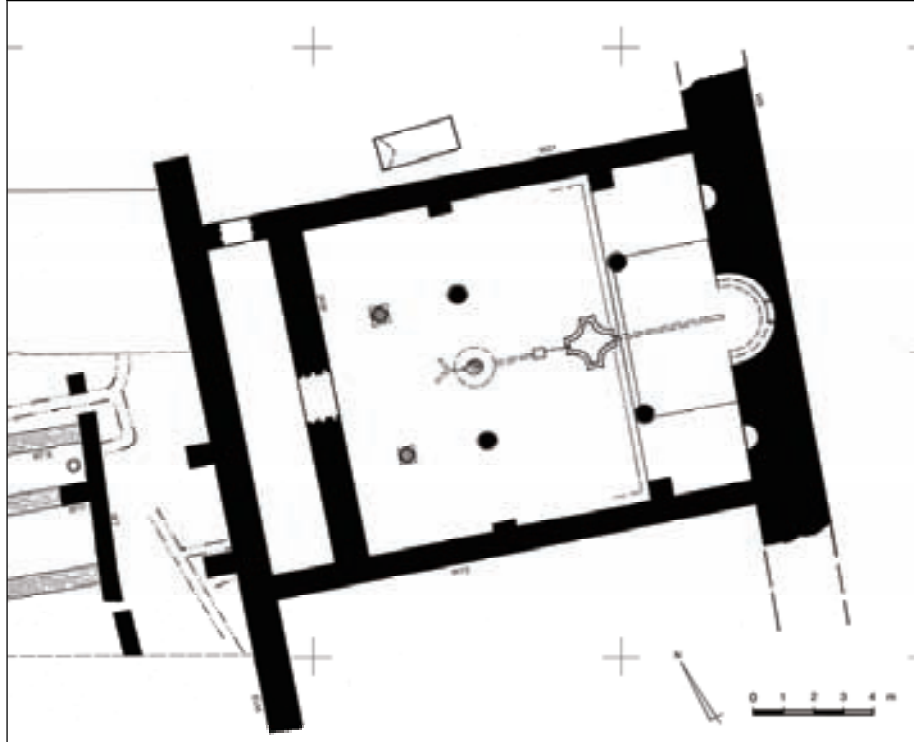
Figure 21.1: Block plan of the Byzantine-period church by the Jerusalem Gate in Grids 34 and 41

Figure 21.2: Longitudinal view of the church, facing the apse, showing its granite columns (view to the east)

Figure 21.3: Wall painting in the church's apse depicting four church fathers

Figure 21.4: Close-up of the scroll held by Saint Gregory, the leftmost figure painted in the apse

In medieval eastern-Christian iconography, the theme that occupies the central portion of the apse is related, as a rule, to the "Eucharistic cycle," representing the scene of the "Breaking of the Bread" (*melismos*) or the scene of the "Lamb" (*amnos*) with a depiction of the four major hierarchs: St. Basil the Great, St. John Chrysostom, St Athanasius the Great, and St. Gregory the Theologian. The "Lamb" as a theological symbol of the Eucharistic sacrifice was a well-known subject often employed in early Christian iconography. The typical composition shows the infant Jesus naked and lying in an oval dish, partly covered by a green cloth. The dish is placed on a table that symbolizes the altar, accompanied by the instruments of the crucifixion such as the Cross, the Ladder, the Lance, the Sponge, etc.

In Christian iconography the theme of the "Lamb" is depicted both as an isolated iconographic subject and as a supplement to much larger compositions of liturgical character. In the latter case, the representation of the Lamb is always placed on the semi-circular wall of the apse and is accompanied by the figures of four or five hierarchs in the attitude of officiating or attending the mass. The earliest compositions showing the "Lamb" in this way are dated to the late eleventh or early twelfth century A.D. (Hadermann-Misguich 1975:67ff.).

The fragments of wall painting preserved in the apse of the church at Ashkelon show four venerable hierarchic figures, which undoubtedly represent the four great fathers of the early Christian church. Two of them—St. Basil the Great and St. John Chrysostom—were famous for having shaped the church's liturgy, while the other two contributed greatly to the definition of Christian teaching. Normally, it is these four hierarchs who are depicted in the apse attending the Eucharist. In some cases, however, the figure of either Saint Athanasius the Great or Saint Gregory the Theologian is replaced by that of Saint Cyril of Alexandria. Occasionally, when the apse is spacious enough, all five hierarchs are represented.

In the Ashkelon wall paintings, the four church fathers are portrayed full-length in two pairs turned toward the center of the apse, looking toward the altar-table that would have been depicted in the middle. They wear their formal hierarchical vestments, which included a *polystavrion phaelonion* (a vestment ornamented with crosses) and an *omophorion* (episcopal stole).[123] Each of them holds with both hands an unrolled scroll on which is a Greek inscription.

Only fragments of the Greek inscriptions are preserved, but it is clear that they are quotations from well-known benedictions in the eastern-Christian liturgy. The scroll held by the first figure from the left, which probably represents St. Gregory the Theologian, contains the beginning of the benediction of the first Antiphon from the liturgy of St. John Chrysostom (figure 21.4). The inscription reads as follows:

ΚΥΡΙΕ Ο ΘΕΟΣ
ΗΜΩΝ
ΟΥ ΤΟ ΚΡΑ
ΤΟΣ ΑΝΕΙ
ΚΑΣΤΟΝ ΚΑΙ
Η ΔΟ
ΞΑ ΑΚΑΤΑΛΗΠΤΟΣ
ΟΥ ΤΟ ΕΛΕΟΣ
ΑΜΕΤΡΗΤΟΝ
ΚΑΙ Η ΦΙΛΑΝΘΡΩΠΙΑ
ΑΦΑΤΟΣ . . .

O Lord our God, whose might is beyond compare, whose glory is incomprehensible, whose mercy is infinite, and whose love toward mankind is ineffable. . .

The second figure from the left, which probably represents St. John Chrysostom himself, holds a scroll that quotes the beginning of the benediction of the Prothesis from his liturgy. The inscription reads as follows:

Ο ΘΕΟΣ Ο ΘΕΟΣ
ΗΜΩΝ
Ο ΤΟΝ ΟΥ
ΡΑΝΙΟΝ
ΑΡΤΟΝ ΤΗΝ
ΤΡΟΦΗΝ
ΤΟΥ ΠΑΝΤΟΣ
ΚΟΣΜΟΥ ΤΟΝ
ΚΥΡΙΟΝ ΗΜΩΝ
ΚΑΙ ΘΕΟΝ ΙΗΣΟΥΝ . . .

O God, our God, who has sent the Heavenly Bread, the Food of the whole world, our Lord and God Jesus. . .

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[123] In the liturgical iconographical cycle, the church fathers are always represented full-length and fully dressed in all of their hierarchic clothing. This included the following: the *sticharion* (inner garment), *epitrachelion* (stole), *epigo-*

nation (knee-pad), *phaelonion* (outer vestment in the form of a cape decorated with crosses, hence *polystavrion*), and *omophorion* (episcopal stole). The hierarchs depicted in the wall paintings at Ashkelon were similarly figured and dressed, judging by the preserved fragments.

The third figure—the one on the left side of the second pair—probably represents St. Basil the Great. The scroll in his hands quotes a benediction from his liturgy, the prayer of the Trisagion:

Ο ΘΕΟΣ Ο ΑΓΙ
ΟΣ Ο ΕΝ Α
ΓΙΟΙΣ ΑΝΑΠΑΥ
ΟΜΕΝΟΣ
Ο ΤΡΙΣΑΓΙΩ
ΦΩΝΗ ΥΠΟ
ΣΕΡΑΦΕΙΜ
ΑΝΥΜΝΟΥΜΕΝΟΣ
ΚΑΙ ΥΠΟ ΤΗΝ
ΧΕΡΟΥΒΕΙΜ
ΔΟΞΟΛΟΓΟΥΜΕΝΟΣ . . .

O Holy God, who rests in your Holy Place; who is hymned by the Seraphim with thrice-holy cry and glorified by the Cherubim . . .

The scroll of the fourth and last figure, which presumably represents St. Athanasius the Great, or perhaps St. Cyril of Alexandria, is entirely faded and unreadable. But like the first three scrolls it almost certainly quotes a liturgical text—very probably the benediction of the Third Antiphon.

Unfortunately, the fragmentary state of the wall paintings in the Ashkelon church, as well as the faded condition of the Greek texts, do not permit any detailed iconographic or epigraphic studies. We can only suggest on the basis of comparative evidence that the portrayal here of four major church fathers is a remnant of a larger iconographic composition that originally covered the inside of the apse. Compositions of this sort usually included three zones of paintings: the upper zone typically had a painting of the Virgin Mary; the middle zone had a depiction of the "Breaking of the Bread" or of the "Lamb" attended by the great hierarchs of the Christian church; and the lower zone contained various decorative themes or motifs. The central subject of the entire composition reflected the liturgical symbolism known in Christian iconography as the "Eucharistic cycle." Various other cycles taken from the events of the Old and New Testaments, as well as from the large repertoire of the Christian saints and martyrs, were depicted elsewhere inside the church according to a prearranged iconographic program that was strictly followed by the artists. The practice of implementing this kind of overall iconographic program was fully developed and canonized only from the twelfth century onward.

Because of their fragmentary state, the wall paintings in the church at Ashkelon do not provide sufficient artistic or epigraphic grounds for assigning them a precise date. On strictly iconographic grounds, we can say only that they belong to the medieval period, somewhere between the twelfth and fifteenth centuries. But because we know on the basis of historical and archaeological evidence that the city of Ashkelon, and the church itself, was destroyed at the end of the twelfth century, we must conclude that these paintings were made during the Crusader occupation of the city between 1153 and 1187.

A noteworthy implication that may be drawn from these wall paintings is that even when Palestine was no longer under Byzantine rule and in direct contact with Byzantine culture, it continued to partake of a strong Byzantine heritage in both ecclesiastical matters and religious art, and this resurfaced at Ashkelon under the Crusaders in the mid-twelfth century A.D. The Ashkelon church provides very important iconographic evidence in this regard, because except for the wall mosaics and isolated hagiographies preserved on the marble columns in the Basilica of the Nativity at Bethlehem, which are dated to the eleventh–twelfth centuries, the wall paintings at Ashkelon are the only eastern-Christian iconographical remnants from medieval Palestine. The wall paintings in the church of the Monastery of the Holy Cross in Jerusalem, which in their general layout and style can be considered the closest parallel to the paintings of Ashkelon, are of much later date, having been made in the seventeenth century, while those in the church of the Monastery of Saint Saba in the Judean Desert were made even later, in the eighteenth century.

22. AN ARABIC INSCRIPTION ENGRAVED WITH CRUSADER SHIELDS

by Moshe Sharon

A FATIMID imperial inscription, upon which heraldic Crusader emblems were superimposed, was discovered during the 1993 season of excavations at Ashkelon by the Leon Levy Expedition. The Arabic inscription was engraved on a large slab of whitish-gray marble (1.49 × 0.63 × 0.10 m) that had been broken into ten pieces (reg. no. 43813). The major part of this slab was discovered halfway down the glacis of the northern wall of the medieval city, in the debris below and to the north of the ruins of a large tower that stood at the point where the city wall begins to curve to the southeast, ca. 300 m from the shoreline (in Grid 3; see figure 22.1).

The large size and imperial nature of the inscription indicate the exceptional importance of this tower, which may well have been one of the towers defending the northern gate of the city—called the "Jaffa Gate" by William of Tyre. The other parts of the slab were found in lower debris at the same location, and one small fragment was recovered in debris

ca. 20–25 m to the west of the main fragment. When joined, the fragments form an almost complete rectangular slab, except for a small portion at the top right-hand side (figure 22.2).

The marble slab was first used for the engraving of a long Arabic inscription consisting of twenty-two lines of sophisticated, highly professional, late Fatimid imperial script, decorated with barbs and "swallow tails." There are no diacritical points or vowels. The inscription commemorates the building of a fortification tower by the local Fatimid governor on the orders of the grand vizier in Cairo. This is presumably the tower in whose debris the inscription was found (for more details see below). The inscription is complete, except for a few words at the missing top right edge of the slab. Some letters of the second line were obliterated along the break between the uppermost fragments and the rest of the inscription, and all lines but the last were defaced by the superimposed armorial bearings. But the few words that are doubtful are of minor importance in view of the good preservation of the rest of the text, including the date Dhū al-Qaᶜdah 544 (March 2–April 1, 1150).

Three years and five months after the inscription was written, Ashkelon was captured by the Crusaders for the first of three times. At some time after this first conquest, a Crusader reused the marble slab, engraving five heraldic shields—three large and two small—on the face bearing the inscription. The heraldic origin of the shields and the meaning of their symbols (charges) can be identified. The Crusader shields incised over the original Muslim imperial inscription—a symbolic expression of Christian triumph over Islam—are a vivid reminder of Ashkelon's change of fortune, adding a unique dimension to the information supplied by the inscription.

The Crusader Shields

Two sets of shields are depicted, expertly engraved over the inscription and painted red, and bearing charges typical of medieval English and French heraldry. Evidently, the Crusaders found the large rectangular slab of marble intact in the debris of the gate tower and turned it widthwise so that the shields could be engraved across the inscription.

Figure 22.1: Map of medieval Ashkelon and the
location of the tower inscription
(after Benvenisti 1970:129)

Figure 22.2: The Arabic inscription engraved with Crusader shields

The Large Shields

The three large shields have two bands drawn across the width of the shield and three discs in a row above them, in the chief (the upper part of the field, ca. one-third of its whole area). In heraldic terminology this blazon is described as "two bars (or barrulets, bars-gemelles) and three roundels in the chief."

Roundels were originally round metal objects, either flat or spherical, mounted on the shield. Their appellations varied according to their shape and color (Burke 1884:xliv). A flat yellow or gold roundel was called a "bezant" (after the gold coin of Byzantium) or "roundlet." When flat and white (silvery), the roundels were called "bezant d'argent" (Parker 1970: 59). When spherical and red, they were called "torteaux" (French *tourteaux*), some say because of their similarity to cakes. Since the roundels on the engraved shields at Ashkelon were painted red, they may be considered to represent torteaux.

A shield with armorial charges of the kind represented at Ashkelon belonged to the Wake family of County Lincoln in England (Wright 1973:pl. 4, 1.14). The original Wake shield was "argent, two bars gules, and in the chief, three torteaux," which means that the field of the shield was white or silver (argent), mounted by two red (gules) bars and three red spherical roundels. A knight named Hugh Wake (d. 1172) was a contemporary of Henry I (1100–1135) and Stephen (1135–1154), and the Wake arms are definitely attested from the time of Henry III (1216–1272) (Matthew of Paris, *Chronica majora* 6:477) and Edward II (1307–1327) (Burke 1884:1062).

A shield that was decorated with this kind of charge was known as "ordinary" (Parker 1970:65). With the charge painted red, the shields incised upon the Ashkelon inscription are accurate representations of the Wake shield. In view of the historical considerations presented below, they may be specifically attributed to the crusading knight Sir Hugh Wake (d. 1241), lord of Bourne, Deeping, and Blisworth, who was the fifth baron of the Wakes and a descendant of the first Hugh Wake (P. Townsend 1970:2723). The circumstances of his presence at Ashkelon in 1240–1241, during the crusade led by Richard of Cornwall, and of the engraving of his emblem over the Arabic inscription, are discussed at the end of this chapter.

The Small Shields

The two small shields, filling the space between the pointed bases of the three large shields, are charged with ten oblong rectangles, painted red, arranged in four rows, in descending order of (4, 3, 2, 1). In heraldic terminology, the oblong figures are called billets, and when the field of the shield is charged with ten billets or more it is called "charge billetté" (or "field semé [= strewn] of billets"). A shield of this kind belongs to the group known as "sub-ordinary" (Burke 1884:xxxii; Fox-Davis 1969:119–20). The term "billetté" implies that the ten billets in the field "should be placed in rows barwise, not one beneath the other but alternately, and leaving the corners sufficiently distant so as not to be mistaken for chequey [a check pattern of two different colors]" (Parker 1970:61).

A shield described as "gules, with ten (4, 3, 2, 1) billets or," namely, a red field with ten gold billets, is found in the arms of the Salter family, from whom the 1740 Lord Mayor of London was descended (Burke 1884:892). However, the design of the minor shields is a common one, and their specific identification remains uncertain. The diminutive size and relative position of the small shields on the marble slab, below the main shields, indicates that they belonged to one of the lesser knights—a subordinate or possibly a vassal—accompanying Hugh Wake in 1240.

In sum, the shields engraved on the Arabic inscription undoubtedly represent actual shields bearing heraldic charges pertaining to Crusader English nobility of the twelfth–thirteenth centuries, whose involvement with Ashkelon is discussed below, after a discussion of the historical context of the inscription itself.

The History of Medieval Ashkelon

Ashkelon had an eventful history under Islamic rule. As a coastal city that the Byzantines could supply and reinforce by sea, it was, according to Muslim tradition, the last of the Palestinian towns to fall into Muslim hands. It is said that in about the year A.H. 19 (A.D. 640) Ashkelon capitulated to Muʿāwiyah on terms (*ṣulḥan*), after a short siege (though it might have been occupied briefly before this date by ʿAmr b. al-ʿĀṣ, for whom it may have served as a springboard for the conquest of Egypt in 640). Muʿāwiyah made the town a fortified maritime post, manning its garrison with soldiers allocated especially to border posts (*rawābiṭ*) (Balādhurī 1866:142–44). During the turmoil that followed the demise of Muʿāwiyah in 680, and especially that of Yazīd I (680–683), the Byzantines seized the opportunity to renew their naval attacks on the coastal towns of Syria and Palestine. The Byzantines' attacks resulted, almost certainly, in their occupation of Ashkelon from the sea for a brief interval (Zetterstéen 1919:233). According

to Balādhurī, the Byzantines did not establish direct rule in the city, but demolished it and exiled its inhabitants (Balādhurī 1866:142–44).

The temporary Umayyad decline was also exploited by ᶜAbdallah b. az-Zubayr, whose independent Ḥijāz caliphate (683–693) spread to Syria and Iraq, though his hold on southern Palestine was not very firm. With the ascent of Marwān I (684–685) to the Umayyad throne, the fortunes of the dynasty changed for the better. During his short rule, Egypt was regained, together with the southern part of the Syrian provinces. It was, however, left to ᶜAbd al-Malik (685–705), Marwān's son and heir, to reestablish Umayyad glory and unite the entire Islamic empire under his rule. In 693 ᶜAbdallah b. az-Zubayr was defeated and slain, and his caliphate in the Ḥijāz terminated. Two years later rebellious Iraq was pacified. By then the Byzantines had left Ashkelon or had been forced from the city by ᶜAbd al-Malik's army, having failed to use it as a bridgehead for further gains.

ᶜAbd al-Malik rebuilt Ashkelon and fortified it, along with Caesarea. Under this great caliph and his successors, Ashkelon saw times of great prosperity. Situated on the major route linking Egypt and Syria—its fertile surroundings compensating for its lack of a good harbor—the city became one of the important urban centers of the empire, the ᶜarūs aš-Šām or "Bride of Syria" (Yaqūt 1979:4:122; Le Strange 1890:402). Following ᶜAbd al-Malik's monetary reforms in 696/7, a small mint was established in Ashkelon that issued, from about the year 712, copper coins of the reformed style, with the *šahādah* and an Arabic inscription bearing the name of the city and the province: "Struck in Filasṭīn ᶜAsqalān" (Qedar 1988–89:35, 36).

The city retained its importance, at least for a while, under the Abbasids, who shifted the political center of gravity in their realm eastward from Syria to Iraq and the eastern provinces of the empire. According to an inscription bearing the date of Muḥarram 155 (December 13, 771–January 12, 772), discovered by Clermont-Ganneau at the end of the last century, Mahdī, Caliph Mansūr's son and heir (reigned 775–785), built a mosque and a minaret in Ashkelon (Clermont-Ganneau 1887:485; *RCEA* 1934:32–33; Le Strange 1890:401).

The second half of the ninth century saw the waning of direct Abbasid rule in Syria, and by 878 the province became part of the virtually independent Tulunid kingdom of Egypt. From that date on the fortunes of Syria and Palestine (save for relatively short periods) were mostly tied to those of Egypt. Ahmad b. Ṭūlūn (868–884) and his son Khumāra-

wayh (884–896) devoted much attention to the development and fortification of the coastal towns of Syria. Muqaddasī (1906:162) gives a particularly vivid description of the building of the harbor and seafront fortifications of Acre under Ibn Ṭūlūn. A new, unpublished inscription recently discovered in Caesarea, bearing Ibn Ṭūlūn's name, attests to construction activity there too. It seems very likely that Ashkelon—the maritime stronghold on the Palestinian coast nearest to Egypt—with its simple and unsafe anchorage, was accorded similar attention. When the Fatimid general Jawhar conquered Syria and Palestine in 969 and annexed them to the Fatimid domains in Egypt and North Africa, he found Ashkelon to be a flourishing city, as attested by Muqaddasī, who wrote in 985, and by Nāṣir-i-Khosrow (1977:46), who visited Palestine in 1047.

Muqaddasī (1906:174) speaks about the strength of its fortifications, the alertness of its garrison, the beauty of its mosque, and the abundance of its fruits; but he adds that "its harbor is unsafe." The virtual absence of a harbor is indicated by Ibn Šaddād (1963:260) and Abū al-Fidāʾ (1840:239). Citing an earlier source, they explain that the reason for its being the last to fall into the hands of the Franks was that "it does not have a harbor in which ships could anchor" (this may explain the failure of archaeologists to find a harbor at Ashkelon; see chapter 4). These reports agree fully with William of Tyre's assertion that Ashkelon "has never had a harbor and not even a safe anchorage."

Idrīsī, describing the city in the 1154, just one year after it was taken by the Crusaders, speaks of its markets and excellent fortifications ("double wall"), but he adds that "without the town there are no gardens, and naught is there in the way of trees" (Le Strange 1980:401). This attests to the destruction of the environs of the city during half a century of war with the Franks.

In the twelfth century, under the Fatimids, Ashkelon still had a mint, as well as some facilities to accommodate the Egyptian fleet—a fact of great importance for subsequent historical developments (Maqrīzī 1973:94, 206). In the early 1070s, when the Seljuk Turks conquered Syria and Palestine, the Fatimids—possessing the naval power that the Turks lacked—maintained their rule over Ashkelon and other coastal cities. Their suzerainty, however, was no more than nominal. Real power rested with the local leaders in each province, especially those outside Egypt. In the hierarchy of provincial governors in the Fatimid kingdom, the governor of Ashkelon was considered to hold the highest rank (Maqrīzī 1973:336).

On July 15, 1099 (A.H. 492), the Crusaders took Jerusalem, which only a year earlier had been seized from the Seljuks by the able Fatimid general al-Afḍal b. Badr al-Jamālī. The retreating remnants of the Fatimid army found refuge in Ashkelon (Maqrīzī 1973:22–24). That city remained in Fatimid hands for more than fifty-three years after the fall of Jerusalem because quarrels and disagreements among the Crusaders prevented them from mounting an effective assault. For more than a century and a half, Ashkelon was a key strategic position in the Muslim-Frankish wars, the vicissitudes of which are reflected in the city's changing fortunes.

Along with Tyre in the north, Ashkelon remained the last Muslim stronghold to resist the Crusaders. Like Tyre, it finally succumbed only after the Crusaders built a ring of fortresses to isolate it from the Syro-Palestinian hinterland. The fortresses around Ashkelon were not built, however, until after the fall of Tyre, enabling Ashkelon to become a bridgehead for the Fatimids and a military base for their incursions into Frankish territory.

In 1100, under the shock of the fall of Jerusalem, the Muslim towns of Ashkelon, Caesarea, Arsuf, and Acre paid the Crusaders tribute during a short period of truce. In the following year, however, both Arsuf and Caesarea were taken by the Crusaders, who permitted the Muslim population of Arsuf to find refuge in Ashkelon (Maqrīzī 1973:26; Prawer 1956:234). The influx of Muslim refugees into Ashkelon continued over the following years.

The swelling population of the city resulted in growing pressure on the Egyptian authorities, who had constantly to provide it with supplies and strengthen its garrison and military ability in general. The importance of the city and the significance accorded by the Fatimids to maintaining a dense population there are attested by the fact that all the inhabitants, including children, were on the army payroll (Stevenson 1907:40; Prawer 1956:233 [quoting William of Tyre]; Setton 1969:1:536; Hartmann and Lewis 1960).

The Crusader blockade was, on the whole, successful. Ashkelon was effectively cut off from the hinterland and sometimes from the land-route to Egypt. The city depended for its survival on the Egyptian fleet, which had to supply the town at least twice a year with provisions and reinforcements. Thus it is reported that the Caliph al-Ḥāfiẓ (1130–1149) dispatched fresh military units from Egypt to replace part of the city garrison or to reinforce it. These soldiers, called *badal*, included at least 300 horsemen, but more frequently numbered between 400 and 600 (Ibn Taghrībirdī 1935 [*Nujūm*]:244;

Maqrīzī 1973:96, 190). Every company of 100 horse was led by an *amīr*, and the general commander of all the *amīr*s was called the *amīr al-muqaddamūn*. The central treasury in Cairo was responsible for the soldiers' pay, 100 dinars to an *amīr* and 30 dinars to a horseman.

As far as provisions were concerned, it is possible to form an idea of their size from Maqrīzī's report of a shipment of various provisions sent from Egypt to Ashkelon in the year 1123 (A.H. 517), which totaled 23,631 *irdabb*, an *irdabb* being a measure of grain equal to 73.125 kg (Hinz 1955:39, Maqrīzī 1973: 106).

In spite of its precarious situation, the Fatimid garrison of Ashkelon was not idle. It joined the Egyptian forces on large-scale campaigns against the Crusaders, or took its own initiative, making daring incursions into Frankish territories or attacking European pilgrims. In July 1101, al-Afḍal b. Badr al-Jamālī mounted an offensive from Ashkelon, with the aim of capturing Jaffa. On September 7, 1101, he was defeated by Baldwin I, who, in the following year, besieged Ashkelon and laid waste its fertile surroundings. The fall of Acre in 1104 heightened the isolation of Ashkelon, but did not prevent its garrison from mounting two raids into the Christian domains (Maqrīzī 1973:1105; Prawer 1956:234–36). In most cases the initiative came from Egypt, with the local garrison joining the expeditionary forces in their attacks on the Franks.

At the end of August in the year 1105, al-Afḍal made his most serious effort to retrieve Syria and Palestine. Using Ashkelon as a base, he mounted a combined sea-land offensive that proved, however, to be futile. The Franks won the battle on the land and informed the Egyptian fleet besieging Jaffa of their victory by throwing the head of the governor of Ashkelon aboard one of the Egyptian ships (Maqrīzī 1973:35; Stevenson 1907:47–48; Prawer 1956:235). Even after this crushing defeat, which effectively put an end to the Egyptian threat to the Latin kingdom of Jerusalem, the Ashkelon garrison did not cease its activities. With the territory between Ashkelon and Jerusalem not yet fully secured, the Muslims took advantage of every opportunity to surprise the Franks, even if such attacks never won permanent gains (e.g., in the years 1110, 1115, and 1119). The fact that Ashkelon seemed impregnable, and was so near the Egyptian enemy, made this city pivotal to the Crusaders' military policy.

On July 7, 1124, Tyre fell, leaving Ashkelon as the only Muslim stronghold on the Syro-Palestinian coast. This event, serious as it was, did not induce a change in the pattern of Ashkelon's activity against

the Franks. After defying an attack by Baldwin II in 1125, the Muslims seized every opportunity to break out of their fortress and endanger the nearby roads, occasionally even raiding the Jaffa–Jerusalem highway (Prawer 1956:237).

During the first two years of King Fulk's reign (1131–1143), Ashkelon played a part in a court scandal involving Fulk's wife, Queen Melisende, and Hugh II of Le Puiset, the count of Jaffa. Hugh, a very good-looking young man, had a very close relationship with the queen, who was his cousin, and who did not care very much for her husband. The jealousy of the king, aroused by the intimacy of Hugh and the queen, was further inflamed by the accusations of Hugh's enemies (especially his stepson Walter Garnier, lord of Caesarea) that the count was conspiring against the realm. In December 1132 Fulk mobilized the royal army to attack Jaffa, and Hugh rushed to Muslim Ashkelon for aid, an action that confirmed the accusations against him. The Ashkelonians, happy to oblige, arrived in Jaffa and began to plunder the plain of Sharon, until they were driven back by Fulk's forces (Runciman 1962:190–93).

Hugh's punishment—three years banishment from the kingdom—was no doubt owed to the queen's influence and the intercession of the patriarch in the count's favor, as well as by the wish of the king to put the entire affair quickly to rest. The count, however, while in Jerusalem awaiting a boat bound for Italy, was assassinated by a Breton knight currying the king's favor. The king had no hand in the matter, it is reported (ibid.).

Unable to conquer Ashkelon, and vexed by its irritating military activity, Fulk decided to hem in the Muslims by erecting three fortresses around Ashkelon, similar to those built around Tyre some two decades earlier, which had contributed to its fall. In 1135 or 1136 a castle was built in Bayt-Jubrin (Crusader Beth Gibelin). In 1140 the splendid fortress of Ibelin (Yabneh) was built with stones quarried from the ruins of Roman Jamnia. To the south of Ibelin a third fortress, Blanchgard or Alba Specula (Tell eṣ-Ṣāfī), was constructed (Zetterstéen 1919:233; Runciman 1962:229 and n.3). This ring of fortresses indeed restrained the activity of the Muslims, but could not eliminate the occasional raid (Usāmah b. Munqidh 1929:166–69, 226).

In 1150 Baldwin III entered upon serious preparations to subdue Ashkelon. The humiliating failure of the Second Crusade, on the one hand, and the rising power of the House of Zangī in Syria, on the other, provided sufficient motivation for relieving the kingdom of the lingering menace in the south and clearing the way for an offensive against Egypt. His prepara-

tions—and the fortification of Gaza in particular—were a source of great concern to the Egyptians, who tried to entice the Syrian ruler Nūr ad-Dīn to mount a diversionary attack on the Franks in Galilee. Nūr ad-Dīn did not oblige, and the Egyptian emissary, the Syrian prince and memoirist Usāmah b. Munqidh, made a four-month stop in Ashkelon on his way back to Cairo. There he took part in several military operations against the Franks, including, most likely, the further strengthening of the city fortifications (Usāmah b. Munqidh 1930:14–15, Ibn Šaddād 1963:260). The building of the tower commemorated by our inscription must have taken place during the time of his stay, or shortly before his arrival, and he must have met all the dignitaries mentioned in the inscription. Usāmah returned to Egypt to witness the court intrigues during the first years of the rule of the Fatimid caliph az-Zāfir, also named in our inscription (Runciman 1962:337).

In spite of the quarrels in the Egyptian court, Ashkelon was well prepared for the siege laid by Baldwin III on January 25, 1153. Not only was the city excellently fortified and well stocked with provisions, but during the seven-month siege no fewer than seventy Fatimid ships laden with supplies entered its waters undisturbed (Prawer 1956:240). In Runciman's words: "Ascalon was a tremendous fortress, spreading from the sea in a great semicircle, with its fortifications in excellent repair" (Runciman 1962:338). The oft-quoted twelfth century report of William of Tyre provides details on the fortifications:

> The entire city rests in a basin, as it were, sloping to the sea and is surrounded on all sides by artificial mounds, upon which rise the walls with towers at frequent intervals. The whole is built of solid masonry, held together by cement which is harder than stone. The walls are wide, of goodly thickness and proportionate height. The city is furthermore encircled by outworks built with the same solidity and most carefully fortified. There are no springs within the confines of the walls, nor are there any near by, but wells, both without and within the city, furnish an abundant supply of fresh water fit for drinking. As a further precaution, the citizens had constructed within the town cisterns to receive the rain water.

> There are four gates in the circuit of the wall, strongly defended by lofty and massive towers. The first of these, facing east, is called the Greater gate and sometimes the gate of Jerusalem, because it faces toward the Holy City. It is surmounted by two very lofty towers which serve as a strong protection for the city below. In the barbican before this gate are three or four smaller gates through which one passes to the main entrance by various winding ways.

The second gate faces west. It is called the Sea gate, because through it the people have egress to the sea. The third to the south looks toward the city of Gaza . . . whence also it takes its name. The fourth, with outlook toward the north, is called the gate of Jaffa from the neighboring city which lies on this same coast.

[Translated in William of Tyre 1943, vol. 2, p. 219]

Baldwin III recruited all the naval and land forces that his kingdom could muster and all the siege machines that could be found. The entire royal army was with the king. The grand masters of the military orders—the Templars and the Hospitalers—came with the best of their men, "the great lay-lords of the realm, the Patriarch, the Archbishops of Tyre, Caesarea and Nazareth, and the Bishops of Bethlehem and Acre. The relic of the True Cross accompanied the Patriarch" (Runciman 1962:339).

In late July 1153, after nearly six months of siege, a breach was made in the wall (see the artist's reconstruction of the scene in figure 1.1 above in chapter 1). The grand master of the Templars, encamped in that sector of the wall and wishing to be credited with the conquest of the city in order to claim it for his order according to feudal law, prevented the arrival of other Christian forces. Forty Templar knights who entered the breach were massacred forthwith by the Muslim defenders and their bodies hung over the promptly repaired wall. This incident almost resulted in the lifting of the siege; but the patriarch and Raymond of Le Puy, grand master of the Hospitalers, persuaded the king to persevere. The bombardment of the city was resumed; within a month the shallow anchorage was taken and the fate of Ashkelon was sealed.

On August 19, 1153, the defenders capitulated. Baldwin allowed the Muslim population to leave for Egypt (Abū Šāmah 1870:1:89–90; Ibn al-Athīr 1982: 11:188; Ibn Taghrībirdī 1935 [*Nujūm*]:307). The last Muslims left Ashkelon on August 21, taking with them the head of Ḥusayn, the Prophet's grandson, which, according to tradition, had been buried in Ashkelon since the seventh century (Ibn al-Athīr 1982:11:188–89; Maqrīzī 1973:22, 206–7).

The lordship of Ashkelon was granted to the king's brother, Amalric, the count of Jaffa. The great mosque was converted into a church—the cathedral of St. Paul—and the patriarch consecrated one of his canons, Absalom, as bishop. Sometime later, the bishop of Bethlehem procured a decree from Rome making the see of Ashkelon dependent on his own.

The capture of Ashkelon, the "Bride of Syria," was the last great victory of the kings of Jerusalem, balancing, to some extent, the recent loss of Edessa and the fiasco of the Second Crusade. Within a year, however, the balance began to shift, with Nūr ad-Dīn's capture of Damascus in April 1154. Ashkelon, now a frontier post, lured the Franks to embark on dangerous and futile adventures in Egypt, very much to their detriment (Runciman 1962:341; Hartmann and Lewis 1960).

The period in which our inscription was written coincides with the final stages of the collapse of the Fatimid state. Caliph al-Amīr, of whom it was said that he held no authority beyond his title, was assassinated on October 9, 1120. During his twenty-nine years as caliph, which began when he was five years old, true power was wielded by the vizier al-Afḍal b. Badr al-Jamālī. Caliph al-Amīr was succeeded by his cousin al-Ḥāfiẓ (who was born in Ashkelon on Muḥarram 467, i.e., September 1074; Maqrīzī 1973:137). In an effort to free himself from the suffocating embrace of the vizierate, he appointed his own son al-Ḥasan as a vizier. The latter's disloyalty and tyranny led, however, to a rebellion of the the military, appeased only when the caliph himself poisoned his son on 13 Jumada II 529 (March 31, 1135; Ibn al-Athīr 1982:11:22–23, 141; Ibn Khallikān 1970:2:235–36; Maqrīzī 1973:153–54).

The next vizier was a Christian, the Armenian general Vahran (Tāj ad-Dawlah Bahrām). Vahran surrounded himself with his own kinsmen, who settled in Cairo in great numbers, openly practicing Christianity ("every one of them built a church next to his house"; Maqrīzī 1973:159). The ensuing popular unrest was exploited by Abū al-Fatḥ Riḍwān b. Walakhšī, the governor of Gharbiyyah, who drove Vahran to Upper Egypt, where he later joined a monastery. Riḍwān became vizier with the titles "as-Sayyid al-Ajall, al-Malik al-Afḍal" (Maqrīzī 1973: 159–62; Ibn al-Athīr 1982:11:48), similar to the list of titles that appears in our inscription (Stem 1964:64, 69). In 1136 this vizier planned a building project in Ashkelon, and when in the course of the power struggle in Cairo he had to flee the capital, in 1138–1139, he found temporary refuge in Ashkelon (Maqrīzī 1973:163, 171).

Caliph al-Ḥāfiẓ died in 1149 at the age of 77, after a twenty-year reign, and was succeeded by aẓ-Ẓāfir. In the first two years of his reign the fortifications of Ashkelon—including the tower commemorated by our inscription—were repaired. His rule commenced with a war between two of his generals and was accompanied by constant court intrigues (described in detail by Usāmah b. Munqidh, who took an active part in them). These intrigues eventually led to the assassination of the caliph in 1154.

Aẓ-Ẓāfir, the youngest of al-Ḥāfiẓ's sons, was designated by his father as heir, thus bypassing his elder brothers Yūsuf and Jibrīl. At the orders of his father, aẓ-Ẓāfir nominated Abū al-Fatḥ Salīm b. Muḥammad b. Masāl to the post of vizier, an appointment contested by the governor of Buḥayrah and Alexandria, the *amīr* Ibn Sallār. Ibn Sallār arrived in Cairo at the head of a strong army only to find that Ibn Masāl had escaped from the capital with the caliph's blessing (and financial support). He besieged the palace, and compelled the caliph to nominate him as vizier with all the appropriate titles: "as-Sayyid al-Ajall Amīr al-Juyūš Šaraf al-Islām Kāfil Quḍāt al-Muslimīn wa-Hādī Duᶜāt al-Muʾminīn." Concurrently, Ibn Sallār's stepson al-ᶜAbbās successfully pursued Ibn Masāl, arriving in Cairo with Ibn Masāl's head on 13 Dhū al-Qaᶜdah 544 (March 15, 1150), at about the same time as the dedication of the tower in Ashkelon. The caliph had now no choice but to ratify Ibn Sallār's nomination as vizier, and add to his titles "al-ᶜĀdil" (the Righteous), but he waited for an opportunity to take his revenge.

The new vizier, in an effort to alleviate Ashkelon's plight, had decided to dispatch to the city a large force headed by his stepson ᶜAbbās and the latter's son, Naṣr. They were accompanied by Usāmah b. Munqidh. Both father and son were well aware of the caliph's hatred for his vizier and, with Usāmah, they plotted to take Ibn Sallār's life. While ᶜAbbās remained with the army, Naṣr returned to Cairo and informed the caliph of the plot. His plan was to use a visit to his grandmother, Lady Balarah, Ibn Sallār's wife, as a pretext for gaining private access to the vizier. On 6 Muḥarram 548 (April 2, 1153), while Ibn Sallār was busy with the last preparations of the Ashkelon fleet, Naṣr, with the aid of friends, prepared the ambush. At noon, when the vizier retired to his home to rest, Naṣr entered his bedroom; in his agitation, however, he struck the sleeping man with his sword on his feet instead of his head. The affair could have ended very badly for the conspirators had not the job been completed by Naṣr's friends. Ibn Sallār's head was promptly brought to the delighted caliph, who hung it from his window for all to see, and then had it sent it to the "Head Storage" of the state treasury, to be kept with the heads of previous victims, "and nobody moved and nobody uttered a word." ᶜAbbās returned to Cairo and was appointed vizier; but the army, due to depart to besieged Ashkelon, was detained, much to the disadvantage of the city's defenders. Although the fleet eventually reached the city, it could not prevent its fall (Maqrīzī 1973:204–6; Zetterstéen 1919:234).

Naṣr's intimate friendship with the caliph soon became a source of scandal. Apparently, the caliph attempted to incite Naṣr against his own father, and it was Usāmah b. Munqidh, then in the court, who deterred him from committing such a crime. Although he does not admit to it in his memoirs, some sources say that Usāmah suggested that Naṣr kill the caliph instead. According to Abū al-Fidāʾ and Maqrīzī, it was ᶜAbbās whom Usāmah actually incited to kill the caliph, telling him of the unflattering publicity occasioned by the relations between his "good-looking" son and the caliph (Abū al-Fidāʾ 3:28; Maqrīzī 1853 [*Khiṭaṭ*] 2:30). Indeed, the chronicler describes twenty-one-year-old aẓ-Ẓāfir as "one of the best-looking men of his time," a womanizer and music lover, not to mention owner of a white parrot trained to call the royal eunuchs by name (Maqrīzī 1973: 208–10).

On April 15, 1154 (end of Muḥarram A.H. 549), Naṣr invited the caliph to an orgy at his house. There the father and son had assassins stab the caliph and his companions to death. Only one eunuch escaped the massacre. To remove possible avengers, ᶜAbbās and Naṣr accused the caliph's two brothers, Yūsuf and Jibrīl, of the murder, and immediately put them, together with one of the caliph's cousins, to death (Usāmah b. Munqidh 1930:20–21; Maqrīzī 1973: 213–14).

ᶜAbbās and Naṣr appropriated the caliph's treasures and placed ᶜĪsā, aẓ-Ẓāfir's five-year-old son, upon the throne, with the title of "al-Fāʾiz bi-Naṣr Allah Abū al-Qāsim." Traumatized by the terrifying murder and mutilation of his uncles, the unfortunate ᶜĪsā suffered from epileptic attacks and died when he was eleven years and five months old. His successor, al-ᶜĀḍid, was the last Fatimid caliph; his death in September 1171 marked the end of the Fatimid caliphate (Maqrīzī 1973:324–25).

The four widows of the murdered caliph aẓ-Ẓāfir and his aunt appealed to Abū al-Ghārāt Ṭalāʾiᶜ b. Ruzzīk, the governor of Upper Egypt, for help against ᶜAbbās and his son. Clad in black and hoisting black banners, he arrived in Cairo at the head of a strong army. It was considered a bad omen, as black symbolized the Abbasids. The appearance of Ṭalāʾiᶜ in this fashion seemed to augur the end of the Shiᶜite rule in Egypt and the return of nominal Abbasid authority, which was to materialize with the ascent of Saladin seventeen years later.

Ṭalāʾiᶜ arranged a respectable funeral for the dead caliph (Maqrīzī 1973:217). Meanwhile, on May 29, 1154, ᶜAbbās and Naṣr, accompanied by Usāmah, escaped with the contents of the treasury. On their way

to Damascus, however, the fugitives were intercepted by the Franks of Montréal (or of Ashkelon), who had been alerted by the caliph's widows. Usāmah b. Munqidh escaped and reached Damascus, ᶜAbbās was killed, and the treasures were seized. Naṣr, taken alive, asked his Templar captors to convert him to Christianity. But the offer of 60,000 dinars from Cairo was deemed more rewarding than the saving of Naṣr's soul, and he was handed over to the Egyptian court in an iron cage. The cage arrived in Cairo on May 21, 1155, and was paraded through the streets for the public to pour curses and spit upon its occupant. The cage was then brought to the four widows of the murdered aẓ-Ẓāfir, who for a whole month personally mutilated Naṣr. They beat him with their shoes, stabbed him with large needles, and cut strips of his flesh, which they roasted and fed to their victim. Some say that he died by this torture and his body was hanged; others say that after a month his right hand was cut off, he was crucified alive, and his body swung for a whole year above the Zawīlah (Zuwaylah) Gate. On the day of ᶜAšūra 551 (March 6, 1156) his body was burnt (Usāmah b. Munqidh 1929:43–54; 1930:19–27; Maqrīzī 1973:220–21; Ibn Taghrībirdī 1935 [*Nujūm*]: 310–11; Ibn Khallikān 1970:2:491–93; Runciman 1962:365–66).

The disintegrating Fatimid state was in no position to regain Ashkelon, which remained under Crusader rule for thirty-four years before being retaken by Saladin. In September 1187, following his July 4 rout of the Franks at Ḥiṭṭīn and his conquest of Galilee and part of the Phoenician coast (Sidon capitulated on July 29 and Beirut on August 6), Saladin attacked Ashkelon. With him were the Christian prisoners King Guy and Gerard the grand master of the Templars. Saladin had promised Guy his liberty if Ashkelon were to capitulate. Both the king and Gerard appealed to the garrison of the town to surrender, but their plea fell on deaf ears (unlike at Gaza, where the Templar garrison obeyed Gerard and surrendered the city immediately). The defenders mounted a valiant, though brief, resistance, costing Saladin two of his emirs before the defenders surrendered on September 4, 1187. The Christian population was transported to Alexandria and from there to Christian lands in Europe (Ibn Šaddād 1897:65; Zetterstéen 1919:234). It is reported that on the day of the surrender of Ashkelon there was an eclipse of the sun, and under this ominous sign Saladin received a delegation from Jerusalem, to which he offered terms of surrender (the terms were rejected outright: Ibn al-Athīr 1982: 11:545–46; Ibn Khallikān 1970:7:178; Stevenson 1907:251–52; Runciman 1962:462).

Muslim rule in Ashkelon was destined to last only until 1191, when the armies of the Third Crusade of Philip Augustus of France, the German emperor Frederick Barbarossa, and England's Richard I ("the Lionheart") arrived in the Holy Land. Saladin first lost Acre, and then, near Arsuf, on September 7, 1191, he was again defeated by Richard, who remained as the principal leader of the Crusade and Saladin's chief adversary. After the battle of Arsuf, Richard was anxious to establish a firm base in Jaffa before moving on to Jerusalem (which he never reached). Saladin, fearing that the English monarch would take Ashkelon and cut him off from Egypt, now ordered the city—its massive Fatimid fortifications still intact—to be methodically demolished. The scenes of destruction and of the forced exile of Ashkelon's inhabitants are vividly described in the Arabic sources. Ibn al-Athīr and other sources claim that the destruction of Ashkelon was forced upon Saladin by his emirs (Zetterstéen 1919:233–35; Ibn Šaddād 1897: 295–300; Abū Šāmah 1870:2:41–44; Ibn al-Athīr 1982: 11:71–72; Ibn Khallikān 1970:7:197–98; Setton 1969: 2:76; Runciman 1966:58; Hartmann and Lewis 1960).

Richard arrived at Ashkelon in January 1192 and spent four months rebuilding its fortifications. Like Saladin, he was well aware of its strategic importance, and he therefore transformed it into the strongest fort on the Mediterranean shore (Ibn al-Athīr 1982:12:78; Setton 1969:2:78–79; Prawer 1956:245).

During the year 1192 Richard and Saladin attempted to negotiate a truce. Both leaders had good reasons to reach an agreement: Saladin, following his defeats, was burdened with problems in his own camp; Richard, on his part, had received alarming news from England that demanded his return. On July 27, before the conclusion of the agreement, and while Richard was in Acre preparing to sail home, Saladin attempted to snatch a last-minute gain by attacking Jaffa. He succeeded in taking the city (but not its citadel), only to lose it four days later to Richard, who hastened from Acre with his fleet. Negotiations between the parties were resumed. Ashkelon was a major stumbling block, with Saladin insisting on its demolition. Another unsuccessful attempt to take Jaffa convinced Saladin to carry on the negotiations with his English rival, who was now more eager than ever to depart for England before the onset of the winter storms in the Mediterranean. Peace was signed and Ashkelon, rebuilt only a few months earlier, was again demolished (September 2, 1192) (Prawer 1956:246; Runciman 1966:69–73). Richard left the Holy Land immediately thereafter. He reached England only in 1194, and spent the next five

years fighting in defense of his domains until his death on March 26, 1199, caused by a stray arrow shot from the fortress of Limousin—"a bad son, a bad husband and a bad king, but a gallant and splendid soldier" (Runciman 1966:75).

In 1229 Ashkelon returned to Frankish hands, together with Beirut, Tiberias, Jerusalem, and other territories ceded to the Crusaders in accordance with the treaty concluded for ten solar years between Emperor Frederick II and the Ayyubid ruler al-Malik al-Kāmil of Egypt (February 18, 1229). Quarrels among the various Crusader political and military factions prevented the consolidation of these achievements. Ashkelon remained in ruins for another decade and Frankish rule was not established there. It soon became a frontier post for the Egyptian base at Gaza.

Early in 1239 the treaty between Frederick II and al-Kāmil came to an end. This coincided with the death of al-Kāmil on March 8, 1239, followed by the usual turmoil in the Ayyubid family. A new crusade was now at hand, headed by Tibald (Thibaut, Theobald) IV of Champagne, king of Navarre and cousin to the kings of England, France, and Cyprus. Around him assembled a large group of European notables: Hugh IV, duke of Burgundy; Peter Mauclerc, count of Brittany; Henri, count of Bar; the counts of Nevers, Montfort, Sancerre, and Joigny; and many others. A few days after his arrival in Acre on September 1, 1239, Tibald decided to begin military operations against Egypt. An integral part of his plan was the occupation and rebuilding of Ashkelon, which had lain in ruins since 1192.

Tibald set out from Acre on his south-bound expedition on November 1, 1239. On the way to Ashkelon, Count Henri of Bar learned that an Egyptian army led by the *mamlūk* Rukn ad-Dīn al-Tūnbā al-Ḥījāwī was hastening to Gaza. In a rash bid for glory, disobeying the orders of the king and underestimating the size of Rukn ad-Dīn's army, Henri led his army into a trap prepared for him by the Egyptian general. The count and a thousand of his men were slain, six hundred were taken captive, and only a few fugitives reached King Tibald's camp at the ruined walls of Ashkelon to recount the disaster (Sukenik 1945–46: 86–91). Tibald was obliged to abandon his original plans and withdraw to Tripoli. Meanwhile, al-Malik an-Nāṣir Dāwūd of Karak occupied Jerusalem and destroyed its only extant fortification, the citadel.

At about the same time, aṣ-Ṣāliḥ Najm ad-Dīn Ayyūb established himself as sultan in Egypt and found himself at war with aṣ-Ṣāliḥ Ismāᶜīl of Damascus. Tibald took advantage of this feud to strike a deal with Damascus against Egypt (which he later did not honor). The deal brought the Crusaders important

territorial gains in the Galilee, including the town of Safed, occupied by the Templars. Concurrently, the Hospitalers negotiated an agreement with Egypt and received Gaza and Ashkelon, with permission to rebuild them. Shortly thereafter, Tibald arrived in Ashkelon, reneging on his alliance with Damascus in favor of an agreement with Egypt. This double-dealing earned him a bad name even among the local Franks, and he decided, at the end of September 1240, to return home with most of his followers. Hugh IV, the duke of Burgundy, remained to oversee the completion of the city's fortification (Prawer 1956:246–47).

No sooner had Tibald left the Holy Land than Richard, earl of Cornwall, arrived at the head of a group of English knights. Among them was Simon de Montfort, earl of Leicester, who was accompanied by a few English barons, one of whom was Sir Hugh Wake of Lincoln. Richard of Cornwall, who was the brother of Henry III of England (1216–1272) and brother-in-law of Emperor Frederick, was probably the wealthiest man in England and was considered to be "one of the ablest princes of his time" (Runciman 1966:218). Enjoying the full support of Emperor Frederick, and ignoring an appeal by the pope to refrain from the venture, Richard embarked on his crusade, arriving in Acre on October 11, 1240. He immediately hastened to Ashkelon to supervise the completion of the city's fortifications and proceeded to engage in intense diplomatic activity aimed at achieving a reconciliation with Najm ad-Dīn Ayyūb of Egypt (who at the same time received—with great pomp—two ambassadors sent to him as a sign of goodwill by the emperor, probably at Richard's suggestion).

By April 1241, work on Ashkelon's fortifications was completed and Richard nominated one of the emperor's men as governor. The new double wall, reinforced by numerous towers, again rendered Ashkelon one of the mightiest fortresses on the Mediterranean. Richard's own description of Ashkelon's fortifications and his assessment of the importance of this town for the Franks are preserved in a letter that he wrote to his uncle, the duke of Devon. He described the mighty double wall of the city, which he regarded as the key to the kingdom of Jerusalem on both fronts—land and sea—and a constant menace to Egypt from the north (Prawer 1956:247). On May 3, 1241, Richard of Cornwall returned to England, leaving the Crusader kingdom with a territory almost as large as that which it had before the battle of Ḥiṭṭīn.

The shields engraved over the Fatimid Arabic inscription, which was made in 1150 to commemorate the building of a tower, should be ascribed to this second episode of Crusader fortification at the site,

ninety years later. They represent the arms of Sir Hugh Wake, engraved on the slab when it was no longer *in situ*, as is shown by the fact that the shields are perpendicular to the lines of the inscription. It may be surmised that Wake was entrusted with the rebuilding of the main tower of the northern ("Jaffa") gate of Ashkelon, where he found this large slab of fine marble in the rubble of the earlier gate destroyed by Saladin and Richard I, and engraved on it his arms and those of a lesser knight. Sir Hugh died in 1241, probably in Ashkelon. His name and the description of his arms appear in the chronicle of Matthew of Paris (*Chronica majora* 4:44; 6:477; cf. Burke 1884: 1062; P. Townsend 1970:2723; Parker 1970:577).

The rivalries within the Crusader camp rendered these achievements short-lived. The Hospitalers of Ashkelon were engaged in almost open warfare with the Templars. Meanwhile, in 1244, the Khwārizmians invaded the country, pillaged Jerusalem—now finally lost by the Christians—and then joined the army of aṣ-Ṣāliḥ Najm ad-Dīn Ayyūb of Egypt, commanded by the young *mamlūk* Amīr Rukn ad-Dīn Baybars. On October 17 this army met a coalition of Syrians and Franks near Gaza and inflicted upon them a crushing defeat, in which a large part of the Franks' army was completely annihilated.

Baybars could now move on to Ashkelon. Because of its staunch fortifications and the tenaciousness of its Hospitaler defenders, the city succeeded in holding out until 1247. It was, however, totally blockaded, and there was no way by which it could be assisted or reinforced. In June 1247, after taking Damascus, the Egyptians turned their full power against Ashkelon. The city held out against them until October 15, when it was stormed by its Egyptian besiegers under the command of Fakhr ad-Dīn Yūsuf b. aš-Šaykh.

By the order of the sultan, Ashkelon's fortifications were once again dismantled and the city was left desolate (Prawer 1956:248). Two years later, with the death of aṣ-Ṣāliḥ Najm ad-Dīn Ayyūb, the Mamluks assumed power in Egypt and Syria, beginning a new era in the history of Islam, destined to last over a quarter of a millennium.

Apprehensive of the possibility of a fresh Frankish attack from the sea and aware of their own naval weakness, the Mamluks adopted a policy by which they systematically demolished every coastal town and fortress they took from the Franks, especially those with harbors that could serve as bridgeheads for any future European military venture. Ashkelon was among the first settlements to meet this fate. In the year 1270 Baybars demolished those parts of the city that were still standing and filled its simple anchorage with rubble (Maqrīzī 1956 [*Sulūk*]: 590). The town, which the Prophet himself was supposed to have named ᶜarūs aš-Šām—the "Bride of Syria"—never returned to its former glory.

According to some Islamic traditions, the head of Ḥusayn, the Prophet's grandson, having been sent to the Umayyad caliph Yazīd I (680–683) in Damascus, following the massacre at Karbalāᵓ in 680, was smuggled into Ashkelon and buried there. About 1098 the head was miraculously discovered and al-Afḍal b. Badr al-Jamālī ordered the building of a *mašhad* for the head, which became one of the most venerated Shiᶜite sites of pilgrimage (Ibn Khallikān 1970:2:450, Maqrīzī 1973:22; for the inscription commemorating the finding of the head and the building of the *mašhad*, see *RCEA* 1936: 261–62).

As we have seen, the head was saved from the Franks on their occupation of Ashkelon in 1153, and was transferred to Cairo by the governor and the *qāḍī* of the city (Maqrīzī 1853 [*Khiṭaṭ*]:1:427; 2:293; Maqrīzī 1973:207 and n. 3; Qalqašandī 1963:3:361). The historicity of these traditions is questionable and the strict Sunni theologian Aḥmad Ibn Taymiyyah (1263–1328)—by nature vehemently opposed to grave worship—regards them as worthless fables (Hartmann and Lewis 1960). Tradition, as usual, has proven more powerful: the alleged burial site of the head (on the lawn of the general hospital of modern Ashkelon, northeast of ancient Ashkelon) is venerated by Shiᶜite Muslims to this very day. In Cairo two mosques were erected in honor of the head. Caliph aẓ-Ẓāfir first built a mosque (now known as Jāmiᶜ al-Fakāhīn), but was later persuaded by the members of his family to inter the head inside the palace. All who passed by the grave kissed the ground in front of it, and an elaborate ᶜAsūhrā ritual was practiced there until the demise of the Fatimid state (Maqrīzī 1973:207 n. 3; cf. Devonshire 1926: 46).

The Arabic Inscription

بسم الإله الرحمن] الرحيم نصر من الله [وفتح]

قريب لعبد الله ووليه مولانا وسيدنا اسما[عيل]

ابي المنصور الامام الظافر بامر الله امير المؤ

[منين صلوات اللـه عليه وعلى ابائه الطاهرين وابنا

5 [ئه الا]كرمين امر بانشاء هذا البُرج المبارك

السيد الاجل العادل امير الجيوش شرف الا

سلام ناصر الامام كافل قضاة المسلمين وهادي

دُعاة المؤمنين ابو الحسن علي الظافري فتى مولانا

صلوات الله عليه عَقَّد الله به الدين وامتع بطول

10 بقائه امير المؤمنين وادام قدره واعلى كلمته

على يد مملوكه الامير القائد المنصور (؟) مجد الخلا

فة ونصرها تامّ المعالي و[جمـ]الها [one word] نجدة (؟)

المسلمين ناصر الدولة وحُسَامها عزّ البلد وتاجه

ذي المناقب يمين أمير المؤمنين ابي المنصور ياقوت

15 الظافري العادلي ادام الله تاييده وتمكينه ونصره وا

حسن عونه بمشارفة القاضي الاشرف السعيد

الامين المرتضى المكـ[لوم] بهاء الدّين معتمد الخلا

فة ثقة الامام تاج الأحكام فخر العمل مجد

الكفاة ذي الجلالتين ولي امير المؤمنين ابي المجد

20 علي بن الحسن بن الحسن بن احمد العسقلاني متولي

الحكم العزيز وذلك في ذي القعدة من سنة

اربع واربعين وخمسمائة.

A Note on the Reading

I could reconstruct most of the damaged text fairly confidently. Doubtful readings are marked by a question mark. I have refrained from speculation on alternative readings since in most cases the words in question are of marginal importance for understanding the content.

Translation

(1) In the name of Allah, the Compassionate, the Merciful. Assistance from Allah and speedy victory (2) to the servant of Allah and His friend, our lord and master Ismāᶜīl (3) Abū al-Manṣūr, the Imām aẓ-Ẓāfir bi-Amr Allah, Amīr al-Muᵓ(4)minīn (Commander of the Faithful). The blessing of Allah upon him and upon his pure ancestors and his (5) noble descendants. Has ordered the construction of this blessed tower (6) the Exalted Master, the Righteous (al-ᶜādil), the Commander of the Armies (amīr al-juyūš), the Glory of (7) Islam (šaraf al-Islām), the Helper of the Imām, Protector of the qāḍīs of the Muslims and the Guide (8) of the Propagandists (duᶜāt) of the Believers, Abū al-Ḥasan ᶜAlī aẓ-Ẓāfirī the slave of our lord (the caliph), (9) Allah's blessing be upon him, may Allah support the religion through him and benefit Amīr al-Muᵓminīn by the lengthening (10) of his life, and perpetuate his position and elevate his authority. (11) (This work was accomplished) by his *mamlūk* the Amīr, the Commander, the Splendor of the Caliphate (12) and its support, the Possessor of perfect/noble qualities and their Beauty . . . the Succor of (13) the Muslims, the Protector of the State (nāṣir ad-dawlah) and its Sword, the Glory of the Country and its Crown, (14) the Virtuous, the Right Arm of Amīr al-Muᵓminīn, Abū al-Manṣūr Yāqūt (15) aẓ-Ẓāfirī al-ᶜĀdilī, may Allah perpetuate his authority and power, and (may He) support him (16) and grant him His assistance. Under the supervision of the qāḍī, the Honorable, the Blissful, (17) the Trustworthy, he who is endorsed (with authority), the Revered, the Splendor of the Religion, (18) whom the caliphate relies upon (or: grants authority to), the Confidence of the Imām, the Crown of Judgments, the Glory of the Province, the Splendor of (19) Those Who Are Capable, the Possessor of the Two Supremacies (dhū al-jalālatayn), the Friend of Amīr al-Muᵓminīn, Abū al-Majd (20) ᶜAlī b. al-Ḥasan b. al-Ḥasan b. Aḥmad al-ᶜAsqalānī, the Authority (21) of the Venerable Judgment (the qāḍī); and this was in Dhū al-Qaᶜdah of the year (22) five hundred and forty-four (i.e., March 1150).

Note on the Script

This inscription represents one of the last examples of the use of the square script (mistakenly termed Kufic). By the beginning of the twelfth century there was a shift in Arabic inscriptions to the *naskhī* script, namely, the rounded letters used by scribes and book copyists when writing with a pen on paper, parchment, or the like. Unlike the square script, the *naskhī* inscriptions are furnished with diacritical points, and often with voweling strokes (full or partial) as well. The extensive use of the *naskhī* script in inscriptions in Syria is associated with the Ayyubids, who employed it on numerous inscriptions throughout Syria and Palestine. The Fatimids, however, and the North Africans in general, continued to use the square script well into the twelfth century, and North African script, even the *naskhī*, retained its square shape until modern times.

The script in this particular inscription is very elaborate and should be classified as a highly professional, imperial script. The production of the whole inscription implies great care and skill, the work of an accomplished artist. The various letters have been reproduced according to the strict rules of the calligraphy of the time, with all the permissible variants. The lines are straight and the spacing between the lines is perfectly even. The appropriate letters have been decorated by "barbs" and "swallow tails" with endings brought upward in an elegant curl. All letters rest upon an unbroken baseline, with letters that normally extend below the line, such as final *jīm*, *rāʾ*, *wāw*, final *nūn*, etc., carefully inscribed above it. Even in the key word *burj*, the *jīm* was squeezed into the straight line. The variants of the script are summarized in figure 22.3. Of particular interest is the care that the engraver took in producing the letters *mīm*, *fāʾ*, and *ʿayn*, each in a characteristic fashion that makes them easily distinguishable.

Figure 22.3: The calligraphy of the inscription

Note on the Language

The inscription contains a compilation of honorific titles, inflated praise, and pious blessings. The florid and pompous language stands in stark contrast to the real situation of Ashkelon and its Muslim leaders at the time. It should be noted that in spite of the fact that the name of the Fatimid caliph is mentioned at the beginning of the inscription, accompanied by the regnal titles, blessings, and invocations required by Shiᶜite Fatimid protocol, the larger part of the inscription is occupied by the honorific titles and praises of local *amīr*s and the *qāḍī* of Ashkelon. The text was composed by a person with a thorough command of Arabic and of the language of the Fatimid chancery; copious use is made of synonyms in an effort to avoid the repetition of praises and blessings appended to the various personages mentioned in the inscription.

Commentary

LINE 1: *naṣr min Allah wa-fatḥ qarīb*, "assistance from Allah and speedy victory." These Qurᵓānic words (61:13) appear frequently on inscriptions from the Fatimid and Ayyubid periods, when Allah's help was invoked in the war against the Christian infidels. (Qalqašandī 1963:8:345, lines 17–18). Immediately after the Qurᵓānic verse come the words: "to the servant of Allah and his friend" (*li-ᶜabd Allah wa-waliyyihi*). According to Qalqašandī (1963:5:476; cf. 6:122), this was the formal designation of the caliphs in general (*laqab ᶜāmm liᵓlkhulafāᵓ*). In the case of the Fatimid caliphs, this designation had a particular significance, since the *wilāyah*, the special closeness to God of the ᶜAlīd family, forms the basis of the *šīᶜah* (Ṭabāṭabāᵓī 1975:10). Identical texts, including the words from the Qurᵓān, appear in an inscription on the gate of the *mašhad* of as-Sayyidah Nafīsah (the great-granddaughter of Ḥasan the son of ᶜAlī b. Abū Ṭālib) in Cairo, quoted in full by Maqrīzī (1853 [*Khiṭaṭ*]: 2:442). (For similar epigraphic material, see van Berchem 1903: 30, 50, 64).

LINE 2: *mawlānā wa-sayyidunā*, "our lord and master." These two titles belong to the regnal vocabulary of the Fatimid caliphs (Stem 1964:53; van Berchem 1903:54, 56, 61, 67, 69; Wiet 1930:134; *RCEA* 6: 261). The term *mawlānā* refers directly to the caliph, without need of another title (line 7). Usāmah b. Munqidh, who was in the Egyptian court during the last years of al-Ḥāfiẓ and the whole caliphate of aẓ-Ẓāfir, attests to the usage of these titles in reference to the caliph (see Usāmah b. Munqidh 1930:7 and most of the references cited above).

LINE 3: *aẓ-Ẓāfir bi-Amr Allah, Abū al-Manṣūr Ismāᶜīl b. al-Ḥāfiẓ li-Dīn Allah Abū al-Maymūn b. ᶜAbd al-Majīd b. al-Amīr Abū al-Qāsim Muḥammad b. al-Mustanṣir bi-Allah*. Caliph aẓ-Ẓāfir ascended the throne in A.H. 544 (A.D. 1149) when he was seventeen years old, a few months before the writing of this inscription, in the declining years of the Fatimid caliphate. The caliph had no real power and was no more than a titular head whose position, and even life, were in the hands of the courtiers and military commanders. The viziers and the provincial governors bore no more than a nominal allegiance to the throne and exercised a great degree of independence, as can be seen clearly from the language of this inscription. Aẓ-Ẓāfir was assassinated in A.H. 549 (A.D. 1154), shortly after the fall of Ashkelon to the Franks, four years and eight months after his accession, at the age of twenty-one years and nine months (Maqrīzī 1853 [*Khiṭaṭ*]: 2:30; Usāmah b. Munqidh 1930:7f.).

LINES 4–5: *ᶜala abāᵓihi aṭ-ṭāhirīn wa-abnā[ᵓ]ihi al-a]kramīn*, "upon his pure fathers (ancestors) and his noble descendants." The designation *ṭāhirīn* ("pure, saintly") for the caliph's ancestors is common in the Shiᶜite vocabulary and relates to the members of ᶜAlī's family. This is in accordance with the Shiᶜite tradition interpreting Q 33:33—which speaks of the divine purification of Ahl al-Bayt—as referring to ᶜAlī and Fāṭimah and their descendants (Sharon 1986:169f.). The reading *abnāᵓihi* in line 4 is certain. A reference to the caliph's sons in addition to his ancestors should not surprise us. Even at the age of seventeen, aẓ-Ẓāfir must have already had a few children, for when he was murdered at the age of twenty-one he left four distraught widows (not to mention concubines) and a five-year-old son ᶜĪsā, who succeeded him under the title of al-Fāᵓiz bi-Naṣr Allah Abū al-Qāsim. The blessings for the caliph's sons refers, no doubt, also to those not yet born. These blessings for the caliph are an integral part of the Fatimid protocol and appear on every document, whether written or inscribed, on which the caliph's name appears. In case of the caliph being an unmarried minor (such as in the case of al-Fāᵓiz), the formula mentions *wa-abnāᵓihi al-muntaẓarīn*, "and his expected sons." (The variant *abnāᵓihi aṭ-ṭāhirīn*, "his pure sons," exists too; van Berchem 1891:488; 1903: 24–25, 30, 43, 54, 56, 61, 64–69; Stem 1964:75–78, 81; *RCEA* 5:176–78; 7:6, 122, 259).

LINE 5: *inšāᵓ hādhā al-burj*, "the construction of this tower." The use of the word *inšāᵓ* for the construction of a tower (*burj*) indicates that it was a new building (see Sharon 1977:179f.). For the repair or enlarge-

ment of an existing structure, the term used is ᶜ*imārah* or *tarmīm*. As noted above, I believe that the tower near which the inscription was found, and to which it no doubt refers, was part of a double tower guarding the Jaffa Gate (the northern gate) of Ashkelon (cf. Stager 1991:54, n. 36; 1993). There can be little doubt that the mound to the east of the extant tower conceals the remains of a second tower, which guarded the gate on the east (see figure 22.8 below).

LINES 5–7: The reading of the list of the honorific titles of Abū al-Ḥasan ᶜAlī aẓ-Ẓāfirī is certain. The *nisbah* "aẓ-Ẓāfirī" follows Fatimid protocol, according to which the person chosen by the caliph to serve as vizier was regarded as the *mamlūk* of the caliph himself and could then use a new *nisbah* derived from the caliph's regnal title. He is clearly identified by the words *fatā mawlānā*, "the slave of our lord." This designation was very common among the vizier's titles in Fatimid inscriptions and documents (van Berchem 1891:487; 1903:32–33; *RCEA* 7:259; S. Stern 1964:53; Lev 1991:47).

Enough survives of the title *amīr al-juyūš* (Commander of the Armies) to make its reading certain, although it is badly mutilated by the two barsgemelles and the third bezant of the first shield (from the top). This is one of the highest military and administrative titles and positions in the Fatimid state—the most important title of the Fatimid vizier. Amīr al-Juyūš Abū al-Ḥasan ᶜAlī aẓ-Ẓāfirī is none other than the *amīr* Sayf ad-Dīn Abū al-Ḥasan ᶜAlī b. as-Sallār, whose full title, when he was still the governor of Alexandria and Buḥayrah, was *al-amīr al-muẓaffar sayf ad-dīn muᶜidd al-mulk layth ad-dawlah* ᶜ*Alī b. Isḥāq b. as-Sallār*. As we have seen, the stormy events that accompanied aẓ-Ẓāfir's accession to the throne compelled the young caliph to nominate Ibn Sallār as vizier and confer upon him the titles due to the vizier in the Fatimid protocol: "He was designated 'as-Sayyid al-Ajall Amīr al-Juyūš Šaraf al-Islām Kāfil Quḍāt al-Muslimīn wa-Hādī Duᶜāt al-Muʾminīn'" (Maqrīzī 1973:197)—the same titles that appear in our inscription.

These titles are called *nuᶜūt* (sing. *naᶜt*) in the vocabulary of the Fatimid chancery. Qalqašandī (1963: 8:341–43) explains that it was one of the caliph's prerogatives to confer the *nuᶜūt* on his vizier or on anyone else. The *nuᶜūt* in the Fatimid kingdom were: as-Sayyid, al-Ajall, al-Afḍal (or al-ᶜĀdil, aṣ-Ṣāliḥ, etc., and also al-Malik al-Afḍal, al-Malik al-ᶜĀdil, al-Malik al-Ašraf; see Maqrīzī 1973:163, 218), Amīr al-Juyūš, Sayf al-Islām (or Šaraf al-Islām and similar titles), Nāṣir al-Imām (but also Nāṣir al-Ānām, and Ghiyāth al-Ānām), Kāfil Quḍāt al-Muslimīn, Hādī

Duᶜāt al-Muʾminīn, after which comes the *kunyah* (Abū . . .), the proper name, and the new *nisbah* (aẓ-Ẓāfirī, al-Ḥāfiẓī, etc.). After Ibn Masāl's defeat and subsequent execution, the caliph added "al-ᶜĀdil" to Ibn Sallār's titles. Thus the list of titles which appear in our inscription is complete and falls within the usual Fatimid caliphal practice of granting viziers the honorific titles in a special diploma (*sijill*), examples. of which are quoted by Maqrīzī and Qalqašandī.[124] Ibn Sallār's assassination on 6 Muḥarram 548 (April 4, 1153) has been described above.

The titles *kāfil quḍāt al-muslimīn wa-hādī duᶜāt al-muʾminīn* in lines 6–7 are the usual honorific titles that accompany the function of the vizier. The vizier is regarded as the "Protector of the Qāḍīs of the Muslims" and the "Guide of the Propagandists (*duᶜāt*) of the Believers," a most important title in the Fatimid state, with its government-sponsored propaganda (*daᶜwah*). In the lengthy diploma in which Caliph al-Ḥāfiẓ conferred all these honorific titles on his vizier Ibn Walakhšī (Qalqašandī 1963:8:345), the function of the vizier as protector and guide of the judges and propagandists is very clearly stated. In the Fatimid state, next to the high office of "chief justice" (*qāḍī al-quḍāt*), there was the important office of "chief propagandist" (*dāᶜī ad-duᶜāt*). Sometimes the two positions were given to the same person but normally they were separate. Since the propagation of Shiᶜite doctrine throughout the Islamic world was considered one of the most important functions of the Fatimid state, one can appreciate the importance given to the office of chief propagandist, and hence the special meaning behind the title *hādī duᶜāt al-muʾminīn* in our inscription.

In a rare document from Pisa—a copy of a letter of Abū al-Faḍl al-ᶜAbbās b. Abū al-Futūḥ, the last vizier of aẓ-Ẓāfir—all of these titles were transliterated in Latin characters (Stem 1964:69). Another full diploma, or *sijill*, with all the titles of the vizier, more detailed than our inscription, is quoted by Maqrīzī, who comments on its sheer size and length (*fī ghāyat aṭ-ṭūl wa-al-kubr*). This particular diploma consists of the edict of al-Fāʾiz, aẓ-Ẓāfir's son and heir, who conferred all these titles and more on his vizier Ṭalāʾiᶜ b. Ruzzīk, including the rare title "al-Malik" (Maqrīzī 1973:218).

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[124] Stern, in his excellent work on the decrees from the Fatimid chancery, remarks that "the full titles of aẓ-Ẓāfir's first two viziers Ibn Masāl and al-ᶜĀdil Ibn Sallār, are, as far as I know, nowhere enumerated" (S. Stern 1964:64). The full list of Ibn Sallār's titles, however, appears in this inscription, whereas Ibn Masāl's titles are given almost in full by Maqrīzī (1973:193). Both of these sources were unavailable to Stern.

LINES 8–9: The terms ᶜaḍḍada Allah bihi ad-dīn etc., "may Allah support the religion through him and gladden by his long life the Commander of the Faithful," appears on many decrees and inscriptions from the Fatimid period (S. Stern 1964:35–38, 75, and most of the documents referenced above).

LINES 10–14: Amīr al-Juyūš, the vizier Abū al-Ḥasan, issued the order to build the tower and entrusted the actual management of the project to his own *mamlūk* Nāṣir ad-Dawlah, Abū al-Manṣūr Yāqūt. The words which, I believe, were the *kunyah* of the *mamlūk* in question were almost completely destroyed by the third bezant of the middle shield. The word *abū* left enough of a trace to be reconstructed as such. Of the next word, it is possible to detect the initial *mīm* and the remnants of *wāw*, and *rāʾ* at the end, which may be combined to read *Manṣūr. Yāqūt*, however, is certain. The *amīr* in question is of course Nāṣir ad-Dawlah Yāqūt the governor (*wālī*) of Ashkelon, whom Usāmah b. Munqidh met when he first came to the city on Ibn Sallār's orders, after his meeting with Nūr ad-Dīn. Yāqūt took the *nisbah* "aẓ-Ẓāfirī" to indicate his allegiance to the caliph, his supreme master in the administrative hierarchy. His other *nisbah*, "al-ᶜĀdilī," refers to his immediate master the vizier al-Malik al-ᶜĀdil Ibn as-Sallār, who must have nominated him to the post of governor of Ashkelon.

LINE 15: *al-ašraf* is reconstructed on the basis of the letters *alīf* and *šīn*, which were not affected by the upper bar and the first bezant on the third shield. Under the bar we can recognize the shapes of *lām-alīf* and *fāʾ*. The reading of the title "al-Ašraf" is therefore certain, this being the official title of ᶜAlī b. Ḥasan, the *qāḍī* of Ashkelon. The fact that the local *qāḍī* appears as the person who supervises the work is significant. He appears here as second in the local hierarchy, after the military commander.

LINES 16–18: The *qāḍī*'s list of titles is especially interesting, as it refers to the *qāḍī* as *thiqat al-imām* and as *muᶜtamad al-khilāfah*. These convey, to my mind, the same meaning: the person whom the Imām or the Fatimid caliph regards as trustworthy and reliable. The titles may, however, be the official titles of the *qāḍī*, whose office had to be ratified by the court in Cairo, in which case the term *muᶜtamad* would mean "authorized," or "commissioned by the Imām," very much in the modern sense. In view of the special importance of Ashkelon, a direct interest of the court in the nomination of the *qāḍī* is not suprising.

The honorific title *walī amīr al-muʾminīn* is sure; the *wāw* and the *lām* are clear, but the *yāʾ* was defaced by the second bar on the shield. Like the previous titles, which are official titles connected with the post, this one was also an official title, the highest title of the *qāḍī*s and the *ᶜUlamāʾ* (Qalqašandī 1963: 6:109, quoting *ᶜUrf at-Taᶜrīf* by ᶜUmarī).

LINE 19: The name of the *qāḍī* can easily be read, except for the *nisbah*, which was destroyed by the third bezant of the shield. With the help of Ibn Khallikān, however, the *nisbah* can be reconstructed as "(al-Lakhmī) al-ᶜAsqalānī." The *qāḍī*'s full name and titles is "al-Qāḍī al-Ašraf Bahāʾ ad-Dīn Abū al-Majd ᶜAlī b. al-Qāḍī as-Saᶜīd Abū Muḥammad al-Ḥasan b. al-Ḥasan b. Aḥmad b. al-Faraj b. Aḥmad al-Lakhmī al-ᶜAsqalānī" (Ibn Khallikān 1970:3:157). Almost all the foregoing names and titles appear in our inscription. The *qāḍī*, a native of Ashkelon, held the post of *qāḍī* of Baysān (Bet Shean) as well, for which reason he is usually called "al-Baysānī." In Ashkelon he could also have been in charge of the inspection of merchandise entering the city from the sea, and the collection of customs—this was one of the duties of the *qāḍī* who replaced him in office in Ashkelon, al-Muʾtamin b. Miskīn, whom Maqrīzī mentions as the *mušārif* of the city, namely the inspector of customs (Maqrīzī 1853 [*Khiṭaṭ*]:1:427).

Al-Qāḍī al-Ašraf was recalled to Egypt during the caliphate of aẓ-Ẓāfir because of a dispute between him and the local governor (Nāṣir ad-Dawlah Yāqūt of our inscription) that involved a large sum of money. The governor, who initially had been accused of embezzlement, succeeded, with the help of some influential friends in Cairo, in clearing himself and accusing the *qāḍī* instead. Once in Cairo, the authorities confiscated all of the *qāḍī*'s property and left him penniless. The whole affair, we are told, affected his health, and he died heartbroken in Cairo on 11 Rabīᶜ I 546 (June 28, 1151), just one year and three months after his name had been so prominently inscribed in our inscription. His son, al-Qāḍī al-Fāḍil, served under Saladin and his sons, and was one of the most able and famous scholars of his time (Ibn Khallikān 1970:3:158–63; 7:220–21; Ibn Šaddād 1963:204, n.1).

The last word in line 19 is *mutawallī*, with the two letters *lām* and *yāʾ* inscribed above the beginning of the word to the right. This term was usually used to designate a person invested with authority, such as a governor of a province or a town (van Berchem 1922: 1:98). In this case, the phrase *mutawallī al-ḥukm al-ᶜazīz* refers to the post of the *qāḍī* of Ashkelon, who may have registered the document or documents relating to the building of the tower in the records of the local *maḥkamah*, the court of justice (cf. Sharon 1966:77f.) on the date mentioned in the inscription, Dhū al-Qaᶜdah 544 (March 1150).

The Towers of Ashkelon

By way of comparison, the history of another of Ashkelon's towers may be cited—the famous Burj ad-Dāwiyah (Maqrīzī 1956 [*Sulūk*]:1:106) or Burj ad-Dam, which was apparently located in the citadel(?) near the Sea Gate in the southwestern part of the city. That tower underwent successive demolitions and reconstructions. It was demolished by Saladin in 1191, rebuilt and then demolished by Richard the Lionheart in 1192, and rebuilt once again by Tibald IV and Richard of Cornwall in 1240–1241. Its final destruction was accomplished by Sultan Baybars in 1270 (see above for details).

The first destruction of this tower is recounted by Abū al-Manṣūr Iyāz b. ᶜAbdallah al-Bānyāsī, the Muslim officer who was entrusted by Saladin to destroy it in the year 1191:

When we were demolishing the city of Ashkelon, I was entrusted with the destruction of Burj ad-Dāwiyah. And Khuṭluj demolished a tower on which we saw an inscription which read: "It was built by Khuṭluj." This was one of the most amazing things I have ever seen.

Al-Mundhirī (1185–1258) adds:

Similar to this is what the *qāḍī* Abū al-Ḥasan ᶜAlī b. Yaḥyā al-Kātib told me concerning this matter: "I saw in Ashkelon the tower called Burj ad-Dam while Khuṭluj al-Muᶜizzī was destroying it in the month of Šaᶜbān (of 587 = September 1191). I saw on the tower an inscription that read as follows: 'The construction of this tower was ordered by the illustrious lord Amīr al-Juyūš—namely Badr (al-Jamālī)—by his servant and client Khuṭluj in (the month of) Šaᶜbān.' I was stunned by this coincidence, that the tower was built in Šaᶜbān by one Khuṭluj and destroyed in the month of Šaᶜbān by [another] Khuṭluj."

[Maqrīzī 1956 (*Sulūk*):1:106; Prawer 1956:243]

The mention of Badr al-Jamālī—added by Maqrīzī or by his informant for the purpose of identifying the Amīr al-Juyūš in the inscription—attests to the special attention paid by the Egyptian government to the fortifications of Ashkelon. Burj ad-Dāwiyah was a mighty castle in its own right, standing on the seashore. Once Saladin had given the order for the destruction of the city, he and his son al-Malik al-Afḍal supervised the operation. It took twelve days to destroy one of the strongest and most beautiful cities in Syria. Burj ad-Dāwiyah burned for two days and two nights.

The Crusader shields superimposed upon our inscription—which we have ascribed to the days of Richard of Cornwall—suggest that, like other parts of the city's fortifications, the tower in question was built twice and destroyed twice. Indeed, it stands to reason that special consideration was given, for better or worse, to the towers that protected the city gates. The mighty remnants of the tower mentioned in the inscription can still be seen above the glacis of the northern wall (see figures 22.4–22.6). They consist of three massive segments of tower walls, over 2 m thick, built with small stones and very hard mortar containing large quantities of seashells, and strengthened with ancient marble pillars that were used as joining "pins" embedded in mortar (figure 22.5), an architectural element frequently used in monumental Muslim buildings.

The tower still awaits excavation, but the dimensions of the mound that conceals its foundations and the length of its offset glacis permit us to estimate its size and shape (see figures 22.7 and 22.8). A square structure some 25 × 25 m in size, it must have towered above the six-meter high wall of the city, with a view of the large moat (25 m wide and 9 m deep) to its north and of the seashore 300 m to the west. It protruded about 3 m from the general east-west line of the city wall, affording the defenders a view of the curtain wall, as well as of the gate below.

Figure 22.4: Remnants of the tower glacis (view to east)

Figure 22.5: Detail of tower masonry

Figure 22.6: Remnants of tower above glacis
(view to south)
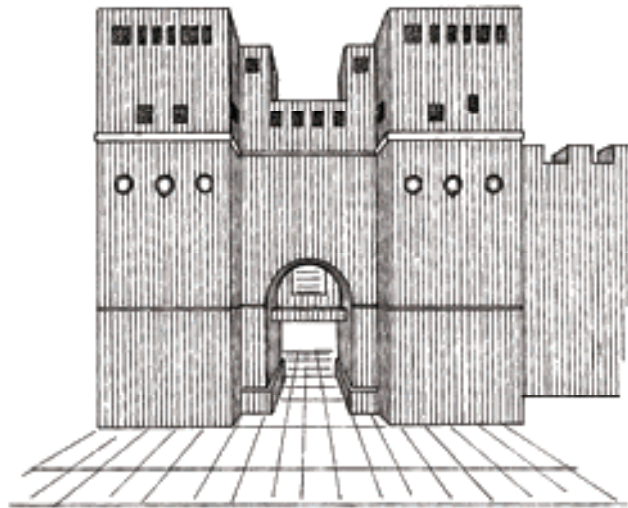
Figure 22.7: Hypothetical reconstruction of the Fatimid gate tower commemorated by the inscription
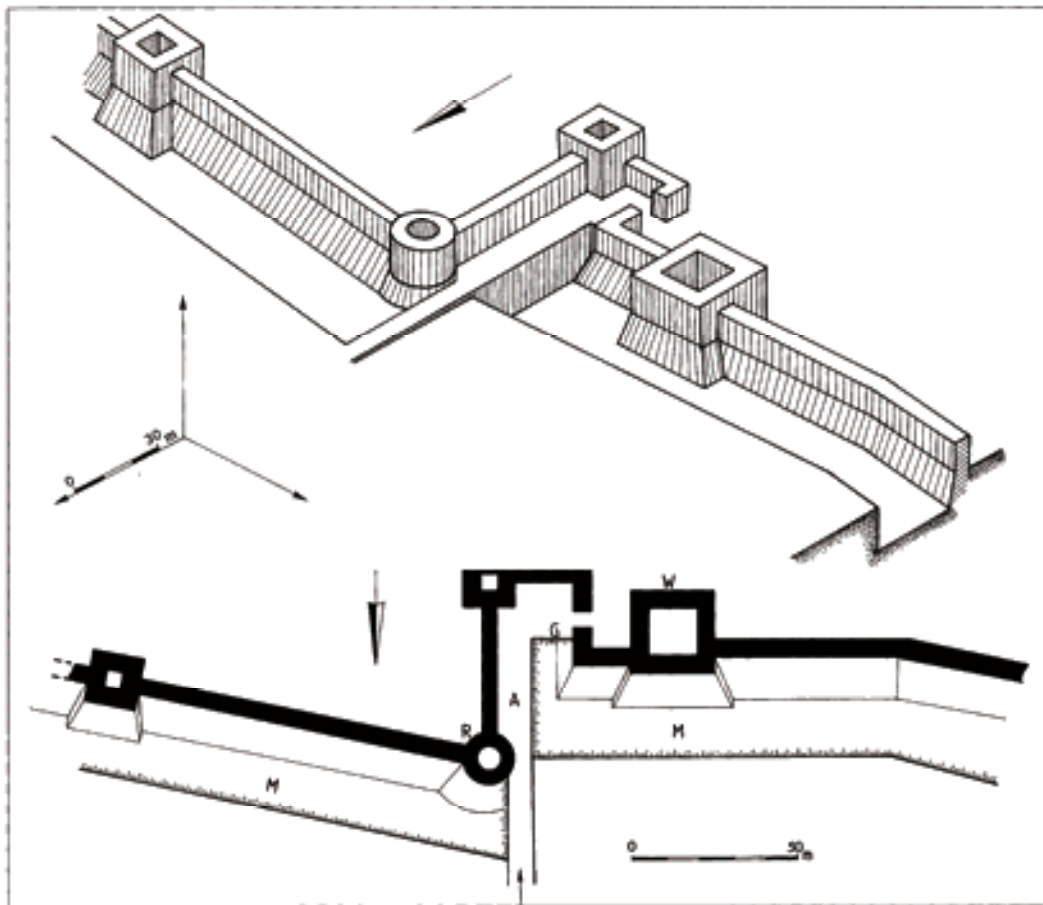
Figure 22.8: Suggested reconstruction of the Crusader gate, on the basis of visible remains
Plan and isometric view: **W** = western tower; **R** = round corner tower; **M** = moat; **A** = approach; **G** = gate passage

The Glacis Inscription

The excavation of the glacis beneath the tower, which
was carried out by the Leon Levy Expedition in
1993, revealed a short inscription that throws light on
the earlier history of the tower and the wall. This
inscription consists of two words in floriated Fatimid
imperial script, engraved in relief on a sandstone slab
measuring 0.17 m high and 0.64 m. wide (figure
22.9; reg. no. 43814). The inscription, which was
found *in situ*, was built into the 12.75 m-long section
of preserved glacis, two courses above ground (13.09
m above sea level). It reads:

<div dir="rtl">الملك لله</div>

Dominion (possession) is Allah's.

Figure 22.10: Rosette in glacis inscription

Figure 22.9: Inscription built into the glacis

The inscription is elaborately carved and decorated
with a sophisticated rosette consisting of three inter-
woven trefoils. Using only a compass, the mason
divided the circle in nine to form this singular orna-
mentation (figure 22.10). The two *lām*s of the word
liʾlāh were spaced to form a representation of a
miḥrāb decorated with leaves. It evokes the flat
miḥrāb in the cave underneath the Rock on the Tem-
ple Mount in Jerusalem, over which the Dome of the
Rock was built (figure 22.11). The glacis inscription
exhibits an earlier type of script, which could indicate
an earlier stage in the building of the city fortifica-
tions in the Fatimid period. The pious formula, which
affirms that all the possessions (including what is
being built) belong to God, reflects commonly used
Qurʾānic expressions (Q 3:26; 57:2).

Figure 22.11: The flat *miḥrāb* in the
Dome of the Rock

An Earlier Building Inscription from Ashkelon

Additional epigraphic evidence of construction in the "border fortress (or stronghold)" (*thaghr*) of Ashkelon, dated between A.H. 441 and 449 (A.D. 1049–1057) was published by Max van Berchem in 1891. The inscription, from the private collection of Baron d'Ustinow, was found in the small village Sarafand al-Kharāb, between Ramlah and Jaffa. It was broken on all sides, and must have been brought to the village with building material collected from the debris of Ashkelon. Partly reconstructed by van Berchem, the inscription (Inscription 3) reads as follows:

... عبد امير المؤ[منين صلّى(؟)]

[الله عليه وعلى ابائه]

[ال]طاهرين وابنائه [الاكرمين] ...

... وهو يومئذٍ متوا[لّي]

٥ ثغر عسقلان في [شهر(؟)]

[ر]بيع الآخر من سـ[نه] ... و

[ار]بعين واربع ما[ئة]

. . . The slave of Amīr al-Muᵓminīn, may
Allah bless him and his pure ancestors
and his noble descendants . . .
. . . And he was then the governor of
the border stronghold of Ashkelon in the month(?)
of Rabīᶜ al-Akhar of the year . . .
four hundred and forty . . .

[van Berchem 1891:494; *RCEA*, 7:122, no. 2589]

This inscription falls within the 58-year caliphate of al-Muṣtanṣir (A.H. 427–487 = A.D. 1036–1094). At the time of its writing, Badr al-Jamālī, al-Muṣtanṣir's celebrated vizier and general, was at the peak of his military career and about to become governor of Damascus. It is possible that the inscription refers to Badr's building work in Ashkelon (on the fortifications?) under the direct supervision of the local governor.

Richard of Cornwall, Sir Hugh Wake, and the Final Rebuilding of Ashkelon in A.D. 1240

The episode of Richard of Cornwall's fortification of Ashkelon in 1240–1241 is vividly evoked by the heraldic shields engraved over the Fatimid inscription. The large shields represent, as we have already seen, the arms of Sir Hugh Wake. The minor shields, more difficult to identify because of their very common design, probably belonged to one of the lesser knights in Wake's entourage. Sir Hugh must have been entrusted with building of the tower defending the northern gate of the town, and he commemorated his contribution by engraving his arms on the conveniently available slab of marble, defacing the enemy's inscription.

Further confirmation of Sir Hugh Wake's involvement in the rebuilding of the tower has recently come to light: An engraved marble lintel (1.52 × 0.21 × 0.18 m) was discovered at the beginning of the 1994 season of the Leon Levy Expedition, in the rubble next to the northern glacis, ca. 20–25 m to the west of the location where the main inscription was found. The grayish-white marble lintel (reg. no. 43867) bears a row of eight carefully incised Wake shields (see figure 22.12 below). The shields are almost identical in size and shape (from right to left: 16 × 18.5 cm, 15 × 18 cm, 16 × 18 cm, 16 × 18 cm, 16 × 18.5 cm, 16 × 18.4 cm, 16 × 18.5 cm, 16 × 18.5 cm). Like the large shields on the inscription, they have the double bar and the three roundels in the chief painted red (gules), the color of Wake's original blazon (Matthew of Paris, *Chronica majora* 4:194; 6:477).

The shields incised on the Fatimid inscription and the lintel form the only item of material evidence pertaining to the crusade of Richard of Cornwall, and indirectly they contribute a detail to the biography of Simon de Montfort, earl of Leicester (cf. Bémont 1930). They also prove that the rebuilding of Ashkelon by Richard of Cornwall—begun by Tibald of Champagne and continued by Hugh IV, duke of Burgundy—encompassed the whole town and was not limited to the citadel (cf. Benvenisti 1970:126–27).

Figure 22.12: An engraved lintel bearing the arms of the English Crusader Sir Hugh Wake

Richard of Cornwall, who took his crusader's oath in 1236, was by November 1239 prepared to embark upon his crusade. Meanwhile, the news of the disaster that had befallen the count of Bar and his men near Gaza reached England. Among the prisoners taken by the Muslims was Amaury de Montfort, constable of France, the elder brother of Simon de Montfort. Amaury's plea for help, forwarded to Cornwall, who was Simon's brother-in-law, doubtless served to hasten the preparations for the Crusade. It must also have convinced Simon de Montfort—who was on the Continent at the time, following his falling-out with Henry III—to return to England in order to take part in the venture.

Richard and Simon de Montfort did not leave together. Richard took a route through France and embarked for the Holy Land from Marseilles. Simon, who with great sacrifice assembled the funds for the venture, left England with his knights and men shortly after Richard. Passing through Frederick II's domains in Italy, he reached Acre around October 1240.

This crusade was not a warlike one, and all its achievements were the outcome of successful diplomacy. The fortification of Ashkelon was one of its memorable achievements, and the negotiations with the Muslims also resulted in the ransoming of the Christian prisoners, including Amaury de Montfort (who died less than a year later).

Little is known of the activity of Simon de Montfort in the Holy Land, apart from an unsuccessful petition (of June 7, 1241) by the "barons, knights, and citizens of the Kingdom of Jerusalem" to Frederick II, asking him to name Simon de Montfort regent of the Kingdom of Jerusalem until Conrad, the Emperor's son and king-designate, reached maturity. At the beginning of 1242, Simon de Montfort returned to France with the duke of Burgundy, and later went on to England to play his decisive role in the rebellion of the barons—the Parliament of Oxford—against Henry III in 1258 (Bémont 1930:62–65).

One of the barons who accompanied the earl of Leicester in his crusade was Sir Hugh Wake. Matthew of Paris mentions him ("Hugo Wake" and "Hugo Wac") in the short list of the English notables who accompanied Simon de Montfort (Matthew of Paris, *Chronica majora* 4:44), and also in the list of the barons who died during the crusade in the Holy Land in 1241 (ibid., 4:174–75).

The Wakes are the descendants of Geoffrey Wac (Wake), a Norman baron who held lands in Normandy and Guernsey in the time of King Stephen (1135–1154). The present baronet, Sir Hereward Wake of Northamptonshire (born October 7, 1916), is the twenty-ninth in direct descent from him in the male line (Mosley 1999:2:2903). Geoffrey's son, Hugh Wake, was the lord of Bourne and Deeping in County Lincoln. This Hugh Wake died in 1172 and was succeeded by his son Baldwin Wake. When Richard the Lionheart was captured by the emperor on his return from the Holy Land, Baldwin was one of the barons left as hostages to ensure the payment of the ransom for their king. His son Baldwin Wake (II) succeeded him and was killed in ca. 1213 besieging a castle in Gascony. His son Hugh Wake (II), lord of Bourne, Deeping, and Blisworth, married Joan, daughter and co-heir to Nicholas of Stuteville (Matthew of Paris, *Chronica majora* 4:174).

As we have seen, this second Hugh Wake was the one who joined Simon de Montfort in the Holy Land and died there in 1241, probably while engaged in the rebuilding of Ashkelon, where he may well have been buried (P. Townsend 1970:2723). His arms superimposed on the Arabic inscription and engraved on the lintel in Ashkelon add a heretofore unknown biographical detail pertaining to the last year of his life. They also suggest that participation in the fortification of Ashkelon should be added to the biography of Simon de Montfort.

* * *

It should be clear from this detailed analysis of the the Fatimid inscription from Ashkelon and the Crusader emblems engraved upon it that this artifact provides a unique record of the intertwining of Muslim and Crusader history in medieval Palestine. There is nothing like it in the whole inventory of Arabic epigraphy.

PART SIX

POTTERY STUDIES

23. AMPHORAS THROUGH THE AGES

by Tristan J. Barako

THE number and variety of amphoras excavated at Ashkelon are hardly surprising in view of the site's long history and geographical location. From the Middle Bronze Age through the Mamluk period, the tell was occupied almost continuously by various groups, which had widespread contacts with the rest of the Mediterranean world. Situated as it is directly on the coast, Ashkelon was attractive to seagoing merchants, whether they were Canaanites en route to Egypt, Phoenicians headed for the western Mediterranean, Greeks arriving from the Aegean region, or Christians coming to the Holy Land. Ashkelon was also an important stop along the main coastal route linking Egypt with Palestine, Syria, and beyond. Olive oil and wine—scarce commodities in the Nile Valley—were produced in abundance in Canaan and were transported to Egypt in amphoras, both by sea and, to a lesser extent, by land, beginning in the Early Bronze Age (see Stager 2001). Undoubtedly, many of these vessels passed through the thriving port city of Ashkelon.[125]

In sixteen seasons of excavation conducted by the Leon Levy Expedition to Ashkelon from 1985 to 2000, a great quantity and variety of amphoras have been found, spanning three thousand years. What follows is by no means a comprehensive treatment of this diverse and enormous corpus, but rather a representative sample. Vessels were chosen primarily on the basis of their state of preservation. The types that appear here are those for which exemplars were found that are at least 75% intact and retain such diagnostic features as bases, handles, and rims. Consequently, some amphora types found at the site are not discussed. A full treatment of the Ashkelon amphora types, together with the other pottery from various periods, will appear in the forthcoming volumes of the expedition's final report. Until then, this chapter will serve as a preview of Ashkelon's ceramic richness and will provide a glimpse of the role that shipping amphoras played in the Mediterranean economy through the centuries.

The approach taken here is largely descriptive. Each amphora is accompanied by a drawing, photo-graph, and verbal description, followed by a short discussion that cites previous scholarship as well as information specific to that type of amphora at Ashkelon. Various descriptions and measurements were made for each amphora. **Date** and **context** are derived from field notebooks and end-of-season reports, and thus are in the nature of preliminary assessments. **Height** was measured with simple instruments; in those cases where the original height of the amphora could not be determined, the preserved height is given. **Weight** was measured using simple scales; again, when the entire amphora is not present, only the preserved weight is given. Because many of these amphoras have been reconstructed to some degree, a small percentage of the weight may be due to the conservator's material. In those cases where it is possible to "borrow" the thickness from the opposite side of the vessel, reconstruction is indicated by cross-hatching inside of dashed lines. Where this is not possible, only the dashed lines appear. A percentage estimate of the amount of restoration and/or completeness of the vessel is given in the **Description** section.

Amphoras tested for volume using water were weighed when full; these weights, marked as "full," appear in parentheses after the empty vessel weight. **Volume** was measured by filling the vessels with styrofoam pellets and then measuring the volume of these pellets in a calibrated container. Partial amphoras were reconstructed as well as possible using paper and tape and then filled; in these instances, the volume is given as "estimated." A few of the better-preserved smaller amphoras were measured for volume using water. The sides of the vessel's interior were lined with plastic and then the amount of water was measured as it was poured in. The average ratio of discrepancy between these two methods (i.e., styrofoam and water) was found to be 0.94.

These are the volumes of those vessels tested with both styrofoam and water (in that order):

Amphora 1:	13.5 and 13.1 liters
Amphora 9:	8.5 and 8.3 liters
Amphora 13:	21.0 and 22.5 liters
Amphora 17:	13.5 and 14.3 liters
Amphora 19:	10.5 and 12.0 liters
Amphora 24:	9.0 and 11.3 liters

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[125] EB pottery has been found at Ashkelon only in residual contexts; thus no complete, or nearly complete, EB storage jars have been excavated so far. The earliest "Canaanite jar" included in this study dates to the MB IIB period (see Vessel 1).

It seems likely that these discrepancies would increase proportionately according to the size of the vessel. Unfortunately, filling the larger vessels with water was not feasible due to the difficulty in manipulating such a heavy object, and, more important, due to the likelihood of damaging the vessel. Based on the average ratio of unfilled to filled weight of the aforementioned vessels, Amphora 11, if filled, would have weighed 100.8 kg.

All amphoras measured for volume only with styrofoam pellets were calibrated according to this ratio—assuming that volumetric estimation with water is more accurate—and are indicated accordingly in the text. The diameter of the rim was taken from the outside perimeter.

Color was assigned according to the Munsell Soil Color Charts. **Inclusions** are described according to quantity ("very few," "few," "many," or "very many"), size ("fine," "small," "medium," or "large"), and color ("dark," "white," or "sparkling"). "Fine" refers to those particles visible with the aid of a magnifying glass (×1.5 magnification), "small" is sand-sized, "medium" is 1–2 mm in width, and "large" is 2 mm and larger. "Sparkling" refers to the probable presence of quartzite, which is often present in clays with some component of sand. "Micaceous" is reserved for fabrics that clearly contain mica, which is more platelike in appearance.

When present, **Core** is described according to thickness ("thin" or "thick"), location in the vessel wall ("interior" or "middle"), and color ("light gray," "gray," or "black"). **Fabric** is described according to consistency ("very fine," "fine," "coarse," or "very coarse") and hardness ("brittle" or "hard").

Exterior takes into account all treatments carried out by the potter that affected the exterior of the vessel. These include wheel-marks created during the formation process, as well as the more deliberate procedures of slipping, burnishing, scraping, combing, and incising. **Interior** notes the presence or absence of wheel marks, or rilling, on the inside of the vessel.

The sequence of numbers in **Field reg**[istration] indicates the following:

1. The Israel Antiquities Authority license number.
2. The last two digits of the year of excavation.
3. The 100-meter grid location.
4. The 10-meter square within the grid.
5. The layer number, prefixed by "L."
6. The feature number, prefixed by "F."
7. The 1-meter finegrid number within the square, prefixed by "FG."
8. The bucket number, prefixed by "B."
9. The registration number within the bucket, prefixed by "#."

This numbering system is explained in more detail in chapter 11 above.

The amphoras presented below are grouped according to the following periods: Middle and Late Bronze Age, Iron Age, Persian and Hellenistic periods, and Roman and Byzantine periods. All of the amphoras from the Middle and Late Bronze Age (Amphoras 1–6) come from the extensive system of rock-cut chamber tombs excavated in Grid 50 on the South Tell (see chapter 15 concerning Grid 50, Phase 11). These tombs were in use for hundreds of years, from MB IIB through LB I. Earlier burials and their associated grave offerings were often swept aside, either to the sides of the chamber or into niches, in order to make room for later interments. "Clusters" of whole vessels and bones developed as a result of this depositional process. The amphoras from these tombs are therefore dated primarily on the basis of form.

Three well-dated destruction layers at Ashkelon chronologically situate the majority of amphoras from the Iron Age through the Hellenistic period. Many of the Iron Age amphoras (Amphoras 10–17) were found in the 604 B.C. destruction layer, which was excavated throughout the Grid 38 trench (Phase 14) and the Grid 50 trench (Phase 7). Most of the amphoras of the late Persian/early Hellenistic period (Amphoras 20–24) were found in a destruction layer in Grid 57 that also contained a hoard of silver tetradrachmas bearing the portrait of Alexander the Great, the latest of which dates to ca. 290 B.C., which provides a solid *terminus post quem* for this destruction and the associated pottery (Stager 1991:23–24). A city coin of Antiochus IV from 169 B.C., which was found in a later destruction layer, furnishes a chronological datum for amphoras from the middle of the Hellenistic period (Amphoras 25 and 26).

Amphora 1

Field reg.:	A89/96.50.48.L473.F487.B207.#8
Photo nos.:	98–11312a,b,c, 98–11313
Date:	Middle Bronze IIB
Context:	Grid 50 tombs (Chamber 5)
Height:	54 cm
Weight:	6.0 kg
Volume:	28.72 liters (calibrated)
Diameters:	13.3 cm (rim); 34.5 cm (maximum)
Color:	2.5YR 5/6 red (surface)
	2.5YR 6/8 light red (fabric)
Inclusions:	many small to medium white; few medium dark
Fabric:	coarse
Core:	none
Exterior:	closely spaced, light, horizontal scrape marks on lower body, uneven in shoulder region; engraved snakes near handles with a vertical stroke in front of one of the snakes
Description:	elongated ovoid body; everted gutter rim; short vertical neck; well-rounded convex shoulder; triangular profile coil handles with hand-molding at points of attachment; carinated base, flattened yet comes to faint point; less than 5% reconstruction

Discussion

Amphora 1 and the following six storage jars were found in a series of rock-cut chamber tombs that were in use from MB IIB to LB I. This jar can be dated no earlier than MB IIB. It was found at the topmost level of the south repository of Chamber 5 and was separated from the rest of the pottery (which dates to MB IIB) in this niche by a layer of clean fill. Typologically, with the exception of wheel-combing, a common feature of MB IIA, Amphora 1 fits squarely in the MB IIB ceramic tradition. The amphora's tapered lower body indicates MB IIB or MB IIC, as opposed to the more globular shape of MB IIA. Also, gutter rims are not a hallmark of MB IIA (Susan Cohen, pers. comm.). A similar rim appears in the eastern Nile Delta at Tell el-Maskhuta, in a stratum corresponding to Tell el-Dabᶜa late E/1, early D/3 (= MB IIB/C; Holladay 1997:pl. 7.8:19). Convex bases, however, are found on storage jars as early as MB IIA, as at Aphek (Beck 1975:figs. 10.10, 12.6 [= Stratum A II]), but are also common in MB IIB/C, as at Tell el-Dabᶜa (Bietak 1991:fig. 243 [= Stratum D/3]).
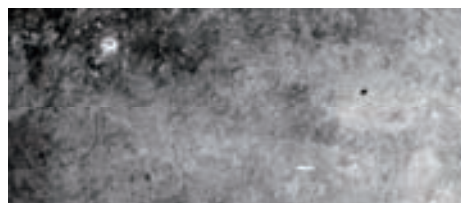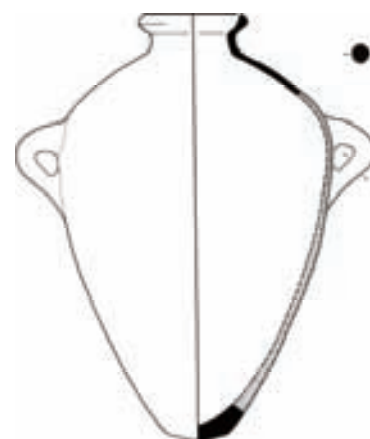
Figure 23.1: Amphora 1 (scale 1:10) with close-ups of incised snakes

Amphora 2

Field reg.:	A89/96.50.48.L487.F487.B302.#10
Photo nos.:	98-11408, 98-11411
Date:	Middle Bronze IIC/Late Bronze I
Context:	Grid 50 tombs (Chamber 5)
Height:	40 cm (preserved)
Weight:	3.75 kg (preserved); 17.75 kg (full)
Volume:	13.1 liters (estimated using water)
Diameters:	rim not preserved, 29.5 cm (maximum)
Color:	5YR 7/6 reddish yellow (surface)
Inclusions:	many small to medium white; few fine sparkling
Fabric:	slightly coarse
Core:	thick black
Exterior:	horizontal scrape marks over entire body
Interior:	wheel marks
Description:	ovoid body; rim not preserved; tall vertical neck with some internal thickening at base; rounded, slightly convex shoulder; flattened, slightly ridged handles with clear hand-molding at upper handle attachment; flattened base; less than 10% reconstruction

Discussion

Amphora 2, along with Amphoras 3 and 4, rested at a level associated with the last use of Chamber 5; therefore, a date at the end of MB IIC or the beginning of LB I is most likely. This conclusion is strengthened by the fact that the pottery from the layer immediately below dates to MB IIB. The results from the recent excavations at Beth Shean accord well with this dating, in that similar storage jars were found most frequently in Stratum R2 (i.e., before Thutmose III/LB IA; Robert Mullins, pers. comm.). Parallels for this amphora type also exist from as early as MB IIA, at Aphek in "Palace Phase" Stratum A IVA (Beck 1975:69, fig. 10.6) and "Post-Palace" Stratum A II (fig. 12.10). The MB II pottery from the area of the city gate on the North Slope of Ashkelon (see chapter 14 above), which includes the full range of amphora types, will provide valuable stratigraphic controls for this tomb material.

Figure 23.2: Amphora 2 (scale 1:5)

Amphora 3

Field reg.:   A80/97.50.48.L487.F487.B62,68,95.#111
Photo nos.:   98-11423, 98-11434
Date: Middle Bronze IIC
Context: Grid 50 tombs (Chamber 5)
Height: 58.3 cm
Weight: 7.5 kg
Volume: 29.26 liters (calibrated)
Diameters: 11.5 cm (rim), 35.2 cm (maximum)
Color: 7.5YR 7/6 reddish yellow (surface)
   7.5YR 6/6 reddish yellow (fabric)
Inclusions: many small white
Fabric: slightly coarse
Core: thick, gray
Exterior: wheel scraping over most of body, prominent line at shoulder
Interior: wheel marks faintly visible
Description: elongated ovoid body; slightly everted plain neck/rim with shallow rill at base; well-rounded convex shoulder with deep, horizontal incised line at upper point of handle attachment; flattened coil handles, triangular in profile with hand-molding at points of attachment; flattened, thickened base; less than 10% restoration

Figure 23.3: Amphora 3 (scale 1:10)

Discussion

The tapered lower body and triangular-profiled handles of Amphora 3 indicate a transitional MB IIB–MB IIC date. Similar jars were found in Megiddo Tombs 42 (= MB II; Guy 1938:51, pl. 24:6), 3095 (= Stratum XII [1750–1700 B.C.]; Loud 1948:pl. 27:1), and 3085 (= Stratum XI [1700–1650 B.C.]; 35:4). The slightly flattened base is a common feature in amphoras from this period (Geva 1982:fig. 24.6; Cole 1984:pl. 37h), as is the shoulder incision (Robert Mullins, pers. comm.). For the stratigraphic context of Amphora 3, see the discussion of Amphora 2.

Amphora 4

Field reg.:	A80/97.50.48.L487.F487.B108.#44
Photo no.:	98-11419
Date:	Middle Bronze IIC
Context:	Grid 50 tombs (Chamber 5)
Height:	54 cm
Weight:	6.25 kg
Volume:	24.47 liters (calibrated)
Diameters:	13.2 cm (rim), 32 cm (maximum)
Color:	7.5YR 6/6 reddish yellow (surface)
	5YR 5/8 yellowish red (fabric)
Inclusions:	very many medium to large white, very many fine to small dark, few fine sparkling
Core:	none
Fabric:	very coarse
Exterior:	impressed lines around amphora at shoulder
Interior:	wheel marks faintly visible
Description:	elongated ovoid body; everted profiled rim/ neck with shallow rill at base; well-rounded convex shoulder with deep horizontal incisions at points of upper handle attachment; flattened coil handles with faint traces of hand-molding at points of attachment; flattened, thickened base; less than 5% reconstruction

Figure 23.4: Amphora 4

Discussion

In terms of overall shape and rim type, Amphora 4 resembles most closely amphoras of the MB IIB and MB IIC periods. A more elongated version appears at Jericho in Tomb H6 (Group V = ca. 1700–1550 B.C.; Kenyon 1960:459, fig. 196.2; Kenyon and Holland 1982:fig. 191.2). Similar rims can be found at Shechem in MB IIB (Strata XX–XVIII; Cole 1984:169, pl. 35:b–c) and MB IIC contexts (= Stratum XV; Seger 1965:pl. 73:d). For the stratigraphic context of Amphora 4, see the discussion of Amphora 1.

Amphora 5

Field reg.:   A80/97.50.47.L315.B9,16,18,21.#61
Photo no.:   98-11418
Date: Middle Bronze IIC/Late Bronze I
Context: Grid 50 tombs (Chamber 10)
Height: 66 cm
Weight: 7.5 kg
Volume: 30.32 liters (calibrated)
Diameters: 12.3 cm (rim), 35 cm (maximum)
Color: 5YR 7/4 pink (surface and fabric)
Inclusions: many large dark, few small white
Fabric: coarse, brittle
Core: thin, middle, light gray (handles thick gray)
Exterior: closely spaced, light, horizontal scrape marks over most of body; incised line on shoulder just above handle
Description: elongated tapered body; slightly everted thickened rim/neck with shallow rill at base of rim and internal thickening at join with shoulder; rounded shoulder; four flattened coil handles with hand-molded clay around points of attachment; slight swelling in lower handle region; stump base; 30–40% restoration

Discussion

Amphora 5 was found in the ceiling collapse layer of Chamber 10 and therefore most likely dates to the latest use of the tomb. The well-tapered lower body and more developed stump base indicate a movement toward LB forms, as opposed to the more rounded bases of the MB. At Gezer, such a base appears in LB IB in Stratum XVII (Cave I.10A, "Lower Phase"; Seger 1988:75, pl. 25:1). The overall shape, however, is well within the MB IIB–C tradition (see Amphoras 3 and 4 above). Amphoras with four handles are common in the MB II period (for MB IIC Shechem, see Seger 1965:pl. 67; for Groups II–V of Jericho tombs, see Kenyon 1960:figs. 124.1, 183.2, 206.2). A close parallel with four handles can be found at Byblos in an LB tomb (= K2) from "Necropolis K" (Salles 1980a:56, pl. 27:9).

Figure 23.5: Amphora 5 (scale 1:10), including drawing of view from top

Amphora 6

Field reg.: A80/97.50.47.L311.B153.#69
Photo no.: 98-11421
Date: Late Bronze IIA
Context: Grid 50 tombs (Chamber 7)
Height: 41 cm (preserved)
Weight: 3.5 kg (preserved)
Volume: 9.57 liters (estimated and calibrated)
Diameters: rim not preserved, 25.7 cm (maximum)
Color: 7.5YR 6/6 reddish yellow (surface and fabric)
Inclusions: few small white, voids from burnt out organic temper, sparkling visible with magnification
Fabric: coarse, brittle
Core: thin, middle, black (handles with thick black)
Exterior: closely spaced horizontal and diagonal light scrape marks
Interior: wheel marks
Description: conical body; neck and rim missing, although based on parallels, it is possible to reconstruct a plain externally thickened rim and a mostly vertical neck sloping into a straight, almost horizontal shoulder; gently sloping, slightly convex shoulder with sharp carination; flattened handles; thickened flattened base; 60–70% intact (10% restoration)

Discussion

This amphora belongs to the family of LB "Canaanite jars," a term originally coined by V. R. Grace (1956) to refer to amphoras found throughout the eastern Mediterranean (i.e., in Greece, Crete, Cyprus, and Egypt), but produced in Syria-Palestine. Although neutron activation analysis has corroborated this place of origin, it has been shown that some were also produced in Egypt and Cyprus (Raban 1980:6; Åström 1991:67). Good parallels for this amphora can be found at Lachish in an LB II (= 1450–1370 B.C.) tomb (i.e., Class D, Tomb 501; Tufnell 1958:224, pl. 87:1019) and at Megiddo in Strata VIII and VIIB (= fifteenth and fourteenth centuries B.C.; Loud 1948:pl. 64:1). Amphora 6 also resembles the 80 "Canaanite jars" found in a storeroom at Minet el-Beida dated to Ugarit *Récent* 2 (= 1450–1365 B.C.; Schaeffer 1949:208, fig. 86.7), and the over 100 amphoras found on board the Uluburun shipwreck (G. Bass 1986:277, ill. 7; Pulak 1997:241, fig. 9b), which, based on the revised dendrochronological dating, sank sometime after the year 1305 B.C. (Pulak 1998:214). Those from Minet el-Beida and Uluburun, however, have more developed stump bases and more horizontal shoulders, indicating a date later in the LB than that proposed for Amphora 6.

Figure 23.6: Amphora 6 (scale 1:5)

Amphora 7

Field reg.: A16/86.38.64.F13.B300.#16

Photo nos.: 87-1172, 99-12649, 00-13589

Date: Iron I

Context: Grid 38, Phase 18 (beaten earth floor)

Height: 52 cm (estimated)

Weight: n/a

Volume: n/a

Diameters: 33 cm (rim), 83 cm (maximum)

Color: 2.5 YR 6/6 light red (surface)

2.5 YR 5/0 gray (core and interior)

Inclusions: very many medium to large white

Fabric: coarse

Core: thick, gray, middle and interior

Exterior: light, horizontal, closely spaced scrape marks over most of body, random around points of handle attachment

Description: externally thickened, flattened coil rim; short vertical neck with collar at its base; straight sloping shoulder, carination at point of upper handle attachment; four handles ovoid in section and grooved; slight entasis at mid-body; tapered lower body; base not preserved; 60% intact

Discussion

Amphora 7 belongs to a general group of four-handled storage jars commonly found at sites in the southern coastal plain and Shephelah at the end of the thirteenth and early twelfth centuries B.C. (Finkelstein 1986:76; Killebrew 1998:112–13). Certain typological features separate this amphora from its more familiar predecessor, the LB "Canaanite jar" (see Amphora 6 above). It has a shorter neck, a less sharply carinated shoulder, four handles, and a less developed stump base (missing in Amphora 7 but present on comparanda discussed below). Examples of the four-handled variety—these with well-rounded shoulder—were excavated from late thirteenth-century B.C. (= Dynasty 19) tombs at Lachish (= Tomb 532, Class D; Tufnell 1958:pl. 87:1020; see also Aharoni 1975:pl. 40:12), Deir el-Balaḥ (T. Dothan 1979:ills. 22, 28 [Tomb 114], 81, 89 [Tomb 116], 124, 130 [Tomb 118]), and Tell el-Farᶜah South (Petrie and Tufnell 1930:pl. 19.43 P5 [Tomb 552]; Starkey and Harding 1932:pl. 86.43 P6 [Tomb 905]). This rounded shoulder variety continued into the early Iron Age, as at Ashdod in Area H, Stratum 6 (= general Stratum XIII/twelfth century B.C.; M. Dothan 1971:156, fig. 83.1–2, pl. 76:7–8) and Izbet Sartah in Stratum III (= Type 20; Finkelstein 1986:fig. 9.2). Four-handled storage jars of this period, however, were more often

carinated, as for example at Qasile (= Type SJ2) in Strata XI (= end of the twelfth/beginning of the eleventh century B.C.; Mazar 1985:56, fig. 26.14), Gezer in Field VI, Stratum 6A (= general Stratum XIII/Iron IB/early to mid-twelfth century B.C.; Dever 1986:83, Pl. 27.1–2), an early twelfth-century B.C. tomb at Nizzanim (Gophna and Meron 1970:4, fig. 2.5), and at Ashkelon.
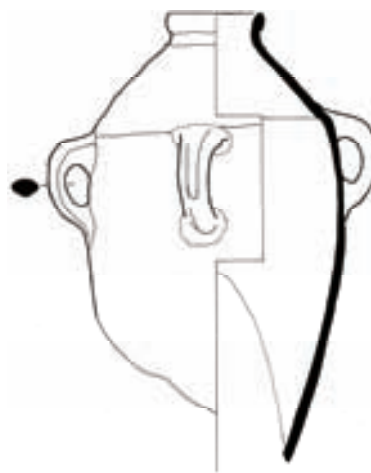
Figure 23.7: Amphora 7 (scale 1:10)

Amphora 8

Field reg.:   A5/86.38.64.L54.B288.#1
Photo no.:   98-11323
Date: Iron Age I
Context: Grid 38, Phase 18 (roof collapse)
Height: 55 cm
Weight: 5.5 kg
Volume: 21.28 liters (calibrated)
Diameters: 11.3 cm (rim), 29 cm (maximum)
Color: 7.5YR 7/4 pink (surface and fabric)
Inclusions: very many medium to large white
Fabric: very coarse
Core: thin, middle, gray
Exterior: wheel burnishing over most of mid-body
Description: elongated ovoid body; tall plain rim/neck with internal thickening at lip; convex, sloping, and slightly carinated shoulder; coil handles, circular in shape, attached at upper body; base very slightly flattened; 20–25% restoration

Discussion

This type of amphora appears primarily at sites along or near the coast of Israel during the Iron I period: at Ashdod in local Stratum 10 (= eleventh and early tenth centuries B.C.; Dothan and Porath 1982:119, fig. 9.1, pl.14:4); at Tel Miqne-Ekron in Stratum IV (= transitional eleventh/tenth century B.C.; Ortiz 2000: 308–10); at Gezer in local Stratum 5B/A (= general Stratum XI/early to mid-eleventh century B.C.; Dever 1986:pl. 41:1); at Qasile in Stratum X (= 1050–980 B.C.), where it is classified as "Type SJ 1" (Mazar 1985:54–56, fig. 43.20). At Dor similar amphoras are found in abundance in Phase 12 (= twelfth to eleventh centuries B.C.; Gilboa 1998:fig. 6.1), and at Tell Keisan they appear in Level 9a–b (= Iron I; Briend 1980b:pl. 59:3, 5). A storage jar similar to Amphora 8, except for its less tapered lower body, was found inland at Megiddo in Stratum V (= 1060–1000 B.C.; Lamon and Shipton 1939:pl. 21:122). Numerous jars of this type appear at Enkomi in the twelfth century B.C. (J.-C. Courtois 1971:249–51, fig. 91; 256, fig. 96), perhaps imported from southern Palestine (Mazar 1988). In light of the distribution of this amphora type along the coastal Levant (i.e., Ashkelon, Ashdod, Qasile, Dor, and Tell Keisan), it is tempting to associate its appearance with the settlement of "Sea Peoples," who are often connected with these sites.
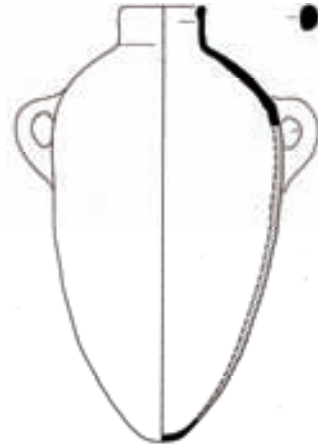
Figure 23.8: Amphora 8 (scale 1:10)

Amphora 9

Field reg.:	A80/97.38.94.L298.F298.B57.#3
Photo nos.:	98-11415
Date:	Iron Age II
Context:	Grid 38, Phase 14 (secondary use in drain associated with 7th-cent. B.C. winery)
Height:	48.3 cm, 1.3 cm (toe)
Weight:	5.0 kg (13.5 kg filled)
Volume:	8.25 liters (water)
Diameters:	9.4 cm (rim), 20.4 cm (maximum), 4.3 cm (toe)
Color:	7.5YR 6/3 light brown (surface) 5YR 5/8 yellowish red (fabric)
Inclusions:	very many fine to small white, many fine voids from burnt out organic temper
Fabric:	coarse
Core:	thick gray
Exterior:	closely spaced, light, horizontal scrape marks on shoulder; diagonally dragged finger marks in handle region
Interior:	wheel marks
Description:	tapered cylindrical body; short, simple, vertical rim/neck with internal thickening at base; carinated uneven shoulder; small, unevenly attached, circular handles with additional hand-molded clay at points of attachment; upper body swell in handle region; solid flattened toe with slight ring on underside; no restoration

Discussion

On Cyprus, amphoras with similarly shaped bodies, but with shoulders and rims closer to Amphora 17 (see below), appear during the Cypro-Archaic II period (= 600–500 B.C.) at Salamis in Tombs 11 (Karageorghis 1970:pl. 209:2) and 14 (pl. 212:T15/1). In the Levant, a similarly shaped amphora was found at Kuntillet ᶜAjrud, a single-period site dating to the end of the ninth/beginning of the eighth century B.C. (Ayalon 1995:165, fig. 13.5). Numerous amphoras of this type were found in secondary use in a drain connected to the seventh-century B.C. royal winery at Ashkelon (Stager 1996a:62–65).
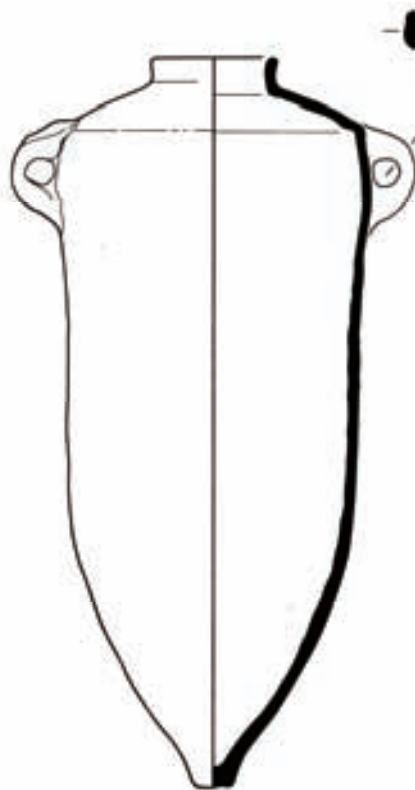
Figure 23.9: Amphora 9 (scale 1:5)

Amphora 10

Field reg.:   A73/93.50.49.L418.FG18.B71,74.#6
Photo no.:   98-11420
Date: late 7th cent. B.C.
Context: Grid 50, Phase 7 (604 B.C. destruction)
Height: 60 cm
Weight: 7.5 kg
Volume: 39.36 liters (calibrated)
Diameters: 11.7 cm (rim), 36.8 cm (maximum),
   6.0 cm (toe)
Color: 2.5Y 7/3 pale yellow (slip)
   5YR 5/8 yellowish red (fabric)
   10YR 6/6 brownish yellow (core)
Inclusions: some medium white
Fabric: fine, hard
Core: thick, middle, light gray
Exterior: wheel burnishing on shoulder, vertical hand burnishing mid-body, wheel marks lower mid-body, incised potter's mark on shoulder
Description: spherical body with tapered base; short, slightly everted rim with shallow rill at base of rim and internal thickening at join with shoulder; convex carinated shoulder; flattened ridged shoulders with hand-molded clay at points of attachment; hollow, slightly flattened toe; 10–15% restoration

Discussion

This "butterfly" storage jar—so-called because of the distinctive potter's mark on its shoulder—has until recently only been found at sites in the inner Shephelah and Negev, predominantly in the eighth century B.C. This amphora figured prominently in the chronological debate (Yadin 1974:33–35; 1985:26) concerning the dating of Lachish Level III (= "Type 472"; Tufnell 1953:pl. 94:472) and the similar pottery assemblage at Tel Sheva Stratum II (Aharoni 1973:pls. 57:3, 46:3). Typological differences in the rim and base between these eighth-century B.C. amphoras and those found at Ashkelon in the seventh century B.C. suggest an evolution in form over time: at Ashkelon the rims are shorter and flare slightly, and the base is a more defined stump. A similar progression has been observed at Lachish, where "butterfly"-type jars have been found in both Levels II (= "Group IIE") and III (= "Group IIIE"), although the Level II jars lack the distinctive potter's mark (Zimhoni 1997:247–50, figs. 5.28–29). Moreover, at Tel Batash/Timnah a "butterfly"-type amphora, more closely resembling Amphora 10 shown above, was found in a seventh-century B.C. context (= Stratum II; Kelm and Mazar 1995:156, fig. 8.19). At Tel Haror, a "Group IIE"

"butterfly"-type jar with an incised pentagram on the shoulder was found in a seventh-century B.C. context (= Stratum G3; Oren, Morrison, and Gilead 1986:75, fig. 19.2). "Butterfly" jars, with and without the potter's mark, have also been found in the eighth and seventh centuries B.C. at Tel Seraʾ, Tel ʿIra (= Stratum VII; Beit-Arieh 1985:20, upper photograph; Freud 1999:208, figs. 6.31:1, 6.60:11), Tell Judeidah, Tell Beit Mirsim (= Stratum A2; Albright 1932:fig. 15.2, pl. 53:2), Tell Jemmeh, ʿArad (= Strata VIII–VII; Aharoni and Aharoni 1976:83, fig. 3.7), and Ruqeish (= Strata III–IV; Oren et al. 1987:86, ill. p. 87). Amphora 10 is the only restorable "butterfly" storage jar found at Ashkelon; however, a number of bases have been found. The fabric, which is characterized by *terra rossa* with entirely coastal inclusions, indicates a clay source in the northern Shephelah (Master 2001:78, 120–21; fig. 2.3.4 [Category 1b]).

Figure 23.10: Amphora 10 (scale 1:10)
and "butterfly" mark on shoulder

Amphora 11

Field reg.:   A73/98.50.67.L61.FG37.B93+.#2
Photo nos: 98-10308a, 98-10308c (potter's mark)
Date: late 7th cent. B.C.
Context: Grid 50, Phase 7 (604 B.C. destruction)
Height: 83 cm (to rim), 93.5 cm (to top of handles)
Weight: 25.0 kg
Volume: 85.11 liters (calibrated)
Diameters: 13.4 cm (rim), 51.5 cm (maximum)
Color: 2.5Y 8/4 pale yellow (surface and fabric)
Inclusions: very many voids from burnt-out organic temper
Fabric: fine, hard
Core: none
Exterior: some wheel-burnish marks around mid-body, vertical burnishing on handles; possible incised potter's mark at base of handle
Interior: wheel marks
Description: biconical body; everted neck/rim with slight carination midway and internal thickening at join with shoulder; steeply sloping convex shoulder; massive basket handles with extended clay ridge at points of attachment; carination at mid-body followed by second softer carination approximately 10–11 cm lower on the body; slightly flattened base with recessed underside; 95% intact

Discussion

This early biconical variety of the "basket-handled" storage jar is found primarily on Cyprus and along the Levantine coast at the end of the seventh century B.C. In the latter region it appears at the following sites: Tell Sukas in the late seventh and early sixth centuries B.C. (Riis 1979:20, fig. 52); Tell Keisan in Stratum 4a (= Iron IIC; Salles 1980b:140, pls. 23, 24, 127); Shiqmona in Stratum 8/Town E (= seventh century B.C.; Elgavish 1994:72, fig. 53); Meṣad Hashavyahu (Naveh 1962:97, fig. 6.13); and Migdol/Site T.21 (Oren 1984:17, fig. 21.1) in the last quarter of the seventh century B.C. It corresponds to Stern's "Type I1" (1982:111–12) and Humbert's "Types B and C" (1991:582–83, figs. 3–4). On Cyprus this type of "basket-handled" storage jar appears most frequently at the transition of the Cypro-Archaic I and II periods (ca. 600 B.C.) and is grouped under both "Plain White V" and "Plain White IV" wares (Gjerstad et al. 1935:pl. 133:1; Gjerstad et al. 1948:88, fig. 57.5; 1960:121, fig. 15.5). Neutron activation and petrographic analyses show that the "basket-handled" jars from Tell Keisan were all made with eastern Cypriot clays (L. Courtois 1980:358–60; Gunneweg and Perlman 1991; Humbert 1993:867). This confirms, at least for this early stage of their production,

Gjerstad's (1946:9, n. 2) theory concerning the origin of this form. In respect to provenience, Daniel Master's petrographic study of this amphora at Ashkelon was inconclusive (Master 2001:117, 133; fig. 2.8.1 [Category 8]). Amphora 20 is a later variant of the "basket-handled" storage jar.
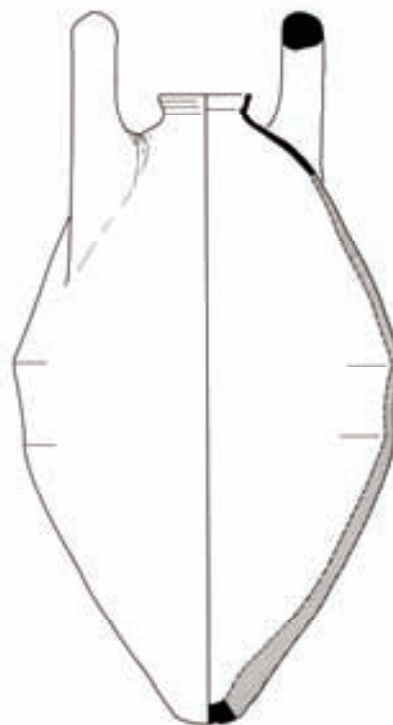
Figure 23.11: Amphora 11 (scale 1:10)

Amphora 12

Field reg.:	A72/92.50.49.L353.B87.#1
Photo no.:	94-6500
Date:	late 7th cent. B.C.
Context:	Grid 50, Phase 7, Room 375 (604 B.C. destruction)
Height:	56.2 cm (preserved)
Weight:	4.0 kg (preserved)
Volume:	35.64 liters (estimated and calibrated)
Diameters:	15 cm (rim), 39.5 cm (maximum)
Color:	7.5YR 6/4 light brown (surface) 5YR 6/6 reddish yellow (fabric)
Inclusions:	very many small fine sparkling, very few small white
Fabric:	coarse
Core:	thick, middle, light gray
Exterior:	wash; horizontal wheel burnishing; ridging on neck
Interior:	wheel marks
Description:	piriform body; slightly everted thickened rim with slight overhang; tall neck with internal thickening at shoulder join; well-rounded sloping shoulder; ridged arching handles with clear hand-molding at points of attachment on shoulder and neck; base not preserved although parallels most likely indicate a splayed ring base; 75% preserved (no restoration)

Discussion

This early-type Samian amphora was widely exported throughout the eastern Mediterranean at the end of the seventh and beginning of the sixth centuries B.C. It commonly appears in contexts alongside Chian amphoras (see Amphora 16) and East Greek "Wild Goat Style" decorated pottery. Along the Levantine coast, it is found at Tarsus in the sixth century B.C. (Goldman 1963:272, fig. 91.1280), at Tell Sukas—where it is mistakenly described as a local ware—in the first half of sixth century B.C. (Ploug 1973:84, pl. 20:387–89), and at Meṣad Hashavyahu in the last quarter of seventh century B.C. (Naveh 1962:fig. 6:1–6). In Egypt, the type appears in the northern Sinai at Migdol/Site T.21, where it was dated to the end of the seventh/beginning of the sixth century B.C. (Oren 1984:25–27, figs. 23.5, 36–38), and in the Nile Delta at Naukratis (Petrie 1886:pl. 16:2; Grace 1971:68) and Daphnae (Petrie 1888:pl. 33:1). On Cyprus it is classified under "Plain White V" ware (= Cypro-Archaic II/600–475 B.C.; Gjerstad et al. 1948:88, fig. 63.11; 1960:121, fig. 16.1). In the Aegean world, it appears in the late seventh and early sixth centuries B.C. at such sites as Samos (Grace 1971:68–72), Athens (70–71, fig. 2.2, pl. 15:3), and Corinth (Brann 1956:fig. 5.104). Samian amphoras are thought to have carried olive oil rather than wine, on the basis of numismatic and textual data: an olive branch appears alongside an amphora on Samian coinage (Grace 1971:80, pl. 15:7–8) and certain classical authors (i.e., Anakreon, Fragment 98 and Aeschylus, *Persians* 882) describe Samos as "olive-growing" (Grace 1971:80, n. 70; see also Barron 1966:7, nos. 50–52). For an earlier discussion of this amphora at Ashkelon, see Stager 1996a:67, fig. 6.
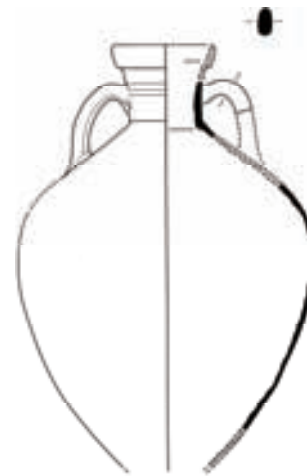
Figure 23.12: Amphora 12 (scale 1:10)

Amphora 13

Field reg.:　　A72/92.50.49.L401.FG37.B307.#1

Photo nos.:　　98-11320, 98-11425

Date:　　late 7th cent. B.C.

Context:　　Grid 50, Phase 7, Room 406
　　　　　　(604 B.C. destruction)

Height:　　45 cm

Weight:　　4.0 kg (25.5 kg full)

Volume:　　22.5 liters (water)

Diameters:　　10.2 cm (rim), 32.7 cm (maximum)

Color:　　5Y 7/2 light gray (surface)
　　　　　2.5Y 5/2 grayish brown (fabric)

Inclusions:　　few medium white

Fabric:　　fine

Core:　　none

Exterior:　　slipped; some vertical hand-burnishing in
　　　　　　handle region; wheel marks faintly visible on
　　　　　　mid- and upper body (0.75–1 cm wide)

Interior:　　wheel marks, more pronounced in shoulder
　　　　　region

Description:　　baggy body; short, simple, vertical rim with
　　　　　　internal thickening at join with shoulder;
　　　　　　short carinated shoulder; small, uneven,
　　　　　　ridged, and flattened coil handles with some
　　　　　　applied clay around points of attachment;
　　　　　　rounded bottom coming to soft point; 5–10%
　　　　　　reconstruction

Discussion

Amphora 13 is the most common amphora type found in Philistia during the late Iron II period. Numerous restorable examples of these "fat-bellied" jars have been found in Nebuchadrezzar's destruction level at Ashkelon (Stager 1996a:63, figs. 3–4) and at Tel Miqne-Ekron (= Type 1; Gitin 1995:fig.4.6.1; 1998:171, fig. 5.4). This type is also frequently found in seventh-century B.C. contexts at Ashdod (Strata VI–VII; M. Dothan 1971:201, fig. 95.2; Dothan and Porath 1982:fig. 22.3, pl. 21:7) and Tel Batash/ Timnah (Stratum II; Kelm and Mazar 1995:fig. 8.11). The strictly coastal inclusions, which include loess, indicate that these "fat-bellied" jars were produced along the southern coast of Palestine and slightly inland—in other words, in Philistia (Master 2001:97, 122–23; fig. 2.4.15 [Category 1d]). In the northern Negev they have been found at Tel ᶜIra in Stratum VI (dated to the end of Iron II; Freud 1999:208, fig. 6.99:8). The type traveled westward with the Phoenicians, appearing on Cyprus at Kition (Bikai's no. 590; 1987:45, pl. 23:590), at sites in southern Spain (Catalán 1982:388, fig. 11.A-2), and at Carthage (Docter 1997:fig. 245). Amphora 13 is slightly

smaller than usual; at Ashkelon, this amphora type averages 1.20 m in maximum diameter, 0.39 m in rim diameter, 36.6 liters in volume, 55–60 cm in height, and 5.5–7.5 kg in weight.
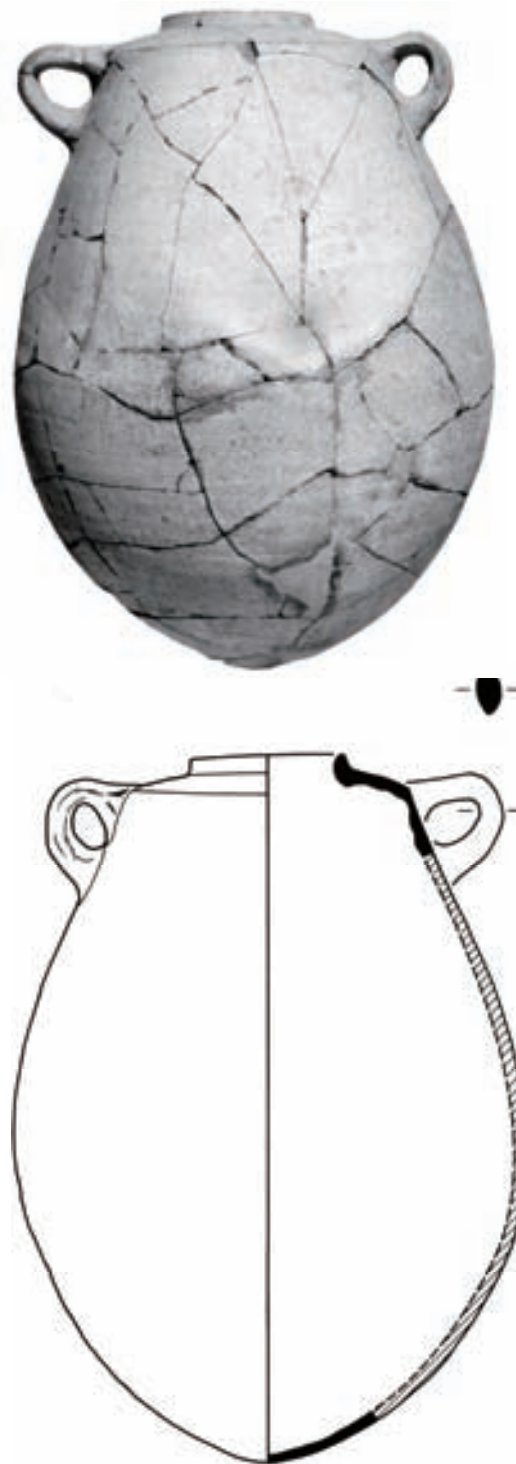
Figure 23.13: Amphora 13 (scale 1:5)

Amphora 14

Field reg.:	A72/92.50.58.L262.FG34.B77.#7
Photo nos.:	98-11428
Date:	late 7th cent. B.C.
Context:	Grid 50, Phase 7, Room 252 (604 B.C. destruction)
Height:	52 cm
Weight:	2.5 kg
Volume:	7.98 liters (calibrated)
Diameters:	8.5 cm (rim), 22.5 cm (maximum)
Color:	7.5YR 6/6 reddish yellow (surface and fabric)
Inclusions:	few small white
Fabric:	very fine
Core:	none
Exterior:	wheel marks (ca. 2 cm wide) faintly visible over entire body; occasional irregular hand burnishing; some applied clay
Interior:	pronounced wheel marks
Description:	bulbous lower and pinched upper body; sloping holemouth rim set off from shoulder by flange; short straight shoulder with overhanging flange; small circular handles with crudely applied clay around points of attachment; 20–25% restoration

Discussion

Common throughout much of the eastern Mediterranean, this "Phoenician" amphora type can be broadly dated to the seventh and sixth centuries B.C. In Israel, it appears at Tell Keisan in Level 4a (= 600–580 B.C.; Salles 1980b:pl. 27.1–5), at Shiqmona in the destruction of Stratum 9 (= 750–600 B.C.; Elgavish 1994:fig. 50), and at Tel Batash/Timnah at the transition of the Iron Age and Persian period (Kelm and Mazar 1995: fig. 8.34). On Cyprus, Amphora 14 is classified under "Plain White V" ware, which appears during the Cypro-Archaic II period (Gjerstad et al. 1935:pl. 133:3; Gjerstad et al. 1948:88, fig. 56; 1960:114, fig. 6.7). A clay source in a region of recent (i.e., Miocene) geological uplift is clearly signaled by the predominance of microfossils among the coarse inclusions (Master 2001:101; 129–31; fig. 2.7.5 [Category 6]). Until further studies of microfossils in the northern coastal Levant become available, the most that can be said for this amphora is that it was produced north of Tripoli. Amphora 14 corresponds to Sagona's "Type 5" (1982:74, fig. 1.10), Bikai's no. 589 (1987:45, pl. 23:589), and is a variant of the "wasp-waisted" or "sausage" jar (for a photo of Amphora 14 and the rest of the 604 B.C. assemblage at Ashkelon, see Stager 1996a:fig. 3).
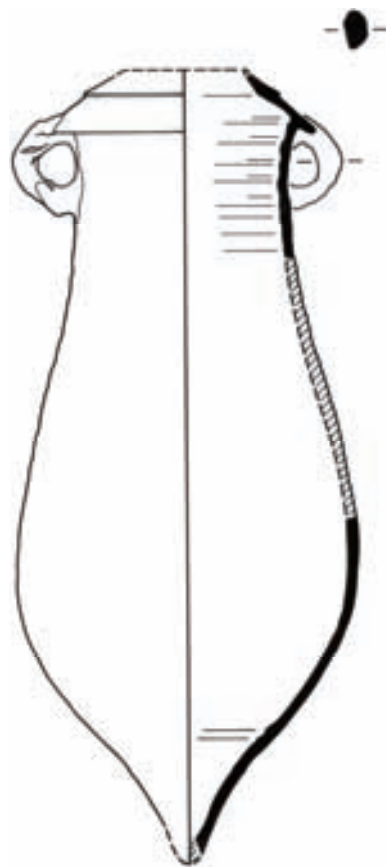
Figure 23.14: Amphora 14 (scale 1:5)

Amphora 15

Field reg.:	A55/94.38.84.L371.FG20,30.B101+.#1
Photo no.:	98-11416
Date:	late 7th cent. B.C.
Context:	Grid 38, Phase 14 (604 B.C. destruction)
Height:	54.5 cm (preserved), 2.3 cm (toe)
Weight:	5.5 kg (preserved)
Volume:	43.09 liters (estimated and calibrated)
Diameters:	rim not preserved, 42.1 cm (maximum), 7.1 cm (toe)
Color:	2.5Y 6/3 light yellowish brown (surface) 10R 5/6 red (core)
Inclusions:	many fine sparkling, very few small white
Fabric:	coarse, hard
Core:	thick, middle, orange
Exterior:	light scrape marks over most of body—closely spaced, regular and slightly diagonal
Interior:	vertically dragged finger impressions all along shoulder region
Description:	piriform body; rim, neck, and handles not preserved, but based on parallels, we may reconstruct rolled rim, short cylindrical neck with ridge at handle join, and shoulder-to-neck strap handles; rounded convex shoulder; flattened hollow toe with recessed underside; 50–60% intact (5–10% restoration)

Figure 23.15: Amphora 15 (scale 1:10)

Discussion

The distinctive grayish color and the wide flattened hollow toe indicate that Amphora 14 belongs to a group of amphoras commonly ascribed to Lesbos. J. M. Cook was the first to suggest a connection between this type of gray amphora and the island of Lesbos, based on the apparent similarity between the color of these amphoras found during his excavations at Old Smyrna and the color of Aeolic bucchero pottery excavated on Lesbos (cited in Clinkenbeard 1982:252, n. 29). The petrographic data agree with the stylistic evidence: the dominant extrusive igneous inclusions of trachyte and feldspar point to a north Aegean clay source (Master 2001:40, 146–47; fig. 2.9.8 [Category 18]). The export of wine from Lesbos is attested as early as the seventh century B.C. (Strabo XVII.1.33 [C 808]), and Lesbian wine was highly praised by many Hellenistic and classical writers (for references, see Clinkenbeard 1982:254–56). "Lesbian" amphoras dated to the Archaic period have been found at Lesbos (Lamb 1930/31:177, pl. 27:5) and Athens (Clinkenbeard 1982:249, pl. 70:1; 1986: 359, fig. 2). Neutron activation analysis performed on "Lesbian" amphora sherds from Athens and Lesbos indicates a common clay source on Lesbos for some but not all sherds (Clinkenbeard 1982:261–68).

Amphora 16

Field reg.:	A73/98.50.67.L61.FG37.B57+.#1
Photo nos.:	98-10160b–e
Date:	late 7th cent. B.C.
Context:	Grid 50, Phase 7 (604 B.C. destruction)
Height:	60.2 cm
Weight:	8.75 kg
Volume:	36.70 liters (calibrated)
Diameters:	17.3 cm (rim), 39.5 cm (maximum), 9.9 cm (base)
Color:	2.5YR 5/8 red to 5YR 4/2 dark reddish gray (paint), 10YR 7/3 very pale brown (slip), 10R 5/8 (red)
Inclusions:	very many small to medium white, few fine sparkling, few small dark
Fabric:	coarse, hard
Core:	thick, interior, light gray
Exterior:	slipped; painted
Decoration:	thick horizontal band of brownish red paint around rim, upper and lower neck, shoulder (double), body (ca. 6–8 cm apart), and base; vertical band from top of handle to middle horizontal band on body; circular bands around points of handle attachment; two "S" patterns in shoulder register
Description:	piriform body; rounded, externally thickened rim; tall vertical neck with internal thickening at base; arched strap handles; rounded convex shoulder; flattened ring base; 5–10% restoration

Discussion

This imported Chian amphora is similar in date and distribution to the Samian amphora (Amphora 12) discussed above. It has been found in small numbers along the Levantine coast at sites such as Sukas (Ploug 1973:71, nos. 322–24) and Meṣad Hashavyahu (Naveh 1962). The type appears in abundance in Egypt at T.21/Migdol ("Type B" = early sixth century B.C.; Oren 1984:24–25, figs. 24.1, 31.33–34), Naukratis (Boardman 1956), and Daphnae (Petrie 1888:pl. 36:5). At Daphnae, one of the Chian amphoras had been sealed with cartouches of King Amasis (570–526 B.C.), providing a mid-sixth century B.C. date for the appearance of this type in the east. This absolute date can now be raised, based on the chronological datum provided by Nebuchadrezzar's destruction of Ashkelon in 604 B.C. (Stager 1996a:61, n. 1).

On Cyprus, the later, more elongated type is found in Cypro-Archaic II tombs, as for example at Salamis in Tomb 33 (Karageorghis 1970:63, pls. 116:22,

224:22). In the Aegean, this type appears in the late seventh century B.C. at Chios (for Kofina Ridge, see Anderson et al. 1954:169, fig. 5.17–18; for Emporio, see Boardman 1967:178–79), and at Athens (Sparkes and Talcott 1970), Tocra (Boardman and Hayes 1966:137, pl.90:1414), Old Symrna (Cook 1958–59:fig.4), and Thasos (Bernard 1964:137–38, figs. 10, 50), as well as at Tigani, Thera, and Histria (for references, see Ploug 1973:71; Oren 1984:24).

The depiction of grapes over an amphora on Chian coinage is a likely indication of the amphora's contents (Grace 1971:79). The mix of weathered sedimentary and meta-sedimentary inclusions contains no dominant minerals and cannot be ascribed to a particular geological region (Master 2001:50, 117, 145, 146; fig. 2.9.6 [Category 17]); however, the types of limestone, chert, and rare serpentine present in the Ashkelon sample are attested also on Chios (cf. Chian Fabric Class 2; Whitbread 1995:141–42, pl. 4.38). For a Chian amphora rim found at Ashkelon, see Stager 1996a:67, fig. 5.

Figure 23.16: Amphora 16 (scale 1:10) (viewed from different angles)

Amphora 17

Field reg.:	A72/92.50.58.L262.FG23.B84.#8
Photo nos.:	98-11407a–c
Date:	late 7th cent. B.C.
Context:	Grid 50, Phase 7 (604 B.C. destruction)
Height:	46 cm
Weight:	5.0 kg (19.25 kg full)
Volume:	14.30 liters (water)
Diameters:	11.5 cm (rim), 25.2 cm (maximum)
Color:	10YR 8/3 very pale brown (slip)
	2.5YR 5/8 red (fabric)
Inclusions:	many medium to large white
Core:	thick, middle, gray
Fabric:	fine
Exterior:	slipped; closely spaced, horizontal, light wheel scrape marks on shoulder and lower body; wheel marks faintly visible (1–1.5 cm wide); irregular, dragged, finger impressions across mid- to lower body; some excess clay around handles and in shoulder region
Interior:	wheel marks
Description:	short cylindrical body with tapered base; short thick rim with slight flare; straight sloping shoulder, carinated with very small clay overhang; small crudely formed circular handles with applied clay around points of attachment; small pieces of applied clay also on shoulder and upper body; base comes to soft point; 10–15% restoration

Discussion

This amphora type is found throughout much of the eastern Mediterranean toward the end of the seventh century B.C. In the coastal Levant it appears at Tell Keisan in Stratum 4 (= 650–580 B.C.; Salles 1980b: 146, pl. 27) and at Meṣad Hashavyahu in the last quarter of the seventh century B.C. (Naveh 1962:fig. 16.15). On Cyprus, this type is classified as "Plain White IV" ware and is dated to the Cypro-Archaic I (= 700–600 B.C.; Gjerstad 1960:114, fig. 6.7), but is also grouped under "Plain White V" ware, which appears primarily during the Cypro-Archaic II (= 600–475 B.C.; Gjerstad et al. 1935:pl. 133:3; Gjerstad et al. 1948:fig. 66.2). Like most amphoras from this period, it was commonly deposited in tombs, as at Salamis (Karageorghis 1970:pls. 148:5 [Tomb 64], 151:T.70, 4 [Tomb 70], 164:11 [Tomb 84], 199:106, 204:2 [Tomb 7]) and at Patriki in Tomb 1 (Karageorghis 1972:fig. 11.3). The type is also found at Carthage in the seventh century B.C. (Cintas 1950:pl. 22:283; Bartolini 1988:502). At Tell Keisan, where it is found in abundance, Amphora 17 is referred to as a "jarre torpille"; it also possesses elements of Zemer's "Types 12–15" (Zemer 1978:18, pl. 5). Based on its distribution along the Levantine coast, on Cyprus, and at western Mediterranean sites such as Carthage, this type has justly been associated with Phoenician trade and expansion. Indeed, the fabric of Amphora 17 is similar to that of Amphora 14, which strongly suggests that its provenience, too, should be sought in the coastal Levant north of Tripoli. For a photo of Amphora 17 and the rest of the 604 B.C. assemblage at Ashkelon, see Stager 1996a:fig. 3.

Figure 23.17: Amphora 17 (scale 1:10)

Amphora 18

Field reg.:	A73/93.50.46.L36.B96.#1
Photo nos.:	98-11309, 98-11310
Date:	Persian period
Context:	Grid 50, Phase 6 (clay-lined pit in room of warehouse)
Height:	51 cm
Weight:	4.5 kg (preserved)
Volume:	11.17 liters (calibrated)
Diameters:	10.2 cm (rim), 22.8 cm (maximum)
Color:	7.5YR 7/6 reddish yellow (surface and fabric)
Inclusions:	very many fine dark, few medium dark and white
Fabric:	fine, brittle
Core:	none
Exterior:	wheel marks below handles (1–1.5 cm wide); irregular burnishing over mid- and lower body
Interior:	wheel marks, more pronounced and more closely spaced on inside of shoulder
Description:	hour-glass-shaped body; simple coil rim; slightly convex sloping shoulder, carinated with very small clay overhang; small circular handles with some hand-molded clay around points of attachment; hollow pointed base; 25–30% restoration

Discussion

Amphora 18 is best described as a transitional Iron Age–Persian-period storage jar. ᶜAtlit Tomb L.16 provides the best Persian-period comparanda (Johns 1933:60, fig. 16.l, pl. 19:386). Storage jars identical to Amphora 18—which is a clear Persian-period type—were found in the same tomb at ᶜAtlit (fig. 16m, pl. 19:384). An elongated predecessor with taller rim and more pointed base is well known from the eighth and seventh centuries B.C. and is variously referred to as "sausage-shaped" (Amiran 1969: 242, pl. 82:6), "cylindrical," "wasp-waisted" (Yadin et al. 1960:59, pl. 101:9), and "crisp ware" storage jars (Bikai 1978a:48–49, fig. 1.3). These earlier elongated types appear at the following sites: Hazor in Stratum IV (= end of eighth to mid-seventh century B.C.; Yadin et al. 1960:pl. 101:9); Lachish in Stratum III (= second half of eighth century B.C.), where it is classified as "Class S.3" (Tufnell 1953:313, pls. 78:10, 95:489); Tel Sheva in Stratum II (= eighth century B.C.; Aharoni 1973:pls. 46:4, 57:7); and Ashdod in Strata VIII–VII (= eighth and seventh centuries B.C.; M. Dothan 1971:figs. 42.4, 57.8–9). The excavators of these sites often refer to a Persian-period descendant of this typical Iron II storage jar (Yadin et al.1960:28; M. Dothan 1971:113; see also Zemer

1978:14). At Megiddo, "sausage" jars (= Types 79–80) reportedly began in Stratum III (= ca. 780–650 B.C.) and lasted until Stratum I (= ca. 600–350 B.C.; Lamon and Shipton 1939:167, pl. 16:79–80), attesting to the long life of this amphora type.

Figure 23.18: Amphora 18 (scale 1:10)

Amphora 19

Field reg.:	A16/87.57.58.L82.F82.B243.#7
Photo nos.:	98-11322, 98-11429
Date:	late Persian
Context:	Grid 57, Phase 3 (courtyard surface; destroyed ca. 290 B.C.)
Height:	52 cm
Weight:	4.75 kg
Volume:	12.0 liters (water)
Diameters:	11.4 cm (rim), 26.3 cm (maximum)
Color:	7.5YR 6/6 reddish yellow (surface and fabric)
Inclusions:	many fine dark
Fabric:	fine
Core:	none
Exterior:	irregular, dragged, finger impressions mid-body; excess clay around points of handle attachment and in shoulder region
Interior:	faint wheel marks, a few large blobs of clay attached to inside wall of amphora
Description:	biconical body with swollen mid-body and long tapered base; simple coil rim; short straight shoulder, carinated with very small clay overhang; small, circular, crudely formed handles with much applied clay around points of attachment; less than 5% restoration

Discussion

Amphora 19 is the Phoenician amphora *par excellence* during the Persian period. It appears in significant quantities in Israel at the following sites: Tell Keisan in Level 2 (= end of fourth century B.C.; Briend 1980a:105, pl. 7:4); Tel Mevorakh in Strata VI–IV (= fourth and fifth centuries B.C.; Stern 1978: 33–34, fig. 6.1–3, 6, pl. 24:1–2); Gezer in Stratum IV (= fourth and fifth centuries B.C.; Gitin 1990:pl. 28b:13–21); and Tell el-Ḥesi in Stratum V (= fifth century B.C.; Blakely and Bennett 1989:208, fig. 170). Closer by, in a Persian-period cist tomb north of Ashkelon, two more amphoras of this type were found (Golani 1996:115, fig. 4.1). The type is commonly found on Cyprus, where it is grouped under "Plain White VII" ware (= Cypro-Classical II/400– 325 B.C.; Gjerstad et al. 1948:90, fig. 67; 1960:114, fig. 6.10), and it appears as far west as Carthage (Cintas 1950:pls. 22:280, 25:307). This amphora corresponds to Sagona's "Type 6" (Sagona 1982:23, pl. 7), Zemer's "Types 19–21" (Zemer 1978:23, pl. 7), and Stern's "Type H6" (Stern 1982:109, fig. 152). At Tell el-Ḥesi, neutron activation analysis has determined it to be of probable Lebanese origin (Blakely and Bennett 1989:221). The small crudely formed handles on

Amphora 19, which are similar to those on numerous other Iron II and Persian period storage jars (see Amphoras 9–10, 13–14, 17–18, and 23), would have been poorly suited for lifting, especially when these amphoras were full. Instead, they were intended primarily as a means of securing cargoes of wine (Zemer, cited in Artzy 1980:69). Ropes were passed through the handles of these amphoras when they lay nested in the holds of ships, as was most probably the case with the recently discovered eighth-century B.C. Phoenician shipwrecks found off the coast of Ashkelon (see Ballard, Stager, et al. 2002:159). The fifth-century B.C. warehouse at Ashkelon produced many amphoras of this type (Stager 1991:24, photos pp. 22, 26).

Figure 23.19: Amphora 19 (scale 1:10)

Amphora 20

Field reg.:   A16/87.57.68.L157.F157.B363,366.#10
Photo nos.:   98-11414
Date: late Persian/early Hellenistic
Context: Grid 57, Phase 3 (collapse of ground floor into basement; destroyed ca. 290 B.C.)
Height: 81 cm (to rim), 91 cm (to handle), 9 cm (toe)
Weight: 12.0 kg
Volume: 35.11 liters (calibrated)
Diameters: 10.5 cm (rim), 32.8 cm (maximum)
Color: 7.5YR 6/4 light brown (surface and fabric)
Inclusions: very many small white
Fabric: coarse, brittle
Core: none
Exterior: wheel marks all over body, more prominent on mid- to lower body (1–2 cm wide)
Interior: same as exterior
Description: tall conical body; plain holemouth rim set off from shoulder by rill; well-rounded shoulder becoming almost horizontal; heavy basket handles set on shoulder with extended ridges of hand-molded clay on upper body; solid conical toe; less than 5% restoration

Discussion

This later conical "basket-handled" amphora type has roughly the same distribution as the earlier biconical version (see Amphora 11 above), but dates to the Persian period. Along the Levantine coast it appears at Al-Mina in Level III (= 430–375 B.C.; Woolley 1938:18, 24, pl. 4:1), Tell Sukas in Period F (= 380–140 B.C.; Buhl 1983:21, fig. 6.68), and inland at Megiddo in Stratum I (= 600–350 B.C.; Lamon and Shipton 1939:pl. 12:64). On Cyprus this amphora type was found at Salamis in the *dromos* fill of Tomb 10 (Karageorghis 1970:17, pls. 68:3, 207:3) and in the fill of Tumulus 77 (1974:pl. 287:1108). Although the pottery from these tombs was grouped under "Plain White V Ware" (= Cypro-Archaic II/600–475 B.C.), the secondary contexts of both basket-handled jars leaves open the possibility of a later date (Buhl 1983:21). At Ashkelon, the conical basket-handled storage jar was clearly still in use during the early Hellenistic period. Amphora 20 and numerous other restorable amphoras (see Amphoras 21, 22, and 24) were found in a collapse layer resting on a floor, under which was secreted a hoard of silver tetradrachmas bearing the image of Alexander the Great (Stager 1991:23–24, top photo p. 25). The latest of these coins dates to the reign of Ptolemy I, ca. 290 B.C. Elsewhere, Amphora 20 corresponds to Sagona's "Type 13, sub-type e" (Sagona 1982:89, fig. 4.5),

Humbert's "Type J" (Humbert 1991:588–89, fig. 10b), Buhl's "Type E" (Buhl 1983:21, fig. 6.68), and belongs to Lehmann's "Assemblage 8" (= 360–300 B.C.; Lehmann 1998:25, fig. 12.7). Petrographic analysis carried out on basket-handled jars from Tel Michal Strata X–IX (= 490–430 B.C.), which fall typologically in between Ashkelon Amphoras 11 and 20, suggests a local origin (Goldberg, Singer-Avitz, and Horowitz 1989:265). Numerous restorable or partly restorable amphoras of this type have been found at Ashkelon in transitional late Persian–early Hellenistic contexts (Stager 1991:24 with photo). Although uniform in shape and fabric, they vary in their dimensions; for example, Amphora 20 is approximately 10 cm shorter than average.
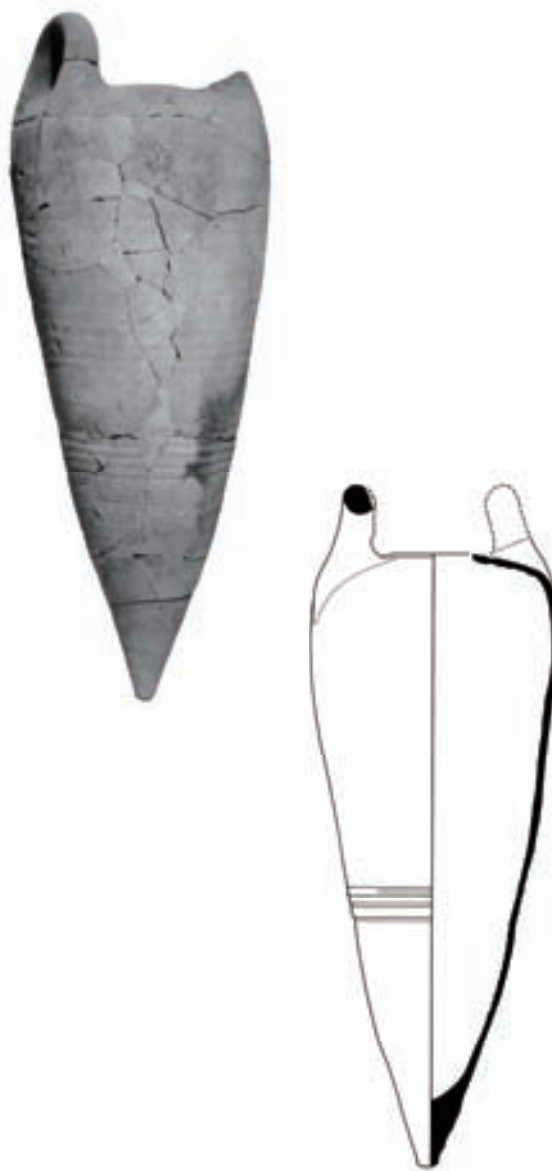
Figure 23.20: Amphora 20 (scale 1:10)

Amphora 21

Field reg.:	A5/86.57.68.L91.B187.#2
Photo no.:	98-11321
Date:	late Persian/early Hellenistic
Context:	Grid 57, Phase 3 (second-story collapse into ground-floor room; destroyed ca. 290 B.C.)
Height:	58 cm
Weight:	4.0 kg
Volume:	22.34 liters (calibrated)
Diameters:	12.4 cm (rim), 29.5 cm (maximum)
Color:	2.5Y 7/3 pale yellow (surface and fabric)
Inclusions:	very many fine dark
Fabric:	fine, hard
Core:	none
Exterior:	wheel marks over most of body
Interior:	wheel marks
Description:	tall slightly baggy body; uneven externally thickened rim with small overhang; short vertical neck with slight ridge at base; uneven, sloping, carinated shoulder; ridged, flattened, coil handles; upper body pinched at point of lower handle attachment, corresponds to indentation on interior; slightly pointed base; 90% intact (less than 5% restoration)

Discussion

This type is commonly found at Levantine coastal sites during the late Persian and early Hellenistic periods. It appears at Tel Michal in Stratum VIII (= 430–400 B.C.; Herzog, Rapp, and Negbi 1989:122–24, figs. 9.4.1–2, 9.5.1–4, 9.6), at Dor in Phase 3b (= 325–250 B.C.; Guz-Zilberstein 1995:311, figs. 6.36.11–12) at Tell Keisan in Level 2 (= end of fourth century B.C.; Briend 1980a:105–6, pl. 8:7), and at Ashdod in Strata IV–III (= Hellenistic period; M. Dothan 1971:39, fig. 12.1; 171, fig. 80.2). Storage jars of the same shape and fabric also appear in contemporary strata at nearby Maresha (G. Finkielsztejn, pers. comm.). The type corresponds to Stern's "Type F2" (Stern 1982:105, fig. 143), Zemer's "Type 25" (Zemer 1978:31–32, Pl. 8), Tel Michal "Type 1" (Herzog, Rapp, and Negbi 1989:122–24), and Tel Dor "Type JR1" (Guz-Zilberstein 1995:311, figs. 6.36.11–12). Amphora 21 came from the same context as Amphora 22 below.

Figure 23.21: Amphora 21 (scale 1:10)

Amphora 22

Field reg.:	A5/86.57.68.L91.B194.#3
Photo nos.:	98-11409
Date:	late Persian/early Hellenistic
Context:	Grid 57, Phase 3 (second-story collapse into ground-floor room; destroyed ca. 290 B.C.)
Height:	43.5 cm
Weight:	4.0 kg
Volume:	17.55 liters (calibrated)
Diameters:	11.0 cm (rim), 30.3 cm (maximum)
Color:	2.5Y 7/2 light gray (surface)
	10YR 6/6 brownish yellow (fabric)
Inclusions:	very many fine dark, many medium white
Fabric:	fine, hard
Core:	none
Exterior:	closely spaced, light, horizontal scrape marks on shoulder; wheel marks (ca. 2 cm wide) faintly visible in handle region
Description:	squat spherical body; uneven externally thickened rim with small overhang; short vertical neck with very shallow rill at base; straight-sloping softly carinated shoulder; uneven, ridged, strap handles set on upper body, corresponding to indentation on interior; slightly waisted at mid- to lower body; uneven rounded base; 5–10% restoration

Discussion

The few parallels that exist for this amphora derive from Persian and Hellenistic contexts. Four-handled examples have been found at the following sites: Tell en-Naṣbeh, in a Persian-period tomb (= Tomb 168; Wampler 1947:9, pl. 14:240); Beth-Zur, where it has been identified as Hellenistic (= second century B.C.; Sellers 1933:pl. 12:10–11; Lapp and Lapp 1968:78, fig. 29.1, pl. 35a); and En-Gedi (unpublished; for now, see Stern 1982:103, fig. 139). Amphora 22 is very similar to Amphora 21 in terms of the rim, neck, shoulder, handles, and fabric; Amphora 22, however, has a pinched waist, pointed base, and is more elongated. These amphoras came from the same context.
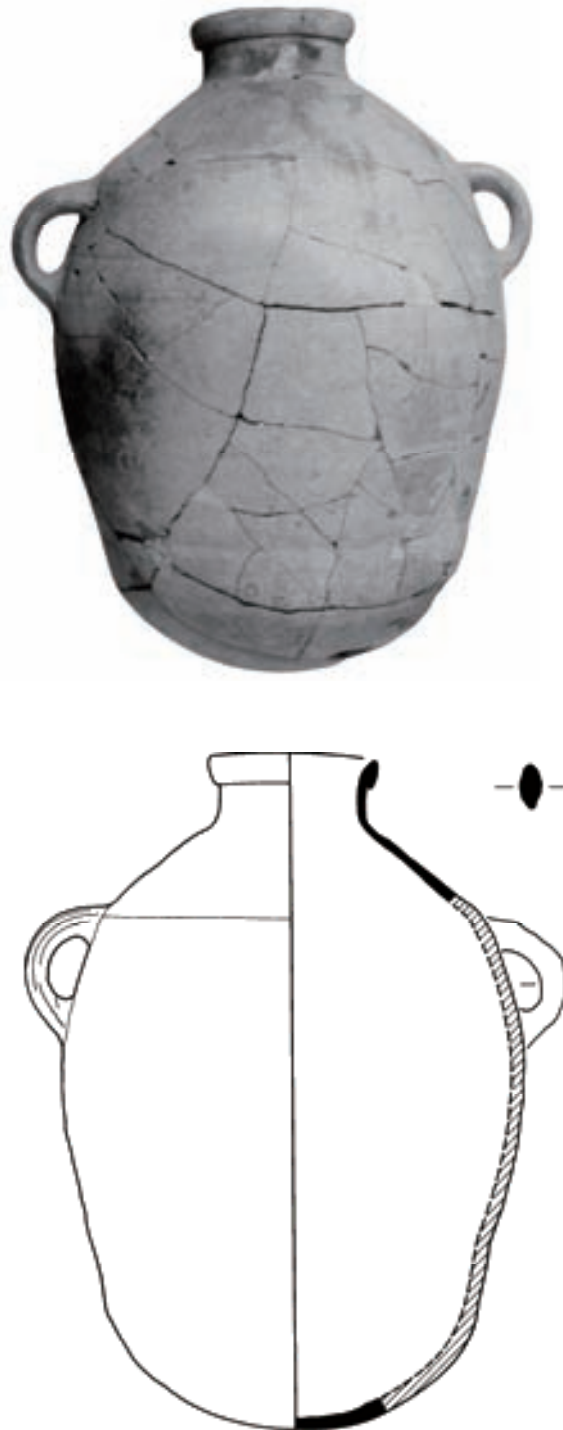
Figure 23.22: Amphora 22 (scale 1:5)

Amphora 23

Field reg.:	A5/86.50.59.L53.B296.#1
Photo no.:	98-11412
Date:	late Persian/early Hellenistic
Context:	Grid 57, Phase 3 (second-story collapse into ground-floor room; destroyed ca. 290 B.C.)
Height:	47.5 cm (preserved)
Weight:	4.0 kg (preserved)
Volume:	13.83 liters (estimated and calibrated)
Diameters:	rim not preserved, 26.5 cm (maximum)
Color:	7.5YR 7/4 pink (slip)
	5YR reddish brown (fabric)
Inclusions:	many small to medium white
Fabric:	very fine, hard
Core:	none
Exterior:	wheel marks over almost entire body but most prominent in shoulder region (1–1.5 cm wide); irregular, dragged, finger impressions on mid- to lower body; excess clay around handles and in shoulder region
Interior:	wheel marks
Description:	baggy body; rim, neck, and most of shoulder not preserved, however parallels suggest softly carinated shoulder gently sloping to small coil-formed rim; small, twisted, crudely formed handles, points of attachment not smoothed out; bulge on interior of amphora where handles are attached; hollow pointed base; 80–85% intact (no restoration)

Discussion

This type of Phoenician amphora is found mainly at sites along the coast of Israel and dates to the transitional late Persian–early Hellenistic period. It has been found at the following coastal Levantine sites: Tell Keisan, where an amphora of similar shape with a simple out-folded rim was found in Level 2 (= Early Hellenistic period; Briend 1980a:105–6, pl. 7:8); Shiqmona, where a slightly baggier version was found in Stratum B (= fourth century B.C.; Elgavish 1968:pl. 59:140); and off the coast of Ashdod, where a similar amphora of uncertain date was discovered (Zemer 1978:32, pl. 9:27). On Cyprus the type appears at Salamis, where it was found in a fourth-century B.C. fill (Karageorghis 1974:143, pl. 168:82, 1107). Farther west, the type appears at Cap-Bon/ Mlezza in the Punic necropolis (Cintas 1950:pl. 25:310). Amphora 23 corresponds to Stern's "Type H8" (Stern 1982:110, fig. 154) and to Zemer's "Type 27."
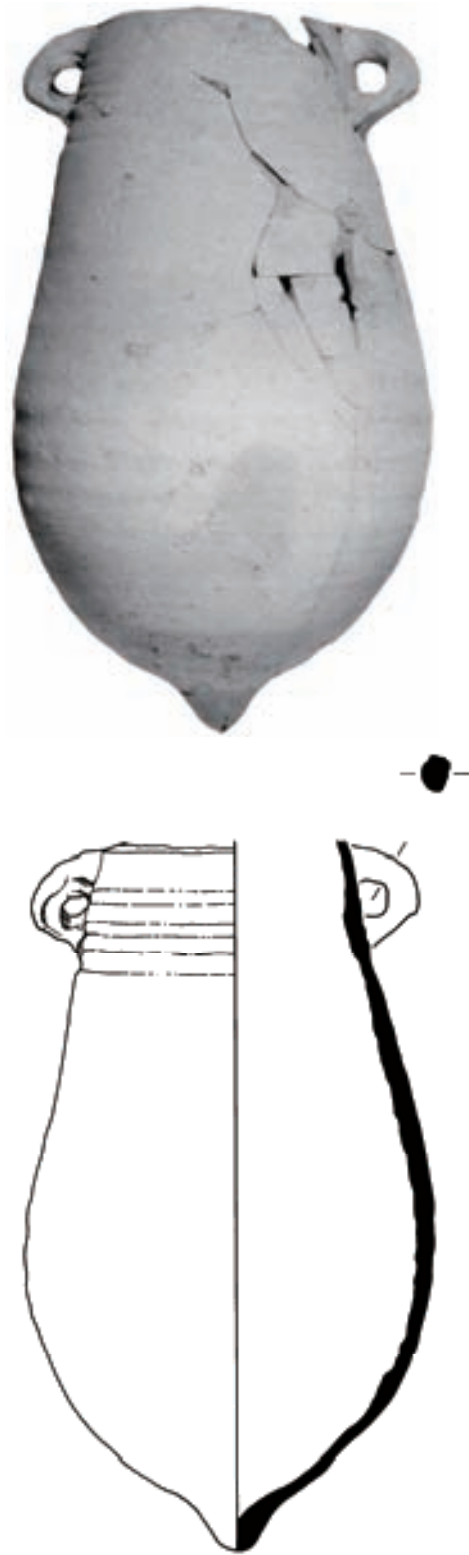
Figure 23.23: Amphora 23 (scale 1:5)

Amphora 24

Field reg.:	A16/87.57.68.L157.F157.B364.#9
Photo nos.:	98-11337, 98-11338
Date:	late Persian/early Hellenistic
Context:	Grid 57, Phase 3 (collapse of ground floor into basement; destroyed ca. 290 B.C.)
Height:	72 cm, 5 cm (toe)
Weight:	5.0 kg (17.5 kg full)
Volume:	11.30 liters (water)
Diameters:	10.5 cm (rim), 26.3 cm (maximum), 4.9 cm (toe)
Color:	10R 5/6 red (surface)
	5YR 5/6 yellowish red (fabric)
Inclusions:	many fine white
Fabric:	fine
Core:	none
Exterior:	some wheel burnishing
Interior:	wheel marks, especially prominent inside neck
Description:	elongated conical body; short thickened rim; tall cylindrical neck with ridge at point of upper handle attachment; long, ridged strap handles with thumb impressions at lower point of attachment; high rounded shoulders; solid recessed knob toe; 95% intact (no restoration)

Discussion

Amphora 24 belongs to the group of Cypriot amphoras known as "Kouriaka" or "Kouriote jars" (Grace 1979b; see also Calvet 1986:505–6, fig. 1a; Zemer 1978:40, pl. 9:32). Numerous handles (many of which are stamped) and rim fragments were found among the local pottery at Kourion (Grace 1979b) and among the imports at Benaki (for references, see Grace 1979b:179, n. 2). According to the third-century B.C. papyri of the Zenon archive, "Kouriaka," along with Thasian and Chian amphoras, were exported to the Fayum in Egypt (Edgar 1951:114, no. 59680, ll. 9–11, and 166–68, no. 59741, ll. 12–15). So far, fully intact "Kouriaka" have been published from Tomb I at Ktima (Deshayes 1963:35, pls. 20:4, 66:1) and, now, from Ashkelon. The brick-red fabric, neck ridge, and finger impressions at the points of the lower handle attachment distinguish Kouriote jars (Grace 1979b:179). Evidence from the stamp impressions in general (Grace 1979b:188) and from the tomb assemblage at Ktima in particular (Deshayes 1963: 30) indicates a date in the late fourth or early third century B.C. Amphora 24 also resembles the most common amphora type found on board the Kyrenia shipwreck (dated to the end of the fourth century B.C.) in terms of overall shape, except for the

rim, which is flanged on the Kyrenia exemplars (cf. Bass and Katzev 1968:172, photo, lower left). The shape of Amphora 24 also approximates certain "Plain White VII" amphoras of the Cypro-Classical period on Cyprus (= 400–325 B.C.; Gjerstad et al. 1948:90, fig. 69.5c). Amphora 24 came from the same context as Amphora 22.

Figure 23.24: Amphora 24 (scale 1:10)

Amphora 25

Field reg.:	A41/89.38.73.L56.F62.B36.#2
Photo nos.:	98-11402a–b
Date:	Hellenistic
Context:	Grid 38, Phase 9 (roof and upper story collapse)
Height:	81 cm, 9 cm (toe)
Weight:	10.25 kg
Volume:	54.25 liters
Diameters:	18.0 cm (rim), 45.8 (maximum), 5.0 cm (toe)
Color:	2.5Y 7/3 pale yellow (surface)
	2.5Y 6/3 light yellowish brown (fabric)
Inclusions:	many medium-to-large white, few small-to-large dark
Fabric:	coarse, brittle
Core:	none
Exterior:	slipped
Interior:	widely spaced, deep wheel marks inside neck
Description:	spherical body; large everted profiled rim; tall vertical neck; thick arched coil handles, thinner near points of attachment; solid knob toe; 40% restoration

Discussion

Amphora 25 belongs to the series of "Brindisi" amphoras, which are often found in the eastern Mediterranean and are dated to the period between the second century B.C. and the first century A.D. (Peacock and Williams 1986:82–83). According to Palazzo's typology of "Brindisi" amphoras, the Ashkelon example combines morphological features of Types II and VI (Palazzo 1988:111–12, pl. 29.1, 3; 1989:548–49, figs. 1.2, 4). A solid *terminus post quem* for Amphora 25 is provided by a city coin of Antiochus IV from 169 B.C., which was found in the same layer. The evidence from nearby Maresha accords well with that of Ashkelon: the "Brindisi" and its variants, which are thought to have contained olive oil, appear in strata dated to the last third of the second century B.C. (Finkielsztejn 2000:213, pl. 111b). Amphora 25 was found in the same context as Amphora 26 below.
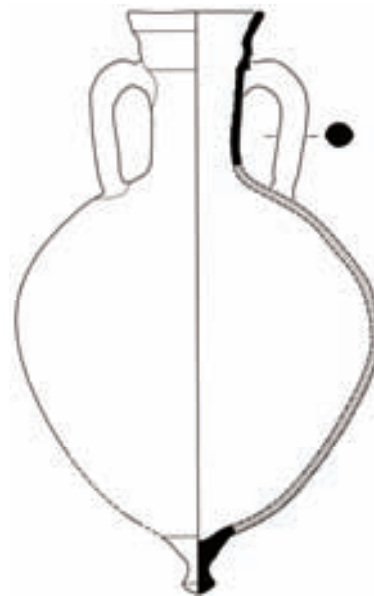
Figure 23.25: Amphora 25 (scale 1:10)

Amphora 26

Field reg.:	A41/89.38.73.L56.F62.B36.#3
Photo nos.:	98-11404a–b
Date:	Hellenistic
Context:	Grid 38, Phase 9 (roof and upper story collapse)
Height:	74 cm, 4 cm (toe)
Weight:	9.5 kg
Volume:	54.25 liters (calibrated)
Diameters:	13.7 cm (rim), 44.7 cm (maximum), 4.5 cm (toe)
Color:	7.5YR 6/4 light brown (surface)
	2.5YR 5/8 red (fabric)
Inclusions:	very many fine sparkling
Fabric:	fine, hard
Core:	none
Exterior:	slipped; widely spaced, heavy, horizontal scrape marks mid- to lower body (ca. 5 cm wide); closely spaced, light, vertical scrape marks
Interior:	deep wheel marks inside neck
Description:	piriform body; everted out-turned rim with small overhang; tall vertical neck; tall ridged strap handles with hand-molding visible around points of attachment; convex sloping carinated shoulder; solid stepped toe; 10–15% restoration

Discussion

This type of Koan amphora dates to the mid-second century B.C. (for the numismatic dating evidence from Ashkelon, see Amphora 25 above). It is related to amphoras commonly found at sites in the Greek world (e.g., Athens, Corinth, Kos, and Delos; see Grace and Savvatianou-Pétropoulakou 1970:365–67). Local imitations appear on Cyprus at Paphos in the late second century B.C. (Hayes 1991:85, fig. 37.2–5, pl. 21:1–3). Originally, Koan amphoras were identified by their double-barreled handles (= Dressel 4); however, a single-barreled handle variety bearing the stamp of "Nikandros" was later found in the region of Kos. In addition to the present exemplar from Ashkelon, single-barreled Koans have been found elsewhere in the Levant, at Ashdod in Stratum III (= Hellenistic period; Kee 1971:49, fig. 13.1), at Dor (no date given; Stern 1994:fig. 160), and in great quantity at Maresha in the second half of the second century B.C. (Finkielsztejn, pers. comm.; Finkielsztejn 2000: pl. 106). A Koan toe was also recently published from Naukratis (Berlin 1997:fig. 6.46.16). Koan amphoras probably carried wine, for which the island of Kos was much renowned.

Figure 23.26: Amphora 26 (scale 1:10)

Amphora 27

Field reg.: A3/88.50.49.F125.B280.#1

Photo nos.: 98-11401a–b

Date: late Hellenistic/early Roman

Context: Grid 50, Phase 3 (reused in street drain)

Height: 82.8 cm (preserved)

Weight: 12.75 kg (preserved)

Volume: 48.40 liters (calibrated)

Diameters: 15.7 cm (rim), 35.3 cm (maximum)

Color: 2.5Y 6/2 light brownish gray (surface and fabric), 2.5YR 5/8 red (core)

Inclusions: very many fine to small white, many fine sparkling

Fabric: fine, hard

Core: thick bright orange in between thin gray

Exterior: widely spaced wheel marks faintly visible (2–3 cm wide); vertical burnishing

Interior: faint wheel marks

Description: elongated ovoid body; thick, everted, profiled rim; short vertical neck; small, ridged, flattened coil handles with excess clay on handle and at point of attachment; thumb print on right handle; rounded convex shoulder; 2–3-cm-wide perforations evenly spaced over entire body; pointed base not completely preserved, although parallels would suggest it was most likely ringed; 95% intact (no restoration)

Discussion

This North African amphora corresponds to the "Late Tripolitaine I" type, which broadly dates from the first century B.C. to the fourth century A.D. (Empereur and Hesnard 1987:35–36, pl. 9, fig. 42). Based on its appearance at Pompeii, C. Panella has written, thus far, the most detailed study of this amphora type (1977). In the Levant, "Late Tripolitaine I" amphoras have been found at Petra (Panella 1977:pl. 69:43) and at Maresha (G. Finkielsztejn, pers. comm.). The distinctive reddish fabric—here gray due to firing conditions—with numerous small white inclusions distinguishes the North African from the west-Italian version, both of which are similar in shape. The perforations are related to the amphora's secondary use in a drain.

Figure 23.27: Amphora 27 (scale 1:10)

Amphora 28

Field reg.:　A41/89.2.84.F23.B42.#1
Photo nos.:　98-11431, 98-11432, 98-11437
Date:　late Hellenistic/early Roman
Context:　part of retaining wall composed of inverted amphoras
Height:　54.5 cm (preserved)
Weight:　4.5 kg (preserved)
Volume:　20.74 liters (calibrated)
Diameters:　13.3 cm (rim), 26.7 cm (maximum)
Color:　5YR 5/6 yellowish red (surface and fabric)
Inclusions:　very many fine to small dark, few small to medium white, few fine sparkling
Fabric:　fine, brittle
Core:　none
Exterior:　prominent rilling over entire body except between top of handles and rim (ca. 1 cm wide on mid-body, ca. 0.5 cm on upper and lower)
Interior:　wheel marks
Description:　elongated ovoid body; coil rim, almost holemouth; short, convex, rounded shoulder with rectangular stamp bearing Greek letters "BA" and palm branch; small, circular, twisted handles; hollow pointed base (not preserved here but based on similar amphoras found at Ashkelon); 85–90% intact (no restoration)

Discussion

This amphora type, abundant at Ashkelon from the first century B.C. to the first century A.D., has been labeled "Proto-Gazan" by Barbara Johnson. It is considered the predecessor of the better known "Gaza Jar" (see Amphora 29 below and chapter 25 above), which dates to the early Byzantine ("Late Roman") period. Oleson's "Class E" of "Knob-Footed, Corrugated Bag Amphoras" from the harbor at Caesarea resembles the "Proto-Gazan," except for the tall rim and slightly bag-shaped body (1994:19–20, fig. 5.A34, pl. 18:A50). First-century A.D. parallels can be found in the west from the Dramont D wreck (= "Type III"; Joncheray 1973:22–23, 28–29, 36–37, pl. 5:1) and at Rome (= "Kingshom Type 117"; Caprariis, Fiorini, and Palombi 1988:305–8). These western amphoras combine features of the "Palestinian Bag Amphora" (= "Class 46/62) and the "Gazan" (= "Class 48 [tall]"). There is an intermediary type between the "Proto-Gazan" and the "Gazan" at Ashkelon, designated the "Near Gazan" by Barbara Johnson, which has been found elsewhere in Bar Kochba Revolt destruction layers (A.D. 135). The meaning of the stamp located just below the rim (see detail) is not known. The "Proto-Gaza" amphora is very common at Ashkelon (Stager 1991:48–49, photo p. 49).
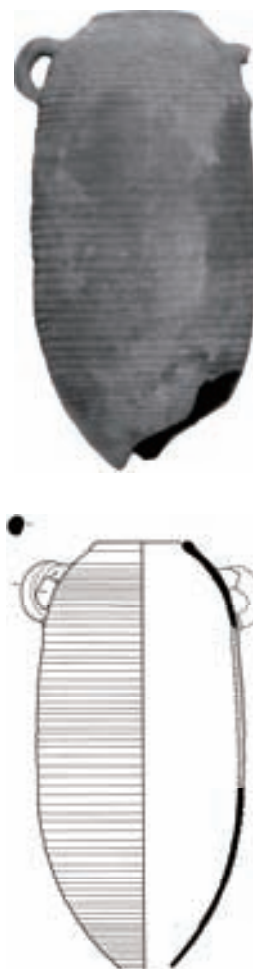
Figure 23.28: Amphora 28 (scale 1:10)

Amphora 29

Field reg.:   A5/86.50.58.L45.F28.B48,53.#2

Photo nos.:   98-11436a–b

Date: early Byzantine ("Late Roman" = 4th–7th cent. A.D.)

Context: Grid 50, Phase 2, Well 56 (see ch. 6 above)

Height: 74 cm

Weight: 7.5 kg

Volume: 25.53 liters (calibrated)

Diameters: 12.0 cm (rim), 25.7 (maximum), 5.0 cm (toe)

Color: 7.5YR 6/6 reddish yellow (surface) 7.5YR 5/6 strong brown (fabric)

Inclusions: few fine sparkling, very many fine-to-medium dark

Fabric: fine, hard

Core: none

Exterior: heavy ridging at base and in lower handle region (ca. 0.5 cm wide); wheel marks mid-body (ca. 2 cm wide)

Interior: wheel marks

Description: cigar-shaped body; short, simple, vertical rim with interior rill; smeared-on clay around rim and on shoulder; steeply sloping rounded shoulder; uneven flattened coil handles with hand-molded clay at points of attachment; truncated conical base with slightly recessed underside; 30–40% restoration

Discussion

The "Gaza Jar" (Greek *gazition*) has been extensively studied over the past thirty years and goes by many names: e.g., Caesarea "Amphora Type 2" (Riley 1975:27–31, nos. 12–15; Levine and Netzer 1986: 97–99, 132); Berenice "LR Amphora 3" (Riley 1979); "Class 49" of Peacock and Williams (1986: 198–99); Zemer's "Type 50" (Zemer 1978:61, Pl. 18); and at Ashkelon "Type A" (Johnson and Stager 1995:97, fig. 6.1a; for further type names, references, and discussion, see *inter alios* Keay 1984:278–85, Blakely 1988:35, Oleson 1994:17–18; Majcherek 1995). J. A. Riley was the first to connect this amphora with Gaza and its wine, which was much praised by fifth- and sixth-century A.D. European writers (Riley 1975:30, n. 20; see also chapter 25 below). With the arrival of Christian pilgrims in the region, there arose a demand for products from the Holy Land. Chief among these was wine for the Eucharist, which was transported in "Gaza Jars" on board ships destined for all parts of the Mediterranean (Mayerson 1992; Johnson and Stager 1995:103–4, fig. 6.8 [both articles are reprinted in chapter 25 below]). A smaller, squatter version of the "Gaza Jar"

has been identified at Ashkelon (see Amphora 30 below). Amphora 29, though found in great numbers at Ashkelon, is more common closer to Gaza, which was its primary place of origin. Numerous kiln sites with an abundance of "Type A" wasters are known from the Gaza region (Schaefer 1979:199–200, table 9; Johnson and Stager 1995:101–3, fig. 6.5).

Figure 23.29: Amphora 29 (scale 1:10)

Amphora 30

Field reg.:	A40/90.2.101.L128.F128.B144.#1
Photo no.:	98-11328
Date:	early Byzantine ("Late Roman" = 4th–7th cent. A.D.)
Context:	Grid 2, Phase 4 (possible use in burial)
Height:	49 cm (preserved)
Weight:	9.25 kg (preserved)
Volume:	24.47 liters (preserved and calibrated)
Diameters:	rim not preserved, 31.8 cm (maximum)
Color:	5YR 6/4 light reddish brown (surface) 7.5YR 5/8 strong brown (fabric)
Inclusions:	many small to medium dark
Fabric:	fine, brittle
Core:	none
Exterior:	heavy ridging on base, shoulder region, and lower body (0.5–0.75 cm wide); two red stripes on lower body; wheel marks over most of body
Interior:	wheel marks, "button" of clay on inside of base
Description:	squat ovoid body; rim not preserved; excess smears of clay on rounded convex shoulder; heavy, uneven, flattened, ridged handles with hand-molded clay at points of attachment; finger-sized impression inside wall where right (facing photo) upper handle is attached; rounded base; 90–95% intact (no restoration)

Discussion

Figure 23.30: Amphora 30 (scale 1:10)

In her analysis of the Byzantine pottery from Deir el-Balaḥ, Ann Killebrew was the first to recognize two distinct types of Gaza jar: a taller ("Type A") and a shorter ("Type B") version. This typological distinction is now widely followed, e.g., by Peacock and Williams (= "Class 48"; 1986:196, fig. 115) and at Ashkelon (Johnson and Stager 1995:96, fig. 6.1b). Through a careful study of Byzantine sources, Philip Mayerson found numerous references to an *askalōnion* jar (= "Type B"), which like the *gazition*, also carried wine from the Holy Land (Mayerson 1992, reprinted in chapter 25 below). Mayerson further noted that wine produced in the Ashkelon region was highly valued for its medicinal properties (Mayerson 1993, reprinted in chapter 25 below). Large kiln sites a few kilometers east of the tell corroborate the wide-scale production of "Type B" amphoras at Ashkelon. The contents of the jars can be inferred from the extensive Byzantine-period winery excavated just north of the site (Israel 1993; Johnson and Stager 1995: 101–3).

Amphora 31

Field reg.:	A16/85.38.83.L31.#21
Photo nos.:	98-11327, 98-11424
Date:	early Byzantine ("Late Roman" = 4th–7th cent. A.D.)
Context:	Grid 38, Phase 3
Height:	66 cm, 4.5 cm (toe)
Weight:	6.0 kg
Volume:	12.23 liters (calibrated)
Diameters:	11.0 cm (rim), 28.8 (maximum), 8.4 cm (toe)
Color:	10R 5/6 red (surface), 10R 4/6 red (fabric)
Inclusions:	many small to medium white, many fine sparkling, many large voids from burnt out organic temper
Fabric:	coarse, brittle
Core:	none
Exterior:	light wash
Interior:	wheel marks
Description:	biconical body; simple vertical rim with slight internal thickening; tall vertical neck; uneven twisted handles smoothed into rim but crudely attached to body; sloping concave shoulder with uneven double carination; points of entasis just below shoulder and near base; solid ringed toe; 35–45% restoration

Discussion

This "Nile Mud Amphora"—so-called because of its distinctive brownish red fabric—has been found throughout the Mediterranean (e.g., at Carthage, Caesarea, and Bodrum). It is known to have originated in the Nile Valley, based primarily on the excavations at Berenice, where it has been classified as "Late Roman Amphora 6" and is dated to the period between the fifth and seventh centuries A.D. (Riley 1979:224–25, fig. 92). A few partially restorable amphoras of this type have been found at Ashkelon in early Byzantine contexts.

Figure 23.31: Amphora 31 (scale 1:10)

24. THE POTTERY IN THE GRID 38 BATHHOUSE

by Barbara L. Johnson

IN THE Grid 38 excavation area, the Leon Levy Expedition discovered part of a late Roman bathhouse, including a pool used for bathing (see figures 15.68 and 15.69 and the discussion in chapter 15 concerning Grid 38 Phases 5 and 4). The bathhouse was built in the third century A.D., replacing villas that had occupied the area during the Hellenistic and early Roman periods. This dating is established on the basis of the coins and pottery found in the earliest phase of the bathhouse and it is supported by the paleography of a Greek inscription found in its second phase. The pottery is treated here.

The bathhouse survived well into the Byzantine period. It underwent several minor repairs and at least one major renovation until it was replaced in turn by a monumental apsidal building constructed in the sixth century. In the earliest phase of the bathhouse, the bathtub was larger, flanked at each corner by heart-shaped columns made of stuccoed *kurkar*. In a plain mosaic floor was a *tabula ansata* containing a badly damaged, entirely illegible inscription. In the next phase of the bathhouse the tub was smaller, and another inscription in Greek, also inside a *tabula ansata*, was placed on the outer face of the plaster rim of the tub, just above the spot where the earlier floor inscription had been located. The two inscriptions probably said the same thing. The preserved portion of the later inscription reads "Enter, enjoy, and . . ." (see chapter 20).

Less felicitous than this inviting inscription was the refuse which, in the sixth century A.D., clogged a sewer associated with the bathhouse. The sewer contained the skeletons of nearly a hundred infants, who had been tossed into the drain immediately after birth—apparently victims of infanticide. The results of DNA analysis performed on these remains are described in chapter 29 below.

The Grid 38 bathhouse produced a large amount of Roman and Late Roman/Byzantine pottery, ranging in date from the first century B.C. to the seventh century A.D. (the term "Late Roman/Byzantine" as used here covers the period from the third through the seventh centuries A.D.). As might be expected at a port city, there is a wide variety of ceramic types, a selection of which is presented here.[126] It was difficult to separate the material from the use-period

of the bathhouse from the material in the associated fill layers, so the pottery is not dealt with here according to its precise stratigraphic sequence but is treated typologically, and the dates assigned are based on published parallels where available. Both imported and local pottery was recovered, mainly in the form of amphora fragments, among which the "Gaza" amphora type predominates (see chapter 25 below).

Some pottery types found in the bathhouse fills are mentioned but not illustrated here. Although these sherds are identifiable and merit recording because their presence at Ashkelon is significant, they are not preserved well enough to warrant illustration.

Eastern Sigillata A (not illustrated)

A few sherds of this type, identifiable by their fabric and slip (Crowfoot 1957:281–83; Hayes 1972:8–10), were found in the bathhouse. This pottery dates from the Hellenistic to early Roman periods and occurs frequently at sites in the Syro-Palestinian area.

Cypriot Sigillata

Among the Cypriot Sigillata pieces the Form 1 krater is the most common. Other fragments are identifiable as belonging to the ware mainly by virtue of their clay and slip. The piece illustrated here appears to be a rather crude fragment of a Form 1B krater for which a date of the second half of the first century A.D. may be suggested (Hayes 1967a:67–69).

Figure 24.1: Cypriot Sigillata krater (scale 1:5)

Reg. no. 38.73.L31.(2). Coarse red clay, banded light red (2.5 YR 6/6) and light reddish brown (5 YR 6/4). Some minute to small white and black grits. A few small white grits have erupted through surfaces. Occasional voids and sparkling inclusions. Red slip (2.5 YR 4/6) on interior; variegated black (2.5 YR N2.5/) and reddish brown (2.5 YR 5/4) on exterior.

Cypriot Sigillata is often called Nabatean Sigillata (Negev 1986:xviii–xix, 26–35) when found at sites in the Levant. In his publication of the pottery from Oboda, Negev (1986:xix) suggested that the raw clay from which Nabatean Sigillata was made was brought in bulk from Cyprus and fashioned into vessels by local potters.

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[126] The imported pottery of the Roman and Late Roman/Byzantine periods from all contexts at the site is published in detail in *Ashkelon 2* (Johnson 2008).

Miscellaneous Hellenistic/Early Roman Fine Ware

Fine red-slipped vessels that do not fit into any of the established categories were also found. Visual examination indicates that these are local variations on the theme of red-coated pottery, which became popular in the Hellenistic and early Roman periods. No more specific date can be offered at this time.
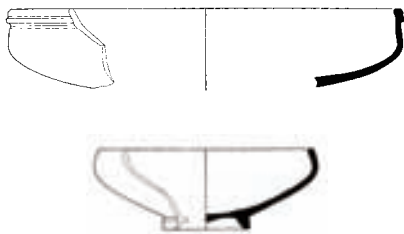
Figure 24.2: Miscellaneous red-slip bowls (scale 1:5)

Top: Reg. no. 38.83.L36.(8). Fine reddish yellow clay (5 YR 7/6). Occasional sparkling inclusions and dark grits. Red slip (2.5 YR 4/8).

Bottom: Reg. no. 38.83.L36.(9). Fine very pale brown clay (10 YR 6/4). Occasional minute white and black grits and voids. Red slip (2.5 YR 4/6, 5/8).

African Red Slip Ware

A widely distributed fine ware of the Roman and Late Roman periods (Hayes 1972:13–299), African Red Slip ware is often found in the Levant, but in a limited number of the possible forms. The following shapes are found in the bathhouse: Forms 50A, 50B, and 60. Hayes dates them as follows: the date range of Form 50A is ca. A.D. 230/40–325 for the thin, fine examples and ca. 300–360 for the later variety (Hayes 1972:69–73); the date range of Form 50B is ca. 350–400+ (ibid.); and Form 60 is dated to the mid- to late-fourth century (Hayes 1972:100).
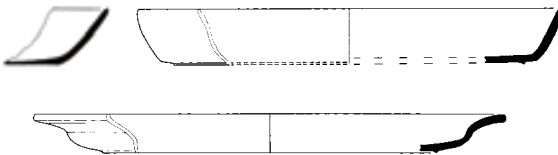
Figure 24.3: African Red Slip Ware (scale 1:5)

Top left: Reg. no. 38.83.L31.(8). (Hayes Form 50A). Fine light red clay (2.5 YR 6/6), a few minute white grits. Light red slip (2.5 YR 6/8).

Top right: Reg. no. 38.83.L31.(9) (Hayes Form 50B). Fine light-red clay (2.5 YR 6/6), a few minute white grits. Red slip (2.5 YR 5/6).

Bottom: Reg. no. 38.83.L31.(1) (Hayes Form 60). Fine light red clay (2.5YR 6/6), a few white grits and sparkling inclusions. Red slip (2.5YR 5/8).

Late Roman C ("Phocaean Red Slip Ware")
  (not illustrated)

This fine ware, common in the Levant, is represented in the bathhouse mainly as body sherds and small rim fragments of the Form 3 bowl, itself the most popular shape within the ware. The date range suggested by Hayes for the various forms of Late Roman C runs from the fourth to the seventh centuries A.D. (Hayes 1972:323–70). Late Roman C was later given the name "Phocaean Red Slip Ware" by Hayes (1980).

Cypriot Red Slip Ware

Based on the general shape, especially the rim profile, the piece shown here belongs to Form 9, Type A, which is dated ca. A.D. 550–600 (Hayes 1972:379–82). It is unusual because the marks of wire cutting have been left on the bottom and there is no indication of a foot, although there may have been one just beyond the preserved section.

Figure 24.4: Cypriot Red Slip Ware (scale 1:5)

Reg. no 38.83.L31.(10). (Hayes Form 9). Fine clay with a few minute white grits. Reddish brown clay (2.5 YR 5/4); weak red slip (10 R 4/3).

Various Decorated Vessels

The rim-to-shoulder fragment of a thin-walled mug shown in figure 24.5 is of a type known as "urnette a collarino." Such mugs range in date from late in the first century A.D. to the third century. Later examples may have painted decoration on the exterior body consisting of an inscription accompanied by floral elements and/or dots (Hayes 1983:107). Although widely distributed and copied, these mugs are rarely found in the Levant. Our example bears part of a single letter of an inscription in white paint and appears to be of Italian fabric. The remains of the inscription place it late in the series.
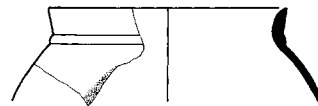
Figure 24.5: Thin-walled mug (scale 2:5)

Reg. no. 38.83.L41.(2). Fine red clay (2.5 YR 5/6), a few minute white and black grits and some sparkling inclusions. Interior surface between red (2.5 YR 5/6) and light red (2.5 YR6/6); exterior light reddish brown (5 YR 6/3). Faint remains of white painted inscription on upper body.

Three fragments preserve part of the rim and upper body of one or more moldmade vessels of indeterminate shape (figure 24.6). Around the upper, vertical part of the body are crouching leopards, which seem to be heraldically opposed, while below, on the inward-sloping portion, a pattern of tall-tongues provides the decoration.
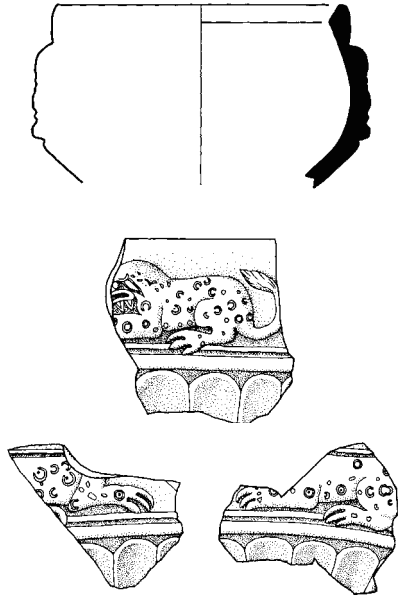
Figure 24.6: Molded pots (scale 2:5)

Top: Reg. no. 38.83.L40.(2). Fine clay with some minute white and black grits, occasional sparkling inclusions. Clay reddish yellow (5 YR 6/6) with faint grayish core. Red (2.5 YR 5/8) slip on both surfaces.

Bottom: Reg. nos. 38.83.L36.(16a–c). Fine reddish yellow clay (5 YR 6/6), some minute white and black grits, a few sparkling inclusions. Light red slip (2.5 YR 6/6) on both surfaces.

Somewhat similar decoration occurs both on jugs and on a pyxis-shaped vessel recovered from the sites of Petra (Sivan 1977:142–44), Oboda (Negev 1986: 69–70), and Antioch (Waagé 1948:42–43). Of these, the example from Oboda consisting of the rim and upper part of a jug is most similar in shape, while the piece from Petra is closest in decoration, with its heraldically opposed peacocks and heads. The sherds from Ashkelon seem to belong to a group of loosely related vessels of varying shape, all characterized by decoration in high relief, often heraldically opposed when showing animals or humans, or more free-form when displaying floral elements. The placement of the decoration also varies depending on the shape of the vessel. The dating is problematic, ranging as it does from Roman to Late Roman/Byzantine.

A small sherd from a head vase, probably human (not illustrated here), shows a number of tight curls of hair enhanced by three incised lines each. The fine clay is reddish yellow in color (7.5YR 7/6) and the exterior surface is covered with a reddish-brown slip (5YR 5/3). Such containers, usually jugs in various fabrics and styles, were known throughout the ancient world during a long span of time. Context and general appearance places our example within the Roman to Late Roman/Byzantine periods; unfortunately, a more precise dating is not possible.

Various Domestic Vessels

Little domestic or utilitarian pottery was recovered from the bathhouse. A small plain-ware bowl with a flat-cut rim foot (figure 24.7) is an exception. This bowl may be an import, possibly from Egypt, although no direct parallel is known at present.

Figure 24.7: Plain-ware bowl (scale 2:5)

Reg. no. 38.83.L36.(6). Coarse clay with some minute white grits and sparkling inclusions. Incomplete narrow outer band of clay is red (2.5 YR 5/8), inner band or solid section is light brown (closest to 7.5 YR 6/4). White slip (2.5 Y 8/2) on all of exterior and upper surface of rim.

Three mortaria were found in the bathhouse. The first of these (figure 24.8), with its wide overhanging rim, most closely resembles Riley's "Early Roman Mortarium 'B'" at Berenice (Riley 1979:295), for which he gives a date range of the first to mid-third centuries A.D.
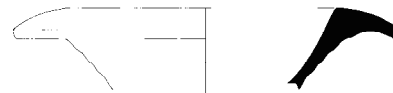
Figure 24.8: Imported mortarium (scale 1:5)

Reg. no. 38.83.L36.(4). Fine light red clay (2.5 YR 6/8), many minute to large white, red, and black grits and golden mica. Surfaces pinkish-white (7.5 YR 8/2).

Both kinds of North Syrian mortaria—with rectangular or square rim and wide overhanging rim—are represented among the bathhouse pottery. Figure 24.9 shows the wide-rim variety with the

previously attested name "Isidōrou" stamped three times around the upper surface. No symbols, such as the ivy leaf for a line filler, or termination marks, were used in this stamp. The date range adopted here for such mortaria is the third and early fourth centuries A.D., as proposed by Hayes (1967b:337).
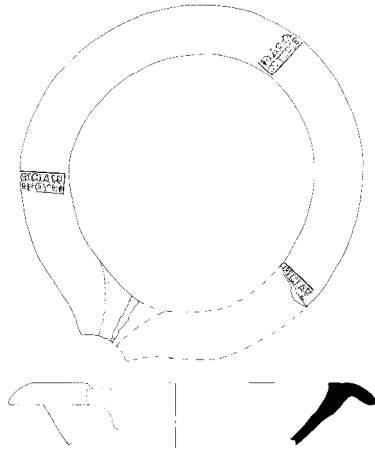
Figure 24.9: North Syrian mortarium (scale 1:5)

Reg. no. 4064 (found in 38.83.L31). Coarse reddish-brown clay (2.5 YR 5/4) with many minute to small white and black grits and sparkling inclusions.

A third type of mortarium (figure 24.10) is known primarily from northern Israel (Johnson 1988:183–84) and is rarely seen in the south. It is a fourth-century product with a date range extending back into the third century and possibly forward into the fifth.
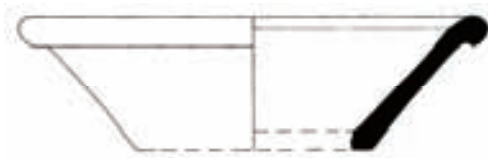
Figure 24.10: Imported mortarium (scale 2:5)

Reg. no. 38.83.L36.(5). Coarse reddish yellow clay (7.5 YR 7/6), many minute to small red grits, some minute white and black grits.

Cooking Wares

Two types of globular cooking pots were recovered. One type is ribbed on the exterior body and has a deep groove around the upper surface of the rim (figure 24.11). Similar pots are among the cooking wares at Capernaum, where they became popular in A.D. 300–450 and continued to appear, albeit in fewer numbers, until the early seventh century (Loffreda 1974:45).

Figure 24.11: Globular cooking pot (scale 2:5)

Reg. no. 38.83.L36.(2). Coarse red clay (2.5 YR 5/8) with some minute white and black grits. Surfaces weak red (10 R 4/4).

Another type of globular cooking pot has an upright triangular rim marked by a deep groove around the upper surface (figure 24.12). Narrow combed bands decorate the shoulder. No parallel is known, so only a general Roman-to-Late Roman/ Byzantine date is assigned.
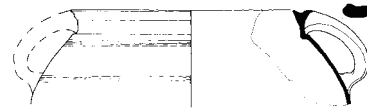
Figure 24.12: Globular cooking pot (scale 1:5)

Reg. no. 38.83.L30.(3). Coarse black clay (2.5 YR N2.5/) with some minute white and black grits and sparkling inclusions. Interior surfaces are dark reddish gray (10 R 4/1); exterior surfaces very dark gray (2.5 YR N3/).

Frying pans also appear among the cooking ware in the bathhouse; this type is used throughout the Roman and Late Roman/Byzantine periods. The example illustrated in figure 24.13, with its wishbone handle ending in a hollow pyramidal end designed to receive a stick for easier handling, may be dated to the Roman period.
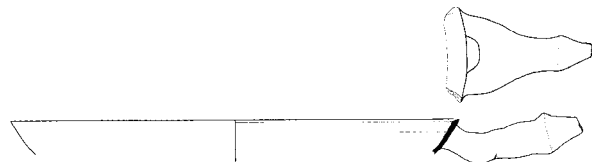
Figure 24.13: Frying pan (scale 1:5)

Reg. no. 38.83.L28.(5). Coarse clay variegated red (2.5 YR 5/6) and very dark gray (2.5 YR N3/), some minute white and dark grits. Surfaces weak red (10 R 5/4). Also discolored from use.

The casserole type (not illustrated) characterized by a rim beveled to receive a lid and two twisted horizontal handles, often uplifted to rise above the top of the rim, appears in the bathhouse fills only as

small fragments. These are insufficiently preserved to determine whether they belong to the deep variety with gently convex side or the shallower type with carinated body. Each is a common cooking vessel of the later Roman and Late Roman/Byzantine periods.

Small pieces of cooking-ware lids (not illustrated) were also found. They are plain, ribbed, or decorated with combed bands, for use with the frying pans and casseroles.

Parallels for the pinched-mouth jug in cooking-ware fabric shown in figure 24.14 have been found at other sites in the Levant, where they are dated to the sixth or seventh centuries (Tubb 1986:61, 64, fig. 6.1; Kelso and Baramki 1955:32, Type 10, pl 27.10).
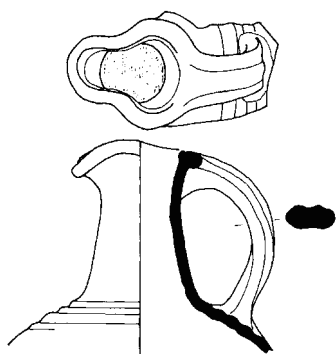
Figure 24.14: Pinched-mouth jug (scale 2:5)

Reg. no. 38.83.L28.(3). Coarse red clay (2.5 YR 5/8), some minute white and black grit and sparkling inclusions, occasional small and large white grits. Surfaces variegated light red (2.5 YR 6/6) and dark reddish gray (10 R 4/1).

"Gaza" Amphora

The "Gaza" jar is the most common kind of pottery found in the bathhouse. Its name derives from its frequency of occurrence in the Gaza region and the popularity of Gaza wine in the Byzantine period (Riley 1975:27–31). A limited petrological analysis by Peacock has "supported the hypothesis" that its clay came from the Gaza area (Peacock 1975:30–31). Subsequently, Schaefer has found evidence for the production of the tall version of this jar in that area (Schaefer 1979:135–77).

There are two types of "Gaza" amphora: a tall, torpedo-shaped type with a pointed toe, and a short, round-bottomed type (Zemer 1978:61–66; see also chapter 25 below). The short type is ubiquitous in the Ashkelon bathhouse, while only occasional examples of the tall type were found there.

A red-painted band sometimes encircles the lower and/or upper body of the short type. The stripes vary

from 1 to 4 mm in width. They sometimes overlap for a short distance, giving the appearance of a double line when seen on a small sherd. Rarely do these lines appear on the ribbed areas of the container. Such painted bands occupy the position taken by the narrow combed band frequently found on the tall type. Although the purpose of these bands is not known, it is significant that they seem to be unknown on "Gaza" amphoras other than those from Ashkelon.

Occasionally, sherds were found in Gaza-jar fabric that had one or more incised wavy lines on the plain exterior. These sherds are too small to reveal overall design, or, indeed, to be certain that they actually come from "Gaza" amphoras. A similar fragment reported to be from a "Gaza" jar is published from Ashdod, dated to the Late Roman/Byzantine period (Dothan and Freedman 1967:34).

Several specimens bear dipinti in red on the plain part of the body. At least some are Greek letters, but they are too fragmentary to be read.

A division of the "Gaza" jars into earlier and later types on the basis of shape has been proposed (Zemer 1978:61), but more study is required to prove this. Present evidence indicates that these containers were in use from the third to sixth centuries, and probably later. The excavators of Tell el-Maskhuta published a short, round-bottomed jar which had been reused as a burial container with Christian inscriptions in red paint on the upper body. Based on considerations specific to that site, a date in the second century, not later than A.D. 150, was proposed. If this date is correct, it makes the Tell el-Maskhuta piece the earliest known example of a "Gaza" jar.
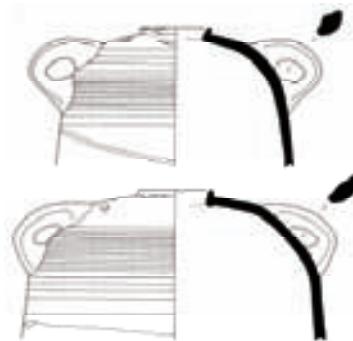
Figure 24.15: "Gaza" amphoras (scale 1:10)

Top: Reg. no. 38.83.L36.(7). Fine light red clay (2.5 YR 6/6), some minute to small white and black grits and sparkling inclusions, occasional crushed shell inclusions (cf. Holladay 1982:41–42, figs. 62 and 63).

Bottom: Reg. no 38.83.L31.(16). Coarse clay with a thick reddish-brown (5 YR 5/3) core, outer bands red (2.5 YR 4/8), many minute to large white grits, some of which have erupted through surfaces (cf. Holladay 1982:41–42, figs. 62 and 63).

Syro-Palestinian Baggy Jar (not illustrated)

These poorly represented jars appear mainly as small body fragments. Readily identifiable is the black "Beth Shean" type (Landgraf 1980:67, 74–75; Glass 1980:79–80) with its white-painted decoration and distinctive "clink" when struck. The baggy jar in a gritty orange fabric with red-painted decoration occurs in slightly greater numbers. It is interesting to note that relatively few of these typical Syro-Palestinian containers of the Late Roman/Byzantine period were found in the Ashkelon bathhouse.

"Nile Mud" Amphora

This Egyptian import is easily recognizable because of its distinctive Nile clay. In the bathhouse it is as frequent as the Syro-Palestinian baggy jar and is far less common than the "Gaza" amphora. The example illustrated in figure 24.16 is crude and somewhat mis-shapen, as are the others from the site that are sufficiently well preserved to see the overall shape (see also Amphora 31 in chapter 23 above, which is from a different context). The coarse brown (7.5YR 5/4) micaceous clay is soft and fragile. Remnants of a very pale brown slip (10YR 8/4) covering the rim and neck have dribbled onto the shoulder. One specimen found at Ashkelon has a faint dipinto in red on the neck. The shape and fabric of the nearly complete example illustrated here place it within that group of amphoras manufactured in the Nile region of Egypt from the late fourth to the mid-sixth centuries A.D. (Peacock 1986:206–7).

Micaceous Water Jar

The water jar occurs in three fabrics, two of which are micaceous (Lang 1955:277–85), one more so than the other. In the bathhouse, the less micaceous jar, which often has a thin brownish slip on the upper exterior that has dribbled lower, was exemplified only by body fragments (not illustrated). The heavily micaceous jar in a red to reddish-brown clay with surfaces soapy to the touch is the most common at the site. The quality of their firing causes these vessels to break easily so that the pieces recovered are usually small fragments of the body. In quantity, they rank with the Syro-Palestinian baggy jars and the "Nile Mud" amphora; that is, they are noticeably present but not in large numbers.

The heavily micaceous version of the water jar has a date range spanning the Roman to Late Roman/Byzantine periods. More specific dating relies on changes in shape (H. Robinson 1959:17). Although the pieces from Ashkelon are generally impossible to date with precision, the illustrated example (figure 24.17) may be placed in the late second to early third century on the basis of a parallel from the Athenian Agora (ibid., p. 55–56, J46). The jars in the less micaceous fabric can be dated only very approximately, to the Roman period in general.

Figure 24.16: "Nile Mud" amphora (scale 1:10)
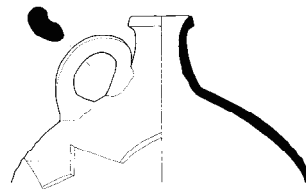
Figure 24.17: Micaceous water jar (scale 1:5)

Reg. no. 38.83.L31.(15). Fine light red micaceous clay (2.5 YR 6/6). Flaking reddish-brown slip (closest to 2.5 YR 4/4) on exterior.

"Aegean Red" Amphora

This amphora has a sharp flange below the rim on the exterior, a wide recessed toe, and two heavy, high-arching handles. "Aegean Red" is the term used by the Ancient Corinth expedition of the American School of Classical Studies at Athens. Riley (1979) calls this type "Mid-Roman Amphora 7." It occurs in the Athenian Agora in contexts ranging from the mid-third century to the early fifth century A.D. (ibid., p. 69, K113). Riley (1979:189–93) has proposed that these jars were not produced after the end of the fourth century A.D. It is a noticeable type in the pottery assemblage from the Ashkelon bathhouse, but it is not common.
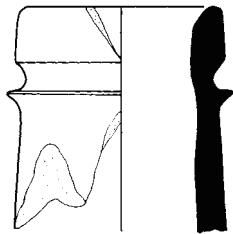
Figure 24.18: "Aegean Red" amphora (scale 2:5)

Reg. no. 38.83.L31.(4). Coarse red clay (between 2.5 YR 5/6 and 5/8), some minute to small white and dark grits, a few air pockets. Surfaces variegated light red (2.5 YR 6/6) and dark gray (2.5 YR N4) at rim.

Mid-Roman Amphora 4 (not illustrated)

The fragmentary remains of these jars are primarily body sherds in a light red fabric (2.5YR 6/6) with a very pale brown slip (10YR 8/3) on the exterior. In its full form, the container has a low pointed toe, straight-sided body, angular shoulder, low neck, and everted rim (Zemer 1978:52; Riley 1979:186–87). Quite distinctive are the small handles attached to the upper neck and shoulder. They are further marked by a deep groove along the outer surface and are pinched together at the top. This transport jar is dated to the second and third centuries A.D. (Riley 1979:186–87).

Mid-Roman Amphora 14 (not illustrated)

This North African amphora, of which we find body sherds, was widely distributed over the ancient world during the second and third centuries A.D. and lasted into the fourth century (Riley 1979:188–89). It is characterized by a pointed toe, tall cylindrical body, low neck, molded rim, and small loop handles. The fabric is reddish brown; the exterior is very pale brown and vertically shaved.

Miscellaneous Amphoras

The six amphora types illustrated in this category represent a cross-section of the transport containers found in the bathhouse. Each is represented by only a single example.
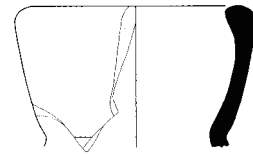
Figure 24.19: Miscellaneous amphora (scale 1:5)

Reg. no. 38.83.L31.(5). Fine light red clay (2.5 YR 6/8), some minute white and black grits and voids. White slip (10 YR 8/2) on interior and exterior.
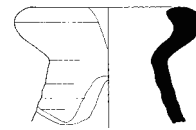
Figure 24.20: Miscellaneous amphora (scale 1:5)

Reg. no. 38.83.L28.(4). Fine light red clay (2.5 YR 6/8), some minute white and black grits. Surfaces light red (2.5 YR 6/6).
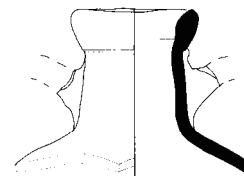
Figure 24.21: Miscellaneous amphora (scale 1:5)

Reg. no. 38.83.L36.(15). Fine pink clay (7.5 YR 7/4), some minute white and black grits, occasional sparkling inclusions. Surfaces are very pale brown (10 YR 7/4).
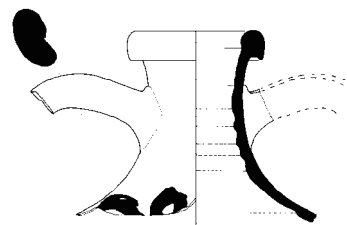
Figure 24.22: Miscellaneous amphora (scale 1:5)

Reg. no. 38.83.L31.(3). Coarse light reddish brown clay (5 YR 6/4), many minute to small white, black, and red grits, occasional sparkling inclusions. White slip (2.5 Y 8/2) on inside of neck and on exterior. Interior surface pink (7.5 YR 7/4). Partial dipinto in red (2.5 YR 5/8) on shoulder.

Figure 24.23: Miscellaneous amphora (scale 1:10)

Reg. no. 38.83.L40.(1). Fine light red clay (2.5 YR 6/6), some minute white, black, and red grits and sparkling inclusions. Interior surface is same as clay; exterior surfaces reddish yellow (5 YR 6/6).

Figure 24.24: Miscellaneous amphora (scale 1:10)

Reg. no. 38.83.L31.(14). Coarse red clay (2.5 YR 5/8), some minute white and black grits and sparkling inclusions. Very pale brown slip (10 YR 8/3) on interior neck and on all of preserved exterior.

Concluding Remarks

Although the pottery excavated in the bathhouse ranges in date from the early Roman period to the Byzantine period, it is the later material, which comes from the use-period of the bathhouse, that is the most significant for chronological purposes. Few examples of Late Roman/Byzantine fine wares were recovered, but the pottery that was recovered represents types of internationally traded vessels commonly found at Syro-Palestinian sites, as well as at other sites in the eastern Mediterranean. The abundance of the "Gaza" amphora, in particular, indicates the great importance of this locally made and widely distributed transport container in the Byzantine period.

25. THE EXPORT OF HOLY WINE FROM BYZANTINE ASHKELON

The Wine of Ashkelon in Byzantine Texts   *by Philip Mayerson*

THE GAZA "WINE" JAR (*GAZITION*) AND
THE "LOST" ASHKELON JAR (*ASKALŌNION*)

IT IS well known—perhaps too well known—that the wines of Gaza had earned an international reputation during the Byzantine period, particularly during the fifth and sixth centuries A.D. when pilgrimage to the Holy Land reached its peak. This writer undertook some years ago to provide the social, economic, and archaeological evidence that went into making the name of Gaza synonymous with its wine (Mayerson 1986). A significant number of factors entered into the process that attached the name of Gaza to a vintage, the grapes of which were mostly grown far in the hinterland and crushed by large complex presses in proximity to the vineyards. That Gaza did not produce all the wine known as "Gaza wine" is not unusual. A modern analogy might be appropriate: not all Jaffa oranges are grown in Jaffa—the oranges earned their reputation from the merchants, and, particularly, from the port from which they were shipped. The same process undoubtedly applies to the wine shipped from the port of Gaza (i.e., Maioumas) to western Europe, where Latin poets and writers gave it a good "press." The reputation of Gaza wine is also aided by economic historians and others, this writer included, who often cite these literary sources in support of related positions (Heichelheim 1938:139, n. 124; Riley 1975:30, n. 20). It is but a short step from the literary evidence to the archaeological, and there's the rub.

Archaeologists excavating Byzantine strata at sites such as Caesarea, Deir el-Balaḥ, and Ashkelon on the Mediterranean coast have uncovered large numbers of storage-jar sherds, which they, or their ceramists, have dubbed "Gaza wine jars" or "Gaza storage jars." The association of the name "Gaza" with the jar has largely been influenced by the accolades given "Gaza wine" by European writers of the fifth and sixth centuries. Riley, examining storage jars from Caesarea, states:

> There are strong grounds for a hypothesis that Caesarea's Type 2 is from the Gaza region and is either the container or the forerunner of the container for Gaza wine. The arguments are as follows: First, the type is found throughout the Mediterranean and as far north as Britain in the fourth, fifth, and possibly sixth centuries. Second, fifth- and sixth-century authors writing in the western Mediterranean praise the wine from Gaza. Third, the archaeological evidence points to the Gaza region as its area of greatest concentration. [Riley 1975:30, n. 2]

Riley further notes that the jars had their interiors smeared with pitch, suggesting that they were used for the storage and transportation of wine.

During the excavation of the Late Bronze Age settlement at Deir el-Balaḥ, a considerable number of Byzantine sherds were discovered in the fill of the wadi that cut through the Late Bronze Age strata and in the topsoil loci. An analysis of the most abundant ceramic material was undertaken by Ann Killebrew, who concludes, citing Riley and the literary evidence, that the material was the so-called Gaza amphora or storage jar. More importantly, however, she states: "Though only fragments of this storage-jar type were recovered, this group can be subdivided into two types based on the general shape of the vessel, rims, and bases."[127]

Lawrence E. Stager, the director of the major excavation underway at Ashkelon, provides us with some preliminary observations on the storage jar under discussion. Citing Riley's exemplars from Caesarea (Type 2), he reports:

> Our excavations at Ashkelon have now confirmed that these storage jars were used as transport amphorae for exporting local wines. Dr. Barbara Johnson, our staff ceramist and director of the Ashkelon Laboratory in Jerusalem, has studied literally hundreds of thousands of potsherds from the fourth to sixth centuries A.D. recovered in our excavations. A very high percentage of these sherds comes from so-called Gaza-type—perhaps, now, we should add Ashkelon-type—wine jars. [Stager 1991:52]

An illustration in Stager's article (ibid., p. 53) identifies the storage jar type he cites as a "Gaza" wine jar of Killebrew's Type B. [EDITORS' NOTE: See "Amphora 29" and "Amphora 30" in chapter 23 above, figures 23.29 and 23.30, for descriptions and illustrations of the two amphora types, i.e., Killebrew's

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[127] Ann Killebrew's study will appear as part of the publication of the excavation report of Deir el-Balaḥ in *Qedem* (in preparation). I wish to thank Professor Trude Dothan, the director of the Deir el-Balaḥ expedition, for permission to use material from the forthcoming publication.

"Type A" and "Type B," both of which have been found at Ashkelon.]

The one major type of data lacking in the investigation—one so often overlooked—is the evidence from the published papyri and ostraca. These humble documents introduce us, with conspicuous prominence, although without the publicity that European writers gave to Gaza wine, to another jar, the *askalōnion* (ἀσκαλώνιον). To be sure, the documents mention the Gaza jar (γαζίτιον), but, as readers will note in the inventory below, the *askalōnion* does not take second place to the *gazition*.[128]

Before detailing the documents from the papyri and ostraca, several other items that may have escaped the notice of archaeologists and ceramists require mention. Stephen of Byzantium in his *Ethnika* calls attention not only to the pottery of Gaza (ὁι κέραμοι λέγεγεται Γαζίται), but also to that of Ashkelon ('Ασκαλωναῖα κεράμια) (Stephen of Byzantium 1958:132, 1. 10; 194, 1. 9). A choice reference to the *askalōnion* jar is made in Leontius of Neapolis's *vita Joannis Eleemosynarii*. This seventh-century Greek writer records that St. John the Almsgiver sent to Modestus, the patriarch of Jerusalem, a large sum of money, various supplies, and a thousand *askalōnia* of wine (χίλια ἀσκαλώνια οἴνου), for the purpose of restoring a church destroyed by the Persians (Gelzer 1893:37, 1.19).

One final observation: both the *askalōnia* and the *gazitia* held not only wine but also a wide variety of other products.[129] While it is true that as early as Herodotus (3.5.6) we hear that empty wine jars were put to other uses, it is likely that not all storage jars were manufactured for first use as wine containers. Smearing the inside of the jar with resin or pitch would protect any liquid product other than wine.

The following is an inventory of *askalōnia* and *gazitia* and their contents, from published papyri and ostraca:

Askalōnia

30	*askalōnia*	*P. Got.*	17.r.4
—	*ask(alōnia)*		v.7
1	*askalōnion* of mixed sweetmeats		r.18–19
5	*askalōnia* of sweetmeats		v.18–19
4	*askalōnia* of wine	*P. Herm.*	23.3
1	*askalōnion* of sweetmeats		.4
20	*askalōnia* of wine	*P. Laur.*	4.184.5
3	*askalōnia* of wine	*P. Oxy.*	16.1924.3
1	*askalōnion*, empty		.9
1	*askalōnion* of beans	*P. Oxy.*	56.3862.25
2	*askalōnia* of fish	*P. Prag.*	1.92.2
1	*askalōnion* of fish sauce		1.90.8
6	*askalone* of cheese	*O. Sarga**	196.2
16	*askalone* of cheese		198.2–3
12	*askalone* of cheese		203.1–2
56	*askalone* (jars)		275.4

* Coptic ostraca

Gazitia

39	*gazitia* of wine	*P. Got.*	17.4.14
1	*gazition* of groats of rice-wheat (*zeia*)		.20
1	*gazition* of choice bread		.21
—	*gaz(itia)*		17.v.8
—	*gaz(itia)*		.10
39	*gazitia* of wine		.17
15	*gazitia* of sweetmeats		.18
9	new *gazitia* of wool (?)	*P. Iand.*	6.103.r.8
1	*gazition*	*P. Ness.*	3.85.1
2	*gazitia* of salted fish		.3
2	*gazitia* of cakes		.4
1	*gazition* of wheat meal		.7
7	*gazitia* of pickled fish	*P. Oxy.*	16.1924.2
1	*gazition*, empty		.10
1	*gazition* of pickled food	*P. Vind. Worp.*	11.10
1	*gazition* of black (?) pistachios		.14
1	*gazition* of white (?) pistachios		.15
—	*gazition*		.16
—	*gazitia*		.17

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[128] There is not a hint of the existence of an amphora with this name in *Amphorae and the Roman Economy: An Introductory Guide* by D. P. S. Peacock and D. F. Williams (1986), or in *Storage Jars in Ancient Sea Trade* by A. Zemer (1978).

[129] The citations for *gazition* in Liddell and Scott's *Greek-English Lexicon* (1966:257), as a unit of measure, and for *askalōnion* in Lampe's *Patristic Greek Lexicon* (1962:243), as a measure for wine, are misleading. They should be taken as storage jars, amphorae, or containers for a variety of products.

Although the identification of the *askalōnion* should properly be left to the archaeologist and the ceramist, I venture to suggest that Killebrew's Type B is the "lost" *askalōnion* storage jar, which is so prominently mentioned in the papyri and ostraca. Another important datum for this identification is found in the ninth-century Latin translation of Athanasius of Leontius's *vita Joannis Eleemosynarii*. Athanasius translates the Greek χίλια ἀσκαλώνια οίνου into the Latin *mille vascula vini*, "a thousand small jars of wine" (Migne 1857–1889:vol. 93, col. 1631.6).[130] Killebrew, who has surveyed all the known examples of Types A and B, has found that Type A averages 70–85 cm in height, whereas the shorter and broader Type B has an average height of 40–55 cm. Type B is, therefore, slightly over half the size of Type A, which has been securely identified as the Gaza storage jar, and, compared with the Gaza amphora, might well be called a *vasculum*. Without straining the evidence further, I would also suggest that the illustration provided by Stager (1991: 53) is an example not of a Gaza wine jar, but of a local product of Ashkelon, one of the "lost" *askalōnia*. There are other considerations to be taken into account in the comparison of two types, which must be left to the archaeologists and ceramic specialists.

USES OF ASHKELON WINE IN THE MEDICAL WRITERS OF THE FOURTH TO SEVENTH CENTURIES A.D.

It is regrettable that Late Antiquity had no encyclopedist, no Pliny the Elder, to report on the varieties and virtues of local and foreign vintages. As it was, Pliny himself had not a word to say about the wines of Palestine, although the name of Ashkelon was well known to him, not so much as the famous city of antiquity, but as the name of a kind of onion (*caepa*), the *ascalonia*, which eventually became the English word "scallion" (Pliny, *Natural History* 19.101–5, 107).[131]

It was not until the middle of the fourth century A.D. that the name of Ashkelon as a wine surfaced along with the highly publicized one of its sister city

Gaza. The *Expositio totius mundi et gentium* informs us that Ashkelon and Gaza were outstanding cities, bustling with commercial activity, and exporting a wine of excellent quality (*vinum optimum*) to all Syria and Egypt (Rougé 1966:162). This is all we hear of Ashkelon wine in the literary sources until some time after the mid-sixth century. Gregory of Tours (ca. 539–594), in his *History of the Franks*, written ca. 575, claimed that the hills around the city of Dijon "are covered with fruitful vines which yield a fine Falernian wine that the inhabitants scorn Scalonum (= *Ascalonum*) wine" (Gregory of Tours 1937–1951:1/1:121).

A slightly earlier reference appears in the laudatory poem of Flavius Cresconius Corippus on the accession of Justin II, the *In laudem Iustini Augusti minoris*. Writing at Constantinople in 566/567, Corippus provides a descriptive list of Palestinian wines served at the coronation banquet for the emperor and his wife: *dulcia Bacchi / munera, quae Sarepta ferax, quae Gaza crearat, / Ascalon et laetis dederat quae grata colonis . . . prisca Palaestini miscentur dona Lyaei, / alba colore nivis blandoque levissima gusto*, "sweet gifts of Bacchus, which fruitful Sarepta and Gaza had created and which beloved Ashkelon had given to her prosperous colonists . . . The ancient gifts of Palestinian Lyaeus were mingled in, white with the color of snow, exceedingly light and with an agreeable taste" (Corippus 1976:63).[132]

These three scanty literary citations, sufficient to prove the popularity of Ashkelon wine as an export product, are augmented by its appearance in the medical works of physicians of the fourth to the seventh centuries A.D. The use of Ashkelon wine in medicine is first mentioned in Oribasius (ca. 320–400), a Greek medical writer and personal physician to Emperor Julian. He gives a recipe for the preparation of chamomile, an herb prominent in many medical prescriptions. The recipe calls for 21 cups of Ashkelon wine, seven cups of honey, and 200 chamomile seeds. The seeds and the wine are to be boiled for 21 days and then filtered (Oribasius 1928–1933:part 1/1, p. 152; no. 433.7).

Ashkelon wine next appears in the Latin translation, dated securely to A.D. 447, of Greek medical selections attributed to Cassius Felix, an African born in Cirta. To relieve stomach distress, his prescription

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[130] We cannot be certain that the word *vasculum* maintained its diminutive force in the ninth century. It surely did not among the native speakers of Latin in the West, where the word could not even be used to describe the features of an amphora. It must, however, be borne in mind that Athanasius, a Greek, was seeking some word to describe to Latin readers a virtually unknown term. Hence, I believe that he chose *vasculum* (plucked from some classical dictionary?) to convey the meaning of "a small amphora."

[131] See also Athenaeus (ca. 200 A.D.), *Deipnosophistae* 2.68. In 3.78 he mentions a fig called *ascalonia*.

[132] The editor translates *ferax* as "wild." I believe that she has mistaken the word for *ferox*. Further, to consider all Palestinian wines "white" on the basis of Corippus's poetic statement is risky. A more reasonable treatment on the color of wines may be found in A. D. F. Brown, "Black Wine," *Classical Review* 12 (1962):192–95.

calls for a pulverized mixture of parsley seeds and fennel, parched cumin, and a bit of pepper added in winter. "After that," he states, "you will give (the patient) a quantity of one spoonful of it in a drink of Ashkelon wine that is hot and mixed" (Cassius Felix 1879:101, par. 42).

While Cassius Felix calls for swallowing a spoonful of herbs with a draft of Ashkelon wine, Aetius of Amida in Mesopotamia (sixth century A.D.), who practiced medicine in Constantinople, records another use for the wine. His prescription, taken from a medical writer and physician known by the name of Basilius, calls for a mixture of a precise number of ounces of althaea, chamomile, clover, linseed, fenugreek, and cardamom, to be immersed in five pints of Ashkelon wine for three days and then boiled to the consistency of honey. The prescription adds other compounds (olive oil, butter, goosefat, stag marrow, and white wax), ultimately producing a kind of salve (Aetius of Amida 1892:64).

These three seemingly incidental citations of Ashkelon wine in the medical literature of the fourth and fifth/sixth centuries are brought into much sharper focus in the work of Alexander of Tralles. Born in Asia Minor in 525, the son of a physician and a contemporary of the historian Agathias (ca. 531–580), who speaks highly of him, Alexander had an extensive practice and a reputation as an eminent physician; he was in demand in Spain, Gaul, and Italy. He died in Rome in 603. Although cited as the most modern of Byzantine physicians, he was given to prescribing amulets and charms for a variety of ailments, such as quartan fever and gout.[133] Alexander used Ashkelon wine in his prescriptions more than any other physician, and, with the exception of Sarepta wine, far more than any other wine. An inventory of the named wines in his published medical works shows that his pharmacopeia held some twenty different wines from Italy, the Aegean islands, Asia Minor, Phoenicia, and Palestine. Sarepta is mentioned seven times, Ashkelon six times, and Gaza only twice. Alexander used Ashkelon wine in medical preparations to quench thirst; in lieu of the juice of an herb; in a mixture with an herb; to assist in swallowing a medicine; to encourage urination; and

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[133] A summary of some of these amulets and charms, as well as a general account of Alexander of Tralles, can be found in W. Smith (ed.), *Dictionary of Greek and Roman Biography and Mythology* (Boston, 1870), vol. 1, pp. 126–27. Of special interest is Alexander's use of Hebrew holy names יהוה צבאות אדני אלהי, to effect the cure of gout and rheumatism. For the Greek text of the Hebrew holy names, see Puschmann 1879:2/2:585; for other charms and amulets, see pp. 581, 583.

as a heating medium. The following is a summary of the prescriptions of Alexander of Tralles in which Ashkelon wine was used:

1. In the case of a quartan fever, in which the excess of black bile is the cause of the fever, and in those cases in which the stomach contains viscous juices, or in which there is a severe obstruction of the spleen, a variety of very salty dishes are recommended. "Only after a while," the prescription concludes, "when the patient can no longer endure the thirst, can one give him wine from Ashkelon or Gaza which he can mix (with water) as much as he likes" (Puschmann 1879:1/2:417).

2. In the preparation of a moist eye-salve, effective against eyes full of pus, dirty abscesses, and protrusion of the eyes (*myokephalon*), Alexander recommends a combination of a chemical, an herb, a gum, and honey. He then states: "The medication is prepared with the juice of groundsel (*senecio vulgaris*); but I know that it is also prepared with Ashkelon wine" (Puschmann 1879: 2/2:53).

3. To relieve colic, Alexander prescribes a medication composed of a mixture of herbs and honey, warmed up and given to the patient to drink in the bath. The medication is also helpful for kidney diseases that result from obstruction, stones, or thick juices. He then prescribes yet another mixture of herbs that he claims is effective, adding that "another excellent medication is organum (majoram) when one gram is used in a mixture of Ashkelon wine or another light wine (ἠ ἄλλου λεπτού οίνου). This remedy has proven itself and has relieved many of great pain" (Puschmann 1879:353).

4. Concerning diseases of the liver, Alexander refers to an excellent powder which he has often administered against an obstruction of the organ. It consists of two parts each of costus and hempagrimony and one part pepper, and it is given for three days with half a cup of Ashkelon wine. These instructions are followed with other details, particularly concerning the kinds of food to be avoided (Puschmann 1879:393).

5. In treating eye infections caused by cold juices and viscous fluids, wait until there is no sign of excessive fluid, and then "give the patient a bath and one of the heating wines, such as the Isaurian, the Ashkelon Mysian, Truan(?), and Gaza wines.

If one wants to give spiced or absinthe wine, one will achieve an even greater effect" (Puschmann 1879:172 [Nachträge]).

6. Alexander has a long treatise on diet and its effect upon the liver and on the causes of dropsy (edema). Some of his interesting statements regarding diet are as follows: "Diet is the most important part of the treatment of most diseases, especially the most dangerous one, including dropsy . . . meat must be eaten in limited quantity and should not be fatty . . . roast meat can be eaten unsparingly, if the patient likes it . . . shellfish, such as lobsters, snails, scallops should be eaten rarely and only as a delicacy." Of course, modern medicine would not approve of most of the other recommendations called for in this diet. However, in speaking of what drink can be served for dessert, Alexander says: "One can recommend the wines of Tyre and Ashkelon, especially if they are old and mature(?), because they encourage urination" (Puschmann 1879:2/2:455, 457).

The last member of this quintet of Byzantine physicians and medical writers is Paulus, born on the island of Aegina sometime in the seventh century A.D. Greatly admired by Arab authorities, and often cited and translated, he probably practiced medicine in the latter part of the seventh century. His extant work is organized in seven books, the last of which contains an account of the preparation of medicines culled from earlier medical writers.

Unlike Alexander of Tralles, the pharmacopeia of Paulus held few named wines, some seven of them. He appears to have favored Amminian wine, having mentioned it in ten prescriptions. Sarepta and Gaza wines are not in his store of drugs. As for Ashkelon wine, it is cited twice, once in the well-known prescription of Basilius, also mentioned by Aetius. Paulus, however, not only makes some minor changes in the recipe, but also says that Cilician wine can be used in place of Ashkelon (Paulus of Aegina 1925:2: 376). The other prescription, a spiced wine to help in passing kidney stones, calls for an assortment of herbs, some of which are quite uncommon, several pints of honey, and six pints of Ashkelon wine (ibid., p. 309:22).

In sum, the Byzantine medical writings are far more informative about Ashkelon wine than the literary sources. Although Gaza wine was very popular at the time, it was mentioned by only one physician, Alexander of Tralles, and then only as a heating wine

and to relieve thirst when mixed, most probably with water. What, then, did physicians, particularly Alexander, find so medically useful in Ashkelon wine? What properties made it more useful than the celebrated wine from Gaza? One of Alexander's prescriptions provides the answer. In his alternative recipe for colic, he calls for a mixture of one gram of organum (majoram) to be used with Ashkelon wine "or another light (*leptos*) wine." The word *leptos* is the key: the wine is "light," not harsh or an irritant. It is the kind of wine that, when taken with other ingredients or medicaments, or as a constituent part of them, "sits well on the stomach."

With this in mind, let us return to the poem of Corippus for further support. At the coronation banquet for Justin II the poet praises three wines, two of which are Palestinian, from Gaza and Ashkelon. He then says: "The ancient gifts of Palestinian Lyaeus were mingled in, white with the color of snow, exceedingly light, and with an agreeable taste" (*blandoque levissima gusto*). It is these two qualities— "exceedingly light" and "agreeable taste"—that would make a wine suitable for medical use, and the wine of Ashkelon fits that description.

Does Gaza wine fit the same description, since Corippus has combined the two under the term "Palestinian"? For an answer, we must turn again to Gregory of Tours. In his *Liber in gloria confessorum*, he recounts the story of a woman who provided the church with an ample supply of Gaza wine on behalf of her deceased husband. The wine was to be used at the Eucharist in the *sacrarium* where he was buried. The subdeacon, however, appropriated the wine and substituted the strongest kind of vinegar in its place, whereupon the ghost of the deceased husband appeared before his wife to complain. She replied that it was the strongest (*potentissimum*) Gaza wine that she had offered the church for the repose of his soul (Gregory of Tours 1959:1/2:336).

In Gregory's *History of the Franks*, in a scene of deception and violence between Claudius, a murderer, and Eberulf, a high official, Claudius calls for stronger wine. Eberulf sends his servants "one after another to get stronger (*potentiora*) wines, those of Laodicea and those of Gaza" (Gregory of Tours 1937–1951:1/1:348). Gaza wine, unquestionably, was not *leptos* like Ashkelon wine; it was too strong, too harsh for general medical use.

A final note: medical writers offer surprising information that may be correlated with non-medical evidence (e.g., literary sources and archaeological material). Their work should not be overlooked.

ANOTHER UNREPORTED ASHKELONIAN JAR:
  THE *SABITHA*/*SAPATION*

As has been reported above, the present writer uncovered, through the examination of the published papyri and ostraca, the name of a pottery jar attributed to the city of Ashkelon: the *askalōnion*. Unlike the well-known jar bearing the name of Gaza, *gazition*, the Ashkelon jar had not surfaced in the archeological literature, hence I dubbed it "lost." The papyri and ostraca revealed that the Gaza jar, usually called a "wine jar," as well as the Ashkelonian jar, were used to hold a variety of products (e.g., wine, beans, sweetmeats, fish, fish sauce, cheese, cakes, wheat meal, pistachios). In other words, these vessels served as general-purpose storage jars, although they may originally have been used for a particular product, such as wine, and later have become available for other commodities.

The literary sources, however, contain a description of a vessel associated with the name of Ashkelon that had a specific function and held a specific quantity of liquid. Gaza and Azotus are also mentioned under the same rubric, each containing smaller quantities of liquid. This particular vessel has not been cited in the archaeological record of Palestinian pottery, although one may have been described, but not associated with the name *sabitha* or its function.

Epiphanius (ca. A.D. 315–403), born in Eleutheropolis in Palestine and noted for his work on heresies (*Panarion*), also composed a work on weights and measures, *De mensuribus et ponderibus*, of which we have two versions, Syriac and Greek. Of the two, the Syriac version provides a fuller description of a vessel called the *sabitha*, which was used to draw off the must (the new unfermented wine) from the wine press:

> (As for) the *shåfithå*, this is a Syriac term which occurs as a measure among the people of Gaza and Ashkelon and the rest of the seacoast called the Shefelah. Hence in Gaza and Ashkelon they call the jar which is the *shåfithå* the *sapation*, which is translated "the drawing vessel of the wine press," for with the measure they draw out and carry wine. But among the people of Ashkelon it consists of 22 *xestai*, among those of Azotus 18 *xestai*, and among those of Gaza 14 *xestai*.
>
> [Epiphanius 1935:§41, pp. 55–56; §21, p. 136][134]

A shorter version of the above appears in a Greek text: Σαβιθά. τούτο Συριατικόν ἐστι τό ὄνομα, ὁ ἑρμηνεύται ληνιαῖον ἄντλημα, παρὰ ᾿Ασκαλωνίταις ξέστων κβ ("*Sabitha*. This is a Syriac word which means 'a wine-press vessel'; among the Ashkelonites it holds 22 *xestai*") (Migne 1857–89:vol. 83, col. 284 C). No mention is made of Gaza and Azotus.

The editor of the Syriac text comments that the term apparently derives from the Aramaic root שפה, שפי, "to incline, tilt, pour out slowly" (Dean in Epiphanius 1935:55, n. 378). The Greek word ἄντλημα and its cognates feature a related action: "baling out or drawing out (e.g., water); draining, emptying, drawing up, or the instrument for that purpose (e.g., a bucket)" (Liddell and Scott 1966:166). It is clear from both the Syriac and Greek texts that the vessel earned its name from the function it performed at the wine press, namely, to collect the unfermented juice as it ran off the treading floor, or from a collection basin, and to transfer it to storage jars, where it would complete the fermentation process.

Taking the Syriac text one step further, the word *qûltāᵓ*, which the editor translates as "jar," is the equivalent of the Hebrew כד, which in turn is taken into Greek as κάδος and into Latin as *cadus* (Brockelmann 1928:666; Sokoloff 1990:479; see also Brand 1953:490–92).[135] In this context, *qûltāᵓ* is a wide-mouthed vessel generally used for carrying all kinds of liquids, usually water drawn from a spring or well. The same would be true of the Greek term (ἄντλημα). The *sabitha*, on the other hand, was a specific kind of *qûltāᵓ*, used, as stated above, to draw off the must from the wine press. In other words, the *qûltāᵓ* is the genus of the container; the *sabitha* the species. Hence, the *sabitha* was a wide-mouthed vessel designed specifically to collect the juice running off the floor of the wine press or to siphon it from a collection pit or settling basin. It is also likely that the jar had handles, like most *kadoi*, to facilitate holding and carrying.

The text offers additional information lacking in the Greek. Epiphanius mentions that in Gaza and Ashkelon, the *sabitha* is called the *sapation*, which is a Hellenized variant of Syriac *šapîtāᵓ* and Palestinian-Aramaic *šepîyātāᵓ* (pl.). These two words—*sabitha* and *sapation*—represent the same vocables.[136]

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[134] See also Brockelmann's *Lexicon Syriacum* (1928:490, 794) and Sokoloff's *Dictionary of Jewish Palestinian Aramaic of the Byzantine Period* (1990:563).

[135] For Greek *kados*, see Liddell and Scott 1966:848 and Chantraine 1983:478. For early examples, see Amyx 1958: pl. 47; Sparkes and Talcott 1970:201–3, pl. 72.

[136] Brockelmann, p. 490; Sokoloff, p. 563. I am indebted to Prof. B. Levine, who graciously provided the source material and transliterations for the Syriac and Aramaic.

The *sabitha*/*sapation* was not only a jar, but also a liquid measure. The number of *xestai* (= Latin *sextarii*) in the wine-press jar associated with Ashkelon was 22; the jar associated with Azotus held 18; and the one associated with Gaza held 12 *xestai*. These quantities suggest that the size of the vessel, if not determined by local tradition, had some relationship to the quantity and rate of treaded grape juice produced by the wine presses at the three sites. In other words, a large press, producing a strong flow of juice, would require a larger vessel to capture the runoff than a smaller press, producing less liquid. If this was the case, it would indicate that Ashkelon had larger presses and produced more wine than Gaza or Azotus.

More can be gathered from a consideration of the weight of each *sabitha* when filled to capacity. To give an approximation of the weight of the three vessels, the figure of 0.547 liters is used for the liquid measure of a Roman *xestēs*, and 1 kilogram as the weight of one liter of water. For Ashkelon, 22 *xestai* would be the equivalent of 12 liters, weighing 12 kg (ca. 25 lb.); for Azotus, 18 *xestai* would represent 9.8 litres, weighing almost 10 kg (ca. 20 lb.); and for Gaza, 14 *xestai* would represent 7.6 litres, weighing 7.6 kg (17 lb.).[137]

These figures, calculated for water, are probably on the low side, since the juice that drained off the treading floor was unfermented wine and, moreover, must have contained some of the dregs from the extraction process. Be that as it may, the *sabitha* had to be a large vessel (particularly the *askalōnion*) and, when full, had to be fairly heavy.[138]

As a specific measure, the number of *xestai* each *sabitha* held must have been used to calculate the production of a wine press or the quantity of new wine transferred to storage jars to complete the process of fermentation. In other words, a vessel of this size and measured quantity must have served in the commercial production of wine at Ashkelon, Gaza, Azotus, and other sites along the Shephelah.[139] A household producing wine for its own use would by no means need a special vessel such as this; it could use any kind of jar or wineskin to collect the new wine running off the treading floor. It follows that the *sabitha* was used in conjunction with commercial wine presses.[140]

In sum, Epiphanius has provided us with the name and description of a special jar used in the commercial production of wine at Ashkelon, Gaza, Azotus, and along the Shephelah. The *sabatha*/*sapation* was part of that process that led to the export and fame of Palestinian wines, particularly of Ashkelonian and Gazan vintages, throughout the Mediterannean and as far north as France.

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[137] For the Roman *sextarius*, see Hultsch 1882:587. If the *sabitha* is judged by a Syrian *sextarius* of 0.729 liters (ibid.), the figures for Ashkelon would be 16 liters (35 lb.); Gaza 13 liters (29 lb.); Azotus 9 litres (22 lb.).

[138] Epiphanius's Syriac text describes the use of wineskins in a measure called the *nēvel* of wine (Epiphanius 1935:50–51): "The *nēvel* is a measure that is put in two wine skins, (a measure) which consists of 150 *xestai*, which makes 3 liquid seahs, for the seah is 50 *xestai*. Further, this means a 'taking up,' that which a man, after filling would draw up by man power from the pit of the wine press, as much as he was able to lift with his two hands from the pit of the wine press. But *nēvel* is interpreted as 'something to be carried,' which is a load of wine, which is also called a *foreus* as the Cyprians call the great jar which holds 150 *xestai*, which a young man can carry on his shoulder from one little place to another."

[139] It should be noted that the *sabitha* as a wine measure appears to bear a relation to a liquid measure of capacity known as the χους (*chous*, pl. *choes*) containing 6 *xestai*. In this connection, a papyrus from Oxyrhynchus in Egypt, dated A.D. 243, is informative regarding the large-scale manufacture of storage jars for wine after it came off the treading floors (see Cockle 1980; I would like to thank Dr. Roberta Johnson for providing me with this reference). The document is a lease to a potter who guarantees to produce 150 2-*choes* wine jars, 15,000 (*sic*) 4-*choes* jars, and 150 8-*choes* jars. In Egypt, the 4-*choes* jar, containing 24 *xestai*, seems to have been the preferred measure of capacity for an amphora of wine. In precise terms, the Ashkelonian *sabitha* of 22 *xestai* would be one-seventh shy of filling a 4-*choes* jar; four Azotan *sabithas* would fill three 4-*choes* jars to the brim; and one Gazan *sabitha* would be three-sevenths shy of a 4-*choes* jar. In practical terms, however, the Ashkelonian and Azotan *sabitha*s would relate well to the 4-*choes* jar; the Gazan less so. This would be the situation in Egypt, but the likelihood is that the Palestinian wine merchants ordered wine jars to their own specifications.

[140] For examples of such presses in the Negev, see Mayerson 1986 and Mazor 1981.

Byzantine-Period Wine Jars and Their Distribution

by Barbara L. Johnson and Lawrence E. Stager

THE two leading crop commodities exported from Palestine throughout the Bronze Age and later were olive oil and wine, the "cash crops" of the region. Oil production began in the Chalcolithic era when the olive was first domesticated. Later in Early Bronze I (3500–3100 B.C.), the grape was domesticated and wine produced both for local consumption and for export, especially to Egypt, where wine and oil appear in Naqada II and III contexts (Stager 1985b). The southern coastal plain, with its sandy soils, adequate rainfall and irrigation sources, and warm climate, was an excellent environment for grape cultivation.

During the 1992 season of excavations at Ashkelon, the Leon Levy Expedition discovered direct evidence for large-scale wine production in the Iron Age. Buried in and under the citywide destruction of December 604 B.C. was a royal winery of the last Philistine king of Ashkelon, named Aga. The king and the destruction date of the city are known from King Nebuchadrezzar's *Babylonian Chronicle*. Located inside a beautiful ashlar building were numerous wine presses lined with an extraordinarily fine cement and plaster. The ecology of the region, the winery, and several Philistine pottery forms suggest that wine, much more than beer, was the preferred drink of the Philistine culture.

Although wine production had a long history in the Levant in the Bronze and Iron Ages, it is mainly for the Byzantine period (fourth to seventh centuries A.D.) that we are beginning to put together a detailed picture of viticulture in southern Palestine. To this picture the recent excavations at Ashkelon, the great seaport and urban center of the region, have already contributed much new data.

During the Roman period, Ashkelon received more than 130 different types of transport amphoras, imported from Spain, Italy, North Africa, Crete, the Aegean, and the Black Sea region (see Johnson 2008 and chapter 23 in the present volume). At the same time, one of its own most important exports was wine, produced throughout the southern coastal plain and inland in such marginal areas as the northern Negev. The leading indicator of this export in the Byzantine period is the so-called "Gaza" wine jar, a ubiquitous pottery container known throughout the Levant, the Mediterranean, and the Byzantine world.

These wine jars have been found in such distant places as London, Trier, and the Crimea.

The history of development and production of this amphora and its subtypes can now be documented through the stratigraphic sequence at Ashkelon. The Leon Levy Expedition's regional survey in the Ashkelon countryside and various salvage excavations north of the city have revealed numerous kiln sites for these amphoras, often found in association with wineries. Mounds of potsherds, primarily discards from the mass production of wine jars, rise above the fields east of Gaza and Ashkelon. By focusing on the scale of production of these amphoras and the distribution patterns of their contents, usually wine, we can illuminate a small but revealing facet of the economy of an ecumenic empire and relate that facet to the spread of Christianity throughout the Holy Land and the entire Byzantine/Late Roman world.

The "Gaza" Wine Jars

When publishing the pottery from Caesarea Maritima hippodrome, J. A. Riley (1975:27–31) proposed that a particular kind of amphora (Type 2), the second most common type found there (see Magness 1992), was made in the region of Gaza and may have been the container or the forerunner of the container for Gaza wine. In support of this hypothesis he cited the widespread distribution of the jar, the praise of Gaza wine by Byzantine authors, and archaeological evidence pointing to the Gaza area as that in which the greatest concentration of such jars occurred. Petrological analysis of Type 2 amphoras found at Caesarea also indicated that they were a Gazan product. There the matter rested for some years until other excavators and scholars began to identify similar containers and to refer to them as "Gaza" wine jars.

During this time there was little effort to subdivide the vessels according to the differences of shape. Ann Killebrew, in her forthcoming study of the "Gaza" amphoras excavated at Deir el-Balaḥ south of Gaza, was the first to distinguish the tall jar, which she designated "Type A," from the short one, "Type B." Peacock and Williams (1986), in their general survey of Roman amphoras, also separated the jars into Class 48 (tall) and Class 49 (short). We follow Killebrew's classification, which has been adopted by others publishing similar material from Israel.

During the excavation of Byzantine ("Late Roman") horizons at Ashkelon, thousands of fragments of Type A and Type B jars were recovered, including an enormous number of rims, handles, and toes or bottoms. Barbara L. Johnson was able to identify characteristics which belong specifically to either the tall or the short type and to establish criteria which enable ceramists to classify, in most instances, rim, shoulder, and handle fragments as belonging to Type A or Type B jars. Our view contrasts markedly with that of Jeffrey Blakeley (1988), who asserts that the sherd material is not of diagnostic value in distinguishing different types.

The differentiations that we consider valid are based in part on the angle of the shoulder as it comes from the rim. On Type A jars, the line of the shoulder is nearly vertical; on Type B jars, it is nearly horizontal. This distinction has not been observed in most publications.

Type A is the taller of the two jar types, ranging from about 70 to 100 cm in height (see Amphora 29 in chapter 23 above, figure 23.29). The long, narrow, hollow toe terminates in a rounded-off point or in a wider truncated form. The rim is either thickened and rounded or low and vertical with a sharp profile. The full range of rim types on the Type A jar has not yet been determined. Small ear handles are set on the shoulder and consist of thick coils, often with a ridge running along the outer surface at or near the center of the handle. The zone extending from below the rim to just below the handles is usually covered with pronounced ribbing, either sharp or rounded, or both. A zone of similar ribbing marks the lower body and toe. Many Type A jars from other sites have a narrow band of combed lines around the upper body below the handles, and on the lower body above the ribbing. This attribute is rare on Type A jars from Ashkelon.

Type B is a sausage-shaped jar, ranging from 45 to 65 cm in height, considerably shorter than the torpedo-shaped Type A container (see Amphora 30 in chapter 23 above, figure 23.30). Characteristic of Type B is the wide convex bottom, the sharply profiled low rim, and the small ear handles attached at the shoulder. Type B handles are flattened coils, considerably wider than the thick coil handles of the Type A jar. Sharp or rounded ribbing also appears on the body of Type B jars from below the rim to below the handles, and again on the lower body. Ribbing may extend over all or only part of the underside of the convex bottom. The narrow bands of combed lines, which appear rarely on Type A jars at Ashkelon and somewhat more frequently on Type A jars from other sites, do not appear at all on Type B jars. On some examples from Ashkelon that zone is occupied by narrow, horizontal, red-painted bands, which sometimes overlap. Red-painted bands have been reported on no other Type B jars and are known to the present authors only from the tell of Ashkelon and from salvage excavations a few kilometers north at Barnea (a district of modern Ashkelon). The most common location for the red bands is around the lower body, less frequently around the upper body below the ribbing, or in both places on a single jar.

The significance of the red bands is unclear. Perhaps the jars marked with red bands carried red wine of Ashkelon, whereas Type B jars without red bands transported Ashkelon white wine. The red bands were not needed to alert buyers that the wine was from Ashkelon since the shape of the vessel itself would have told them that. In the pre-Hellenistic Greek world, wine merchants could identify the source of the wine by the shape of the transport amphora. There is no reason to assume that this was not also the case in later times.

Alternatively, but less likely, the bands may indicate the specific producer of the wine. For example, the presence of red bands could indicate that the wine, whether white or red, came from a specific vineyard. This might explain why the red-banded jars are limited to jars from the tell of Ashkelon and from Barnea. Or perhaps the limited distribution is attributable to inadequate recording of the red-painted type at other sites; it is difficult to believe that of the many Type B jars found worldwide, only the ones from Ashkelon have red bands.

Certain features are common to both Type A and Type B jars, such as the presence of smears and blobs of excess clay on the exterior at and below the rim and, less frequently, at the lower body and toe in the area of the ribbing. Various explanations have been offered for this excess clay. The one generally accepted today is that the residue results from the manufacturing process. The vessels were made in two or more parts. When these parts were joined, the segment with the rim attached was placed top-down in a chock while the other segment or segments were attached. The potter then removed the jar from the chock and either carelessly or incompletely removed the excess clay.

At one time the clay residue was believed to be the remains of the stoppering system. However, since the clay blobs and smears were fired at the same time as the pot, it is obvious that they could not result from the lid or the lid sealing. Among the thousands of fragments of Type A and Type B jars studied from Ashkelon, no lids were found, although lids for other types of amphoras have been recovered from the site. It may be that sealants for Type A and B jars were

made from unbaked clay and not preserved. There are many other examples of transport amphoras of the Roman and other periods sealed in this manner. At Caesarea, a few of the amphoras had limestone stoppers associated with them (Robert Bull, pers. comm.).

Red-painted notations appear on a few Type A and Type B jars from Ashkelon as well as from Caesarea; they are rarely reported from elsewhere. At Ashkelon, Greek letters, isolated or part of longer inscriptions and written horizontally at midbody, were painted on Type B jars. Unfortunately, the jar remains are too fragmentary to permit reconstruction of the inscriptions. Greek letters, such as *theta*, *epsilon*, and *sigma* (either singly or in combination), have been identified with certainty on Type B jars. Only two examples of red-painted inscriptions occur on Type A jars at Ashkelon: one resembles nothing so much as a child's scrawlings in red crayon. The other, possibly in cursive Greek, was written along the length of the body on one side of the jar.

Standard capacities for the two jar types cannot now be determined with any degree of accuracy because of the paucity of complete or restorable vessels (for rough estimates, see Zemer 1978:61–65). Fragmentary evidence from Type B jars at Ashkelon suggests that a size larger than the standard container may exist. Thus far there is no indication that fractionals existed in either jar type.

Wine Production Centers

Various archaeological surveys and excavations indicate that the coastal region of Palestine from south of Gaza to north of Ashdod was dotted with manufacturing sites for wine jars in the Byzantine period. One to two kilometers north of the tell of Ashkelon, in and around several construction sites of the modern city, the Leon Levy Expedition's staff geologist Frank L. Koucky has located sites where unbaked specimens of Type A and B amphoras are preserved, and kiln sites where both types were fired.

In his systematic survey of a 100-km^2 area east of Ashkelon on behalf of the Leon Levy Expedition, Mitchell Allen discovered two dozen industrial sites of the Byzantine period, including numerous kiln sites identified by ceramic slag, kiln wasters, and burned bricks (see the report on this survey in chapter 3 above). Kiln sites were usually located on the banks of wadis where there was a good supply of clay and reeds for fuel. Some seven wine presses have also been identified in the region. During the Byzantine period, dozens of farmsteads and agricultural estates were established, a phenomenon that had not occurred previously in the history of settlement in the area. These estates were located mainly on the higher terrain formed by the north-south sandstone (*kurkar*) ridge to the east of Ashkelon. At these sites both Type A and Type B wine jars were found.

By far the most elaborate winery and associated buildings to come to light is the complex first discovered and partially destroyed by bulldozers preparing housing sites on the northern outskirts of modern Ashkelon, in the Barnea district (Israel 1993; 1995a). This site was buried under a huge sand dune, one of many that swept over the southern coastal area beginning in the seventh century A.D., concealing many pre-Islamic settlements and remains. Once the bulldozing was halted, the Israel Antiquities Authority was able to salvage part of the Barnea complex. IAA archaeologist Yigael Israel made a valiant effort to excavate and preserve this center, located (according to an inscribed milestone) three Roman miles north of Byzantine Ashkelon. Several wine presses with large treading platforms and basins were discovered. The most elaborate included large octagonal collecting vats. Several nearby pottery kilns indicate that the wine jars were fired on the spot. The produce was stored in tripartite pillared buildings or magazines adjacent to the presses. A large olive press lay on the other side of the buildings. Olive pits suffused with oil make an excellent combustible for firing pottery. Farther north, a lovely Roman bath awaited those who had finished their work in the presses.

In the Tell Jemmeh Archaeological Survey conducted in the northwest Negev, east of the city of Gaza, Jerome Schaefer (1979) was the first to recognize numerous "waster dumps" resulting from the mass production of "Gaza" wine jars. The waster dumps contained predominantly Type A and B amphoras along with sizable amounts of pottery "slag" from overfired pots and from the vitrified clay linings of kilns. The waster dumps usually occurred at the edge of large settlements (10–33 ha). From the surface survey evidence alone, it is clear that most of these towns or cities had churches and bathhouses (Schaefer 1979:196 [table 9], 199–200).

Several kilometers east of Ashkelon and Gaza, Yigael Israel (1993:91) discovered even more amazing evidence for the production of wine amphoras on a massive and unprecedented scale. Rising five to ten meters above the plain are at least a dozen mounds, each 1,000 m^2 or more in size, composed of nothing but potsherds—predominantly Type A and Type B wine jars. All of these mounds contain industrial debris such as brick kiln fragments, ceramic slag, and kiln wasters. At a site just east of modern Ashkelon where sand and *kurkar* were being removed for landfill, a mudbrick arch of an enormous pottery kiln, 4 m

in diameter, was exposed. Wasters from Type B amphoras littered the site.

From a cursory look at the surface collections, Barbara Johnson noted that the tall Type A jars predominate in sherd mounds east of Gaza; whereas the short Type B jars are found to the east of Ashkelon.

The Gaza Jar and the Ashkelon Jar

In the course of excavating those levels of Ashkelon that belong to the Byzantine (or "Late Roman") period, it has become quite clear that the tremendous quantities of Type A and Type B jars dominated the repertoire. Furthermore, one can say without hesitation that at Ashkelon, Type B containers are more common than Type A. Finds from the immediate and not-so-near area provide the evidence that both Type A and Type B jars were produced in the environs and beyond Ashkelon. Visual examination of the two types of jars indicates that they were produced from the same clay and have in common many details of form, even though they differ in overall shape.

It has long been the opinion of the Roman-Byzantine ceramists at Ashkelon that the short jar (Type B) was made in and around Ashkelon and belonged specifically to Ashkelon. This belief was based on quantities of Type B amphoras excavated at the site and the presence of a number of examples with the red-painted stripes. This view has been strengthened by the publication of important articles by Philip Mayerson (1992; 1993), reprinted above under the title "The Wine of Ashkelon in Byzantine Texts," in which he discusses the textual evidence for both a Gaza jar (*gazition*) and an Ashkelon jar (*askalōnion*) and suggests that Killebrew's Type B is in fact the Ashkelon jar.

World-Wide Distribution: Pilgrims and Prosperity

The early Byzantine period was an especially prosperous time in Palestine. Indeed, its prosperity was not exceeded until modern times. The population also reached unprecedented numbers, not exceeded until the twentieth century. Even the Negev Desert, southeast of the southern coastal plain, bloomed, not because of climatic changes, but because of the economic boom. The export of native wines undoubtedly propelled and sustained the boom. Numerous wine presses, some quite large and elaborate, have been found in the Negev desert at cities such as Shivtah, Avdat, and Elusa (Mazor 1981; Mayerson 1986). The demand for these wines was apparently so great that even the marginal zones such as the Negev were cultivating the vine by runoff and floodwater farming.

The wine jars both short and tall from southern Palestine were exported throughout the Mediterranean world (see figures 25.1 and 25.2 and associated site lists). The tall type (Type A, probably called the *gazition*) appears at numerous sites throughout the Byzantine and Late Roman world; the short type (Type B, probably called the *askalōnion*) appears at most of these sites as well. In North Africa, they were exported to Egypt, Cyrenaica, and Carthage. Some reached Corinth and Athens; others went farther north, to the Black Sea; and others to coastal France and Spain in the west. Even farther north, examples have been identified in Germany, at Trier, and in England, at London and Wroxeter.

Why was there such a demand for wines from Ashkelon, Gaza, and elsewhere in Palestine—a demand never equaled before or since? The answer lies, at least in part, in the broader historical picture of the Holy Land in the fourth through sixth centuries A.D. In the year 324 the Emperor Constantine officially recognized Christianity. By the late fourth and early fifth centuries monastic life was flourishing near Gaza and Ashkelon as well as in the Judean Desert. Christianity spread not only into the desert but also into the major cities of Palestine. Christian pilgrims began to flock to the Holy Land from around the world. From Europe they came in ships that departed regularly from Gaul and Italy, usually sailing via Antioch or Alexandria.

Jerusalem, the holy city, and especially the Holy Sepulchre, were of course the primary objectives for these early pilgrims, for whom the "testimony of holy places [was] to substantiate the testimony of the Bible" (Hunt 1982:99). But they also visited other sacred sites: Bethlehem, Mamre (Hebron), Mount Sinai (St. Catherine's Monastery), and even Mount Ararat, where, according to the church historian Eusebius, "Noah's ark" was still visible. No doubt they also wanted to see the tomb of the three martyred brothers known as the "Egyptians" (Mayerson 1986:n. 3), and to see the "Wells of Abraham" at Ashkelon, as mentioned by Origen. For many western pilgrims, Ashkelon was their first port of call in the Holy Land—of all the coastal cities south of Jaffa, only Ashkelon actually sits on the seacoast.

These early pilgrims took home with them all sorts of relics and sacred souvenirs: pieces of the True Cross, saints' remains, fruit from the "garden of John the Baptist," soil, and olive oil used to light lamps at the Holy Sepulchre. The oil was exported in small vials or flasks called *ampullae*; several examples have turned up in our excavations. According to the anonymous sixth-century Pilgrim of Piacenza, who left us his travel notes, the holy oil was sanctified by

bringing the flasks in contact with the wood of the Cross, at which time the oil boiled so furiously that the *ampullae* popped their stoppers. These had to be replaced immediately to prevent precious oil from spilling out (Hunt 1982:130–31).

Like tourists today, pilgrims contributed greatly to the economy of the Holy Land. The relics and souvenirs they brought back must have made a stirring impression on those who could not make, or could not afford, the pilgrimage. There was, however, another commodity, not so easily carried home but apparently also in great demand: wine from the Holy Land, especially wine from the Gaza and Ashkelon regions. It must have been exported in quantity to meet the needs of the churches of Europe. In one sixth-century reference, Gaza wine was bequeathed to a church in Lyons to celebrate the Eucharist (Riley 1975:30, n. 20).

But there were other nonsacramental reasons for the popularity of the wines from this region, especially those identified with Ashkelon. Mayerson (see above) has looked beyond the literary texts to the medical texts of the Byzantine era for fresh insights into the use of Ashkelon wines and their special properties. Physicians and medical writers of the fourth to seventh centuries often prescribed Ashkelon wine as an ingredient of various medical prescriptions and recipes used to remedy dyspepsia, to quench thirst, to dissolve other compounds (when heated and mixed with water), to prepare eye-salve for eye infections, to relieve colic, and for other maladies. Among the most renowned physicians of the period was Alexander of Tralles, who lived in the sixth century and whose services were much in demand in Spain, Gaul, and Italy. He refers to Ashkelon wine six times and to Gaza wine twice in his prescriptions. For dessert, he recommended the "wines of Tyre and Ashkelon, especially if they are old and mature(?), because they encourage urination."

Mayerson finds the key quality that made Ashkelon wine popular in the Byzantine pharmacopeia in another recipe for colic prescribed by the physician Alexander, in which a mixture of marjoram is to be used with Ashkelon wine "or another light (*leptos*) wine." Unlike the heavier and stronger wine of Gaza, that from Ashkelon was light and more agreeable to the stomach. In light of the medical texts, Mayerson then gains further insight into the oft-cited poem by Corippus, written in Constantinople in 566/567, on the occasion of the coronation banquet of Emperor Justin II. There he praises the "sweet gifts of Bacchus, which fruitful Sarepta and Gaza had created and which beloved Ashkelon had given to her prosperous colonists. . . . The ancient gifts of Palestinian Lyaeus were mingled in, white with the color of snow, exceedingly light and with an agreeable taste."
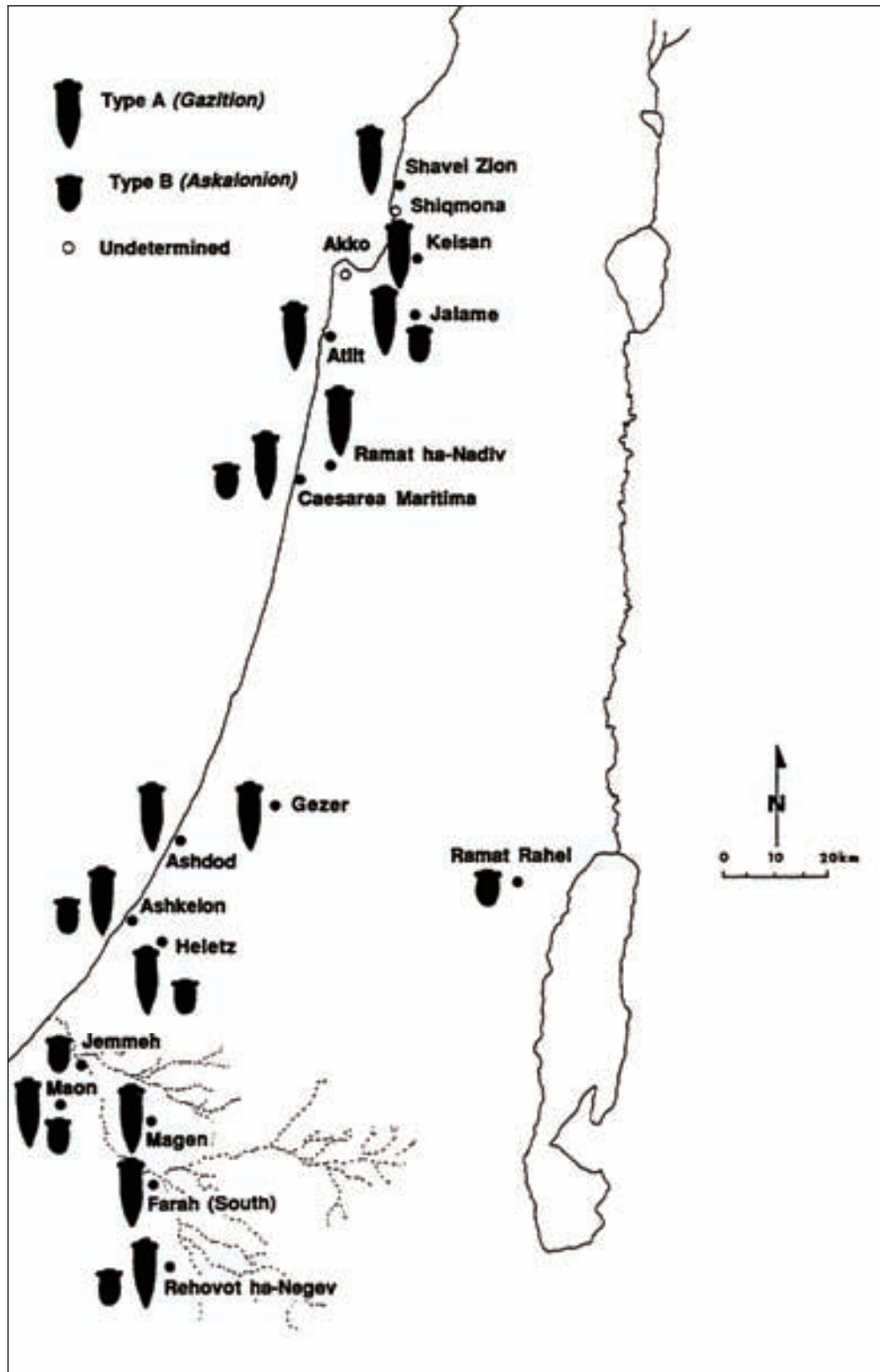
Figure 25.1: Distribution in Israel of Type A (*gazition*) and Type B (*askalōnion*) amphoras

Distribution in Israel of Type A (*gazition*) and Type B (*askalōnion*) Amphoras

Type A and Type B	*Type A only*	*Type B only*	*Undetermined type*
3. Ashkelon	2. Ashdod	11. Jemmeh	1. Akko
5. Caesarea Maritima	4. Atlit	15. Ramat Rahel	18. Shiqmona
8. Heletz	6. Farah (South)		
10. Jalame	7. Gezer		
13. Maon	9. Keisan		
16. Rehovot ha-Negev	12. Magen		
	14. Ramat ha-Nadiv		
	17. Shavei Zion		

Alphabetical List of Sites with Bibliographic References

1. Akko (undetermined type)
Zemer 1978:61

2. Ashdod (Type A)
Dothan and Freedman 1967:34, fig. 14:1

3. Ashkelon (Type A and Type B)
See figures 23.29 and 23.30 above.

4. Atlit (Type A)
Zemer 1978:61

5. Caesarea Maritima (Type A and Type B)
Blakely 1987:112–13, fig. 38:136, fig. 39:151,
fig. 40:157, fig. 41:164
Blakely 1988:35–36, fig. 6:1–4
Riley 1975:27–31

6. Farah (South) (Type A)
Tubb 1986

7. Gezer (Type A)
Macalister 1912:361, fig. 188

8. Heletz (Type A and Type B)
Rahmani 1961:151–53, fig. 3
[cited in Zemer 1978:61, n. 168]

9. Keisan (Type A)
Landgraf 1980:67, 69, 82, fig. 26

10. Jalame (Type A and Type B)
Johnson 1988:211–12, fig. 7:50

11. Jemmeh (Type B)
Schaefer 1979

12. Magen (Type A)
Feig 1985:35, fig. 2:3–5

13. Maon (Type A and Type B)
Zemer 1978:61

14. Ramat ha-Nadiv (Type A)
Hirschfeld and Birger-Calderon 1991:86–87, fig. 5

15. Ramat Rahel (Type B)
Aharoni 1964:fig. 24:9, pl. 4:3

16. Rehovot ha-Negev (Type A and Type B)
Rosenthal-Heginbottom 1988:85–87, ill. 129,
pl. 2:115

17. Shavei Zion (Type A)
Prausnitz 1967:41, fig. 11:10, 14

18. Shiqmona (undetermined type)
Zemer 1978:61
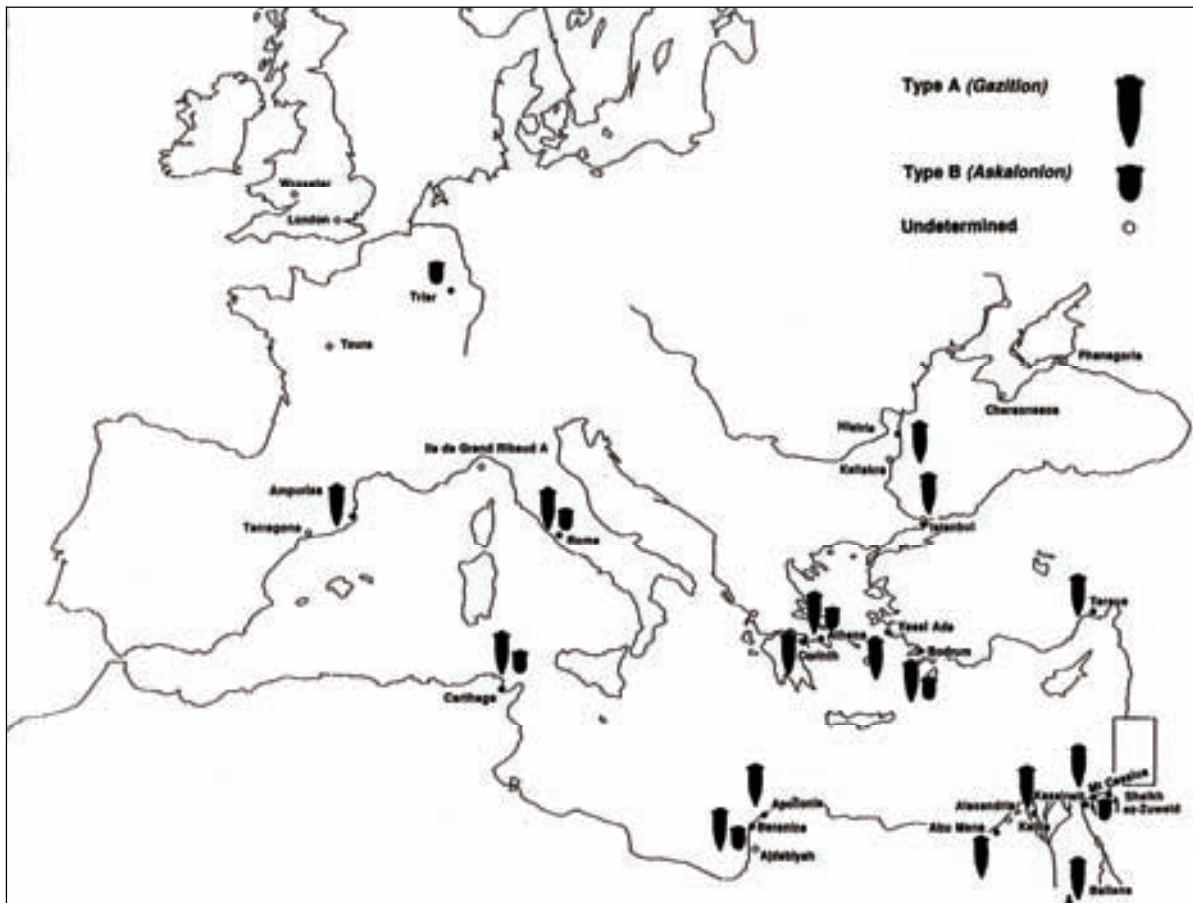
Figure 25.2: Worldwide distribution of Type A (*gazition*) and Type B (*askalōnion*) amphoras
See figure 24.1 for inset showing finds in Israel.

Worldwide Distribution of Type A (*gazition*) and Type B (*askalōnion*) Amphoras

Type A and Type B	*Type A only*	*Type B only*	*Undetermined type*
6. Athens	1. Abu Mena	20. Mt. Cassius	2. Ajdabiyah
8. Berenice	4. Ampurias	23. Sheikh ez-Zuweid	3. Alexandria
9. Bodrum	5. Apollonia	27. Trier	11. Chersonesos
10. Carthage	7. Ballana		14. Île de Grand Ribaud A
22. Rome	12. Corinth		16. Kaliakra
	15. Istanbul		19. London
	13. Histria		21. Phanagoria
	17. Kassirwit		24. Tarragona
	18. Kellia		26. Tours
	25. Tarsus		29. Wroxeter
	28. Yassi Ada		

Alphabetical List of Sites with Bibliographic References

1. Abu Mena (Type A)
Kaufmann 1910:table 84, no. 15

2. Ajdabiyah (undetermined type)
Riley 1979:221

3. Alexandria (undetermined type)
Riley 1979:221

4. Ampurias (Type A)
Almagro Basch 1955:320, fig. 305

5. Apollonia (Type A)
Riley 1979:221

6. Athens (Type A and Type B)
Barbara L. Johnson, personal observation

7. Ballana (Type A)
Emery and Kirwan 1938:pl. 110, Type 10

8. Berenice (Type A and Type B)
Riley 1979:221

9. Bodrum (Type A and Type B)
Alpözen 1975:22, fig. 8:8 [cited in Riley 1979:221]

10. Carthage (Type A and Type B)
Fulford and Peacock 1984:121, fig. 35:12–13

11. Chersonesos (undetermined type)
Yacobsen 1951:329, fig. 3:9

12. Corinth (Type A)
Williams and Zervos 1982:139–40, fig. 3:73–74

13. Histria (Type A)
Condurachi 1954:461, fig. 389, Type 7c
[see also Riley 1979:221]

14. Île de Grand Ribaud A (undetermined type)
Carraze 1975:no. 72.H3.02 [cited in Riley 1979:220–21]

15. Istanbul (Type A)
Hayes 1976:117–18 [cited in Riley 1979:220]

16. Kaliakra (undetermined type)
Kuzmanov 1973:fig. 3:2–3 [see also Riley 1979:221]

17. Kassirwit (Type A)
Zemer 1978:61

18. Kellia (Type A)
Egloff 1977:forms 182–83 [cited in Riley 1979:221
and in Landgraf 1980:81]

19. London (undetermined type)
Riley 1979:220

20. Mt. Casius (Type B)
M. Dothan 1969:54, fig. 5:1–2
[see also Zemer 1978:61]

21. Phanagoria (undetermined type)
Sokol'skii 1976:fig. 4 [cited in Riley 1979:221]

22. Rome (Type A and Type B)
Whitehouse 1982:58–60, fig. 12:161–64

23. Sheikh ez-Zuweid (Type B)
Aharoni and Ben-Arieh 1974:93, fig. 2:8
[cited in Zemer 1978:61, n. 171]

24. Tarragona (undetermined type)
Beltran Lloris 1970:547, fig. 224:2
[cited in Riley 1979:220]

25. Tarsus (Type A)
F. Jones 1950:278, pl. 167:835

26. Tours (undetermined type)
Riley 1979:220

27. Trier (Type B)
Hussong and Cüppers 1972:23, pl. 6, Type 56

28. Yassi Ada (Type A)
Bass and van Doorninck 1982:183, fig. 8:19, pl. 73

29. Wroxeter (undetermined type)
Riley 1979:220

26. ASPECTS OF ISLAMIC-PERIOD POTTERY

by Myriam Rosen-Ayalon and Joëlle Cohen

[EDITORS' NOTE: This chapter was submitted by the authors in 1986 and has not been updated.]

FROM the areas excavated during the first season at Ashkelon in 1985, we have chosen ceramic materials from Grid 57 as representative of the types of Islamic-period pottery that were discovered. The excavation in Grid 57 did not reveal any Islamic-period architecture or floors, so most of the pottery presented here comes from the backfill in 45 pits (mainly trash pits) and from 9 depositional layers, with the remainder coming from the fill in trenches left by the robbing of wall foundations. The contexts of this pottery are very mixed, containing material that ranges in date from the very beginning of the Islamic period to the twelfth and thirteenth centuries A.D., except for the topmost layer, which contains modern material as well. In most of these contexts some pre-Islamic pottery was also found, ranging in date from Persian to Byzantine.

Because of the disturbed nature of the stratigraphy, the Islamic-period pottery from Grid 57 will be studied according to previously established typological and chronological criteria. The material has been divided into two categories: (1) early Islamic to Fatimid, from the seventh to the twelfth century A.D.; and (2) Crusader–Ayyubid to early Mamluk, from the twelfth century to the mid-thirteenth century, when Ashkelon was destroyed for the last time by Sultan Baybars. Within each of these chronological categories the material will be presented in the following order: plain ware, glazed ware, kitchen ware, and oil lamps, and, for the first three wares, in order of shape from open to closed forms. Illustrations of the pottery are presented by period and ware in figures 26.1, 26.8, 26.9, 26.16, 26.17, 26.18, and 26.27 below, and details about each piece are given in a catalogue at the end. It should be noted that variations within specific vessel types cannot be established from our material, given its fragmentary nature and the character of its contexts.

EARLY ISLAMIC TO FATIMID PERIODS

Plain Ware

Plain-ware vessels are generally made of a light buff clay, and occasionally of a light brown clay. They are usually wheel-made and the clay is mostly well levigated and well fired. Regular striations frequently occur on either the inside or the outside of the vessels, or both. This category is represented in our material by plain bowls (figures 26.1:M and 26.2), stoppers[141] (figures 26.1:J, L and 26.3), jugs (figures 26.1:K, N–P, 26.4, and 26.5), and jars (figures 26.1:P and 26.6) that resemble the local pottery of the earlier times, and seem to have developed out of Byzantine types.

Also in the plain-ware category are fragments of three types of decorated vessel: mold-made, wheel-made, and a rare hand-made type. The mold-made decorated type includes several fragments of vessels made of white-buff clay of fine texture with sand temper. The clay is well levigated and well fired and has an overall white slip. Several molds were used separately in the making of the pottery; in some of our examples one can see the seam between two parts of the vessel (e.g., figure 26.1:F).

Although our fragments are too small to enable us to restore the shapes with any certainty, they all belong to well-known types that are dated to the eighth century A.D. At Ramla, for example, pottery workshops, molds, and mold-made vessels were all found in the same areas. Except for a handle fragment (figure 26.1:B), the mold-made decoration is characterized by a dense design in low relief. Most of the motifs represent floral and geometric themes, usually repeated in an overall pattern (figure 26.1:A, C–F).

The wheel-made decorated type consists of various shades of buff clay with mineral inclusions; the clay, which is hard and fine, is well levigated and well fired. The decoration may occur on various parts of the pottery. Our examples are *ajouré*-decorated strainers (figure 26.1:H, I) that belong to jugs, demonstrating both aesthetic and functional aspects. This kind of strainer can be either at the base of the neck or at the middle of the neck of the vessel.

The hand-made decorated type is represented in our material by only one piece: a basin fragment (figure 26.1:G) with a dark surface and thick wall showing "Kerbschnitt" decoration. This technique applies a beveled deep carving, apparently borrowed from wood carving, that produces strong effects of relief. The motifs are usually a combination of straight lines, triangles, squares, and crosses.

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[141] In the course of our excavations in Ramla we discovered a number of similar stoppers.
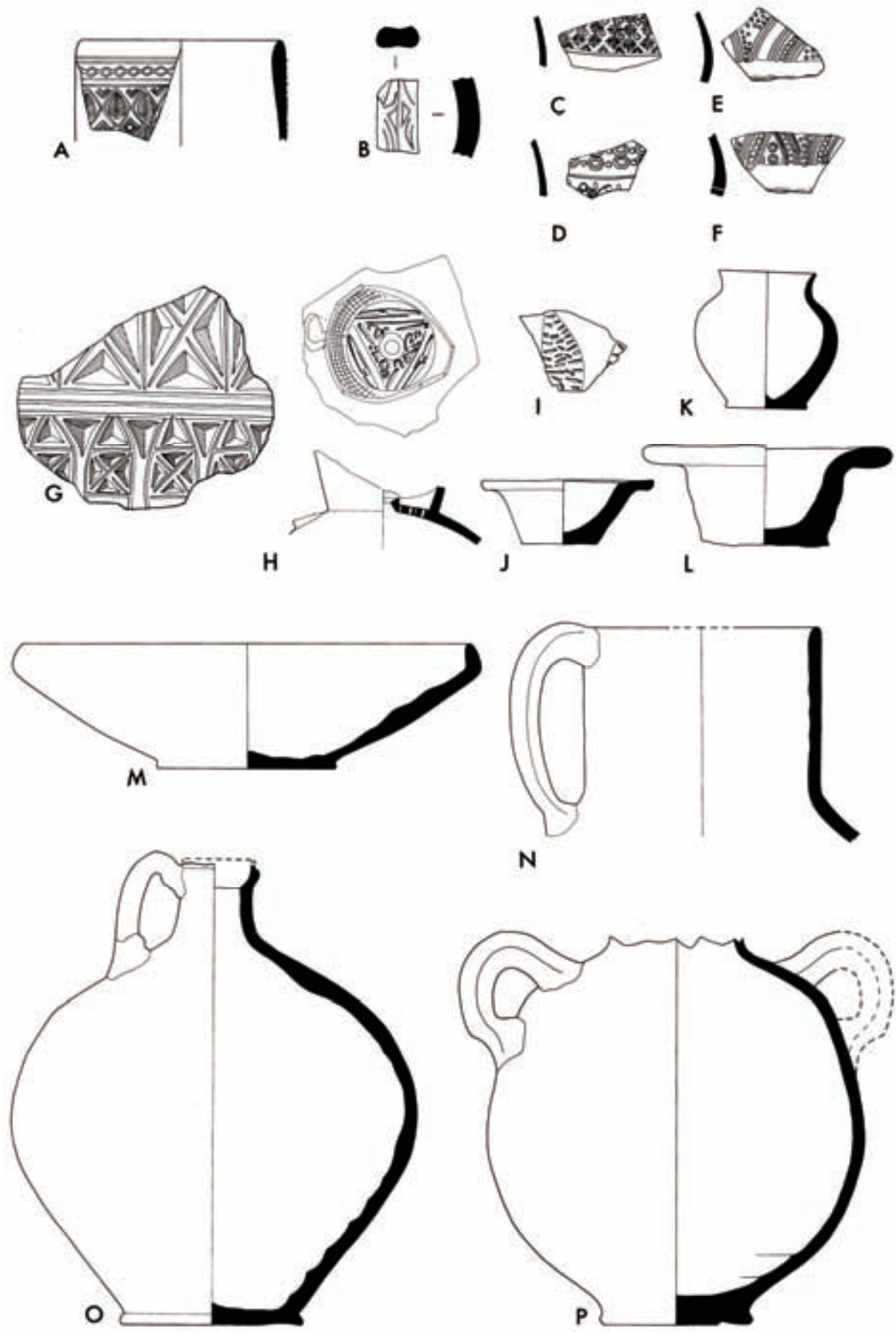
◄ *Figure 26.1 (facing page):* Plain ware of the early Islamic to Fatimid periods (scale 2:5)
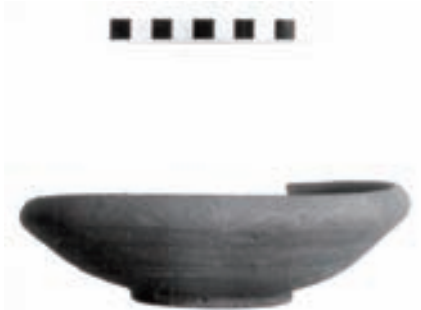
Figure 26.2: Bowl

Figure 26.3: Stopper

Figure 26.4: Juglet

Figure 26.5: Water jug

Figure 26.6: Small jar
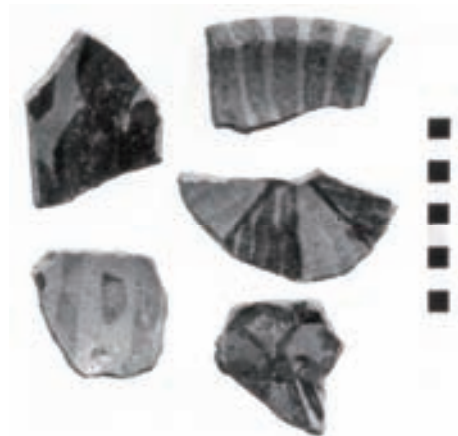
Figure 26.7: Glazed bowls

Glazed Ware

The glazed ware of the early Islamic to Fatimid periods exhibits a variety of types and styles. This ware is divided here into four categories: monochrome glazed ware, polychrome painted glazed ware, glazed ware with relief decoration, and lustre ware. Most of our examples are open forms that parallel well-known types found elsewhere.

1. *Monochrome glazed ware.* The clay of our monochrome glazed ware is various shades of buff. It is fine, well levigated, and well fired. This category is represented by fragments of four types of open vessel.

The first type is characterized by a thick, opaque, brown glaze that is directly applied on the body and rubs off to the touch. The clay, which is well levigated and well fired, is of rather fine texture, and is cream-buff with abundant white and dark grits. The rim is either wide, flat, outwardly projecting and sharply flaring from the wall (figure 26.8:A), or smooth and slightly everted (figure 26.8:B); the base consists of a concave disc (figure 26.8:J). The shapes are generally elegant and well proportioned.

The second type is represented by fragments with a characteristic transparent glaze applied over a thin white slip on the inside of the vessel, the outside being either unglazed or covered with a different glaze. The colors of the glaze range from manganese purple (figure 26.8:Q), to green and yellow. The clay is usually light buff with a mineral temper, and the vessel wall is rather thick.

The third type is represented by fragments of fine vessels of light buff clay covered with a thin overall glaze. Our example (figure 26.8:D), which comes from a pit that is safely dated to the ninth or tenth century, is a fine bell-shaped bowl—a type that occurs frequently in the early Islamic period.

Our fourth type has an off-white porous clay covered with a thick, opaque, glossy glaze that has a greenish-gray tinge, which is one of the characteristics of the imitations of Chinese celadons. These vessels have a hemispherical body with a slightly sharpened rim and a concave high disc base of small diameter (figure 26.8:I).

2. *Polychrome painted glazed ware.* In this ware category the decoration usually combines several shades of yellow, green, brown, and purple glazes in a more-or-less complex design. Occasionally, however, light blue and white glazes are also used. This category is represented by fragments of four types of vessel, three of which are open bowl forms.

The first type includes vessels made of a whitish buff clay with mineral inclusions; the coarse clay is not well levigated but it is rather well fired. Simple geometric patterns are painted under a transparent greenish glaze on the interior. The glaze sometimes also covers the exterior. Our examples are all flat disc bases typical of the early Islamic period (figures 26.8:O, P, and 26.7).[142]

The second type is represented by three fragments of bowl bases, two of which are illustrated (figures 26.8:H, R, and 26.7). The hard, fine clay is pinkish buff with red grits. It is well levigated and well fired. On the interior, dark brown curved bands, outlining fills of dark green and ocher, are applied by a thick brush under a thin, matte glaze. The base is flat and wide.[143]

The third type is represented by a single fragment of a ring-based bowl that is made of pinkish clay with a mineral temper. It is well levigated and well fired. The glaze is thick, opaque, and glossy, forming a complex design of geometric patterns (lozenges, triangles, bands) in bright yellow, apple green, light blue, and white, delineated by dark brown lines. The exterior is covered with a transparent glaze that is yellow on the wall and green on the base (figures 26.8:L and 26.7).

The fourth type is represented by a single rim fragment of a jar. Its buff clay is well fired and has dark red grits. An opaque, glossy, apple-green glaze covers the whole surface, with a black splash on the edge of the drop rim under the glaze (figure 26.8:F).

3. *Glazed ware with relief decoration.* This category combines chromatic and plastic effects in the decoration. One of our fragments (figure 26.8:K) belongs to a well-known family of mold-made pottery of which several shapes are known, particularly those used as condiment dishes (see Lane 1939). But our example is too small to allow us to assign it to a particular form. Two other fragments have light buff, rather coarse fabric with sand inclusions; the clay is well levigated and well fired (figure 26.8:C, E). They might belong to a single type that combines light-tinged glazes with a ridge below the rim. One of these examples also bears a sgraffiato line.

Figure 26.8 (facing page): Glazed ware of the early
Islamic to Fatimid periods (scale 2:5)   ▶

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[142] Although it has a flat base, the bowl fragment illustrated in figure 26.8:O might be related to the "Fayyumi-type" bowls described by Scanlon (1976:75, fig. 17a,b).

[143] These sherds likely belong to the "Coptic Glazed Ware" found at Kom el-Dikka in Egypt (Rodziewicz 1983:74–75) and at Aqaba in Jordan.
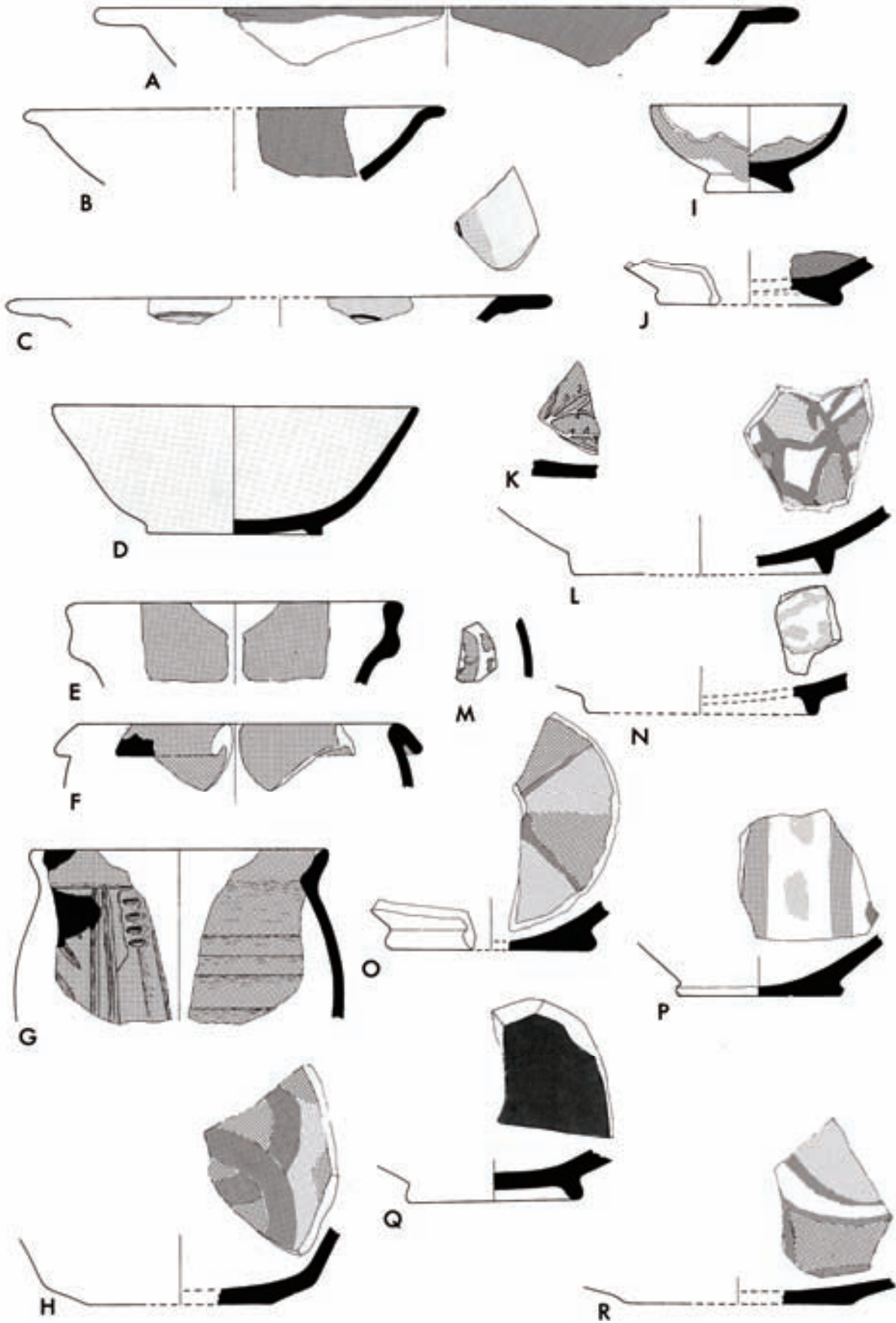
Another example of glazed ware with relief decoration is a rim fragment of a small vessel made of brownish clay with white grits. It is well levigated and well fired. The rim has an inner ridge that may have been designed to support a lid; the interior shows very distinct wheel marks under the glaze. This fragment combines carved, appliqué, and chromatic decorations on the exterior (figure 26.8:G).

4. *Lustre ware*. This well-known ware category is represented by two tiny fragments of fine bowls that were found in the same layer. They are too small to allow us to reconstruct the delicate design painted on the inside of the vessel (figure 26.8:M, N).

Kitchen Ware

Kitchen ware of the early Islamic to Fatimid periods is represented in our material by only one complete casserole and two fragmentary lids. The clay of these vessels ranges in color from light to dark reddish brown. It has abundant grits and is quite well fired.

The deep casserole (figures 26.9:L and 26.10) is typical of the early Islamic period. It is globular in shape and decorated with a combed concentric horizontal band at mid-body.

One of the lids is a knobbed lid (figure 26.9:P) that resembles a shallow bowl with flaring body, with a button-like knob handle at the center of the base that was probably designed to fit into the aperture of closed forms. The other specimen (figures 26.9:Q and 26.11) is pyramidal in shape with a small knob handle at its apex. The knob is pierced, probably to let steam out.[144] The base of the lid is shaped to fit the cooking pots with oblique rims similar to the casserole rim shown in figure 26.9:L.

Oil Lamps

A variety of Islamic-period oil lamps was discovered during the first season of excavation at Ashkelon in 1985. They belong to well-known types and are divided into two categories: unglazed and glazed. Each of these categories includes several types that are classified according to manufacture, shape, and/or decoration. Because some of these types have a long lifespan, extending from the early Islamic into the Ayyubid and Mamluk periods, all of the Islamic-period lamps found in the first season at Ashkelon are

discussed here, and not just those of the early Islamic through Fatimid periods.

1. *Unglazed lamps*. Unglazed lamps can be divided into mold-made types and wheel-made types. Unglazed mold-made lamps are represented by one complete lamp and two fragments that belong to the well-known almond-shaped type of early Islamic lamp. The different parts of the lamp are made in separate molds; the upper part and sometimes the base bear a mold-made decoration in low relief. Our examples bear floral, geometric, and pseudo-epigraphic motifs (figures 26.9:C–E and 26.12).

Unglazed wheel-made lamps, which are also well known, are made of two semiglobular parts, each turned separately on the wheel. The lower part, which resembles a saucer, is wider than the upper part, which is fitted inside the former, well below its rim. A loop handle is attached to the rim of the filling hole and to the rim of the saucer, as in our example (figures 26.9:A and 26.13). This type is widely attested beginning in the tenth or eleventh century, with later variations and developments in its shape.[145]

2. *Glazed lamps*. Glazed lamps are represented by fragments belonging to lamps of various shapes. One fragment of a "saucer-shaped" type of lamp, very similar to the unglazed type just described, is covered with glaze. This type probably belongs to the same period as the unglazed type (figure 26.9:B).

The "squat cylindrical" type is made from two parts turned separately on the wheel. The lower part is straight-sided with a flat bottom; the upper part is slightly sloping from the rounded rim of the filling hole to the edge, which rises at the joint of the two parts. A thick loop handle is attached to the rim and to the edge. Our example (figures 26.9:F and 26.14), like most others of this type, is finely potted, with an overall glaze covering a hard, light brown clay. Although this type is attested as early as the tenth–eleventh century, it may continue later, because our example was found in a pit with mixed materials that date as late as the twelfth–thirteenth century.

Figure 26.9 (facing page): Kitchen ware, oil lamps, and miscellaneous pieces (scale 2:5)　►

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[144] The impressed mark on the side of this fragment recalls the perforated steam holes on some similar lids (cf. Bennett 1978:fig. 6:717b); on our example, however, the perforation is on the knob.

[145] Thalmann (1978:28) dates the type to the 12th–14th cent. Brosh (1986:80–81, figs. 5–6) dates it to the Crusader period. Kubiak (1970b:15) distinguishes two types, E and J, dating E to the 10th–11th cent. and J to the 12th–13th cent., and stating that: "There is a close relationship between these lamps (type J) and those of type E . . . . Generally the type is a considerable simplification of type E." It seems, then, that these lamps with a saucer-like lower part lasted a long time, with some modifications occurring in the shape.
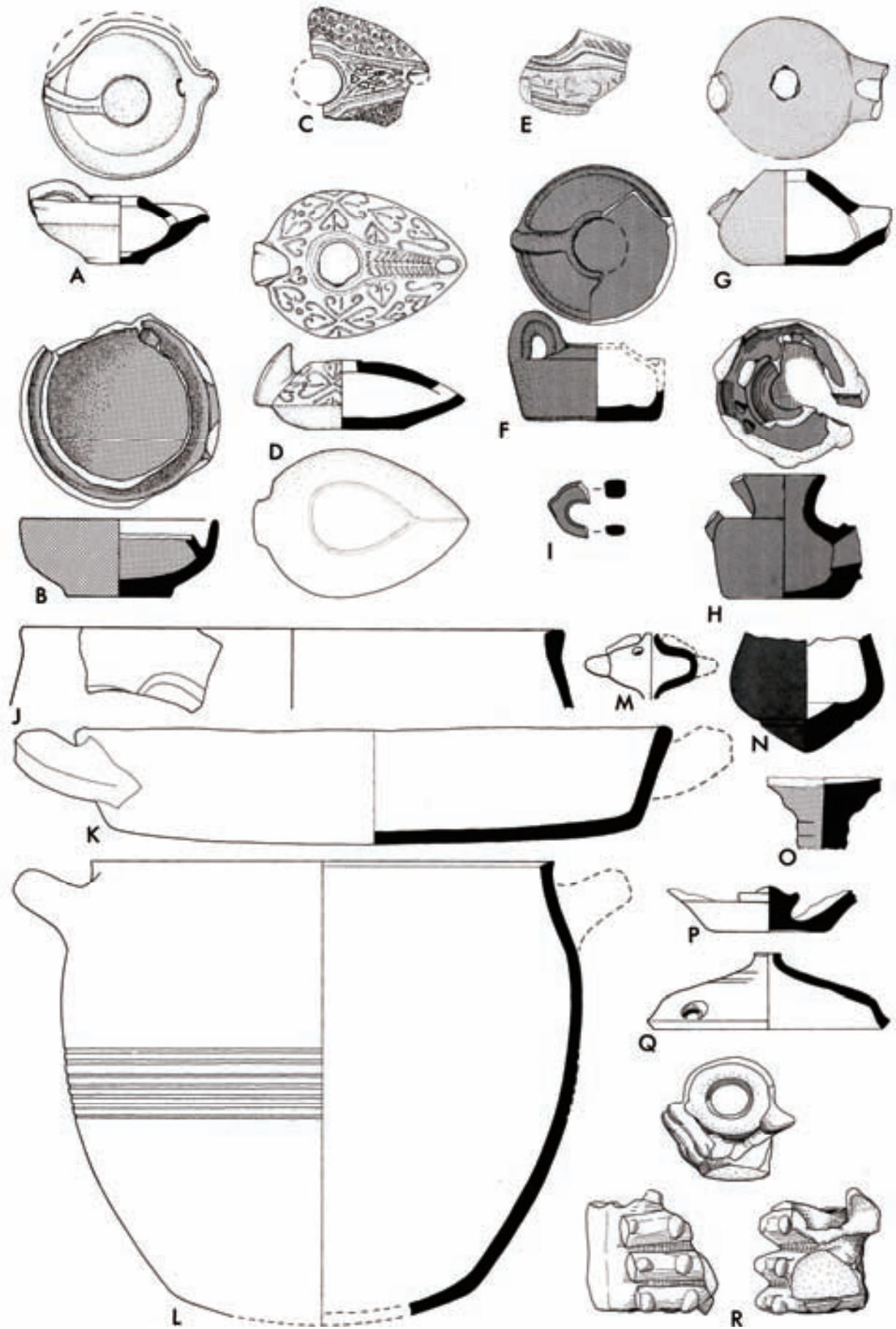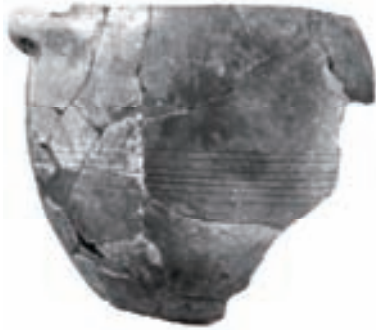
Figure 26.10: Casserole

Figure 26.11: Lid

Figure 26.12: Lamp

Figure 26.13: Lamp
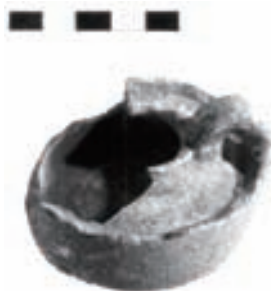
Figure 26.14: Lamp

Figure 26.15: Lamp

The "dome-shaped" type of glazed lamp has a squat, spheroidal body with a flat base that was turned on the wheel. The ware is very crude, unlike that of other lamp types. It is not well fired and so is quite soft, crumbling to the touch. The glaze flakes off easily. Our specimen (figure 26.9:G), which is in a poor state of preservation, was found in a layer dated as late as the twelfth–thirteenth century, although this type is attested earlier, in the eleventh century.

The "juglet-shaped" type of glazed lamp is generally made of sandy, rather coarse white clay that is covered with a transparent turquoise or green glaze. In rare cases the clay is brownish. The lamp resembles a juglet with flaring neck, flat shoulder, cylindrical body, and flat base. A decoration of open-work triangles is executed on the shoulder. Our two examples include an almost complete form (figures 26.9:H and 26.15) and a handle fragment (figure 26.9:I) that probably do not belong to the same lamp. They both have transparent turquoise glaze directly applied on the soft and rather coarse white clay. This type appears in the second half of the eleventh century and continues until the end of the thirteenth.

Although the nozzle is missing in our examples, a long, protruding nozzle is characteristic of the glazed lamps made in the late Fatimid and post-Fatimid periods, beginning with the "squat cylindrical" type (complete shapes are illustrated in Kubiak 1970b).

CRUSADER–AYYUBID TO EARLY MAMLUK PERIODS

Plain Ware

Most of the plain-ware sherds of the Crusader–Ayyubid to Early Mamluk periods come from contexts that date to the late twelfth or early thirteenth century A.D. They are made of a variety of clays in various shades of pink, red, and brown, as well as a buff clay that is distinct from the earlier buff ware in having a greenish-gray tinge. The preparation, firing, and composition of the clay varies in quality, resulting in a rather wide range of ceramics. This wheel-made pottery often shows regular striations on the inside or the outside, or on both.

The types of vessels illustrated here include shapes such as bowls (figure 26.16:E, I), large deep basins (figures 26.16:G, H, J and 26.19) that are often comb-decorated in a way that recalls late Byzantine and early Islamic traditions, storage jars (figure 26.16:A, C, D, F), jugs (figures 26.17:B–G and 26.20), and a less frequent shape: the pilgrim flask (figures 26.17:A and 26.21). Only a few of our examples bear signs of combed or incised decoration, and, in one case, traces of paint.[146]

Glazed Ware

The glazed ware of the Crusader–Ayyubid to early Mamluk periods is divided into six categories. In addition to the presence of a glaze, the sherds in these categories are characterized by painted, incised, or polychrome decoration.

1. *Monochrome glazed ware*. Most fragments in this category come from open forms typical of the Crusader–Ayyubid to early Mamluk periods. Two fragments, however, come from jars, and one is from a lid. The clay ranges in color from various shades of buff to reddish brown and dark red. Except for the lid fragment, the clay is generally hard, fine, well levigated and well fired. The glazes are bright and shiny (figure 26.18:G, M).[147]

2. *Polychrome glazed ware*. This category is represented by only four sherds. They are made of a rather coarse clay that is either buff or brown in color and has a mineral temper, mostly sand. The clay is well levigated but not as well fired as that of the other categories of glazed ware. Two different styles of decoration are represented by our examples. They both have opaque glaze with simple geometric patterns or crudely executed designs. Various colors are used in combination with black (figures 26.18:A–C and 26.22).

3. *Slip-painted underglaze ware*. Only two tiny fragments belong to this group. The fine clay, which is either light or reddish brown in color, is well levigated and well fired. The design is painted with a white slip under a transparent glaze that may or may not be colored. The effect is therefore of a light decoration on a darker background (figure 26.18:E, F).

4. *Dark-painted underglaze ware*.[148] All of our fragments of this ware have a hard, pinkish-buff clay with mineral temper. The clay is well levigated and well fired, with overall slip. The fragments are glazed on both interior and exterior, but the painted decoration is applied on only one side. On the large open forms, it is on the inside (figure 26.27:E, G, H), but on the small cup fragment, the design is painted on the outside (figure 26.27:F). The dark purple or dark brown painted decoration consists of an elaborate and irregular pattern of geometric and floral designs, delicately executed under a transparent colorless glaze that rubs off easily (figure 26.23).

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[146] On a jug neck fragment (fig. 26.17:D) a pseudepigraphic frieze is painted, composed of a repeated motif resembling a design that appears in Hama on glazed ware: "en forme du nombre 2 qui est sans aucun doute d'origine épigraphique . . . Exactement le même ornement se retrouve, tantôt seul, tantôt sous forme de frise, sur quelques vases de Ḥamā" (Riis and Poulsen 1957:162).

[147] The sherd illustrated in figure 26.18:M was found in a 12–13th cent. context. Its wide, almost flat base and hard, light buff clay, however, are akin to the Coptic Glazed Ware of the early Islamic period. Although most of this ware has a polychrome glaze, monochrome examples simi-

lar to figure 26.18:M are known (Whitcomb 1989:figs. 5:f, s–t; 6:e–f, h).

[148] This group may be compared, as far as decoration and shape are concerned, with the "Late Syrian Lustre Ware" of Pringle (1985:196, fig. 14:80), and the "Vases decorés à lustre" of Riis and Poulsen (1957:198–202, type B X); also the "Syrian Underglaze Painted Pottery" of Pringle (1985: 196, fig. 14:81–83 and fig. 15); the "Vases avec peinture noire sous couverte bleu vert" ("Faiences de Raqqa") of Riis and Poulsen (1957:157–78, type B VII); and the "Vases avec peinture noire sous couverte bleu de cobalt, violet de manganese ou incoloré" of Riis and Poulsen (1957:178–82, type B VIII).

Although the manufacturing technique is different, the designs are very similar. Various attributions have been given for this style of pottery. Bahgat and Massoul (1930) date it to the late Fatimid–Ayyubid period, seeing an evolution in the color from manganese purple to black and later cobalt blue or even dark red. Lane (1937) refers to it as "Ayyubid Egyptian." Scanlon (1971), although he calls it "Egyptian Underglaze Ware," notes that the type might "derive ultimately in technique and decorative motifs from the wares produced at Raqqa and possibly Rusafa or in Persia, first at Kashan and then at Sultanabad."
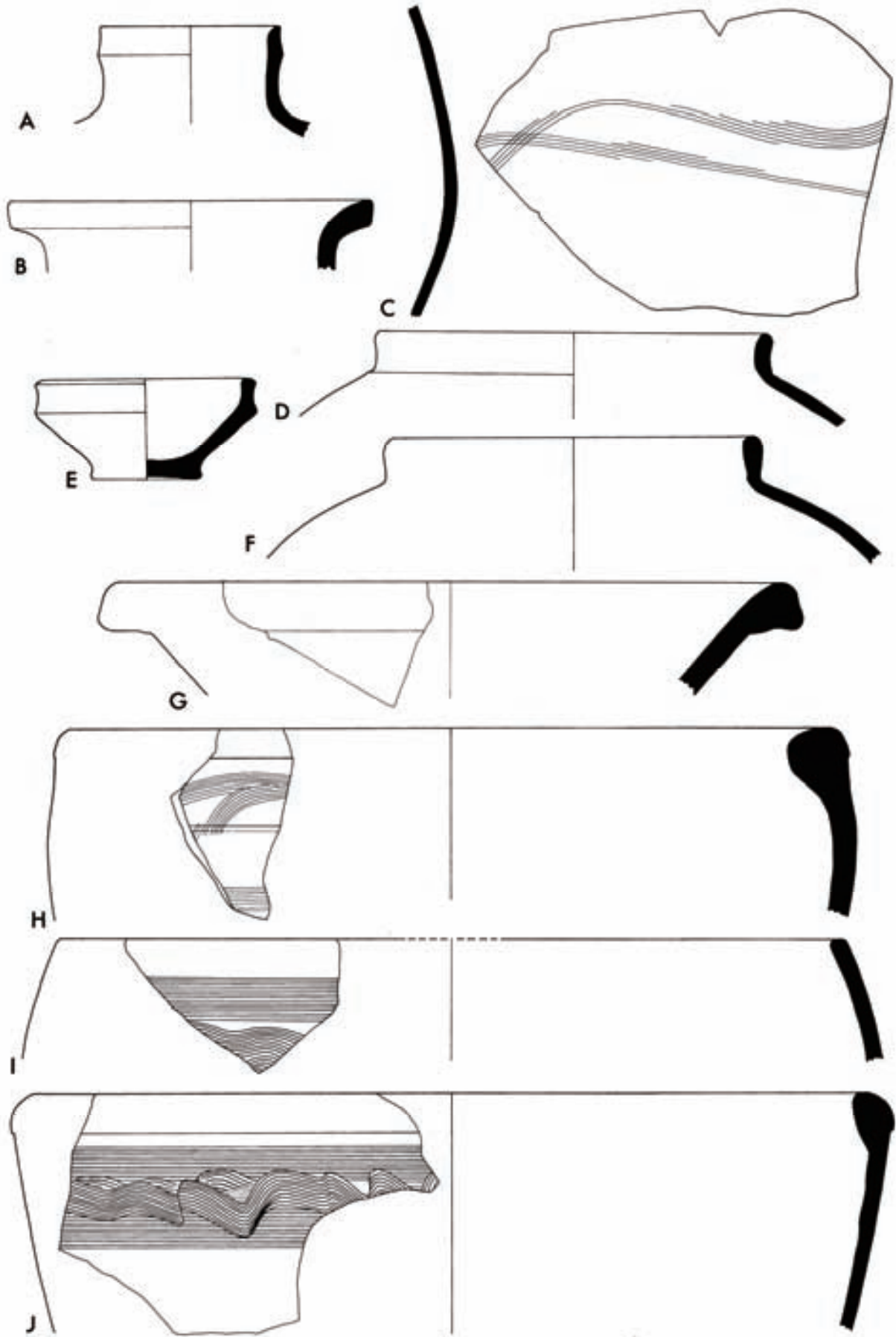
◄ *Figure 26.16 (facing page):* Plain ware of the Crusader–Ayyubid to early Mamluk periods:
open forms and jars (scale 2:5)
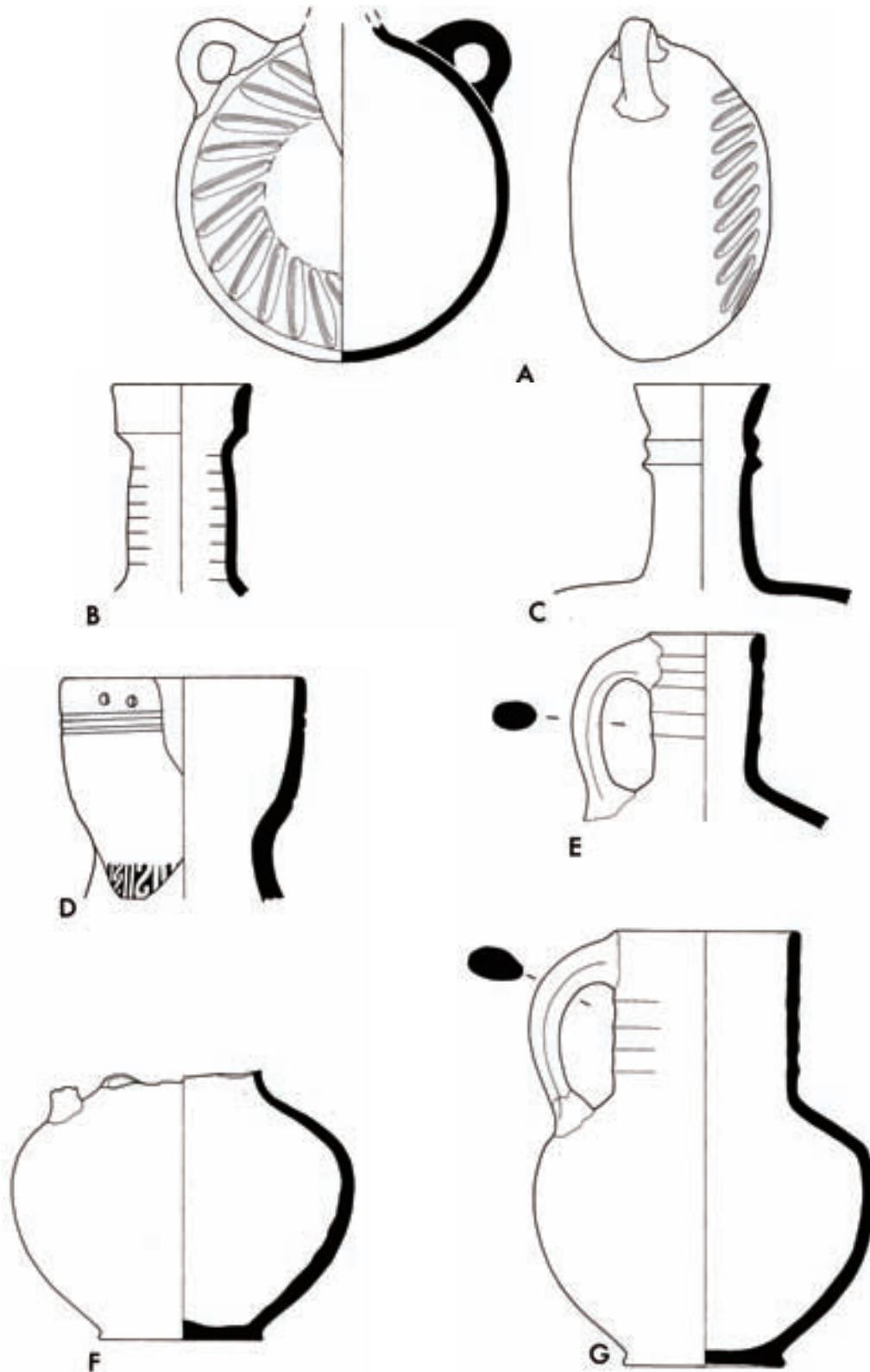
Figure 26.17: Plain ware of the Crusader–Ayyubid to early Mamluk periods: jugs and pilgrim flask (scale 2:5)
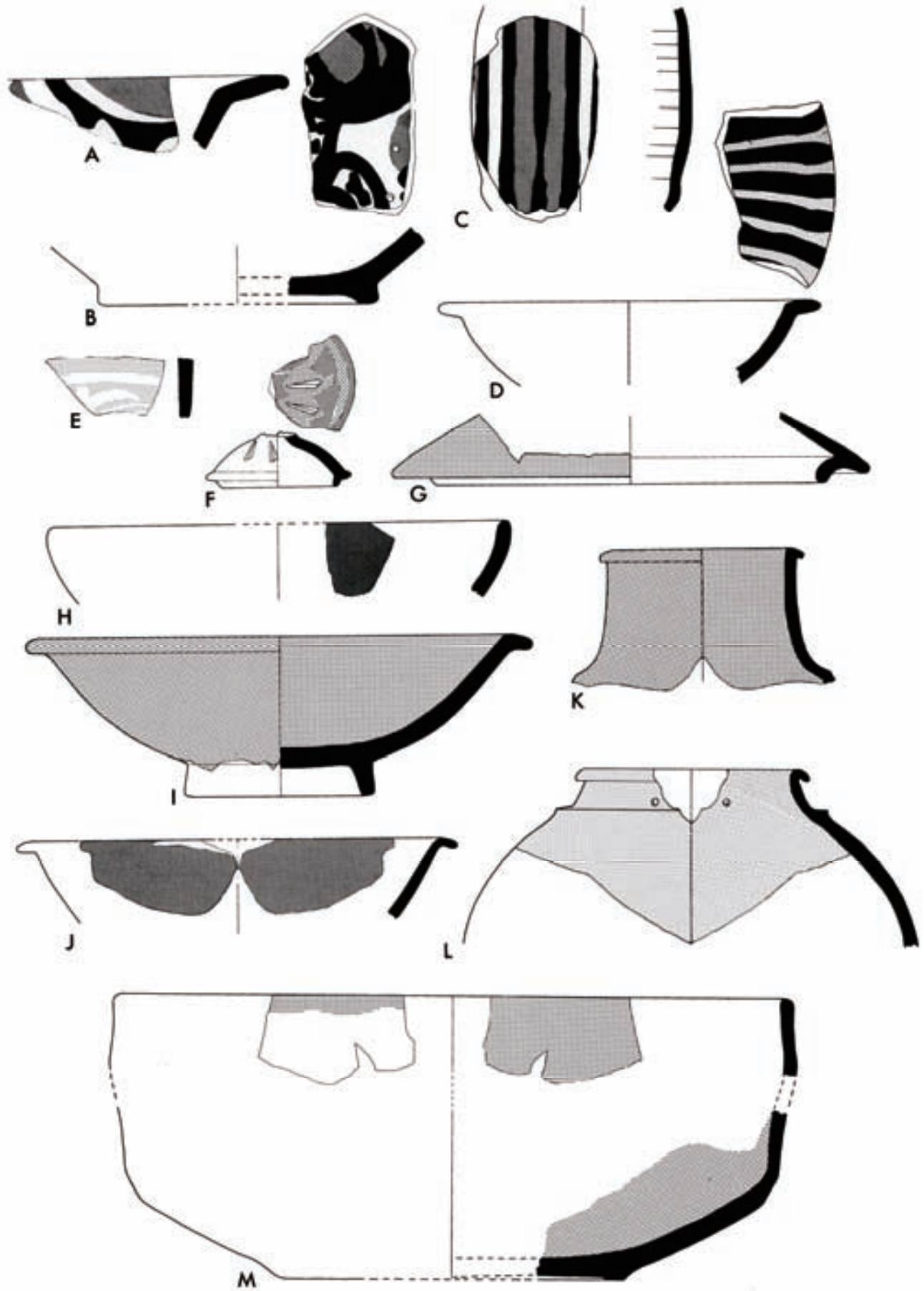
◄ *Figure 26.18 (facing page):* Glazed ware of the Crusader–Ayyubid to early Mamluk periods:
monochrome, polychrome, slip-painted (scale 2:5)
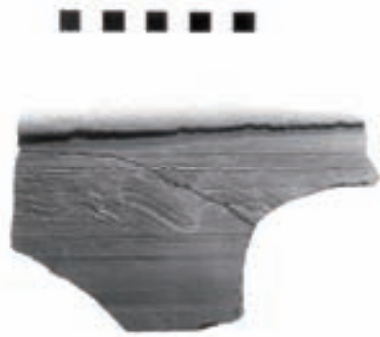
Figure 26.19: Basin

Figure 26.20: Jug

Figure 26.21: Pilgrim flask

Figure 26.22: Glazed bowls

Figure 26.23: Glazed bowls

5. *Sgraffiato ware*. This ware is represented in our material by fragments of three types of vessel, consisting of large bowls and plates. The first type is made of a rather coarse red clay with abundant white grits. Its decoration consists of curved lines incised through the white slip, producing a dark random design on either a yellow or a green background (figure 26.27:L–P). Except for one example that combines both thin and thick lines (figure 26.27:O), the incisions are generally thin and shallow.

The second type, represented by only three sherds (figure 26.27:I, K), appears to be imported (cf. Waagé 1948:100 [Type XII C 2b "Aegean style"] and fig. 85 [the lower twelve]). The clay, which is different from the clay of the first type of sgraffiato ware, is dense, hard, brownish, well levigated and well fired. The body is thicker than that of the first type, and the glaze is of a better quality and more carefully applied. The sgraffiato, probably made using a gouge, is usually quite deep and wide. One of the sherds (figure 26.27:I)—although it does not bear any sgraffiato—might belong to this imported type in view of the quality of its clay, colors, and glaze. A finer bowl (figures 26.27:K and 26.24) combines a fine sgraffiato and a painted decoration under the glaze.

The third type is characterized by a distinct light buff or white clay with sandy temper that is quite well fired and is formed into delicate shapes. The two sherds of this type, which are also decorated with sgraffiato design, belong to fine bowls. Both the decoration and the glaze are carefully executed (figures 26.27:A, B, and 26.25). This type is found in very small quantities and it might also have been imported, probably from Egypt. It imitates fine Chinese wares and may be related to earlier Fatimid sgraffiato ware (cf. the Fustat Fatimid sgraffiato ware published in Scanlon 1965:26–27, fig. 4; 1982:122, 124 n.28, and fig. 12; 1984:7 n. 8, figs. 8, 20, 39, 57).

6. *Porcelain and imitation porcelain*. This category is represented by two fragments. One is a rim fragment of a white porcelain bowl that was obviously imported (figure 26.27:D). The other fragment (figures 26.27:C and 26.26) belongs to a well-known type of frit vessel made during the Seljuk period, in imitation of porcelain. Its thin glaze flakes off to the touch.

Figure 26.24: Glazed sgraffiato bowl
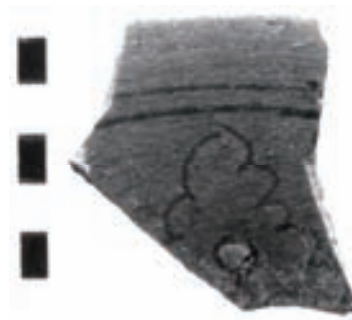
Figure 26.25: Glazed sgraffiato bowl

Figure 26.26: Mold-made glazed bowl

Figure 26.27 (facing page): Glazed ware of the Crusader–Ayyubid to early Mamluk periods: ▶ Dark-painted ware, sgraffiato ware, porcelain, and imitation porcelain (scale 2:5)
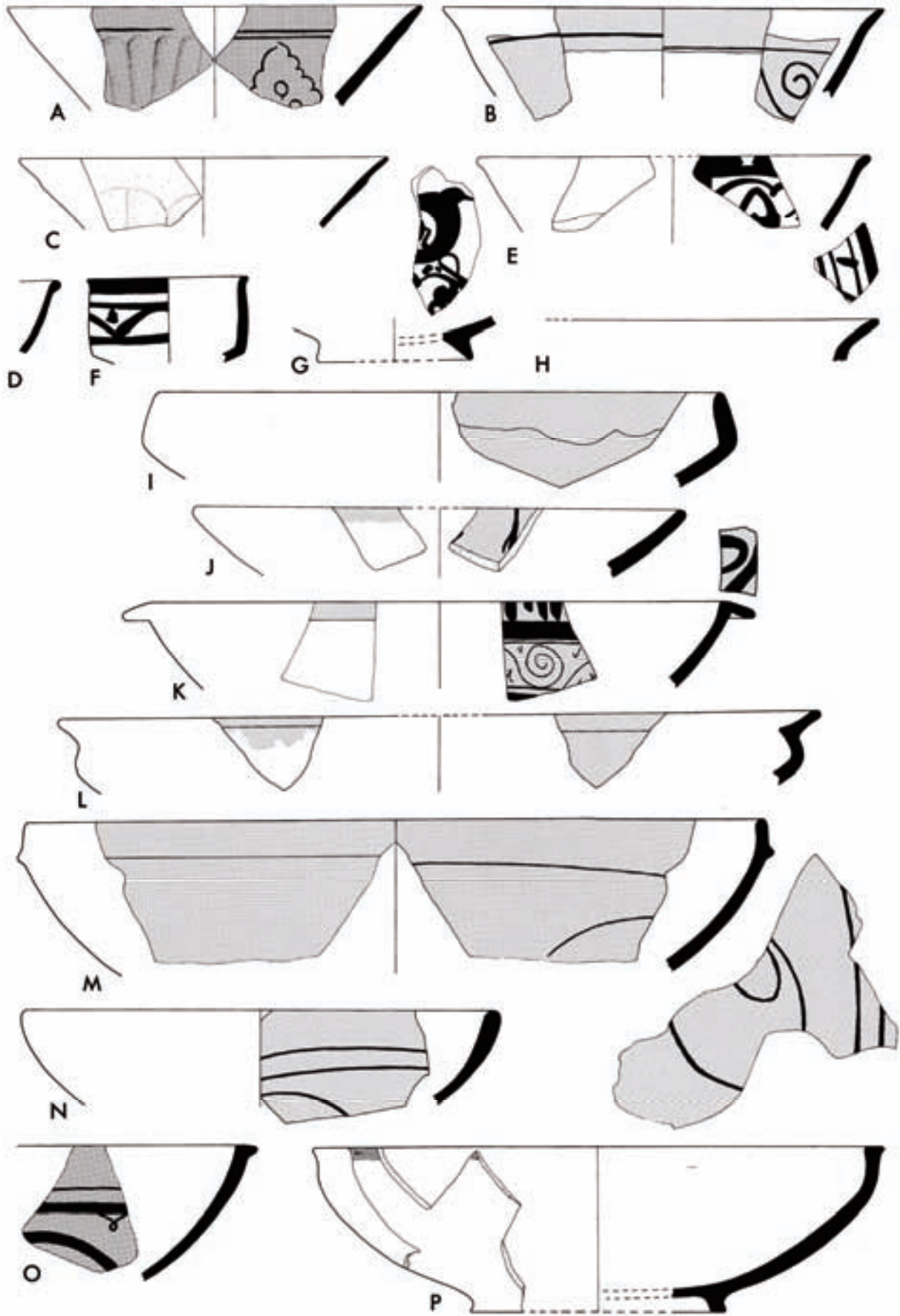
Kitchen Ware

Kitchen ware of the Crusader–Ayyubid to early Mamluk periods is represented in our material only by a shallow pan and a rim fragment of a casserole. The ware is similar to that of the kitchen ware of the earlier period, although it seems to be finer. The rim fragment belongs to a deep, large, finely potted casserole. It has a reddish dark brown clay with mineral inclusions. A white slip-painted decoration is applied below the rim on the exterior (figure 26.9:J). The shallow, straight-sided pan fragment has a color-less transparent glaze, applied only on the inside, on a well-fired dark red clay with sand temper (figure 26.9:K).

Miscellaneous Sherds

There is a miscellaneous group of sherds that either do not belong to the types described above, or are too fragmentary to be assigned with any certainty to a specific vessel type or component of a vessel (figure 26.9:N, O, R). One fragment (figure 26.9:O) is covered with a glaze similar to that of figure 26.8:I, and may thus be related to the vessel type that imitates Chinese celadons.

CONCLUSION

Despite the stratigraphically mixed contexts of the Islamic-period pottery presented here, it is clear that the ceramic assemblage from Ashkelon includes the main wares and types known from other excavations in Israel and surrounding regions, although not every known type is represented in our corpus and some of the pieces we have presented do not have close parallels from other excavations.

At Ashkelon, as at many other sites with Islamic-period pottery, plain wares are much more abundant than glazed wares. But the variety of pottery types attested at the site, and especially the presence of fine imported wares like Egyptian lustre ware and other Egyptian wares, Chinese porcelain, Aegean glazed ware, and Seljuk imitations of Chinese ceramics, suggests that Islamic Ashkelon had extensive com-mercial relations throughout the Mediterranean and with the Middle and Far East. This confirms a phenomenon that has been documented since the late 1960s, when a systematic surface collection under-taken by the UCLA Israel Archaeological Expedition discovered Chinese ceramics at medieval sites in coastal Palestine such as Caesarea and Ashkelon (Frierman 1969).

It should also be mentioned that although the Islamic-period pottery found at Ashkelon ranges in date from the seventh century to the destructions of the city in the twelfth and thirteenth centuries, the Umayyad period does not appear to be as well repre-sented as the Fatimid, Crusader–Ayyubid, and early Mamluk periods. The reason for this is not known.

These initial observations call for further investi-gation of the Islamic-period remains at Ashkelon, including a more comprehensive study of the pottery. This will be accomplished in a future volume devoted to the Islamic period, to be published in the Leon Levy Expedition's final report series.

Catalogue of Islamic-Period Pottery

Figure 26.1: Plain Ware of the Early Islamic to Fatimid Periods

A | Jug | 57.68.L16.6 | Whitish buff, few white grits. Molded decoration.
Parallels: Lane 1937:pl. 20:2; Baramki 1942:fig. 14:2–3, pl. 20:1–2 (Ware 20); Rosen-Ayalon and Eitan 1969; Ben-Tor and Rosenthal 1978:fig. 7:5; Brosh 1986:67, fig. 1:7, pl. 3–4

B | Jug? | 57.68.L4.2 | Whitish buff, mineral temper, white slip. Mold-made. Decorated on one side.
Parallels: Baramki 1942:pl. 20:1; Brosh 1986:pl. 4:1

C | Juglet? | 57.68.F5.L5.4 | Reddish brown, mineral temper, whitish slip. Same type as A.

D | Juglet? | 57.68.F5.L5.5 | Whitish buff, mineral temper, whitish slip. Same type as A.

E | Juglet? | 57.68.F5.L5.6 | Creamy buff, mineral temper, whitish slip. Same type as A.

F | Juglet? | 57.68.F5.L5.7 | Whitish buff, mineral temper, whitish slip. Traces of joint on int.
Same type as A.

G | Basin | 57.68.F10.L10.1 | Creamy buff, grayish core, mineral temper. Hand-made. Thick body. "Kerbschnitt" decoration on ext.
Parallels: Baramki 1942:fig. 6:20–25, pl. 21:7–9; Hamilton 1944:pl. 11:1–4; Rosen-Ayalon 1974:157–58, figs. 359–66; Ben-Tor and Rosenthal 1978:73, fig. 8:1–3

H | Strainer | 57.68.L2.8 | Greenish buff, no visible temper. Finely made. *Ajouré* and incised decoration.
Parallels: Olmer 1932:pls. 44:b, 47:b; Scanlon 1965:25, fig. 3c; Scanlon 1966:85, fig. 3c ("water bottle filter, 11th–12th c."); Scanlon 1970:39–40, figs. 1:a–f, 2, 3:a–b (Type A, "simple splashed pattern with or without pseudo-writing," dated Tulunid through Fatimid); Scanlon 1986:figs. 44–47, pls. 6:a–d, 7:a–d (late 10th–early 11th cent.)

I | Strainer | 57.68.L4.5 | Whitish buff, no visible temper. *Ajouré* and incised decoration.
Parallels: Scanlon 1976:pl. 23:a ("handles and filter fragments of white buff ware, 9th–10th c.")

J | Stopper | 57.58.F2.L6.1 | Creamy buff, mineral temper, greenish white slip.
Parallels: Harding 1951:fig. 2:37, pl. 3

K | Juglet | 57.58.F21.L25.1 | Light brown, mineral temper, whitish slip on ext.

L | Stopper | 57.68.F11.L11.3 | Light brown, mineral temper. Uneven surface, rather crudely made.
Same type as J.

M | Bowl | 57.68.F11.L11.4 | Light brown, mineral temper. Irregular shape, rather crudely made.

N | Jug | 57.68.L15.6 | Whitish buff, mineral temper. Smoothed ext. Finger marks on the base of handle.
Parallels: de Vaux and Stève 1950:pl. C:22 ("céramique blanche," 10th–11th cent.)

O | Water jug | 57.58.L16.1 | Buff, mineral temper, whitish slip on ext.
Parallels: Walmsley 1986:194, fig. 9:2–4 ("pale cream ware jars with thin walls and a knife-trimmed base")

P | Small jar | 57.58.L2.18 | Reddish brown, mineral temper, whitish slip. Unevenly smoothed surface on ext.
Parallels: Baramki 1942:fig. 3:6 (Ware 4, 9th–10th c.); de Vaux and Stève 1950:pl. C:18 ("céramique blanche," 10th–11th cent.); Walmsley 1986:194, fig. 9:2–4 ("pale cream ware jars with thin walls and a knife-trimmed base")

Figure 26.8: Glazed Ware of the Early Islamic to Fatimid Periods

A Bowl 57.58.L2.10 Cream buff, mineral temper. Dark brown opaque glaze, dripping over edge of rim on ext.

B Bowl 57.58.L2.15 Pink-buff, abundant white and dark grits. Dark brown opaque glaze on int.

C Bowl 57.58.L2.13 Whitish buff, sand temper. Thick glaze on int. and ext.: opaque turquoise on rim, mustard-yellow transparent with sgraffiato design on int. of wall. Overlapping turquoise and mustard-yellow on the ridge on ext., resulting in brown band.

D Bowl 57.58.F5.L5.8 Light orange-buff, white slip. Somewhat irregular shape. Light blue opaque glaze on int. and ext.

E Jar? 57.58.L4.3 Whitish buff, sand temper. Opaque thick glaze on int. and ext., shading from light green to turquoise and brownish green.

F Jar 57.68.L4.1 Buff, dark red grits. Apple-green opaque glaze on int. and ext. with a black splash on edge of rim.

G Closed form 57.58.L13.41 Light brown, sand temper. Dark green glaze on int. and ext., with black splashes, grooves, and appliqué decoration on ext.

H Bowl 57.58.L4.6 Pink-buff, dark red grits. Uneven surface. Dark brown, ocher and dark green design under colorless transparent thin glaze on int.
      Parallels: Whitcomb 1989:fig. 5:o–p

I Bowl 57.58.F2.L6.8 White, porous, no visible temper. Thick greenish-gray opaque glossy glaze on int. and most of ext., dripping at the base.

J Bowl 57.58.L2.6 Creamy buff, abundant white and dark grits. Dark brown opaque glaze on int.

K Open form 57.58.L1.4 Pink-buff, mineral temper. Mold-made with relief decoration on one side. Dark green glaze on int. and ext.
      Parallels: Lane 1937:pl. 18:d; 1939:passim; Delougaz and Haines 1960:pl. 62:3

L Bowl 57.58.L13.47 Pink-buff, mineral temper, white slip on int. Opaque polychrome glazed painted design on int.; yellow and green transparent glaze on ext.

M Bowl? 57.58.L4.11 Off-white, sand temper. Dark olive green glossy lustre design over opaque white glaze on int.; opaque white glaze on ext.
      Parallels: Bahgat and Massoul 1930:41–67 ("faience à reflets métalliques," 10th–12th cent.); Waagé 1948:89, figs. 45, 46 (Type II A:1a)

N Bowl 57.58.L4.5 Light brown, mineral temper. Gold lustre design over opaque white glaze on int.; transparent light brown glaze on ext. Same parallels as M.

O Bowl 57.68.L16.18 Whitish buff, sand temper. Yellow, green, and dark brown unevenly painted radial design under greenish transparent glaze on int.; greenish transparent glaze with very small dots of green and brown on ext.
      Parallels: Scanlon 1976:87, fig. 17b ("Fayyumi-type")

P Bowl 57.58.L31.2 Whitish buff, sand temper. Uneven surface. Green stripes, ocher and dark brown spots painted under a transparent greenish glaze on int.
      Parallels: Baramki 1942:pl. 11:5; de Vaux and Stève 1950:pl. A:2–5 ("céramique émaillée," 10th–11th cent.); Ben-Tor and Rosenthal 1978:pl. 18:c

Q Bowl 57.58.L31.1 Light buff, sand temper, white slip on int. and ext. Finely made. Transparent manganese purple glaze with tiny black specks on int.; transparent colorless glaze with very small dots of green and purple on ext.
      Parallels: Waagé 1948:89 (Type I G.2, "dark purple glaze")

R Bowl 57.58.L2.4 Pink-buff, red grits. Uneven surface on ext. Green and ocher design outlined in dark brown under colorless transparent thin glaze on int. Similar to H.

Figure 26.9: Kitchen Ware, Oil Lamps, and Miscellaneous Pieces

A   Lamp   57.58.L1.1   Light buff-brown, mineral temper. Wheel-made.
   Parallels: Lane 1937:fig. 6:a–b; Waagé 1948:68, fig. 81:180 (Type 58a);
   Kennedy 1963:pl. 29:797; Kubiak 1970:fig. 8, text fig. 6:a–b (Type E);
   Thalmann 1978:fig. 37:2–3; Ben-Tor et al. 1979:fig. 6:11;
   Brosh 1986:figs. 5:13–15, 6:1

B   Lamp   57.68.L20.7   Pink-buff, mineral temper. Wheel-made. Dark green transparent glaze all over.
   Same parallels as A.

C   Lamp   57.68.F7.L7.3   Buff, mineral temper. Mold-made.
   Parallels: Delougaz and Haines 1960:pl. 44:19;
   Rosenthal and Sivan 1978:135, no. 558

D   Lamp   57.68.L4.9   Light buff, mineral temper. Mold-made. Molded decoration.
   Parallels: Rosenthal and Sivan 1978:134, 137, nos. 552, 564;
   Scanlon and Kubiak 1979:fig. 10:a; Brosh 1986:pl. 7:7

E   Lamp   57.68.F14.L17.1   Buff, mineral temper. Mold-made. Pseudo-epigraphic design on top.
   Parallels: Rosen-Ayalon and Eitan 1969:11th plate, 2d lower;
   Rosenthal and Sivan 1978:135, no. 560

F   Lamp   57.68.F11.L11.1   Reddish brown, mineral temper, white slip all over. Wheel-made, fine.
   Light turquoise transparent glaze all over.
   Parallels: Kubiak 1970: figs. 5–6, text fig. 4:a, b (Type C)

G   Lamp   57.58.L16.2   Dark gray, sand temper. Wheel-made. Light yellow opaque glaze on ext.
   Parallels: Johns 1932:fig. 1d, pl. 57; Kubiak 1970:fig. 11, text fig. 9:a, b (Type H);
   Rosenthal and Sivan 1978:144, no. 591

H   Lamp   57.58.L4.10   White, sandy, rather porous. Wheel-made. Transparent turquoise glaze all over.
   Openwork triangular decoration on the shoulder.
   Parallels: Kubiak 1970:fig. 9, text fig. 7:a, b (Type F)

I   Lamp   57.58.L4.7   White, sandy, rather porous. Wheel-made. Transparent turquoise glaze all over.
   Parallels: Kubiak 1970:fig. 9, text fig. 7:a, b (Type F)

J   Casserole   57.58.L13.13   Reddish dark brown, mineral temper. White slip painted design on ext.

K   Frying pan   57.58.L1.3   Dark red, sand temper. Transparent colorless glaze on int.
   Parallels: Lane 1937:fig. 5:g; Thalmann 1978:fig. 31:4, 5;
   Ben-Tor and Rosenthal 1978:fig. 6:9; Brosh 1986:fig. 4:17, pl. 6:11a, b

L   Casserole   57.58.F11.L14.1   Red, some white and dark grits. Combed decoration on ext.
   Parallels: Lane 1937:fig. 5:e; Baramki 1942:fig. 13:6–9;
   de Vaux and Stève 1950:pl. B:18, 19; Harding 1951:pl. 4:69

M   Zoomorphic miniature vessel?   57.58.L3.1   Light brown, mineral temper. Applied and openwork decoration.

N   "Greek Fire Bomb"   57.68.L16.10   Gray, abundant black grits. Plum glaze on ext. Lump of clay accidentally attached
   to the body.
   Parallels: Riis and Poulsen 1957:figs. 1047–58; Whitcomb and Johnson 1979:pl. 37:k

O   Chalice foot?   57.68.L4.8   Light brown, mineral temper. Greenish-gray glaze all over.

P   Knobbed lid   57.58.L4.14   Dark brown, reddish core, mineral temper.
   Parallels: Baramki 1942:fig. 12:27, 28; Harding 1951:fig. 2:42;
   Rosen-Ayalon 1974:fig. 274; Thalmann 1978:fig. 35:10;
   Tzaferis 1982:fig. 11:10

Q   Lid   57.68.F5.L5.1   Light brown, abundant grits. Impressed mark made by tubular object on ext. near rim.
   Parallels: Baramki 1942:fig. 13:14–16, 21; de Vaux and Stève 1950:pl. B:15, 16;
   Harding 1951:fig. 2:51, pl. 3; Bennett 1978:fig. 6:717b, 718b;
   Tzaferis 1982:fig.10:15–18; Brosh 1986:fig. 4:13

R   Neck fragment   57.68.L16.11   Light brown, mineral temper. Barbotine decoration applied on ext.

Figure 26.16: Plain Ware of the Crusader–Ayyubid to Early Mamluk Periods: Open Forms and Jars

A	Jar	57.58.L13.44	Orange-brown, white and dark grits. Uneven surface.
B	Jar	57.58.L13.8	Light brown, white and dark grits, creamy white slip on ext. *Parallels:* Whitcomb and Johnson 1982:pl. 44:e
C	Jar	57.68.L1.1	Orange-brown, mineral temper, reddish slip on ext.? Incised wavy lines design. *Parallels:* de Vaux and Stève 1950:pl. E:14 (dated to 10th–11th cent.)
D	Jar	57.58.L13.43	Orange-brown, brown core, mineral temper.
E	Bowl	57.68.L2.9	Grayish buff, mineral temper. Uneven surface, crudely made.
F	Jar	57.58.L13.42	Orange-brown, dark gray core, mineral temper.
G	Basin	57.58.L13.5	Light buff, mineral temper, yellowish wash on int. Finely made.
H	Basin	57.58.L4.17	Light brown, mineral temper, greenish slip on ext. Combed decoration on ext. *Parallels:* Baramki 1942:fig. 10:1–3, 8–10 (Wares 12 and 13, dated to 12th–13th cent.)
I	Bowl	57.68.L16.17	Reddish brown, mineral temper. Combed decoration on ext. Same parallels as H.
J	Basin	57.68.L16.15	Greenish buff, sand temper. Finely made. Combed decoration on ext. Same parallels as H.

Figure 26.17: Plain Ware of the Crusader–Ayyubid to Early Mamluk Periods: Jugs and Pilgrim Flask

A	Pilgrim flask	57.58.L13.1	Light brown, mineral temper. Decorated with oblique radiating shallow grooves on one side. *Parallels:* Baramki 1942:fig. 5:13, pl. 21:1 (incised decoration), fig. 5:14, pl. 21:3 (painted decoration)
B	Jug	57.58.L13.11	Light brown, white and dark grits, grayish slip all over.
C	Jug	57.58.L1.6	Light brown, sand and chalk temper, grayish slip all over.
D	Jug	57.58.L4.15	Greenish buff, mineral temper, light green slip on ext. The slip-painted design seems to represent a pseudo-epigraphic frieze. *Parallels:* Riis and Poulsen 1957:figs. 511–13
E	Jug	57.58.L1.7	Light brown, sand and chalk temper, greenish slip all over.
F	Jug	57.68.F9.L9.1	Light brown, mineral temper, grayish-white slip on ext.
G	Jug	57.58.L13.2	Light brown, mineral temper, whitish slip on ext. *Parallels:* de Vaux and Stève 1950:pl. G:22

**Figure 26.18: Glazed Ware of the Crusader–Ayyubid to Early Mamluk periods:
Monochrome Ware, Polychrome Ware, Slip-painted Ware**

A	Bowl	57.58.L2.12	Light buff, sand temper. Black, turquoise, and bluish-white opaque glazed design on int.; drippings of glaze on the edge on ext.
B	Bowl	57.58.L2.5	Light buff, sand temper. Rather crudely made. Black, turquoise, and bluish-white opaque glazed design on int.
C	Bottle?	57.58.L2.1	Light buff, sand and chalk temper. Vertical stripes of black, turquoise, and bluish-white opaque glaze on ext.; transparent turquoise glaze on int.
D	Bowl	57.58.L2.11	Orange-brown, mineral temper. Vertical stripes of yellow and black opaque glaze on int.; transparent greenish thin glaze on ext.

E Bowl 57.58.L4.13 Light brown, white grits. Finely made. White slip painted design under
transparent colorless glaze on int.
Parallels: Johns 1934:pl. 57:2; de Vaux and Stève 1950:fig. 32:14, pl. 18;
Riis and Poulsen 1957:figs. 822–26; Thalmann 1978:fig. 33:1–5 (Type B);
Ben-Tor and Rosenthal 1978:fig. 5:2; Whitcomb and Johnson 1982: pl. 36;
Pringle 1984b:fig. 6:48–50; 1985:figs. 5:26–33, 6:34–36;
Brosh 1986:pl. 6:2c–d.

F Lid? 57.68.L2.6 Reddish brown, mineral temper. White slip painted design under green
transparent glaze. Openwork decoration of narrow triangles on top.

G Lid 57.68.F16.1 Dark red, abundant white grits. Dark green glaze on ext. over a white slip
covering the whole surface except for the edge; white slip with a few patches
of transparent yellow and green glaze on int.

H Bowl 57.68.L19.5 Reddish brown, abundant white grits, rather coarse. White slip all over.
Glossy transparent manganese purple glaze minutely streaked on int.
Parallels: Waagé 1948:fig. 89:7, 8 (Type I G 1)

I Bowl 57.58.L16.4+7 Reddish brown, mineral temper, light yellow slip on int. and most of ext.
Apple-green glossy glaze on int. and most of ext.
Parallels: Thalmann 1978:fig. 33:6, 7 (Type C, form 3a);
Pringle 1984b:fig. 7:46 ("glazed slip ware," 13th cent.)

J Bowl 57.68.L16.14 Pink-buff, mineral temper. Opaque glossy turquoise glaze all over.
Parallels: Waagé 1948:87 (Type I C:3–4); Riis and Poulsen 1957:148–50
(Category B VI.e, "faience syrienne ancienne, bleu turquoise");
Whitcomb and Johnson 1982:pl. 33:a, b

K Jar 57.68.L19.4 Creamy buff, sand temper. Transparent apple-green glaze all over.
Parallels: Whitcomb and Johnson 1982:pl. 34:aa–cc

L Jar 57.68.F5.L5.2 Orange-buff, mineral temper, whitish slip all over.
Ocher-yellow transparent glaze all over.

M Bowl 57.58.L13.27 Light buff, dark red grits. Finely made. Grayish slip on int. and partly on ext.
Dark green transparent glaze minutely streaked on int.

**Figure 26.27: Glazed Ware of the Crusader–Ayyubid to Early Mamluk Periods:
Dark-painted Ware, Sgraffiato Ware, Porcelain, and Imitation Porcelain**

A Bowl 57.68.F7.L7.1 White, sand temper. Finely made. Transparent light green glaze all over.
Sgraffiato floral and geometric designs on int.; fluted design below sgraffiato on ext.
Parallels: Bahgat and Massoul 1930:pl. 33; Whitcomb and Johnson 1979:pl. 38:e;
Whitcomb and Johnson 1982:pl. 33:o

B Bowl 57.68.L19.6a+c Buff, sand temper. Finely made. Transparent ocher glaze all over.
Sgraffiato design of spirals and lines on int.; sgraffiato horizontal line
below rim on ext. Same parallels as A.

C Bowl 57.58.L2.17 White frit, no visible temper. Mold-made. Thin white glaze all over.
Molded decoration of petals design on ext.
Parallels: Whitcomb and Johnson 1982:pl. 52:a, e, h, i (cf. similar design)

D Bowl 57.58.L13.40 Porcelain, grayish white, no visible temper.
Parallels: Sarre 1925:pl. 25:2; Waagé 1948:104–5 (Group C–L, "Chinese and
related pottery")

E Bowl 57.58.L4.1 Pink-buff, white grits, white slip on int. and partly on ext.
Dark purple painted design under transparent colorless glaze on int.
Parallels: Bahgat and Massoul 1930:pls. 31–37; Lane 1937:fig. 9; 1947:35–36,
pls. 48–49:A–B, 50–51, 76–77, 80; Waagé 1948:98, fig. 55:6–8
(Type IX A:4); Riis and Poulsen 1957:157–182 (Types VII–VIII);
Scanlon 1971:230–31 (4th & 5th groups); Thalmann 1978:fig. 37:9;
Pringle 1985:fig. 14:80, 83; Brosh 1986:fig. 3:12, 13, pl. 6:2a

F Cup 57.58.L4.4 Pink-buff, mineral temper, white slip all over. Brownish purple painted design of parallel and zigzag lines under transparent colorless glaze on int.; transparent colorless glaze on ext. Same parallels as E.

G Bowl 57.68.L2.3 Pink-buff, abundant white grits, white slip all over. Dark brown painted design under transparent colorless glaze on int.; transparent colorless glaze on ext. Same parallels as E.

H Bowl 57.58.L2.8 Creamy buff, mineral temper, white slip all over. Dark brown painted lines and dashes under transparent colorless glaze on int.; transparent colorless glaze on ext. Diameter ca. 30 cm. Same parallels as E.

I Bowl 57.58.L2.9+14 Light brown, mineral temper, white slip on int. extending over the rim. Finely made. Transparent glaze on int.: dark yellow forming an uneven band on the rim; light yellow below the rim.
Parallels: Waagé 1948:fig. 85:12 (Type XII C 2b, "Aegean Style");
Pringle 1985:figs. 3:17–20, 4:21, pl. 17:1;
Brosh 1986:fig. 2:16–19, pl. 6:1a, b

J Bowl 57.58.L4.2 Reddish brown, mineral temper, white slip on int. extending below the rim on ext. Deep broad sgraffiato design under transparent greenish yellow glossy glaze covering the vessel on int. and 1 cm below the rim on ext.
Parallels: Thalmann 1978:fig. 36 (Type E); Pringle 1985:figs. 10:54, 11:55;
Brosh 1986:fig. 3:4, pl. 6:9c, e

K Bowl 57.58.L13.48 Reddish dark brown, mineral temper, white slip on int. Finely made. Olive green painted lines and thin sgraffiato scrolls under transparent creamy yellow glaze on int.

L Bowl 57.58.L2.7 Reddish brown, white grits, rather coarse. White slip unevenly applied on int. Transparent mustard-yellow glossy glaze on int., dripping on ext.
Parallels: Bagatti 1971:fig. 18:9; Thalmann 1978:figs. 34, 35:5–9 (Types C, D);
Ben-Tor and Rosenthal 1978:pl. 18:a; Ben-Tor et al. 1979:fig. 5:9;
Pringle 1985:fig. 6:37, 38; Brosh 1986:fig. 2:20, 21, pl. 6:8

M Bowl 57.58.F18.L18.5 Reddish brown, coarse, abundant white grits. White slip on int.; pink-white slip on ext. Thin sgraffiato design under transparent light yellow glaze on int. Same parallels as L.

N Bowl 57.58.F18.L18.12 Reddish brown, abundant white grits, rather coarse. White slip on int.; pink-white slip on ext. Deep sgraffiato design under transparent light yellow glaze on int. Same parallels as L.

O Bowl 57.68.L20.4 Red, abundant white grits. White slip on int.; creamy white slip on ext. Thin and broad sgraffiato lines under glossy transparent dark green glaze on int. Diameter ca. 35 cm. Same parallels as L.

P Bowl 57.68.L2.7 Red, abundant white grits. White slip all over. Uneven surface. Sgraffiato design of curved lines under transparent yellow glaze that extends over the rim on ext. Same parallels as L.

Concordance of Photographs and Drawings

Photograph Figure No.	*Drawing Figure No.*
26.2	26.1: M
26.3	26.1: J
26.4	26.1: K
26.5	26.1: O
26.6	26.1: P
26.7	26.8: H, L, O, P; 26.18: D
26.10	26.9: L
26.11	26.9: Q
26.12	26.9: D
26.13	26.9: A
26.14	26.9: F
26.15	26.9: H
26.19	26.16: J
26.20	26.17: G
26.21	26.17: A
26.22	26.18: A–C
26.23	*none*
26.24	26.27: K
26.25	26.27: A
26.26	26.27: C

PART SEVEN

HUMAN AND FAUNAL REMAINS

27. LATE BRONZE AGE INTRAMURAL TOMBS

by Aaron J. Brody

DEATH, the treatment of the dead, and the response of the living in the face of death, are charged with a sacred significance that gives rise to prescribed ritual behavior (Hertz 1960:27–86; Van Gennep 1960:146–65; Huntington and Medcalf 1979; L.-V. Thomas 1987). But processualist studies of the archaeology of death have moved away from reconstructing the religious or ritual aspects of burials, which were emphasized in "preprocessual" archaeological studies (Chapman et al. 1981:2–6). Instead, processualist researchers have developed a set of hypotheses concerning social structure to be tested against mortuary evidence (Saxe 1970; Binford 1971; Tainter 1978; O'Shea 1984; see also Brown 1971; Chapman et al. 1981). Postprocessual works on the theory of mortuary archaeology have criticized processualist reconstructions of society based on such evidence, concluding that burials are an imperfect indicator of social structure because they are the product of ritual activity and not of normative cultural behavior (Pader 1982:36–68; Parker Pearson 1982:100–101; 2000).

The significance of mortuary data for the study of the religion and ritual of extinct cultures has been recognized in works on the archaeology of cult or religion (Sears 1961:227–229; Alexander 1979: 217–19; Renfrew 1985:17, 1994:52–53; Johansen 1986: 72–73; Renfrew and Bahn 1996). Certain Near Eastern and classical archaeological studies have also reconstructed rituals from burial data with the aid of textual and/or pictorial evidence pertaining to death and the treatment of, and beliefs about, the dead (Al-Khalesi 1977; Spencer 1982; Cooley 1983; Salles 1987; 1995; Pollock 1991; Bloch-Smith 1992; Antonaccio 1995; Ilan 1995; 1996; Toynbee 1996). Such textual and pictorial data are generally not available to archaeologists researching prehistoric or protohistoric societies.

Two Late Bronze Age I Canaanite tombs, excavated during the 1989 and 1990 seasons of the Leon Levy Expedition to Ashkelon, provide a case study in the archaeological interpretation of mortuary ritual. I will first present an analysis of the stratigraphy and contents of these tombs. Then I will interpret various components of the burials by means of comparisons to analogous mortuary concepts and practices known from Late Bronze Age texts at Ugarit, from the He-

brew Bible, and from ethnographic studies of death and burial in traditional (especially Middle Eastern) societies (Ucko 1969; Watson 1980; Trinkaus 1984: 674–79; Marcus and Flannery 1994:55–57; Simpson 1995). This cognitive-interpretive approach allows us to reconstruct aspects of the funeral ceremonies and beliefs about the dead in Late Bronze Age Ashkelon, going beyond just the archaeological description of the burials. It expands the scope of burial archaeology beyond that defined by Bartel (1982:52–55), who thinks that burials reflect only one component of mortuary practice, namely, the interment. I will demonstrate that at Ashkelon other components of burial ritual described by Bartel can be reconstructed archaeologically through stratigraphic analysis of the tombs, in conjunction with interpretive insights from historical and ethnographic sources.[149]

Stratigraphic Location and Comparative Material

Ashkelon was an important stopping point along the maritime and overland routes which linked the Egyptian Nile Delta to the Levant, and beyond to Mesopotamia (Stager 1991; 1993:103). The site also acted as a gateway city, connecting localized commerce and goods, which flowed in from a regional hinterland, with a larger, international exchange network. Ashkelon's regional hinterland included sites in the southern coastal plain, the Shephelah, the southern hill country, and the northern Negev. These local and international networks were in use during the Late Bronze I at Ashkelon (ca. 1550–1400 B.C.), the period of our burials, and they help to explain the site's almost continual habitation from the Chalcolithic through medieval periods (Stager 1993:103).

The two tombs, which I will discuss in detail below, were found in the courtyard of a Late Bronze I house located in Grid 38 Lower (see figures 27.1 and 27.2; on the phasing of this area, see chapter 15 above). Our area of excavation was limited because it was confined to the bottom of a step-trench. The Late Bronze I level in these squares was cut on the north side by the foundations of a Byzantine-period villa. To the east and south, it was robbed out by Islamic-

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[149] For studies in the area of cognitive archaeology see Renfrew and Zubrow (1994).

era trenching, and on the west it was bounded by a subsidiary balk. This left us with an incomplete picture of the architectural context for the tombs. Fortunately, the southern edges of two Late Bronze I rooms remained, each with beaten earth floors. Outside of these rooms was a large courtyard area, which included several features such as hearths and pits that attest to the domestic nature of the context. The two burials were cut into this domestic courtyard surface.

Intramural burials in structural tombs are rare in Late Bronze Age Palestine. Parallels exist only at the neighboring site of Tell el-ᶜAjjul, and to the north at Megiddo and Taᶜanach (Lapp 1969:27–28; Gonen 1992a:98–120).[150] This suggests a preference for this burial type at sites in the coastal plain or the Jezreel Valley, which was a main thoroughfare connecting inland routes to the coast. The tradition of intramural burial in structural tombs is known farther afield at the northern coastal sites of Tyre and Ugarit, both of which were involved in maritime trade with the southern Levant (Bikai 1978b:6, 65; Margueron 1983; Salles 1987; 1995).[151] The vast majority of Late Bronze Age burials in Palestine, however, both along the coast and in the hill country, are found in cemeteries outside of city walls (Gonen 1992a).

Intramural burials reflect a Canaanite urban tradition that began in the Middle Bronze IIA and continued through the Late Bronze I (Gonen 1992a: 21; Hallote 1995:103–105). The practice seems to have ended in Palestine in the Late Bronze II, for reasons that are not well understood. It may be the result of an increased Egyptian imperial presence in Canaan during the Late Bronze II, with a concomitant negative effect on the local Canaanite ruling elite. I will contend below that those buried intramurally in structural tombs represent the elite of Canaanite society. Rivka Gonen (1992a:82) makes the same claim for the elite status of the occupants of Late Bronze Age structural tombs at Tell el-ᶜAjjul, which are extramural. Some of those tombs date to the Late Bronze II, which may illustrate the Canaanite elite's growing poverty or loss of certain rights over urban land in this period, as their interments shifted from property inside the city walls in the Late Bronze I to property outside the city in the Late Bronze II. As yet, no Late

Bronze II burials have been discovered at Ashkelon to test this idea, either intramurally or extramurally, and a detailed analysis of the burials from Tell el-ᶜAjjul is impossible, given the nature of the excavation reports.

Sites with earlier, Middle Bronze Age intramural burials include Tell el-ᶜAjjul, Megiddo, Taᶜanach, and Tel Dan, and a group of built tombs from sites in the Nile Delta (Petrie 1931–34; Loud 1948; Tufnell 1962; Lapp 1969:27–28; van den Brink 1982; Ilan 1995; 1996; Holladay 1997:196, 223–26). The tombs in the Delta are representative of the "Hyksos" or southern Canaanite presence in Lower Egypt during the Middle Bronze Age.

Given the overwhelming tendency in Canaan to place the dead outside of city walls, why were some individuals buried intramurally? Various explanations have been proposed. (1) An ancestral tomb constitutes a very visible claim to a piece of property, allowing the living to demonstrate ownership of land dating back to at least the time of the oldest interred relative (Brichto 1973; Bloch-Smith 1992:110–21). (2) The burying of a venerated family member near one's home would allow the ancestor to be remembered, respected, and possibly invoked by relatives, since it was believed that the deceased's spirit could have a beneficial or detrimental influence on the living (Fustel de Coulanges 1956 [1873]:36; Hallote 1995:105–107). (3) A specialized area for the interment of an exclusive group's dead (an "intramural minority" versus the "extramural majority")[152] is likely to represent the practices of a "corporate group that has rights over the use and/or control of crucial but restricted resources . . . likely attained and/or legitimized by means of lineal decent from the dead" (Goldstein 1981:61; see also Morris 1991:147–69).

It is likely that intramural burials in Late Bronze Age Ashkelon would have fulfilled all three of these functions, bolstering the claims of an elite group to ancestral rights over urban land while also maintaining relationships to powerful ancestral spirits. These ties to dead ancestors, in turn, would have reinforced the social status and economic standing of their living descendants.[153]

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[150] There are also several Late Bronze Age intramural burials at Hazor and Tell el-Farᶜah (N), but none of them are in built tombs (Gonen 1992a:121–23).

[151] For fuller references to the scattered reports of tombs from Ugarit and its port Minet el-Beida, see Spronk 1986: 142 n.1. For the tomb from Tyre, this study assumes the contemporaneity of the burials in Tyre Stratum 18 and the features in Stratum 17, a possibility already suggested by the excavator (Bikai 1978b:15 n. 8).

[152] In Hallote's quantification of Middle Bronze Age burials, intramural interments are 17% of the sample, leaving 83% of burials outside of city walls (1995:105, fig. 4).

[153] Later Iron Age elite burials of Israelite kings, royal families, and some court functionaries are intramural (Bloch-Smith 1992:116–19). Phoenician royal burials from Byblos are also intramural (Montet 1928).
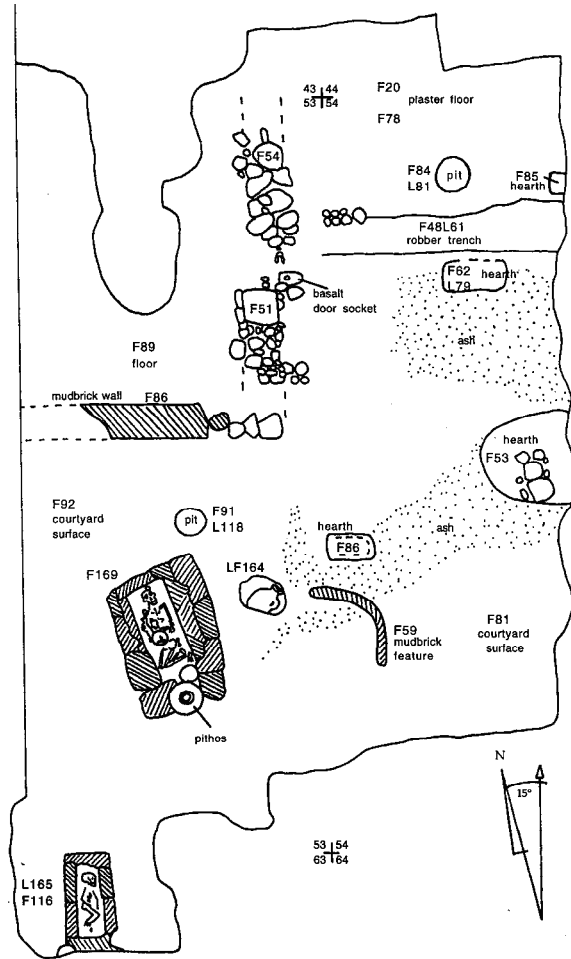
Figure 27.1: Tombs and associated architectural remains (scale 1:100)

Figure 27.2: Details of tomb construction (scale 1:50)

Left: Adult's tomb, showing plastered wooden crossbeams and location of pithos worked into tomb's architecture.
Right: Child's tomb.

Description of the Burials

The two intramural burials at Ashkelon were of a young child and a young adult woman,[154] both of whom were placed in structural tombs. The child was buried in a simple, rectangular tomb built of mudbrick (Grid 38, Square 63, Feature 116; see figures 27.3 and 27.4). The child was around three years of age at the time of death, but because of the immature nature of the skeletal remains, its sex could not be determined.

The walls of the tomb were two courses high and the structure was sealed with a mudbrick covering.[155] This covering was constructed using two distinct types of mudbricks: large gray bricks measuring ca. 45 × 50 cm and smaller orange bricks measuring ca. 10 × 40 cm. The orientation of the tomb follows that of the associated architecture used by the living, as is true of other examples of intramural, structural tombs (van den Brink 1982:39–44; Gonen 1992a:118–20; Ilan 1996).

The child was placed in a semiflexed position on its left side, with its head pointing northeast and facing east-southeast. The legs were flexed to the east-southeast, with the right foot resting on top of the left. The right upper arm ran straight along the torso, with the lower arm bent across the ribs and the hand resting on the pelvic area. The left upper arm extended out from the body slightly, with the lower arm bending down toward the legs. The skeleton's left hand was not preserved. The child's arms had probably moved slightly from their original burial position as a result of decomposition.

Interred with the child were two vessels imported from Cyprus, a Base Ring I jug and juglet (figures 27.5 and 27.6), and a small, rectangular piece of ostrich eggshell, ca. 3 × 3 cm in size. The juglet was placed upright near the head of the child, tucked in the space between the back of its skull and the western wall of the tomb. The jug was placed on the east side of the tomb; it may have been cradled in the deceased's left arm. The spout of the jug was positioned near the dead child's face, with its opening near the child's mouth. The fragment of ostrich eggshell was found below the feet of the skeleton. Although it was the sole fragment found in the tomb, it may have

originally belonged to an ostrich eggshell drinking vessel, an item commonly found among the offerings in the Middle Bronze intramural structural tombs from Tell el-Dabᶜa and other sites in Canaan (van den Brink 1982:51–52, 83–89).

Figure 27.3: Child burial with grave goods removed
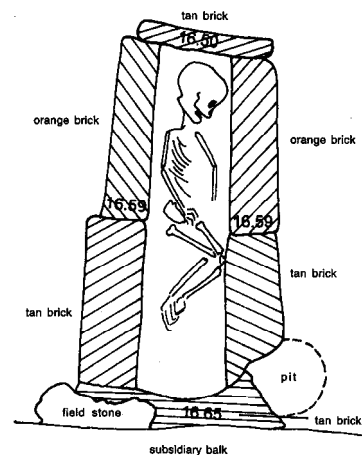
Figure 27.4: Drawing of child burial (scale 1:20)
Absolute heights reflect the removal of the
uppermost course of mudbrick.

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[154] Determinations of sex and age based on the skeletal remains are taken from Leslie Dawson's physical anthropology report (see the appendix to this chapter). I would like to thank her for her help in interpreting the burials.

[155] This is similar to van den Brink's (1982:21) Type IIIc tombs from the Middle Bronze Age site of Tell el-Dabᶜa in the Nile Delta.
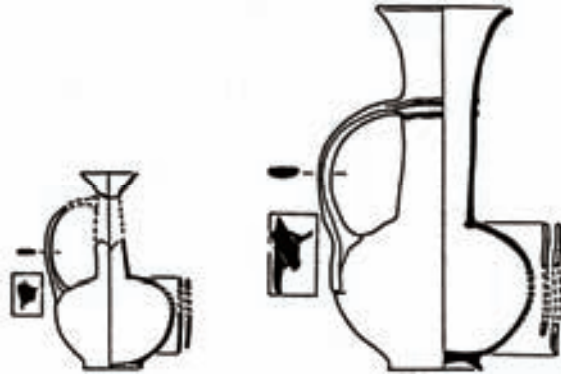
Figure 27.5: Cypriot vessels interred with the child (scale 1:5)

Left: Cypriot Base Ring I juglet; direct rim, ring base; core: pink; surface: pink, red-brown slip, burnished; raised designs.
Right: Cypriot Base Ring I jug; direct rim, ring base; core: pink, gray interior; surface: pink, brown to red slip, burnished; raised designs.

Figure 27.6: Detail of Cypriot vessels near the child's head

The second tomb (Grid 38, Square 53, Feature 169), in which a young adult was interred, is rectangular, with walls of mudbrick built three courses high (figure 27.7). Typologically, the tomb architecture has parallels in Late Bronze I and II structural tombs from Tell el-ᶜAjjul (Gonen 1992a:80–82).[156] Based on skeletal analysis, the age at death has been determined to be in the early twenties, and the sex female. The mudbricks of the structure vary in color, from gray to tan and orange. Their widths vary from 36 to 41 cm and their lengths from 53 to 57 cm. They are thus similar in size to the larger bricks used in the construction of the child's tomb (ca. 45 × 50 cm). Notches were cut into the uppermost course of bricks in order to hold wooden boughs used to cover the burial. These boughs were covered with a white lime plaster and were fused to the mudbrick with a gray silt mortar (figure 27.8).

The young woman was interred in a semiflexed position on her back, her head pointing up, facing slightly to the east (figure 27.9). Both legs were tightly flexed toward the west, just fitting into the width of the tomb, with the right knee against the western wall and the left foot pressed against the eastern wall. The left arm was extended straight down at the woman's side, with a slight bend in the lower arm, and her left hand was placed to the side and underneath the pelvis. Her right upper arm extended straight down her side, with the lower arm flexed across her body and the right hand falling over the left arm. Both her body and the tomb were oriented due north, not along the line of the contemporary architecture.

Grave goods included a food offering of sheep or goat chops and a small pigeon or dove found *in situ* in a bowl of local manufacture, situated by the woman's right side (figures 27.10 and 27.11:B). Meal offerings were common in other intramural structural tombs of the period. They included birds, sheep, and goats, as well as pig, cow, and fish, reflecting the varied diet of wealthy Canaanites (Tufnell 1962:8; Lapp 1969:28; Boessneck 1976:9–18; van den Brink 1982:50–51, 56, 58–59; Horwitz 1996).[157] Next to the

bowl of food was a Red Lustrous Ware flask (figure 27.11:F), which was most likely imported from Cyprus (Eriksson 1991:81–96). This flask probably held a liquid, either wine or water, to wash down the meal.

A second bowl was located south of the woman's left foot, propped against the east wall of the tomb (figures 27.7 and 27.11:A). No visible remains were discerned in this bowl. This vessel may have held organic materials that have since disintegrated, although none were discovered in a flotation sample taken from the bowl. Just south of this second bowl was a large pithos that had been built into the mudbrick of the closing end of the tomb (figure 27.11:E). This pithos might have stored a liquid meant for the deceased. It is closer in type to Middle Bronze Age pithoi, Bonfil's Type 5 (1992:29, fig. 5.3), than to those dated to the Late Bronze Age from Hazor (Amiran 1969:143). Thus I propose that the Middle Bronze pithos continues into the LB I at Ashkelon, although it is also possible that it was an heirloom.

Other offerings in this tomb were of a more personal nature. A small, rounded limestone cobble was placed on the dead woman's head (figure 27.13). This stone was clearly worked, as is demonstrated by its flake scars, and it shows wear marks at one end, which indicate its possible use in grinding (figure 27.12:A). Two Cypriot Base Ring I juglets were placed in the crook of the woman's right arm (figures 27.11:C, D). These closed vessels, with tall necks and small mouths, may have held favored perfumed oils or perhaps an opiate (Merrillees 1989).

Evidence of clothing and adornment were also found in this tomb. Two small, bronze straight pins were found on the skeleton (figure 27.12:D, E), one just below the acromial end of the left clavicle and the other symmetrically placed on the right side. The right clavicle, however, was not preserved. Underneath the skeleton's right shoulder was a gray metal object with a cross-section resembling a square bracket (" ["). This may have been some sort of pin or fastener. A positive identification is difficult because the object was poorly preserved and virtually disintegrated when excavated. This object angled from beneath the right shoulder to below the right side of the jaw, and appeared to continue under the skull. It may have been a fastener for a cloak or similar clothing, although this is speculative.

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[156] Several major differences between the Ashkelon tombs and the structural tombs from Tell el-ᶜAjjul should be noted, however. Unlike the Ashkelon tombs, the ᶜAjjul tombs were extramural, they were equipped with stepped entryways that allowed for easy access to the tombs, and they often contained multiple burials.

[157] The largest variety of animal offerings in intramural graves comes from Tell el-Dabᶜa and Tel Dan, but this may reflect the more modern excavation and analytical techniques used at those sites (Boessneck 1976:9–18; Horwitz 1996). Remains of animals are also mentioned in connec-

tion with the intramural burials at Taᶜanach, Megiddo, Tell el-ᶜAjjul, Tell el-Maskhuta, and Tell el-Yehudiyeh, but detailed faunal analyses are not provided. For a summary of animal offerings and the feeding of the dead in Israelite Iron Age tombs, see Bloch-Smith (1992:105–108, 122–26).

Figure 27.7: Adult burial with pithos removed from southern part of grave
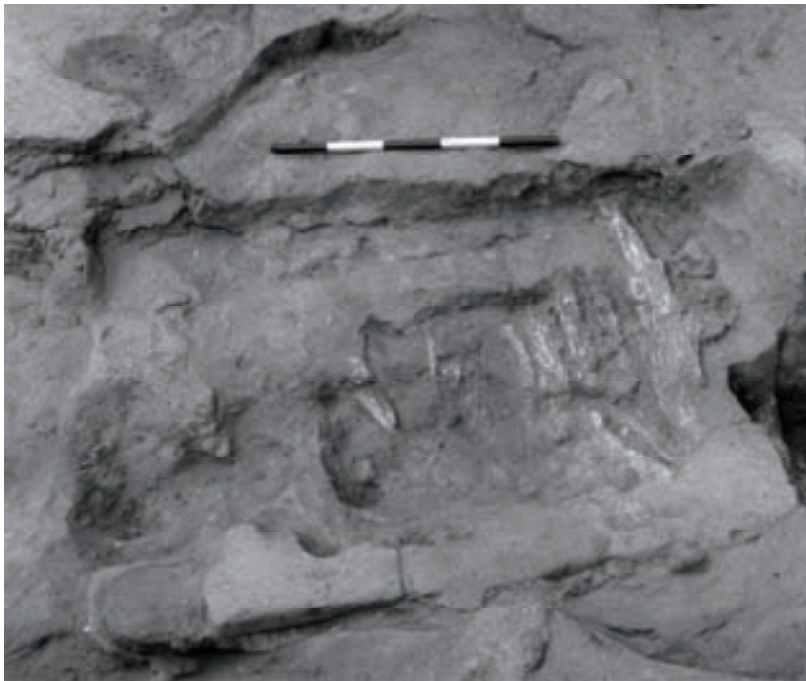
Figure 27.8: Adult burial, detail showing plastered wooden boughs used to roof the tomb

Figure 27.9: Adult burial, detail of skeleton with grave goods removed

Figure 27.10: Adult burial, detail with grave goods

A carved ivory roundel was discovered in the woman's pelvic area (figures 27.10, 27.12:F). It appears to have been used to hold a belt or sash, given its shape and location at the waist. Parallels exist in a contemporary burial from the neighboring site of Tell el-ᶜAjjul, where Petrie refers to this type of object as a "belt toggle" (1933:pl. 49, burial 305), and in a Late Bronze I cave burial from Megiddo (Guy 1938:pl. 152.8, 9, 10, Burial 1145B). The hole carved in the center of the ivory has sharp edges on both sides of the object, showing no evidence of use-wear, where a rope or sash would have rubbed.[158] This suggests that the roundel was new at the time of interment.

Jewelry found in the woman's tomb consisted of five beads from a necklace, which were found clustered together in the area of the sternum (figure 27.10). Three of the beads were heirloom scarabs, identified and studied by Othmar Keel (1997:716, 730; Ashkelon scarab nos. 71, 72, 113), and two were small, cylindrical beads made from frit (figure 27.12:B, C). The scarabs range in date from the Egyptian Thirteenth to Fifteenth Dynasties, predating the Late Bronze I period of the burial, which is contemporary with the Eighteenth Dynasty. These Egyptian heirlooms hearken back to the previous Middle Bronze IIB–C periods when southern Canaanites, like those buried in similar intramural structural tombs at Tell el-Dabᶜa, controlled the Nile Delta. The scarabs were of various colors: green jasper, light brown, and white; while the frit beads were red-umber and white with olive green inclusions. Strung together, they would have made a colorful necklace.

After the young woman was laid to rest, her tomb was covered with wooden boughs that were held in place with a mud mortar and plastered over (figure 27.8). At least eight boughs were discernible, with the longest resting on the northern, mudbrick wall of the tomb, while the others spanned notches cut into the uppermost course of the eastern and western mudbrick walls. This covering is unique among structural tombs. The comparable tombs from Tell el-ᶜAjjul and the Nile Delta were sealed over with either mudbrick superstructures of varying designs or slabs of *kurkar*, the local sandstone (van den Brink 1982:19–39; Gonen 1992a:80–82; 1992b:152). Those from sites further north were both built and covered with stones (Loud 1948:89–134; Lapp 1969:27–29; Ilan 1996). This reflects the varying availability of building materials at sites in different regions of Canaan. In the young woman's tomb at Ashkelon, small fieldstones and cobbles were placed on top of and next to the plastered wooden boughs that covered the tomb (figure 27.15). It is not certain, however, that these stones were simply part of the covering of the tomb, because some of those found on top of the mudbrick walls appear to have been arranged in rows and were not just thrown in as fill.

On top of the sealed tomb and below the courtyard surface from which the cist was cut for the burial remained a space 0.85–0.77 m deep (Grid 38, Square 53, Feature 109, Layer 126). In the southeastern part of this space, a Cypriot Base Ring I bowl, a local biconical drinking mug, a local storage jar (figure 27.16:A–C), and a third of a sheep skeleton were discovered clustered together. The storage jar was placed upright and two ceramic body sherds were used to cover the mouth of the vessel. Next to this concentration of vessels was the large ceramic pithos mentioned above, which was built into the mudbrick courses of the southern closing wall of the tomb (figure 27.11:E). It appears that this pithos was also utilized after the tomb was sealed, because a dipper juglet was placed next to it, stratigraphically above the timbers and small stones that closed the deceased in her grave (figure 27.16:D). This juglet was used as an aid, either symbolic or literal, in removing liquid from the large jar. The pithos may have originally been built into the tomb to provide additional refreshment for the deceased, but the positioning of the juglet suggests that it was also in use after the burial was sealed.

Other items of note from the fill above the tomb and below the courtyard surface include 13 ceramic jar stoppers. This may indicate a practice of opening vessels by the graveside which were not deposited on top of the tomb. Three other ceramic jar stoppers were discovered in the fill inside the tomb as well (two of which are illustrated, see figure 27.12:G). More than 20 pieces of chert debitage, 4 chert blade fragments, 2 chert-cobble hammer/grinding stones, a basalt quern fragment, and 12 charred olive pits were unearthed in the same fill matrix. A scarab was also found in this fill, just below the courtyard surface, which has been dated by Keel (1997:702; Ashkelon scarab no. 36) to the period from the second half of the Fifteenth Dynasty to the beginning of the Eighteenth Dynasty. This provides a *terminus post quem* for the covering of the burial that agrees with the Late Bronze I date of the tomb, which is based on pottery typology and the stratigraphy of the associated habitational remains.[159]

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[158] I would like to thank Glenda Friend for this observation.

[159] The courtyard that contained our burials had typical Late Bronze I wares and was sealed underneath another courtyard surface dated to the Late Bronze IIA by the presence of Mycenaean IIIA pottery.
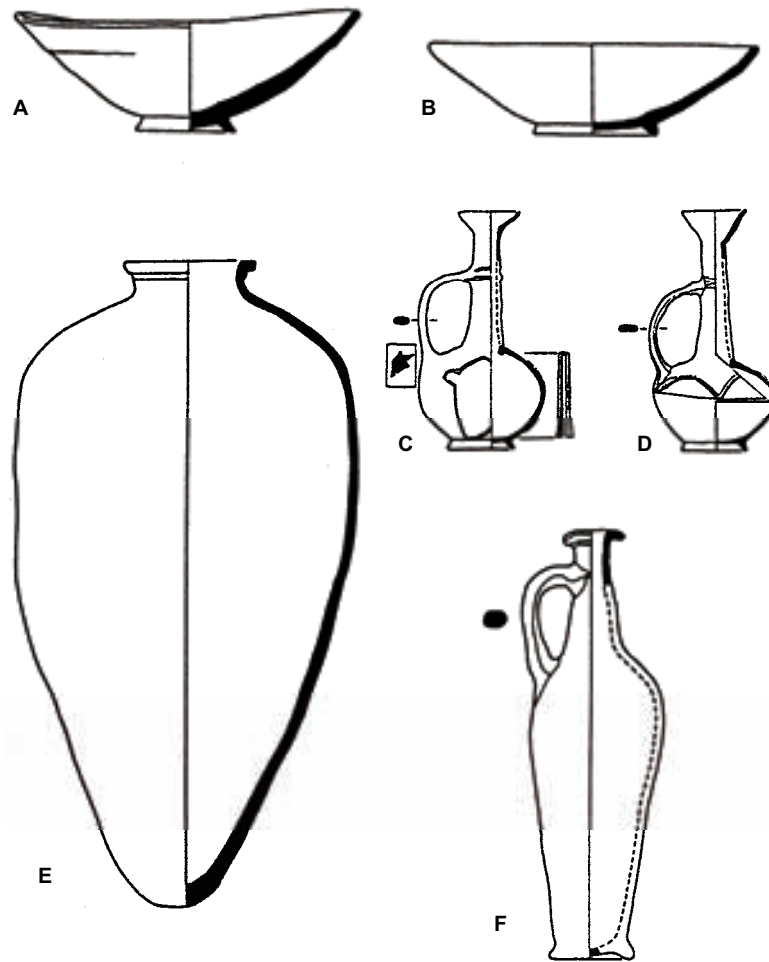
Figure 27.11: Vessels interred with the adult burial (scale 1:5, except **E**, which is 1:10)

A Bowl; rounded, direct rim; ring base; core: pink-buff; surface: pink-buff.
B Bowl; rounded, direct rim; ring base; core: pink-buff, few small sand and white inclusions; surface: pink-buff.
C Cypriot Base Ring I juglet; direct rim; ring base; core: pink; surface: pink, red-brown slip, burnished; raised designs.
D Cypriot Base Ring I juglet; direct rim; ring base; core: pink; surface: pink, red-brown slip, burnished; raised designs.
E Pithos; everted rim; core: pink to dark gray, many very small to small dark gray inclusions; surface: pink, white plaster.
F Cypriot Red Lustrous Ware flask; everted rim; ring base; core: pink; surface: pink, red slip, burnished;
potter's marks on bottom of base.
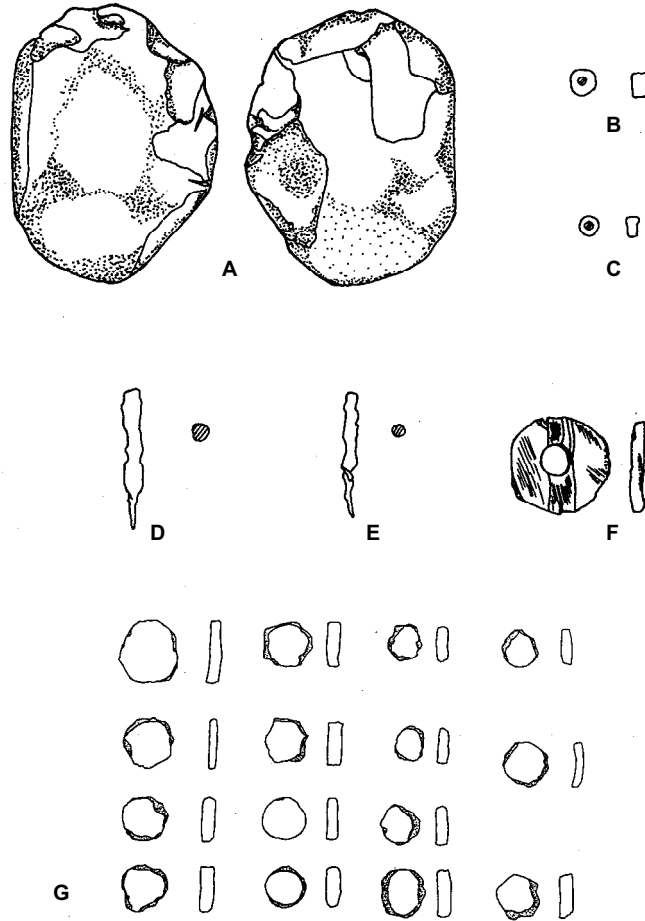
Figure 27.12: Nonceramic finds interred with the adult burial (scale 1:2, except **G** [stoppers], which are 1:5)

A Dorsal and ventral views of worked stone; spherical cobble; white limestone. **B** Cylindrical bead; frit; dull, matt white with olive-green accents. **C** Cylindrical bead; frit; dull, matt red-umber. **D** Straight pin from skeleton's left side; copper alloy; highly patinated. **E** Straight pin from skeleton's right side; copper alloy; highly patinated. **F** Worked ivory disk. **G** Ceramic jar stoppers; 13 from fill above tomb, upper 2 in fourth column from fill inside of tomb.

Figure 27.13: Adult burial, detail showing stone cobble placed near head
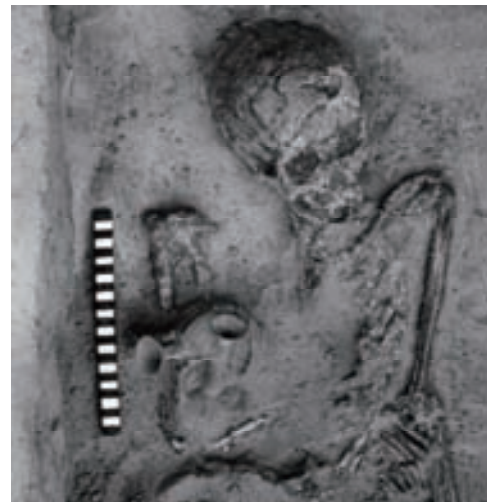
Figure 27.14: Adult burial, detail showing Base Ring I juglets in crook of right arm

Figure 27.15: Adult burial, detail of fieldstones and cobblestones on top of tomb
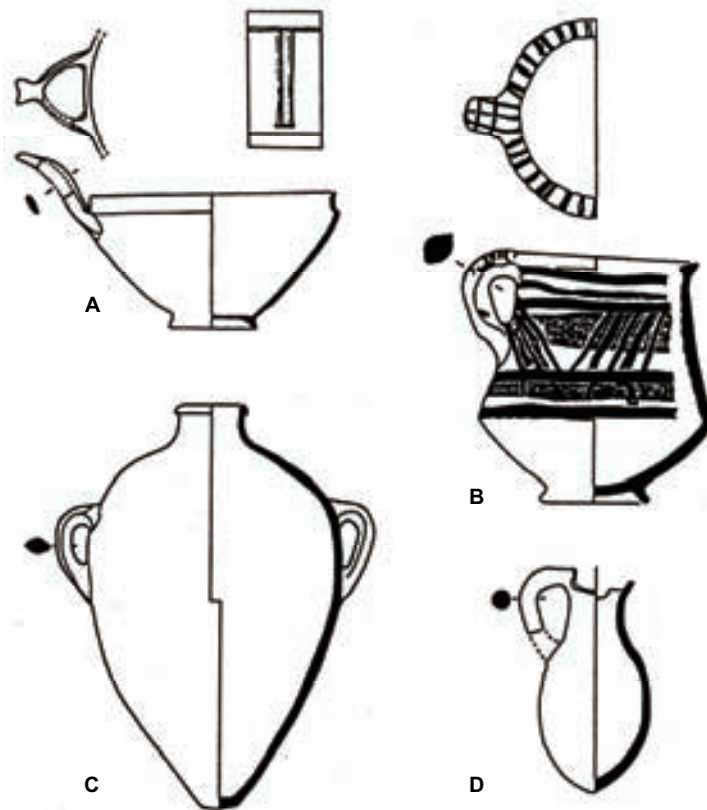
Figure 27.16: Vessels from fill above sealed adult burial (scale 1:5, except **C**, which is 1:10)

A Cypriot Base Ring I bowl; direct rim; ring base; wishbone handle; core: gray-brown; surface: pink to pinkish red; brown slip; burnished; raised designs.
B Biconical jug; flared rim; ring base; core: pink, sand inclusions; surface: pink; buff slip, red and dark brown decoration.
C Storage jar; upright rim; core: pink, many very small to small white inclusions; surface: pink (scale 1:10).
D Juglet; no rim; core: buff, few small white and small organic inclusions; surface: buff.

Figure 27.17: Storage jar with sherd lid
found near adult burial

A further offering of a storage jar (Grid 38, Square 53, Layer 164) was uncovered just adjacent to the young woman's tomb at Ashkelon, cut into the courtyard surface (figures 27.1 and 27.17). Inside this storage jar were a bowl, a juglet, and a fragment of a sheep's skull. Because of the position of this offering, it cannot be determined whether it was stratigraphically later or earlier than those found clustered on top of the sealed tomb. The storage jars from both offering groups are typologically similar, and both were found with rectangular body sherds placed over their mouths to "seal" the jars.

Parallels for offerings discovered on top of and next to burials come from Middle Bronze Age intramural structural tombs at Tel Dan, Tell el-Dabᶜa, and Tell el-Maskhuta (van den Brink 1982:33, 35, 38, 50–51; Bietak 1989:35*; 1990:11*–14*; 1991; Ilan 1996:183–87, 204–11; Holladay 1997:196).[160] Some-

times these offerings included servants or donkeys, which were killed and buried separately next to the appropriate tomb (van den Brink 1982:46–50, 74–83; Bietak 1989; 1991). The practice of leaving offerings external to burials continued into the late Iron Age at Achziv, and is evident from Phoenician sites in the western Mediterranean such as Carthage, Trayamar, and Toscanos (Gras, Rouillard and Teixidor 1991: 138–40). Similar deposits are also known from the Bronze and Iron Age Aegean and Cyprus, and from Roman sites (Renfrew 1972:432–33; Antonaccio 1995: 199–243; Toynbee 1996:50–54, 61–64; Herscher 1997:31).

Reconstruction of Mortuary Rituals

In this section I will reconstruct several features of the mortuary rituals that accompanied the burials in Late Bronze Age Ashkelon. This reconstruction is based on ethnohistorical analogies drawn from the texts of cultures similar to the culture of the Canaanites who inhabited Ashkelon in this period. The most abundant textual evidence comes from the Late Bronze II archives of the city of Ugarit on the coast of northern Syria. Ugarit was quite distant from Ashkelon, but Ugaritian culture nonetheless seems to have been closely related to that of southern Canaan, although with heavier influences from Mesopotamia and Anatolia. In addition to the Ugaritic evidence, certain passages from the Hebrew Bible are also helpful, although these mainly relate to Israelite burial ceremonies from the Iron Age II, several centuries later than the tombs of Late Bronze I Ashkelon. Israelite practices have many affinities with Canaanite traditions, although there were some proscriptions that seem to have been established intentionally by the Israelites to distinguish the two related cultures (see, e.g., Leviticus 19:26 and Deuteronomy 14:1).

I will also draw on recent ethnographic analogies where they are useful. In general, I will concentrate on the mortuary practices of traditional groups in the modern Levant, although there are inherent problems in comparing modern village practices with those of ancient city-dwellers. Comparisons will also be made with traditional societies outside the Middle East, on the grounds that some responses to death are universal or nearly so, and our interpretations of ancient Canaanite evidence can be aided by crosscultural comparisons.

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[160] The most detailed evidence for this practice is found in Bietak's report on the burials from Tell el-Dabᶜa, which illustrates at least 16 adult burials with post-funeral offerings and 10 separate offering deposits related to tombs (1991). It is likely that similar external offerings were made

at the MB and LB structural tombs from Tell el-ᶜAjjul, Megiddo, and Taᶜanach, though the excavation reports do not detail this sort of data. I would like to thank David Ilan for discussing with me the Tel Dan material and possible parallels to the burials at Ashkelon.

The Child Burial

The orientation of a grave or the placement of a body within a tomb can encode societal beliefs regarding the dead or the realm of the dead (L.-V. Thomas 1987:456). The child burial at Ashkelon, however, was oriented along the line of the contemporary architecture, which seems to relate more to the practical concerns of the living. The child was laid out on its side, in a semiflexed position, perhaps mimicking an attitude of sleep. In the Ugaritic epic of Aqhat, the slain hero, already interred in his grave (Ug. *qbr*), is disturbed and roused from "his sleep" (Ug. *šnth*; *KTU* 1.19.iii: 44–45). Several Middle Bronze Age tombs from Baghouz, in eastern Syria, and from Jericho contained the remains of wooden beds or rush mats on which the deceased were laid to rest, quite literally, presumably mimicking an attitude of sleep (du Mesnil du Buisson 1948:36; Kenyon 1993:680). In the Hebrew Bible, death is likened to making a bed in Sheol, the Israelite netherworld (Ezekiel 32:25; Job 17:13; see McCullough 1962:373).

The Cypriot jug interred with the child seems to have been nestled in its left arm, with the vessel's spout resting above the child's mouth, as if the child were meant to drink the contents (figure 27.6). The second vessel, a Cypriot juglet, rested behind the child's head.

A similar clustering of vessels near children's mouths or heads is evident in earlier Middle Bronze Age intramural burials in structural tombs from Tell el-Dabᶜa and Tel Dan (Bietak 1991:134, 202, 210, 229, 252, 274; Ilan 1996:179, 183). This probably indicates the intention of the surviving relatives to provide nourishment for their children's spirits. In contrast, food offerings left with interred adults, like the young woman buried in the neighboring tomb at Ashkelon, are placed in a way that suggests that adult spirits could feed themselves.

The fragment of ostrich eggshell that was placed in the child's tomb may have symbolized protection or regeneration, in view of the fact that the egg is associated with life and birth. I base this interpretation on studies of ostrich eggshells, eggshell containers, and decorated eggshells which come from later Phoenician tombs in the western Mediterranean. In the context of these seventh through second century B.C. tombs, ostrich eggs are viewed as having apotropaic qualities, and are linked to magical ideas of regeneration as a symbol of life placed in a context related to death (Moscati 1988:456; Gras, Rouillard and Teixidor 1991:138–40). As the cultural descendants of the Canaanites, it is not surprising that the Phoenicians would have carried on the practice of placing ostrich eggs in burials, a custom prevalent in Middle Bronze interments in Canaan, as I have already mentioned.[161]

The placement of imported Cypriot pottery and a prestige item like the fragment of an ostrich eggshell with a dead child indicates the high social status of the child's family. It is unlikely that the Cypriot vessels or the eggshell were personal possessions of the deceased. Rather, these grave goods were probably items of daily use from the child's household.

The Young Adult Burial

The placement of the tomb of the young adult along a cardinal direction unaligned with the associated architecture may well have been intentional (see figure 27.1). Whether the tomb's orientation encodes any ritual significance is difficult to interpret. It was oriented to the north, toward Mount Ṣapôn (modern Jebel el-ᶜAqra, classical Mount Casius), the home of the Canaanite storm god Baᶜlu (see Clifford 1972:57–79; Astour 1975:318–24). In Ugaritic mythology, Baᶜlu is brought down to the netherworld by Môtu, the god of death, but he is rescued and brought back to rule the realm of the living (*KTU* 1.5–1.6).

Crosscultural comparisons suggest that burials oriented to the cardinal directions often reflect a connection between the interred and the rising or setting of the sun (Binford 1971:12–13; Rahtz 1978:3–6). In Ugaritic mythology the sun-goddess Šapšu travels between the world of the living and the world of the dead in her daily cycle of rising and setting (Lewis 1989:35–46). She therefore accompanies the spirits of the dead in the journey from their earthly abode to their new home in the netherworld. But Canaanite burials from the Middle and Late Bronze Ages do not show the sort of consistency in their orientation that might point to a common belief in this regard (van den Brink 1982:39–44; Gonen 1992a:18; Hallote 1995:102–3). Moreover, it should be noted that although the burial at Ashkelon was oriented to the north, the head faced upward and was turned only slightly toward the rising sun in the east.

The meal offering, consisting of sheep or goat chops, a small bird, and possibly a beverage held in the Red Lustrous Ware flask, indicates a belief in the existence of enduring spirits of the deceased, who

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[161] Moscati (1988:456) mentions the practice of placing ostrich eggshells in burials in third-millennium Egypt and Mesopotamia, and in Mycenaean tombs of the second millennium B.C. He does not note the evidence from Middle Bronze or Late Bronze Canaan, however, which seems a more likely forerunner of later Phoenician practices in the western Mediterranean, given the cultural connections between the Bronze Age Canaanites and later Phoenicians.

needed sustenance (figure 27.10).[162] Additional foods and liquids may have been held in the bowl and pithos at the southern end of the tomb.

Manfred Bietak (1990:13*) has interpreted similar meals found in the Middle Bronze Age intramural structural tombs at Tell el-Dabᶜa as "sufficient for the daily needs of the dead." This interpretation is based on ancient Egyptian conceptions of the afterlife. Egyptian tombs were typically provisioned with grave goods, including foodstuffs, which were meant to serve the everyday needs of the dead in a paradisiacal afterlife (Spencer 1982:45–73, 139–64). However, the people buried in the Middle Bronze tombs at Tell el-Dabᶜa were not native Egyptians but rather southern Canaanites (van den Brink 1982:67), who had a quite different conception of death and the afterlife. The Canaanite netherworld was not a paradise like its Egyptian counterpart but rather a dark, dreary place (Gaster 1962:787–88; Astour 1980:227–38). In Ugaritic myths, the underworld is referred to simply as ᵓarṣu, "the earth." This realm of the dead is comparable to Sheol and Hades, the netherworlds of biblical Israel and classical Greece, respectively. It is a dank place in which the spirits dwell below the firmament, the realm of the living. Dead ancestors, known in Ugaritic as rapaᵓūma and in the Hebrew Bible as rᵉpāᵓîm, were honored by their living relatives in special ceremonies (Caquot 1960; L'Heureux 1974; 1979; de Moor 1976; Pope 1977; 1981; Pitard 1978; Horwitz 1979; Bordreuil and Pardee 1982; Levine and Tarragon 1984; Spronk 1986:161–96; Lewis 1989:14–16; but see Schmidt 1994:71–93, 267–73 for a contradictory opinion). It is possible that intramural tombs at Ashkelon, at other sites in Canaan, and in the Nile Delta were placed in the courtyards of wealthy households to keep these spirits of the deceased ancestors close to the family so that they could be more easily cared for and their protection more easily sought.

Some studies of modern mortuary rituals have stressed the idea that nourishment is placed in tombs not to feed the dead throughout eternity, but rather to provide sustenance for them during their journey into the world of the dead (Van Gennep 1960:153–54; L.-V. Thomas 1987:455). This seems a more likely analogy for Canaanite rituals, rather than viewing the food offering as representing a meal for eternity. The West Semitic underworld was not a realm in which the soul would feast and enjoy a continuation of its earthly life, but rather a grim resting place for the shades.

The material culture discovered in the fill above the tomb of the young adult woman is indicative of rites carried on after she was sealed in her grave. The collection of open and closed vessels, including a bowl, tankard, storage jar, pithos, and dipper juglet, comprise a pottery repertoire suitable for the storage and serving of liquids and foodstuffs. The jar stoppers, olive pits, stone tools, and sheep bones are additional material evidence which suggests that a feast was enjoyed by mourners for the deceased, the remains of which were then placed on top of the grave in further tribute to the dead. It is known from certain modern, traditional cultures that objects used in mortuary rituals are considered to be tainted and are not suitable for further use in the world of the living, and are thus left at the grave (Hartland 1928:430–31).

Such a mourning feast is known as a *marzaᶜu* or *marzaḥu* in Ugaritic and Phoenician texts, and a *marzēᵃḥ* in the Hebrew Bible (Eissfeldt 1966; 1969; Porten 1968:179–86; P. Miller 1971; Pope 1972, 1979–80; 1981; Greenfield 1974:451–55; Fenton 1977; Friedman 1979–80; Spronk 1986:196–202; King 1988; 1989; Lewis 1989:80–94; see Schmidt 1994: 62–66 for a contradictory view).[163] These feasts were probably part of funeral ceremonies performed by the living which involved the rite of passage of the dead spirit from the community into the netherworld (Van Gennep 1960:153–54). A possible *marzaḥu* is depicted on the sarcophagus of the Phoenician king Aḥiram, which shows the dead king enthroned with a meal set on a table before him. A procession of mourners approaches the funerary meal, some bring further offerings in storage jars and bowls, and one mourner leads a ram, presumably as a sacrifice to the dead ruler (Montet 1928; Aimé-Giron 1943; Haran 1958; Chéhab 1970; Porada 1973).

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[162] For texts detailing food offerings and meals for the dead see *KTU* 1.6.i:18–29 and 1.161 (Bordreuil and Pardee 1982; Levine and Tarragon 1984; Lewis 1989:5–46); and *KAI* 214 (Greenfield 1973). For biblical and extrabiblical references, see Bloch-Smith (1992:108 n.1, 122–26).

[163] There is no scholarly consensus regarding the translation of the term *marzaḥu* (or *marziḥu*) in Ugaritic. Some take it to mean a funeral meal or feast, others view it as some kind of a socioreligious association, while still others see the mourning meal as an aspect of a broader *marzaḥu* institution. Unfortunately, the relevant Ugaritic texts are ambiguous. Given the relative clarity of the passage in the book of Jeremiah (16:5–8), which describes a *bêt marzēᵃḥ* as a place of mourning and feasting, and given the similarities in cultural practices between Israelites and Ugaritians, it seems to me that the interpretation of *marzaḥu* in Ugaritic as a funeral feast is appropriate, in contrast to the view advanced by Schmidt (1994:66)—see the comments on this issue by Theodore Lewis (1989:94).

These offerings are reminiscent of the material goods left on top of the woman's tomb at Ashkelon.[164]

Funeral feasts are also attested among traditional communities of the modern Levant, where they take place at several specific times after the burial of the dead (see Granqvist 1965:85–90, 97–100; in general, see Hartland 1928:434–37; L.-V. Thomas 1987:455). In certain cultures, these meals for the dead stop once the journey of the deceased's spirit to the netherworld is believed to be complete, although further offerings may be given on the anniversary of a death or a specific day of atonement. The Phoenicians, who were the direct cultural descendants of the Late Bronze Age Canaanites, celebrated a memorial day for the dead and left offerings at tombs (Appian, *Roman History* 12.84, 89; Cicero, *Pro Scauro* 6.11; Justin, 18.6.6; Lucian, *De Dea Syria* 6—see Gsell 1920: 466–68; Gras, Rouillard and Teixidor 1991:138–39).

There are a variety of post-funerary ceremonies celebrated for the dead in modern traditional societies in the Middle East (Simpson 1995:248–49). It is possible that the offering located near the young adult tomb (figure 27.17), which consisted of a storage jar with a bowl, dipper juglet, and fragment of a sheep's skull, was made after the initial burial rites had ended. This must remain only a hypothesis because it cannot be demonstrated stratigraphically or by the typology of the vessels.

Mortuary Rituals with Few Archaeological Correlates

There are other aspects of Canaanite mortuary ritual that would have left few or no archaeological traces. These include special preparation of the body before burial and the mourning rituals of the living. Such practices are not unique to Canaan, but are paralleled in Israelite society and in many traditional cultures.

In traditional Levantine villages, for example, the dead are ritually cleansed, clothed in special garb, and shrouded before interment (Wensinck 1917:56–77; Granqvist 1965:58–67; Simpson 1995:241).[165]

Evidence of clothing and adornment from the young adult burial at Ashkelon include two straight pins, a possible metal pin or fastener behind her right shoulder, an ivory roundel to hold a sash-like belt, and scarabs and other beads from a necklace. None of these material remains, however, demonstrate that the woman was dressed in special clothing for burial. Nor is her jewelry distinctly apotropaic; it shows no discernible stylistic or color properties meant to protect the wearer (Simpson 1995:246). As noted earlier, the ivory roundel has no marks from use-wear. This suggests that it was not used by the woman as a belt hoop during her lifetime but was new at her time of burial.

Canaanite mourning rituals that accompany death and burial, such as wailing, rending garments, wearing sackcloth, cutting hair, lacerating flesh, throwing dust or straw on one's head, and voicing lamentations are known from Ugaritic texts (*KTU* 1.5:vi:11–25; 1.5:vi:26–1.6:i:29; 1.15:v:12–14; 1.19:iv:10–26; 1.61:13–34) and the Hebrew Bible (Leviticus 19:26; Deuteronomy 14:1; Ezekiel 27:28–36). Some of these practices are shown on the sarcophagus of the Phoenician king Aḥiram, which depicts female mourners whose tops have been removed, or torn, so that they hang over their skirts. Some of these women beat their chests while others tear at their hair.[166] It is likely that similar ceremonial demonstrations of grief and mourning accompanied the burials at Ashkelon, but this cannot be demonstrated archaeologically.

Conclusions

Through an analysis of the stratigraphy and contents of the intramural structural tombs from Late Bronze I Ashkelon, I have demonstrated that several components of mortuary ceremony aside from the interment may be discerned in the archaeology of burials. Evidence from the tombs themselves can be augmented by contemporary textual evidence and later ethnographic evidence for beliefs and practices related to

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[164] For other studies linking archaeological remains with the *marzaḥu / marzēᵃḥ*, see Cooley and Pratico (1994a:90); Salles (1995:183–84); Herscher (1997: 31–32); Holladay (1997:196).

[165] Some early translations of the Ugaritic Aqhat epic, *KTU* 1.19:iii:41, have the dead hero buried "in a shroud," based on a faulty cognate linkage of Ugaritic *knrt* with Arabic *kanara* (Pitard 1994:32–33, 36). This is not a correct reading and should not influence our interpretation of burial practices at Ugarit (see Pitard 1994). Recently, a Chalcolithic burial has been discovered in a cave near Jericho in which the corpse was covered by a linen shroud (Schick 1998), and several of the Late Bronze IIB burials at Tell es-

Saᶜidiyeh had remnants of cloth preserved in bitumen or fused to metal objects which the excavator suggests may have been from shrouds (Pritchard 1980:15, 21–23). Otherwise, evidence of cloth in excavations, let alone burials, is extremely rare.

[166] The Ugaritic epic of Aqhat describes the weeping of female mourners in the king's palace (*KTU* 1.19:iv:10–26). Wailing female mourners are known from Israelite sources (Jeremiah 9:17–20; for further citations see de Vaux 1961), and are part of a mourning practice detailed in Middle Eastern ethnographic examples that may include the hiring of professional women paid to wail for the dead (Wensinck 1917:78–95; Granqvist 1965:92–96).

death, burial, and mortuary ritual. The result is a tentative reconstruction of ceremonies performed for the dead in Canaanite Ashkelon.

Soon after death, the body was washed, clothed, and perhaps shrouded in preparation for burial. It is possible, given the extreme flex in the young adult woman's legs, that her legs were tied in their burial position before the onset of rigor mortis (this was suggested to me by David Ilan). It is likely that in the case of a tomb as large as the young woman's, excavation of the cist and construction of the tomb was begun before she actually died. The body was interred in the tomb in the presence of family members and other mourners. Goods were placed with the young woman, providing food and drink for her journey to the netherworld. Perhaps her spirit would have been considered one of the *rapaʾūma*. Similarly, the child had goods placed near its head and mouth, as if to assist with its nourishment after death. Other items deposited with the dead were personal possessions, or were charms, like the ostrich eggshell fragment. Then the tomb was sealed.

In the case of the young woman's burial, items left on top of the sealed tomb may be evidence of a funerary meal—probably an aspect of *marzaḥu* feasting. The pithos and storage jar may have held liquid refreshments; wine was popular in celebrations and is known to accompany the *marzaḥu*. A Cypriot bowl and biconical tankard may have been used for drinking and the dipper juglet for serving.

Leftover jar stoppers suggest that additional vessels were opened at the graveside but not deposited.

Olive pits, a third of a sheep skeleton, chert blades and hammerstones, and a quern fragment are evidence of food preparation and consumption. The nearby offering of a storage jar, which contained a juglet, bowl, and portion of a sheep's skull, may be the remains of a later ceremony performed for the dead at a set time after the funeral and the main feast.

It is likely that mourners performed prescribed rites during the burial. These may have included wailing, tearing garments, pulling out or cutting hair, cutting flesh, putting dust or straw on the head, rolling in the dust, and singing dirges for the dead.

This reconstruction is based on observations made from archaeological, textual, and pictorial evidence, and from analogous ethnological practices. Utilizing complementary classes of data allows us to go beyond the mere presentation of material remains toward a fuller understanding of the cultural practices and beliefs which accompanied death and burial in Late Bronze Age Ashkelon.

APPENDIX

Osteological Analysis of the Human Remains from the Late Bronze Age Tombs of Grid 38

by Leslie Dawson

During the 1990 excavation season at Ashkelon, two Late Bronze Age tombs were uncovered. Each tomb housed the complete primary burial of one individual: a young woman (Grid 38, Square 53, Feature 169) and a young child (Grid 38, Square 63, Feature 116). Each burial was accompanied by burial artifacts that have been dated to the Late Bronze I period.

Grid 38, Square 53, Feature 169

This tomb contained the primary burial of a young woman in her early twenties. Age is determined based on the overall skeletal and dental development. The anterior iliac crest is not fully fused, suggesting an age of approximately 20 years, and the first and second sacral bodies have not fused, indicating an age of younger than 27 years (Krogman 1962). The maxillary and mandibular third molars exhibit no tooth wear, testifying to a relatively recent eruption into the oral cavity.

The overall gracile nature of the skeleton and the morphology of the cranium, mandible, and pelvis indicate that this individual is female. The cranium exhibits pronounced parietal bossae and sharp orbits, while the mandible has a single mental protuberance and the innominates have wide sciatic notches.

Several dental pathological conditions were noted in this individual. The mandibular and maxillary anterior teeth are hypoplastic, reflecting systemic stress during early childhood. Pitting on the alveolar bone

of the mandible indicates periodontal disease in the posterior region (i.e., molars), and dental calculus is evident on the incisors and canines. Evidence of disease was also noted in the skeleton. Both the right and left femora and tibiae exhibit cortical striations (periostitis), which signify an inflammatory response by the bone possibly due to infectious disease (Ortner and Putschar 1981).

Although the skeleton was complete, it was poorly preserved and in a fragmentary condition upon analysis, so no skeletal measurements were possible.

This individual was found with the upper body extended and the lower limbs flexed on the right side. The arms were also flexed and placed across the abdomen. The tomb was aligned along an approximate north-south axis. Artifacts found in association with this burial include: ceramic vessels (including a pithos, a storage jar, a Cypriot bowl, and a dipper juglet), faunal remains, three scarabs, two cylindrical beads, and metal pins.

Grid 38, Square 63, Feature 116

This tomb contained the complete skeletal remains of a young child. Based on dental and skeletal development, an age of three years has been assigned to this individual. Only the crown of the first permanent molar has developed, suggesting an age of 3 years +/- 12 months (Ubelaker 1978); the deciduous teeth reveal slight wear. The skeletal remains suggest a slightly younger age. The vertebral arches have not fused to the centra; fusion usually occurs between the ages of 3 and 7 years (W. Bass 1995).

A physical assessment of sex is impossible due to the immature development of the skeleton. No abnormal or pathological conditions were noted in this individual. Skeletal measurements were not available due to poor preservation and the fragmentary condition of the bones.

This individual was placed with the upper body extended and the legs in a semiflexed position on the left side. The right arm was flexed and positioned across the abdomen. The left arm was found along the left side of the body, and may have been originally been placed flexed across the abdomen, as with the right arm, subsequently shifting with the natural decaying process.

Although the tomb itself was located along a northeast-southwest axis, the orientation of the body was southeast. Artifacts associated with this burial included ceramic vessels and a piece of ostrich eggshell.

28. HUMAN REMAINS FROM THE BABYLONIAN DESTRUCTION OF 604 B.C.

by Patricia Smith

DURING the 1992 season of excavation in Grid 50, Square 49, the skeletal remains of an adult female were discovered in destruction debris from the Babylonian conquest of Ashkelon in 604 B.C. The articulated skeleton lay on the floor of a room containing a domestic assemblage of pottery and other items, suggesting that the woman was killed there and then buried in the debris of the collapsed building (figure 28.1; see also figure 15.93 and the discussion of Grid 50, Phase 7, in chapter 15 above). This provides direct evidence of the violent sacking of the city by the Babylonian army.

The skeleton was encased in a plaster cast and removed to the laboratory for cleaning and analysis. The skull and mandible were badly crushed and fragmented. The cranial vault exhibited numerous radiating fracture lines that appear to have been caused at the time of death, and may have resulted from one or more blows from a blunt instrument. The vault of the right parietal bone is flattened as a result of post mortem pressure of overlying stones and earth. Part of the right orbit and both cheek bones are preserved, in addition to the nasal bones and most of the maxilla. The nasal outline is prominent. The coronal and sagittal sutures are patent along more than two-thirds of their length, suggesting that this individual died between the ages of 30 and 40 years.

Some pitting is present in the bony roof of the right orbit. This condition has been associated with anemia. It may reflect a low intake of iron-rich foods or chronic loss of iron from infections such as malaria or dysentery. The condition was common in the past, especially in women because of the large drain on iron reserves through pregnancy and menstruation (Smith and Horwitz 1998).

A small piece of the mandible was recovered together with two lower molars. The mandibular piece includes most of the right ramus, including the condyle and coronoid process. Minimal ramus width measured on this fragment is estimated at 36 mm. The surface of the condyle is smooth and shows no arthritic changes.

The two teeth recovered are the lower right second and third molars. Both teeth are small and their cusp tips had been worn flat. The second molar is four-cusped with pinpoint exposures of dentine on the buccal cusps and distolingual cusp. In the second molar, hypoplastic grooves are present near the neck of the tooth and calculus is present on the lingual surface of the tooth. The third molar is anomalous in outline with a distinctive sixth cusp and a large attrition facet on the mesiobuccal cusp. Radiographs show that the tooth is taurodont. There is a wide band of yellow hypoplastic enamel in the middle of the buccal surface.

The long bones are gracile and areas of muscle attachment are only faintly defined. The bones show no evidence of periostitis or arthritic changes, which supports the assumption that age at death was less than 40 years. Long-bone lengths are shown in table 8. Stature estimated from the combined length of the femur and tibia was 154 ± 3.5 cm using Trotter and Gleser's (1958) formula for Caucasian females.

Discussion

Archaeological evidence as well as ancient texts indicate a foreign origin for the Philistines who inhabited Ashkelon during the Iron Age (T. Dothan 1989; Stager 1995; 1998). But the Philistines were only one of the many different ethnic groups that have been identified in the southern Levant at this time and their ancestry is still in question. The issue is complicated by the fact that even before the arrival of the Philistines and other "Sea Peoples," the population of the region was heterogeneous and ranged from gracile individuals with small, narrow heads to robust types with broad heads and faces (Smith 1995).

The two extremes are represented in the Iron Age by skeletal remains found at Lachish and Achziv. The skeletons from the caves at Lachish are characterized by small but long and narrow skulls, and long faces with narrow noses (Keita 1988). They differ markedly from skeletons found at the Phoenician site of Achziv, which have been dated to the eighth–seventh century B.C. These show a wide range of variation but in general are more robust with larger, broader heads and faces (Smith et al. 1993).

Figure 28.1: Human skeleton in the destruction debris of the Babylonian conquest of Ashkelon in 604 B.C.

Table 8. Long-bone Measurements of the Ashkelon Iron Age Female

Measurement (mm)	Humerus		Radius		Femur		Tibia		Fibula	
	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left
Maximum length	292	282	208	210	398	—	—	327	—	327
Anterior-posterior diameter	21	20	—	—	26	—	32	31	—	—
Medio-lateral diameter	15	15	—	—	30	—	22	—	—	—
Minimum circumference	58	58	—	—	—	—	88	—	—	—
Max. diam. of proximal joint	38	38	20	—	40	—	—	—	—	—

Table 9. Cranial Measurements of Females from Ashkelon, Dor, and Lachish, and Males from Achziv

Measurement (mm)	Ashkelon	Dor	Lachish	Achziv (males)
Maximum length	188	187	167–187	183–211
Maximum breadth	144	143	123–143	136–155
Minimum frontal width	92	92	88–100	91–102
Frontal chord	104	111	99–117	108–118
Parietal chord	117	112	102–122	116–131
Frontal arch	121	128	115–135	123–140
Parietal arch	136	135	115–135	136–150
Nasion-prosthion height	60	65	60–76	65–70
Left orbital breadth	39	37	39–43	37–44
Left orbital height	33	32	29–34	29–35

Measurements taken on the Ashkelon skull are approximations. The range shown for Lachish is based on mean values ±2 standard deviations calculated by Risdon (1939) for more than 200 individuals.

At Azor, Moshe Dothan excavated some thirty tombs containing Philistine pottery dated to the twelfth–eleventh centuries B.C. (see M. Dothan et al. 1993). Five of these tombs contained primary burials of adults lying on their backs in an extended position in an east-west direction. They were found with Philistine-style pottery of the Tel Qasile type although they were not necessarily ethnic Philistines. The measurements given fall within the range of those determined for Lachish, but Ferembach (1961) emphasized the fragmentary condition of the skeletons and the very heterogeneous composition of the population of the Levant at that time.

Other remains of Iron Age females have been recovered from sites in Israel in recent years. These include one skeleton of a woman found at Tel Batash (biblical Timnah); one from Tell eṣ-Ṣāfi; and one found beneath a collapsed wall at Tel Dor.

Such measurements as could be taken on the Ashkelon cranium after restoration are shown in table 9 together with comparable measurements taken on some of the other samples referred to here. The range given for the Lachish population was calculated from the mean value for the entire female Iron Age sample of more than two hundred individuals. The measurements indicate that the Ashkelon woman resembles the skeleton from Dor and that both conform better to the Achziv population than the Lachish population. All three coastal samples lie at the extreme end of the range of measurements from Lachish.

As far as can be determined from the analyses described here, the woman found in the Babylonian destruction level at Ashkelon fits well within the range of variation found along the Levantine coast in this period. It must be emphasized, however, that these findings apply to her as an individual and provide no general insight into the population biology of Philistine Ashkelon.

Samples were taken for ancient DNA testing, but preservation was unfortunately too poor to provide any reliable results even though DNA has been recovered from skeletal remains recovered elsewhere at the site (see Faerman et al. 1998, reprinted in chapter 29 below).

29. DNA ANALYSIS OF INFANT HUMAN REMAINS
IN THE GRID 38 BATHHOUSE

*by Marina Faerman, Gila Kahila Bar-Gal, Dvora Filon, Charles L. Greenblatt,
Lawrence E. Stager, Ariella Oppenheim, and Patricia Smith*

TODAY archaeologists are paying increasing attention to the examination of social structure within past societies. While gender differences have been traditionally explored through identification of grave goods considered indicative of female or male roles, physical anthropology enables archaeologists to develop the study of mortuary practices through identification of gender in relation to burial type, even when grave goods are absent. However, the problem of sex determination remains in dealing with fragmentary and/or infant burials. The reliability of morphometric analyses for gender identification in infants is low, expecially in the case of incomplete skeletons.

Infant burials from the Neolithic to recent periods frequently occur in Israel in archaeological contexts that are different from those of older children or adults. These infant remains may have been treated with great care, like the jar burials with grave goods found at Middle Bronze Age Kabri (Kempinski and Niemeier 1992), or alternatively treated with complete disregard, like the infants thrown into rubbish pits at Chalcolithic Shiqmim (Levy et al. 1991) or into sewers in Late Roman Askelon (Stager 1991; Smith and Kahila 1992). Knowing the gender of infants found in different archaeological contexts has implications not only for the type of burial accorded, but also the possible role of gender in relation to the question of infant sacrifices and infanticide.

Human settlement of Ashkelon dates back over 5,000 years, and during most of this period Ashkelon was a major seaport (Stager 1993). It served the Canaanites from ca. 2000–1200 B.C. and was one of five main centers of the Philistines until 604 B.C. Under Persian hegemony, Phoenicians from Tyre colonized the seaport from 525–300 B.C. They, in turn, were successively replaced by the Jews, the Greeks, and finally the Romans in the first century B.C.

Skeletal remains of more than 100 neonates were found during archaeological excavations by the Leon Levy Expedition to Ashkelon (Stager 1991; Smith and Kahila 1992; Faerman et al. 1997). The infant remains were found in the sewer beneath a bathhouse that was built in the fourth century and used until the sixth century. The infant bones had been discarded in the gutter of the sewer along with animal bones, potsherds, and isolated coins; no signs of careful burial or associated grave goods were observed. The casual method of disposal contrasts sharply with the careful infant jar burial from the same period discovered some 200 m away. Bone size, dental development, and lack of neonatal lines in the teeth indicated that they were all neonates at the time of death, just one or two days old. The combination of early death of so many infants and their mode of disposal implies infanticide rather than death from natural causes (Smith and Kahila 1992). None of the infants shows evidence of disease or skeletal malformation, indicating that other factors, such as their gender, may have been the motive for infanticide.

New developments in molecular biology, and expecially in analyzing DNA recovered from ancient bones, have provided reliable methods for gender determination based on amplification of DNA sequences specific to X and/or Y chromosomes (Gill et al. 1994; Faerman et al. 1995; Lassen, Hummel and Herrmann 1996; Stone et al. 1996).

This paper brings together material previously discussed by Smith and Kahila (1992) and Faerman et al. (1997).

Materials and Methods

DNA was isolated from the bone powder, obtained from left femurs only to avoid testing the same individual twice. Altogether, 43 left femurs were available for the analysis (29 complete and 14 fragmentary). Bones were cleaned with a soft brush. The surface layer was removed by electric drill (large bit), and bone powder was obtained by drilling in a freshly uncovered surface with a sterile small burr. Approximately 0.5–1.0 mg of bone powder was used for each DNA extraction. DNA from each specimen was extracted twice following the chelex purification procedure (Woodward et al. 1994). A third extraction was performed and analyzed at least six months later using a silica-based purification method (Höss and Pääbo 1993).

Ancient DNA studies are prone to numerous errors (Pääbo, Gifford and Wilson 1988; Hagelberg and

Clegg 1991). To eliminate contamination by DNA from exogenous sources, stringent precautions were included at every step. Disposable sterile tubes, filtered tips, and aliquoted sterile reagents and solutions, kept only for ancient DNA work, were used throughout. DNA extraction and polymerase chain reaction (PCR) were performed in different hoods, sterilized by UV light, and located in two different rooms. Different sets of pipettes were used for DNA extraction, PCR amplification, and analyses of the PCR products. Blank extraction controls containing no bone material were run in parallel with each set of experiments.

We have applied a highly sensitive method based on PCR amplification of the X and Y amelogenin alleles (Faerman et al. 1995). The reaction yields distinguishable X- and Y-chromosome products by the simultaneous use of three primers. We subjected 3, 7, and 11 μl of each DNA extract to PCR amplifi-

cation along with a blank extraction control and no DNA PCR control to monitor contamination during the DNA extraction and PCR amplification. Conditions for the PCR and the three primers (M4, M5, and M6) have been described previously (see Faerman et al. 1995).

Primer M7 (5′-GTGACTATCTTAGAATCAGGAG-3′), designed during this study (see results), was used in part of the experiments instead of primer M5. We analyzed 18 μl aliquots on 2% Nusieve agarose gel, stained with ethidium bromide. To verify the authenticity of the X and Y amelogenin alleles, the respective bands were sequenced. For this purpose 5 μl of the PCR products along with the appropriate controls were subjected to an additional 25 cycles, and the re-PCR products were purified by electrophoresis on 1% low-melting agarose gel (Filon et al. 1995). Sequence analysis was performed using the allele-specific primers with Sequenase Version 2.0 (USB).

Table 10. Data on DNA-based Sex Identification of the Ashkelon Infants

| Specimen | Successful PCRs* | | | Result |
	Extract 1	Extract 2	Extract 3	
90	1	0	1	Male
91	1	0	1	Male
92	3	2	2	Male
93	2	2	0**	Male
94	2	2	2	Male
95	3	2	1	Male
96	2	3	1	Male
97	2	1	0**	Male
98	2	3	0**	Male
100	2	1	1	Female
104	1	1	0**	Male
107	2	0	0**	Female
119	2	0	2	Female
120	1	0	1	Female
122	1	2	2	Male
123	1	1	2	Male
216	1	1	0**	Female
221	1	1	0	Male
234	1	1	0	Male

  * 3 PCRs were performed for each DNA extract
** 6 PCRs were performed for each of these DNA extracts

Results

Amplification was successful for 19 out of the 43 ancient specimens tested. Fourteen specimens were found to be males and five females, giving a significantly higher frequency of boys than girls ($P < 0.05$). The success rates of the PCRs are given in table 10. In total, data were obtained for 70 of 189 PCRs of the 19 specimens. There were no inconsistencies or conflicting data for any of the specimens. Furthermore, the results for all the specimens, except specimen no. 107, were reproduced on at least two separate DNA extracts. The authenticity of the amplified fragments was verified by direct sequencing of the respective bands of male and female samples (not shown).

Successful amplification was obtained for 44% of the specimens examined, despite the antiquity and friable condition of the bones, and these included a significantly larger number of males than females.

In our experiments with contemporary DNA we have noticed preferential amplification of the Y allele when less than 25 pg DNA was used per reaction (Faerman et al. 1995). We considered the possibility that for some reason (difference in length of the X- and Y-specific PCR products, or nature of the primers) our test may miss females in highly degraded DNA specimens. We therefore designed a new X-specific primer, which together with the 5′ common primer spans a smaller fragment (270 bp) than that previously used. For the 24 bone specimens which had not yielded amplifiable DNA, all tests were repeated in full, including DNA extraction and PCR amplification, with the new set of primers. No amplification products were obtained in three PCRs for each of two DNA extractions of each bone specimen, a total of 144 PCRs.

Discussion

The initial reasons for deciding that the individuals analyzed here were victims of infanticide were the lack of infants aged more than two days and their casual disposal in the sewer (Smith and Kahila 1992). If the Ashkelon sewer served as a public place for disposal of infants who had died naturally, but were considered too unimportant or too young for full burial rites, then one would expect to find infants of up to at least three months of age. Full burial rites were apparently rarely carried out for infants of less than six months of age. Similar considerations, namely age distribution and location, were adduced by Mays (1993) as proof of infanticide in Roman Britain.

Classical authors provide ample and credible evidence for infanticide in Graeco-Roman society (cited in Brunt 1971; Eyben 1980–81; Pomeroy 1984; Wiedemann 1989; Harris 1994). Recent archaeological discoveries attest to infanticide from one end of the Roman Empire to the other, from Ashkelon in Roman Palestine (Smith and Kahila 1992) to sites in Roman Britain (Mays 1993).

Once accepted as a parental prerogative, official attitudes toward infanticide have changed over time. Although it is currently illegal in most societies, the practice of infanticide is still widespread for a variety of cultural and economic reasons (Langer 1974; Williamson 1978; Tooley 1983). The justification for infanticide rests in part on the assumption that newborn infants are not fully human, and in part on the importance of controlling the size and the structure of the family and society at large (Tooley 1983).

Infanticide was often preferable to abortion as a method of birth control and family planning because it allowed for sex selection and birth order to be taken into account, and it was less dangerous to the physical well-being of the mother (Eng and Smith 1976; Stager and Wolff 1984). In Roman society, according to Cicero, malformed infants had to be destroyed, but many healthy infants were also killed. The emperors Augustus and Claudius issued edicts ordering the death of infants born to members of their family accused of adultery.

The gender of a child was often an important factor in deciding its fate. Most parents raised at least one boy as an heir or support in old age. In contrast, girls were viewed as burdens, especially if their marriage was dependent on a dowry. In Roman society it was the father's decision alone that determined whether a newborn baby should be permitted to live. Under some circumstances, girls who could be raised as performers or prostitutes were preferentially kept (Fantham et al. 1994).

The general consensus is that in both ancient and modern societies more daughters than sons were selected for infanticide (Pomeroy 1983:208). The most vivid and explicit reference is from a letter, dated June 17, 1 B.C., written by a certain Hilarion in Alexandria to his expectant wife Alis in Oxyrhynchus. He writes: "I ask and beg you to take good care of our baby son, and as soon as I receive payment I will send it up to you. If you are delivered of a child [before I get home], if it is a boy keep it, if a girl discard it" (Papyrus Oxyrhynchus 744, translated in Lewis 1983:54). Thus it comes as something of a surprise to find so many male infants discarded in the sewer of Late Roman Ashkelon. Males were present at significantly higher frequencies in our subsample of 19, and there is only a very low probability (<0.001) that they were present in as few as 40% of the entire sample

(confidence levels for small samples quoted in Simpson, Roe and Lewontin 1960:199).

Bathhouses, both public and private, proliferated throughout the Roman Empire. Until the time of the emperor Claudius, men and women bathed separately. During his reign a single set of bathrooms replaced the double set as mixed bathing came in vogue, over the objections of some Romans, who were concerned that bathhouses were becoming bordellos (Ward 1992).

Ovid, writing in the time of the emperor Augustus, offers this advice to a young woman on how to elude the guardian and have sex in the baths: "While the guardian keeps the girl's clothes without, the numerous baths hide furtive [i.e., sexual] sport" (*Ars amatoria* 3.939–40). Another author, writing in the time of Nero, describes a father who went to the baths, leaving one child at home, only to return from the baths a prospective father of two more (Ward 1992:134, citing Nicharchus's *Anthologia Graeca* 11.243). In his epigrammatic depiction of Roman life in the first century A.D., the poet Martial (1993:269) wrote: "The bathman lets you in among the tomb-haunting whores only after putting out his lantern" (*Epigrams* 3.93).

At the time when the Ashkelon bathhouse was in use, Ammianus Marcellinus (ca. A.D. 330–395), the last great Roman historian, records that when nobles, "each attended by fifty servants, have entered the vaulted rooms of a bath, they shout in threatening tones: 'Where on earth are our attendants?' If they have learned that an unknown courtesan has suddenly appeared, some woman who has been a common prostitute of the crowd of the city, some old strumpet, they all strive to be first to reach her . . . and extol her with such disgraceful flattery as the Parthians do Samiramis, the Egyptians their Cleopatras" (Ammianus Marcellinus 1958:141–43 [§ 28.4.9]).

There were both public and private bathhouses in Roman Ashkelon. The small bathhouse, where infants were discarded in the sewer beneath, was probably one of many private baths run for profit in this seaport. The proprietor welcomed sailors, merchants, and anyone else into the bathhouse with this enticing signpost: "Enter, enjoy, and . . ."

This bathhouse was built over earlier Roman villas, including one with a room full of lamps decorated with erotic images. The bathhouse was situated in what was probably a well-established part of the "red-light" district of Roman Ashkelon. The linkage of baths with prostitution has been alluded to by classical authors (cited in Dauphin 1996) and reinforced by the architectural and epigraphic remains from Ashkelon. The presence of both male and female victims in the gutter beneath the bathhouse raises the intriguing possibility that these infants may have been the unwanted offspring of courtesans serving in the bathhouse, thus providing further supportive evidence for its use as a brothel.

At the same time, this explanation may account for the predominance of male infants discarded (assuming that the limited subsample in which sex could be determined is representative of the total population of infanticide victims). Although both sexes were recruited to work as prostitutes in the bisexual world of the Romans, females were in greater demand. In the Roman Empire one of the primary sources of prostitution was abandoned children who had been rescued and reared to work as prostitutes at an early age (Rousselle 1996:299). We can imagine that the courtesans of Ashkelon selectively kept and reared some of their illegitimate offspring (mostly females) in the profession and discarded others.

30. Dog Burials of the Persian Period

The Ashkelon Dog Burials: Data and Interpretations

by Paula Wapnish and Brian Hesse

In 1985, when the Leon Levy Expedition renewed excavations at Ashkelon, the huge quantity of faunal material recovered included many remains of small mammals—animals smaller than sheep and goats but larger than rats or mice. Among this sample were 21 bones of immature canids, including articulations (2–4 bones each) from four individual pups, all excavated in Grid 50. Because the bones were immature, it was not clear whether they were from domestic dogs (*Canis familiaris*), the most likely possibility, or from one or more of the three wild canids of the southern Levant, the wolf (*Canis lupus*), the fox (*Vulpes* sp.), or the jackal (*Canis aureus*). Immature morphologies, where the size and shape of bone elements are growing and changing into the adult form, make it difficult to distinguish the remains of closely related species. While the sheer size of an immature bone sometimes can be used to distinguish medium sized dogs from the much larger wolf or the much smaller fox (in terms of size, the jackal is too close to call), some bones were from such young individuals—so small and unformed—that it was impossible to do more than assign them to the canid family.

During that first season's excavations, 11 bones from adult dogs were also recovered from Grid 50. The partial skeletons of three adult dogs and another 147 individual adult dog bones were found in other parts of the site, an impressive quantity of canines for season's efforts. Several questions were apparent.

The first issue was the abundance. In our experience, wild canid bones are rare at large historical sites. At Ashkelon, for example, several years of excavation produced in excess of a million animal bones, but fewer than 30 specimens of fox, a lone wolf possibility, and not a single jackal. Domestic dogs are much more common at ancient cities than their wild cousins, yet their numbers are but a fraction of the typical bone collection. The proportion of canid/dog bones in the first season's faunal sample simply was much higher than expected.

The articulations of immature canids from Grid 50 were also intriguing. It is not unusual to encounter the bones of non-food animals[167] as multiple-bone articulations or partial skeletons. Animals consumed on site rarely remained intact after slaughter. They were butchered into halves or quarters and then reduced to smaller cuts depending on consumer preferences.[168] In this way the carcass was dispersed throughout the site. After the meat was eaten, bones were often discarded around households or other places of consumption. If not scavenged by roaming animals or otherwise disturbed, these bones then were incorporated into the deposit near the site of disposal. Larger settlements frequently had neighborhood or city-wide dumps that served as the accumulators of refuse. Bones of a once-living animal might end up in the same dump area through many routes of disposal but they would no longer have any anatomical relationship to each other.

On the other hand, non-food animals, because they are not butchered, often remain intact. Microfauna and smaller mammals, such as dogs and cats, may be left where they die, or a malodorous carcass may be moved to a street or alley, empty field or dump. If the carcass is covered with dirt there is less likelihood of it being scavenged and a greater possibility of the skeleton remaining intact. Otherwise, accumulations of dirt and debris will eventually bury the carcass but the slower pace of this process will expose the bones to greater disturbance. This pattern holds for large mammals as well, except that carcasses are more likely to be moved because of the stench. After burial, complete skeletons undergo postdepositional processes (including excavation) that often result in the destruction or repositioning of some body parts (Hesse and Wapnish 1985). Therefore, partial skeletons or less extensive articulations are all that remain.

While not common, there is nothing unique in uncovering bone articulations from an individual donkey or calf in excavation. It is very common, almost expected, to find a few bones or even a limb of a dog or a cat. So what was puzzling about the clusters of canid puppy bones from Grid 50 was not their

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[167] Non-food animals include both wild and domestic species. Domesticates such as the donkey or camel were valued for their labor and not normally eaten at historic sites, although evidence for their use as food does exist. Domestic dogs and cats were almost never eaten in the Levant, but there is evidence of cynophagy in Aegean cultures.

[168] The cultural notion of cuisine has been developed as a zooarchaeological methodology by Bill Grantham and Brian Hesse (see Grantham 1992).

occurrence as partial articulations, but their age—most were but a few weeks old. Under normal circumstances, immature bones of domestic canids are rare at archaeological sites; those of wild canids are almost unknown. The paucity of immature canid bones is explained by the animal's behavior and the attritional processes affecting the carcass. Zoologist Thomas J. Daniels, who has studied free-ranging urban dogs, notes that he seldom found dog carcasses "if the animals have initiated movement away from the den site" (pers. comm., May 1988). Any number of bird and mammal scavengers eat exposed dog carcasses. If the dead Ashkelon puppies were exposed for even a brief time, it is very unlikely that *any* part of the skeleton, let alone articulations, would have survived to burial.

When a bitch whelps she chooses a concealed location for her litter. It is inconceivable that a wild canid mother unaccustomed to and wary of people would choose a city rather than familiar surroundings in which to whelp. It is equally difficult to see the puppies as naturally occurring deposits of domestic dog bones. Once born, the young remain at the den until they are weaned, which begins in about the fifth week, and they attain independence by 3.5–4 months of age. This is well past the age of the puppy bones in question. So how did several bones from not fewer than four very young pups who were not litter mates (based on the bones and their locations) end up buried in what was then an open expanse in what we now call Grid 50? Clearly, some unusual human/animal behavior, depositional process, or both were responsible for this phenomenon.

We did not have to wait long for some answers. In 1986, excavators in Grid 50 recovered many partially articulated and complete skeletons of unquestionable domestic dogs (see figures 30.1–30.3).[169] The ex-

citement of finding dog burials was contagious and for the next few summers volunteers and staff competed in inventing ingenious or outrageous explanations for their presence. By the end of the 1992 excavation season, 1,238 dog finds had been logged and our earlier questions had mutated into intractable problems that eight seasons of digging failed to resolve.

The Dog Burials: Location and Date

The dog burials were all discovered on the southern mound ("South Tell") of Ashkelon, in Grids 50, 57, and 38 (see the discussion of the relevant stratigraphic phases in chapter 15 above). Of the 1,238 dog finds, 970 of them were excavated in Grid 50 from Persian-period leveling fills that covered the remains of an earlier seaside warehouse.[170] The dog burials were covered in turn by a later warehouse of the Persian period.

The dog burials were concentrated in the thick fill on the western side of the earlier warehouse, although some dogs were also recovered from a thinner series of fill deposits to the east. Because of the seaward erosion on this portion of the mound, we will never know how far to the west dogs were buried. Excavations during the summer of 1992 in the northwestern part of Grid 50 produced fragmentary elements of large-scale architecture of the Persian period. Exactly how, or if, these remains relate to the dog inhumations is not yet clear.

In Grid 57, directly south of Grid 50, the first phase of a large building complex was erected in about 500 B.C. Before the next phase of building was initiated, the area was leveled and briefly used for dog burials. Fifty-eight dog finds were excavated from this phase of Grid 57, all corresponding to the dog-burying phase in Grid 50.

Grid 38 in the northeastern sector of the southern mound was also a locus of dog burials, with 181 recovered as of 1992. Numerous subphases comprised the ca. 3 m of Persian-period deposits, which contained a complex series of large buildings. Most of the dogs in Grid 38 were buried in streets or alleys between the buildings.

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[169] Authorities agree that the dog evolved from the wolf in a number of parallel and partially independent regional episodes of domestication (see, e.g., Olsen 1985; Morey 1992). Five criteria are usually applied to distinguish them: (1) tooth size in dogs is proportionately less than in wolves for animals of the same body size; (2) crowding of the tooth row is found in very early domestic dogs; (3) there are changes in craniometric relationships; (4) the auditory bullae of domestic dogs tends to be smaller than that of wolves; and (5) domestic dogs tend to be smaller overall than their wild ancestors. While Middle Eastern dogs and their most important wild ancestor (*Canis lupus pallipes*, the Arabian wolf) are the smallest members of the group, they are much larger than any of the region's foxes. Size is not so helpful in separating domestic dogs from jackals, but dental criteria can be used on mature individuals (Payne 1983). No adult teeth in the Ashkelon collection are consistent with the jackal morphology. Theoretically, some puppy

remains could derive from a jackal since no reliable physical criteria exist for the separation of immature specimens. Given the number of adult dogs, however, and the paucity of jackal bones from historical-period sites in this area, it is very unlikely.

[170] See chapter 13 for a discussion of the techniques used to excavate the dog skeletons, including the use of plaster bandages to permit rapid removal of entire skeletons.

Figure 30.1: Partially excavated dog burials

These dogs were interred in fills overlaying a large warehouse in the Grid 50 excavation area. The burials were distributed randomly throughout the area.
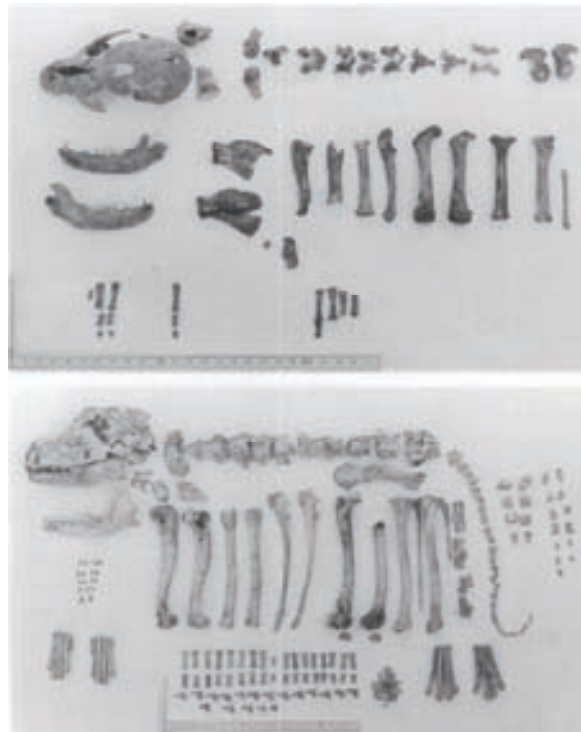
Figure 30.2: Puppy (top) and adult (bottom) skeletons

Bones are laid out after removal, cleaning, and consolidation. This process sometimes enables dissociated finds to be recombined.

Figure 30.3: Dog encased in plaster jacket for later excavation in the laboratory

In Grid 50 the burials were dug into deposits well dated by ceramic associations to the fifth century B.C. The deposits were capped by architectural remains that establish a terminal date possibly as late as the first part of the fourth century. A similar time frame applies to Grid 57. In Grid 38, however, dog burials began somewhat later in the Persian period and continued into the first part of the Hellenistic period.

Although the intervening areas between Grid 38 and Grids 50 and 57 have not been excavated, no clear boundaries to the dog concentrations have been found, calling into question the idea that there was a specific sacred area or cemetery set aside for dog inhumation which spanned Grids 50 and 57, in particular. Indeed, the occupational debris into which the burial pits were dug was constantly accumulating during the period of the burials. Dogs were buried where there was space, rather than a space being prepared to receive dogs. If we accept this view, then the street and alley burials in Grid 38, although somewhat later in date than the Grid 50 and 57 burials, are part of the same phenomenon. The difference between the Grid 38 burials and the Grid 50 and 57 burials are conditioned by the differences in architecture in the respective areas and the nature of the spaces available for burial.

Pattern of Burial

In general, each dog burial seems to have been a discrete event. This conclusion is warranted by several observations. The more complete skeletons were found singly, each in its own unlined, shallow pit. The top surfaces of the pits were of varying heights within the sediment matrix, an indication that dogs were interred sporadically. No pattern was discernible in the orientation of the pits or in the placement of a corpse within its pit, either with respect to compass direction or the orientation of other interments. Each corpse was carefully placed in its grave. There were no skewed limbs, arched-back heads, or other skeletal distortions that characterize animals that have simply been pitched into a convenient hole. This was made especially clear by comparison to a dog recovered from a drain of Hellenistic date in a deposit just above the burial layer in Grid 50. It was both twisted and missing most of its smaller skeletal elements. The attitude in death was totally different from that of the earlier animals.

The dogs were buried on their sides with tails carefully arranged to curl toward the feet, sometimes reaching between the lower hindlimbs. In a few cases the feet were so entwined that they may have been bound at the ankles before burial. The limbs were flexed to different degrees. In Grids 50 and 57 the legs were sufficiently extended from the torso to suggest a natural repose. But in Grid 38 the intact burials appeared cramped, with legs drawn up close to the body and the skeleton straining against the edges of a pit just large enough to contain it. This was undoubtedly because the burials there were confined to narrow streets.

No artifacts were intentionally included with the burials. The pit matrices, which were often softer and darker than the surrounding sediment, contained small amounts of residual potsherds, animal bones, flints, and metalworking debris, but nothing that could be called "grave goods." This fact is consistent with two additional salient features: (1) no markers were found that would have signaled the location of a burial pit; and (2) burials were frequently dug into or superimposed on top of each other. It is possible that only the *act* of burial mattered rather than the animal itself and the position of its grave. If no significance was attached to the corpse, it did not matter that subsequent burials might disturb it. This would also account for the lack of artifacts deposited with the burials.

Demography of the Ashkelon Dogs

Estimating the total number of dogs buried is complicated by the fact that so many of the burial pits were disturbed by subsequent burials. We defined three types of dog find: "complete dog," "partial skeleton," and "several-bone find" (i.e., when only a few disarticulated bones or teeth are found in close proximity).[171] Only a dog find from a complete or partial burial can be equated with an individual animal. In many cases, a "several-bone find" may have come from a disturbed partial skeleton or from an animal whose remains were so scattered that it was recorded as more than one dog find. Therefore, the actual number of excavated individuals will be smaller than the total number of recorded dog finds.

Table 11 shows the distribution by excavation area of the raw counts of the three types of dog find in each of three age categories. Information about the three main concentrations of dogs is supplemented with a tabulation of additional canid material recovered from the site. The graph in figure 30.4 represents these abundances on a logarithmic scale to illustrate visually the general similarities of the distributions

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[171] "Complete" does not mean that every bone of the living animal was recovered in excavation. Often the smallest bones of the feet (sesamoids, terminal phalanges), wrist and ankle joints, and caudal (tail) vertebrae are missing.

from the three excavation areas. By adding the numbers of complete and partial skeletons together, we calculate a minimum of at least 436 individual dogs, although an estimate of 600–700 animals is probably more accurate, taking into account factors such as location, relative body size, and stage of osteological development.

Dogs of both sexes were buried. Males are identified by the presence of a baculum (*os penis*) while females are identified by the absence of a baculum (in the case of complete burials). Although many of the burials were disturbed to such an extent that sex could not be determined, there is no reason to suspect selection for one sex or another.

Table 11. Distribution of Dog Finds at Ashkelon (1985–1992)

	Grid 50		Grid 57		Grid 38		Other	
	Qty.	*%*	*Qty.*	*%*	*Qty.*	*%*	*Qty.*	*%*
Puppy								
Several	317	51	17	50	100	85	5	17
Partial	146	75	8	73	35	85	0	0
Complete	102	66	7	54	14	61	0	0
Total:	565	58	32	55	149	82	5	17
Subadult								
Several	39	6	0	0	1	1	1	3
Partial	7	4	1	9	1	2	0	0
Complete	8	5	0	0	2	9	0	0
Total:	54	6	1	2	4	2	1	3
Adult								
Several	266	43	17	50	16	14	23	80
Partial	40	21	2	18	5	12	0	0
Complete	45	29	6	46	7	30	0	0
Total:	351	36	25	43	28	16	23	80
Grand total:	970		58		181		29	

Raw counts are provided (*Qty.*) as well as the percentage (*%*) within each age category (puppy, subadult, adult) for each find category (several, partial, complete). Information is provided for the three main areas of burial concentration (Grids 50, 57, and 38), as well as for other areas and periods of the site. Determining the total number of dogs represented by the finds demands careful study of the location, size, and age of the bone finds.
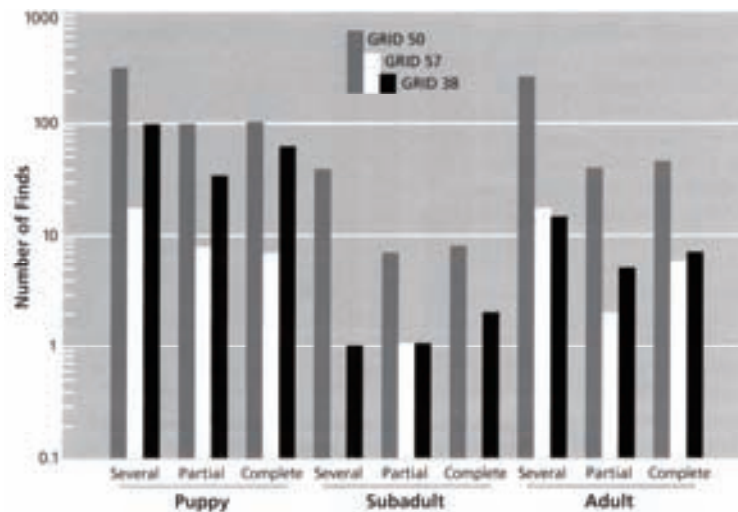
Figure 30.4: Graph of dog finds by type and excavation area (logarithmic scale)
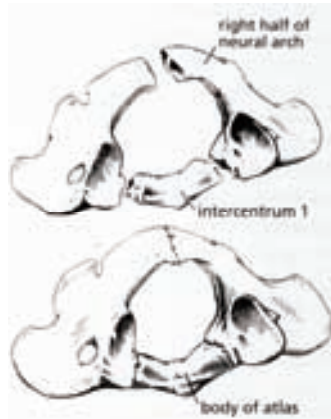
Figure 30.5: Topmost neck vertebra (atlas)

The atlas is composed of three bony parts. These fuse during puppyhood and permit an estimation of age. The top drawing shows a beagle pup vertebra 80 days from conception. By 106 days, the elements are fusing (bottom).
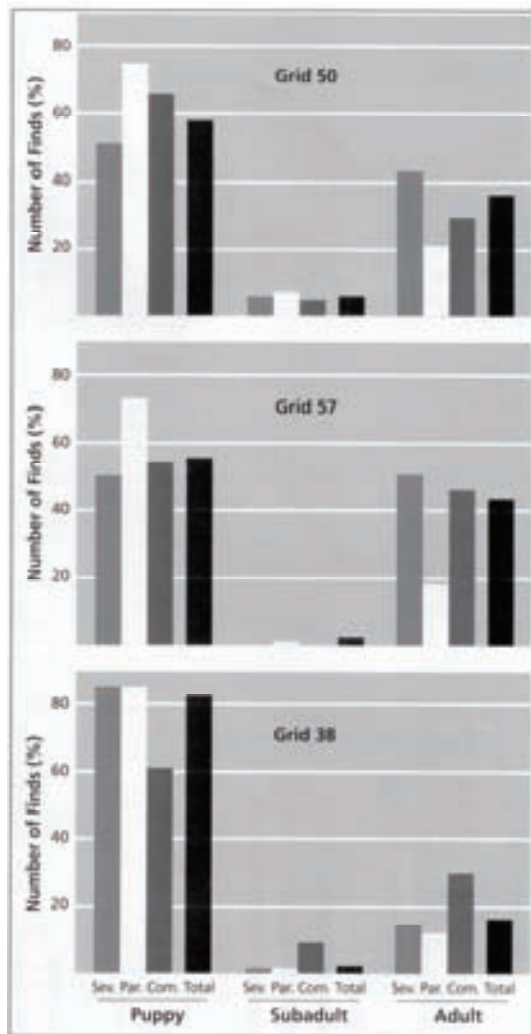
Figure 30.6: Age distribution of Ashkelon dogs

Age at Death

We divided the dogs into three age groups: puppies (0–6 months), subadults (6–18 months), and adults (> 18 months), based on tooth eruption and wear and the degree of long-bone ossification. Mammalian skeletons are aged in accordance with an eruption sequence for the deciduous and permanent dentition (see Arnall 1961; and Williams and Evans 1978 specifically for the dog) and an ossification and fusion sequence for the bony skeleton. Ossification refers to the progressive replacement of soft tissue by hard in the skeleton. With dogs it begins *in utero*. Extensive radiographic and dissection studies have identified the ossification centers for each bone element and the pattern of bony development (Evans and Christensen 1979; Hare 1959; 1961). For example, the degree of ossification in the vertebrae can be used (Evans 1958; 1962; 1974; Evans and Christensen 1979; Watson, Evans and DeLahunta 1986). The point at which the arch is fused to the centrum is an easy stage to recognize (see figure 30.5). With long bones, the second phase of maturation is the stage at which the diaphysis or shaft portion of the bone fuses permanently to the epiphysis, the articular end. Extensive anatomical research has established the ages at which fusions are complete (Chapman 1965; Evans and Christensen 1979; Seoudi 1948; Silver 1969; Sumner-Smith 1966).

It remains difficult to assign ages to individual bone specimens, or even to complete skeletons, because of the discrepancies between the numerous fusion sequences. There can be anywhere from a few weeks to a six month difference cited among various authors for the age of fusion of a particular element. Various factors are responsible for the discrepancies, such as which diagnostic technique was used, the type of dog, and the level of nutrition. In addition, all the puppy studies note inter-litter and intra-litter developmental differences in bony growth, so there are no absolute correlations between age and stage of skeletal development. In establishing our three age categories we tried to keep the various sequences in perspective in order to come up with approximate divisions. Based on ossification of the vertebrae, none of our puppies (0–6 months) seem to have been fetuses, but some may have been stillborn full-term puppies. In subadults (6–18 months) the long bones are still incompletely fused. Adults (>18 months) show wear on their permanent teeth and have long bones that are completely fused.

The most striking characteristic of the Ashkelon dog burials is the very large number of puppies. The bar charts in figure 30.6 illustrate the percentage dis-

tribution of the three age groups by dog find in each of the three excavation areas. A difference emerges between the burials from the seaside areas (Grids 50 and 57) and those in Grid 38. The percentage of puppies in Grids 50 and 57 is 58% and 55%, respectively. By contrast, puppies made up 82% of the sample in Grid 38. This difference may be partly explained by the distribution of finds in the area. Most of the puppies in Grid 38 were recovered as "several-bone finds," which implies that the dog burials there were subject to more disturbance. This would artificially elevate the puppy count. Such disturbance may have occurred in antiquity but is more likely the result of failure to recognize the small puppy burial pits during excavation. By counting only the complete and partial skeletons we can reduce the differences between the excavation areas. The Chi-Square statistic computed for this comparison (1.091, 2df) shows that there is no reason to suspect that this variability arose from more than chance.

If we combine the samples from all three excavation areas, 62% are puppies, 33% are adults, and 5% are subadults.[172] We cannot be certain, however, that this mortality pattern was representative of all the dogs living in Ashkelon. For example, if some dogs were buried and some were not (for whatever reason), our data would be skewed. Further distortions would result if certain burial areas had been selected for particular types or ages of dogs. Since we already know that a large portion of the burial area in Grid 50 was lost to erosion, we cannot be sure that the areas excavated accurately reflect burials in all the areas used for dog burials in antiquity.

On the other hand, every time we find Persian occupational debris we find dog burials rather than the usual scattered dog remains. This suggests that many of the dogs living in Ashkelon in this period did receive careful burial. Furthermore, all ages are represented and the mortality distribution is consistent with that of a population of unmanaged urban dogs, so there is no reason to think that dogs were selected for burial by age. Finally, the distribution of ages at death is similar across all three excavation areas (if we attribute the high proportion of puppies in Grid 38 to collection bias). In light of the large number of burials uncovered and the large horizontal exposures achieved in the three excavation areas, we believe that what we have collected accurately represents the dog-burial activities of the Persian period.

Cause of Death

No skeleton shows evidence of a trauma extensive enough to have killed the animal. There is no evidence that carcasses were cut up or skinned prior to burial. One radius from a non-Persian context is cut, and it is the only cut dog bone in the collection. Pathologies and diseased bones are present in perhaps 5% of the adult and subadult specimens. These include damaged paws, knitted breaks, dislocations, parasite infections, and dental anomalies.[173] None of these was severe enough to cause death, although this does not mean that injuries were never severe: one dog found in Grid 50 in 1992 had a broken and healed first cervical vertebra. The damage to the bone is consistent with the dog having been struck sharply just behind the skull.

Some teeth show extreme wear, but this is doubtless because in a beach environment like Ashkelon's sand was mixed into most of what the dogs ate (see figure 30.7). Late Egyptian cat mummies show evidence of strangulation in broken cervical vertebrae. This has not been noted on any Ashkelon skeleton. Poisoning would, of course, leave no skeletal traces. Death by strangulation or drowning might leave microscopic traces of blood on the teeth but this possibility has not yet been pursued. However, the distribution of mortality and the available skeletal evidence give us no reason at present to believe that the dogs were killed.

Figure 30.7: Mandible with well-worn teeth

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[172] The proportion of subadults is probably too low. About 75 burials were taken out in plaster jackets. In most cases it was possible only to identify them in the field as "probable adult." Jacketing, which is very expensive, is used when time is short, and especially when the specimen is too fragile to remove even with field consolidation. Because the skeleton is outlined rather than completely exposed there is a good chance that unfused longbones are missed; typically, in subadults some longbones are fused, others not. We fully expect the subadult contribution to the sample to rise when the jacketed skeletons are excavated from their plaster cocoons.

[173] We wish to thank Dr. Paul Rumph and Dr. Robert D. Powers of the College of Veterinary Medicine at Auburn University for their evaluation of the diseased specimens.

Because the Ashkelon dog accumulation can be dated to a relatively narrow time period, an important question is whether the dogs died from attritional or from catastrophic causes. Catastrophic agents produce samples with demographic parameters matching those of living populations while attritional samples do not. The Ashkelon age distribution, with its abundance of puppies and absence of subadult dogs, is clearly attritional. This conclusion is reinforced by the stratigraphic character of the burials (discussed above), which clearly accumulated intermittently.

The Attritional Character of the Accumulation

The distinction made by paleontologists and zooarchaeologists between catastrophic and attritional modes of faunal accumulation is better understood as poles on a continuum. These two modes reflect two very different patterns of mortality. In a catastrophic accumulation, all the animals found together in a deposit are thought to have died in a brief episode. Death is presumed to have resulted from a single cause or a closely allied set of causes. For example, the bison kill sites that dot the American Great Plains represent the result of single, very successful hunts. Since bison run in age- and sex-defined herds at various times of the year, in some cases entire nursery herds (bison cows and their calves) or whole bachelor herds were exterminated, while in other cases the entire population was slaughtered.

Exceptionally virulent diseases can also produce a catastrophic accumulation. One suggestion that has been made for the Ashkelon dogs is that they were victims of an epidemic (Smith 1991). This proposition can be evaluated quite precisely because a key characteristic of catastrophic accumulations is that all members of the affected population are equally susceptible to the cause of death. The demographic pattern of a catastrophic accumulation thus mirrors the relative abundance of the various age and sex categories in the living population that was affected.

On the other hand, attritional accumulations result from multiple causes operating over longer periods of time. All members of the affected population are not equally susceptible to the various causes of death. The best example is the kitchen midden of an agro-pastoral household. Here the animals represented are the specific selections/culls of stockbreeders reacting to the needs of pastoral management and the opportunities of the marketplace. Usually this would mean that young males and old females predominate in the accumulation, since prime adults would have been spared to increase the productivity of the herd. Stated more generally, the demographic pattern of an attri-

tional sample reflects the differential vulnerability of each age and sex class in the affected population to the mortality processes that kill their members.

In a study of free-ranging urban dogs, Beck established that approximately 50% of the animals died in their first year. He emphasized that this was a very conservative estimate of mortality because "dead dogs disappear in a few days if not collected, either destroyed by traffic or by natural decay (microorganisms and insects)" (Beck 1973:37). Young adults are least vulnerable, while adult animals die at nearly twice the rate of young adults, but not nearly as often as puppies. This is a close match to the mortality pattern in the Ashkelon collection, particularly if we consider only the complete dog skeletons. There is a slightly higher percentage of puppies in our archaeological sample than in Beck's estimates, but this difference probably reflects the difficulty in observing dead puppies in a free-ranging environment because of predator scavenging.

What does the abundance of puppies mean? Ashkelon's residents must either have been managing the dogs in some way or they were exceptionally alert for dead dogs. The approximate match to urban free-ranging dog mortality further suggests that the causes of death for the Ashkelon dogs were many. It is not unreasonable to suggest that in this preveterinary period, the abundance of dead pups is related to the host of diseases which afflicted young canids.

What Did the Dogs Look Like?

Bones allow us to describe several aspects of appearance: height, weight, limb proportions, and the general shape of the skull. These descriptions can be combined to give a picture of the animal: heavy or light, cursorial (adapted for running) or noncursorial, round or elongate head. However, important features like coat color, texture, and markings, ear shape and carriage, tail length and carriage, true muzzle length, etc., are unknowable from skeletal materials. It is these characteristics, together with disposition, that figure prominently in breed definitions. Even more tenuous are links that many authors would like to make between morphology and use as hunting, herding, war, or lap dogs. Therefore our picture of the Ashkelon dogs is very incomplete both visually and functionally.

Height and Weight

The height of an adult dog can be estimated from the length of the limb bones (Harcourt 1974; Koudelka 1885 provides an older standard). The weight can be

calculated from a measurement on the lower mandible (Wing 1978; see also Hamblin 1984). Reliable height and weight estimates cannot be made on immature specimens. Only 15 completely studied adult dogs are well enough preserved to make these calculations (see table 12 and figures 30.8 and 30.9). The small number available for study results not only from the elimination of immature specimens but from the fact that many adult jaws were crushed beyond reconstruction and a large number of adult skeletons were removed in plaster jackets and await excavation and measurement in the lab.

Table 12. Height and Weight of Ashkelon and Other Dogs

Dog		Harcourt Height (cm)	Wing Weight (kg)	Sex	Comment
Ashkelon	86-2	50.3	14.9		
	86-3	49.0	10.5	male	
	86-5	54.5	13.0		
	86-6	54.6	18.2		
	86-7	57.0	17.0	male	
	87-1	50.9	11.6		
	87-2	48.3	11.6		
	87-3	55.7	15.4	male	
	87-26	54.1	12.9		
	88-5	48.9	10.3	male	
	88-28	56.9	19.4		in drain (early Hell.?)
	57584	54.5	11.6		Islamic-period
	91-17	51.9	19.3		
	91-18	49.8	14.1		
	92-222	60.8	19.6	male	
Batash		48.5	15.7		Persian-period
Batsheba	M4053	51.4	12.7	female	
Saluki	M3973	68.3	16.9	male	
Stripe	M3975	57.8	13.2	male	
Fang	M3977	58.2	15.7	male	
Buck	M3974	59.2	16.2	male	
Bernard	M3972	54.0	14.5	male	
Wolf(?)	M4066	62.5	21.2		

This table presents the heights and weights of Ashkelon and other dogs based on the estimators of Harcourt and Wing. A contemporaneous Persian-period dog from Batash is included, as well as a series of modern specimens in the collection of the Hebrew University in Jerusalem. All except the saluki and the wolf(?) are "pariah" dogs.
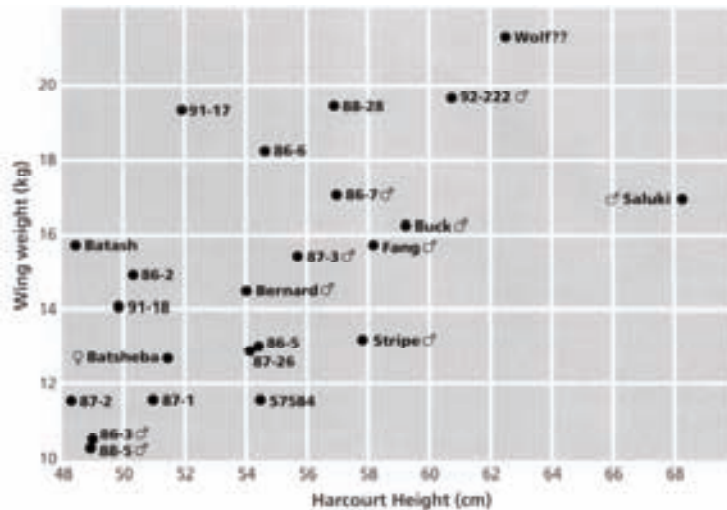
Figure 30.8: Estimates of the heights and weights of the Ashkelon adult dogs (data are in table 12)
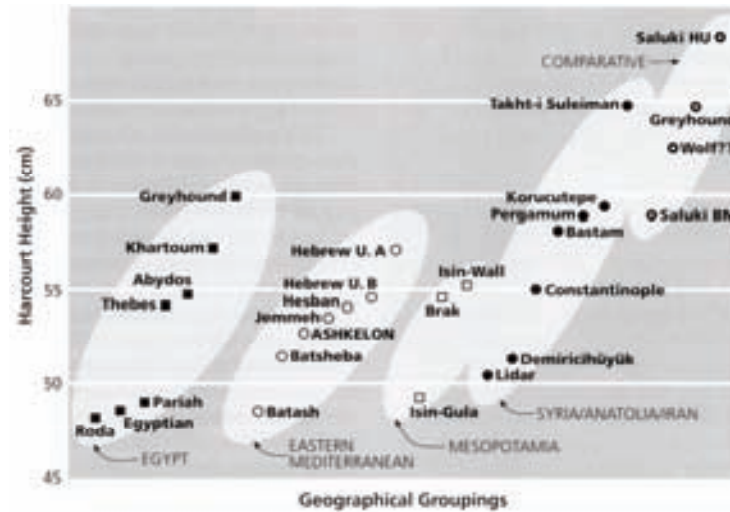
Figure 30.9: Comparison of shoulder height of Ashkelon dogs with other Near Eastern and comparative specimens
The heights of the dogs show considerable overlap among the geographical groupings with some tendency for taller dogs at more northerly sites. Data and references are found in table 13.

Table 13. Stature in Near Eastern Dogs

Dog	Shoulder Height (cm)	Quantity	Source
Egypt			
Roda	48.1	4	Lortet and Gaillard 1903
Egyptian Dog	48.5	2	Lortet and Gaillard 1903
Pariah	48.6	5	Lortet and Gaillard 1903
Thebes	54.2	1	Lortet and Gaillard 1903
Abydos	54.9	2	Lortet and Gaillard 1903
Khartoum	57.2	3	Haddon 1914
Greyhound	59.7	1	Lortet and Gaillard 1903
Eastern Mediterranean			
Batash	48.5	1	
Batsheba	51.4	1	Hebrew University Bedouin dog
Ashkelon	52.6	34	
Jemmeh	53.4	2	
Hesban	54.0	9	Weiler 1981
Hebrew University B	54.5	3	
Hebrew University A	57.2	4	Related dogs
Mesopotamia			
Isin-Gula	49.2	12	Boessneck 1977 (Gula temple ramp)
Brak	54.4	1	Clutton-Brock 1989
Isin-Wall	55.1	1	Boessneck and Kokabi 1981 (Old Babylonian)
Syria/Anatolia/Iran			
Lidar	50.3	8	Kussinger 1988
Demiricihüyük	51.3	3	Rauh 1981
Constantinople	54.9	2	Haddon 1914
Bastam	58.5	5	Kraus 1975
Pergamum	58.7	3	Boessneck and von den Driesch 1985
Korucutepe	59.3	3	Boessneck and von den Driesch 1975
Takhti-i Suleiman	64.5	7	Steber 1986
Comparative			
Saluki	58.7	1	British Museum
Greyhound	64.5	1	Lortet and Gaillard 1903
Wolf(?)	62.4	1	Hebrew University
Saluki	68.2	1	Hebrew University

Both archaeological and comparative materials are tabulated here, arranged more or less geographically.

The distribution of the Ashkelon information is presented together with some comparative material. One Persian-period dog from Tel Batash is included. A number of dogs and one possible wolf in the collections of Hebrew University were measured. While most are male individuals (Buck, Fang, Stripe, and Bernard), one female (Batsheba) was available. These animals are related and derive from Suez. In addition, a dog described as a "saluki" could be measured. It came from a Bedouin group in the Sinai.

Our Ashkelon dogs would have ranged in weight from ca. 11 to 20 kg and would have ranged in the height of their withers (shoulder) from 48 to 61 cm. This range exceeds that of the comparative specimens, save for the wolf and the saluki. This is a significant amount of variation, far more than would be found in the breed standards of modern dog types. The fact that the Persian-period dogs excavated at Ashkelon were somewhat heavier in build than the comparative specimens probably reflects the origin of the latter in a more arid environment (see below).

It was possible to compare the average height measurements to a number of other archaeological and modern dogs.[174] This comparison is presented graphically in figures 30.8 and 30.9. In these figures the arithmetic means calculated from the heights of dogs from sites and comparative samples are arranged in four geographic groupings—Egypt, Eastern Mediterranean, Mesopotamia, and Syria-Anatolia-Iran. The Egyptian sample includes a series of modern dogs from Khartoum together with the skeletons of mummified dogs. The authors of these descriptions (Gaillard and Daressy 1905; Lortet and Gaillard 1903) recognized four types of dog from Egyptian mummies—a pariah type, a greyhound, the Egyptian dog, and a spitz type. While, as we discuss below, these distinctions are unfounded, they are retained here to better represent the variability of dogs in this region.

The Mediterranean group includes sites in Israel together with the Hebrew University collection. The Mesopotamian sample includes Old Babylonian and Early Iron Age materials from Isin, together with an Early Bronze Age dog from Tell Brak. The Syria-Anatolia-Iran group includes a variety of archaeological sites in the highland areas to the north of Mesopotamia, together with a modern specimen from "Constantinople" described by Lortet and Gaillard (1903). Also tabulated is a comparative series of dogs identified as "saluki" or "greyhound," as well as one

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[174] Weight measurements were not calculable because other studies do not report the specific mandibular dimension required by Wing's method (1978; see also Hamblin 1984).

possible wolf. These larger canids together with the Suez dogs provide a useful cline of development in both size and robustness. Batsheba can be taken to represent what Clutton-Brock (1979) refers to as a "founder population," a naturally occurring population which serves as the basis for further selective breeding. The two salukis can be used to represent two historical points in the development of a characteristic of the breed desired by dog fanciers in this century, namely, increased height.

As can be seen, there is considerable overlap between the geographic scatters, though there is a slight tendency for dogs at more northerly sites to be taller than the specimens from the eastern Mediterranean. Several of the comparative archaeological specimens fall outside the Ashkelon range—Korucutepe, Takht-i Suleiman, and Pergamum. This is not surprising given the general biological principles relating environment to morphology. Both salukis, the greyhound, and the so-called wolf also are taller than the Ashkelon dogs.

Skeletal Robustness

A further indication of how the animals looked is gained from estimates of skeletal robustness. We calculated this statistic for all the limbs based on the ratio of maximum length to minimum shaft diameter. The ratios for each limb were normalized and then combined into an estimate of overall robustness. The results are illustrated by the scatter graphs in figures 30.12 and 30.13 (the data and references are shown in tables 14 and 15). The sites are arranged as before, though the Egyptian material was not published in a manner that makes this analysis possible. A general trend is again present. The dogs in the Eastern Mediterranean and Mesopotamian regions tend to be more robust than their cousins to the north. The Hebrew University saluki is by far the most lightly built individual. Rearranging the site and comparative samples by height reveals a strong pattern: short stature correlates with robust build.

What is most important in the comparisons is that the collection from Ashkelon is in no way atypical for its region. The build of the dogs is consistent with the overall morphological patterning of Near Eastern domestic dogs. There is no indication that the Ashkelon dogs diverge in basic body shape from what is expected given their environmental location.

It is also instructive to compare the Ashkelon sample to another extremely large collection from southeastern Europe. Bökönyi (1984), following Hornberger, was able to distinguish several types of Roman dogs based partly on estimates of robustness. The ancient Near Eastern material overlaps almost

completely with Bökönyi's Type 4, the most common type, which he calls "dogs of medium size used for hunting and of about 50 to 58 cm withers height" (1984:72). None of the Ashkelon dogs approaches the extremes seen in the variability of this Roman-period sample from Tác Gorsium in Pannonia.

Anatolian-Iranian samples show the reverse pattern. While we have only one archaeological sample (Ashkelon) for the Eastern Mediterranean, comparative material for the region from Hebrew University overlaps both groups, reinforcing the impression of an intermediate character for our collection.

Limb Proportions

Relative limb proportions can also be used to estimate the degree of cursorial adaptation. The relative length of the limb bones increases from trunk to toes as the animal becomes more specialized for running (C. Miller 1976). That is, in the forelimb the humerus becomes long with respect to the scapula and the radius/ulna with respect to the humerus; in the hind limb, the tibia lengthens with respect to the femur (figures 30.10 and 30.14 and table 15).

The limb ratios of the Ashkelon dogs could be calculated in twelve cases. Only one dog falls in the gazehound group (dogs that hunt by sight rather than smell, such as greyhounds and salukis); the others lie in the most cursorial part of the range for shepherd dogs. The Ashkelon average falls in the middle of two weakly defined clusters in the archaeological and comparative material. The Egyptian material has relatively elongated forelimbs compared to the hind-limbs. By contrast, the Mesopotamian and Syrian-

Head Shape

The shape of the dog skull is traditionally classified into three broad types: brachycephalic, dolicho-cephalic, and mesaticephalic (Evans and Christensen 1979); that is, a relatively short, broad head such as the rounded skull of the golden retriever; a narrow head like that of the gazehounds; and a shape between the two. Unfortunately, most of the skulls in the Ashkelon collection were crushed by grave pressure and could not be reconstructed well enough for accurate measurement. Of the few that were measurable, only one skull even approaches the width-to-length ratio associated with the gazehound group. Instead, the Ashkelon morphology fits within the narrow end of the middle group, which includes dogs such as the shepherd (figure 30.11). This was reinforced by the examination of skulls *in situ*, where we had the best approximation of what they looked like. None showed an elongated nasal region or extreme narrowness of the crown.

Figure 30.10: Dog forelimb variations

The ratio of upper and lower forelimb dimensions varies depending on the type of dog. The saluki (far left) has proportionately longer lower limbs than the German shepherd (second from left), English bulldog (third from left), or basset hound (far right). Saluki leg bones are also more slender.
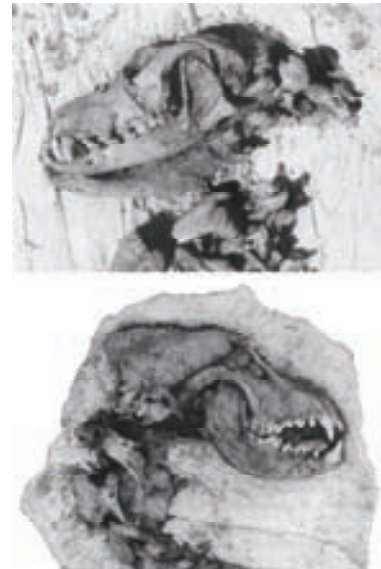
Figure 30.11: Ashkelon dog crania

The length-to-width ratio and the moderate stop place these dogs within the narrow end of the shepherd range.
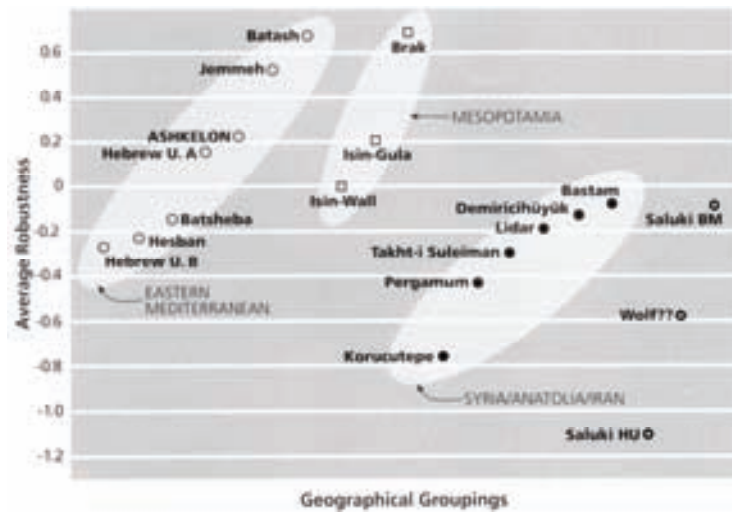
Figure 30.12: Relative limb robustness
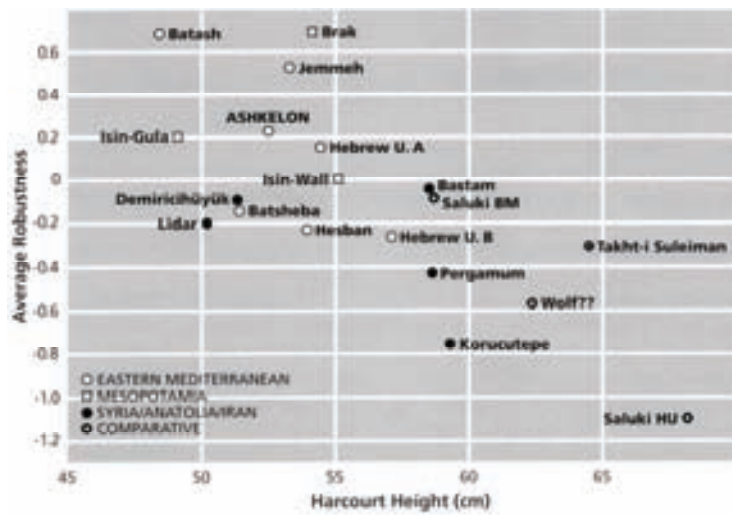
Figure 30.13: Robustness compared to shoulder height (based on Harcourt 1974)
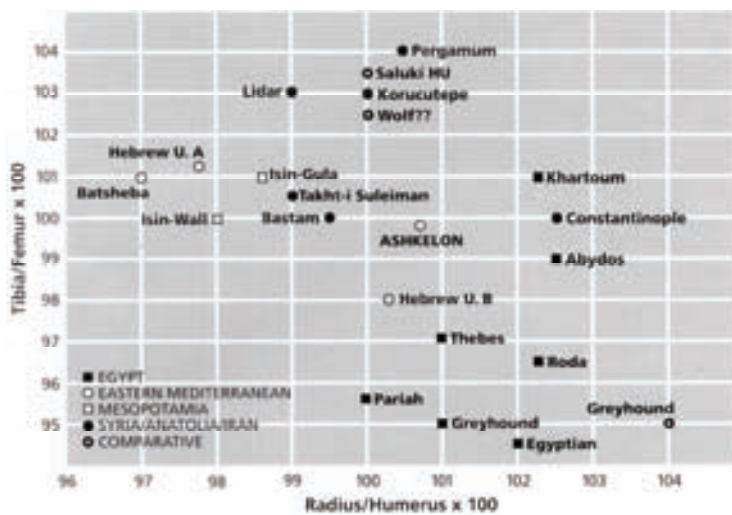
Figure 30.14: Relationship between lower and upper fore- and hindlimb lengths

Human and Faunal Remains

Table 14. Comparison of Limb Robustness and Stature in Near Eastern Dogs

Site/Comparison	Robustness	Height (cm)	Comment
Eastern Mediterranean			
Hebrew University B	-0.27	57.2	related dogs
Hesban	-0.23	54.0	
Batsheba	-0.15	51.4	Bedouin dog
Hebrew University A	0.15	54.5	
Ashkelon	0.22	52.6	
Jemmeh	0.52	53.4	
Batash	0.67	48.5	
Mesopotamia			
Isin-Wall	-0.01	55.1	
Isin-Gula	0.20	49.2	
Brak	0.68	54.4	
Syria/Anatolia/Iran			
Korucutepe	-0.76	59.3	
Pergamum	-0.44	58.7	
Takhti-i Suleiman	-0.31	64.5	
Lidar	-0.15	50.3	
Demiricihüyük	-0.14	51.3	
Bastam	-0.08	58.5	
Comparative			
Saluki	-1.11	68.2	Hebrew University
Wolf(?)	-0.58	62.4	Hebrew University
Saluki	-0.09	58.7	British Museum

Robustness is computed by normalizing each limb length to least-breadth ratio, calculating the mean of these normalized variables for each specimen, and averaging the means for each site or category.

Table 15. Comparison of Radius/Humerus and Tibia/Femur Ratios in Near Eastern Dogs

Dog	Radius/Humerus × 100	Tibia/Femur × 100	Comment
Egypt			
Roda	102.3	96.5	
Egyptian Dog	102.0	94.5	
Pariah	100.0	95.6	
Thebes	101.0	97.0	
Abydos	102.5	99.0	
Khartoum	102.3	101.0	
Greyhound	101.0	95.0	
Eastern Mediterranean			
Batsheba	97.0	101.0	
Ashkelon	100.7	99.8	
Hebrew University B	100.3	98.0	
Hebrew University A	97.8	101.3	Related dogs
Mesopotamia			
Isin-Gula	98.6	101.0	
Isin-Wall	98.0	100.0	
Syria/Anatolia/Iran			
Lidar	99.0	103.0	
Constantinople	102.5	100.0	
Bastam	99.5	100.0	
Pergamum	100.5	104.0	
Korucutepe	100.0	103.0	
Takhti-i Suleiman	99.0	100.5	
Comparative			
Wolf(?)	100.0	103.0	
Greyhound	104.0	95.0	
Saluki	100.0	103.0	Hebrew University

Summarizing all this osteometric information, the Ashkelon dogs appear to be a variable group similar to most other ancient Near Eastern dogs and modern dogs of no particular ancestry. They do differ from those animals identified as salukis and greyhounds. No evidence of selective breeding in the direction of cursorial adaptation is present. This is reinforced by an examination of the hip joint, which shows no strong adaptation to a gazehound pelvic form. Cursorial adaptation in the hip manifests itself in adult cursors by the exaggerated oblique angle made by the ischium portion of the innominate bone (pelve), a construction geared to long strides and galloping movements. When we were able to observe this relationship on a small number of innominate bones in the Ashkelon collection, there was no extreme oblique angle; the hips were intermediate in form between cursors and shepherds. The angle at which the ischium joins the ilium among Ashkelon specimens is slightly more oblique than in the shepherd, but does not approach that of the true cursor. The evidence of limb proportions and pelvic morphology shows very slight cursorial adaptation, but nothing like the extreme development in the modern gazehound group.[175]

Representations of Dogs in Ancient Sources

To what may we compare the Ashkelon dog population? This question is not as ingenuous as it seems, because from the minute it was known that there was something special about the dog burials, suggestions have swirled around the issue, fueled by gleanings from ancient texts and artistic representations. How do these sources aid our understanding of the phenomenon at hand?

Open any modern book on dog breeds and it will tell you that the saluki is reputedly one of the oldest breeds in the world. The saluki, variously known as the Persian greyhound, Persian royal hunting dog, gazelle hound, or known by other folk names which give purported clues to its ancestry, is thought to have originated as a dog specialized in the hunting of hares and gazelles. Depictions of saluki and greyhound-type dogs are common in ancient Egyptian reliefs and tomb paintings in the second millennium B.C. More important for our purposes is the dog from Tell Brak in Iraq, dated even earlier than many Egyp-

tian sources to 2580–2455 B.C. (calibrated). Clutton-Brock notes that connecting this dog "with the greyhound type not only provides osteological evidence for one of the foundation breeds of domestic dogs but also for its distribution outside ancient Egypt" (1989: 219). So here were tantalizing links—an animal of noble ancestry, somehow associated with the Persians, and well known from ancient Egypt—that provided a good place to start. This explains why we paid particular attention to greyhound morphology in generating our skeletal picture of the Ashkelon dogs.

But saluki and greyhound-type dogs are not the only kinds represented in Egyptian art. It has been claimed that four similar modern breeds—the greyhound, saluki, pharaoh hound, and Ibizan hound (figure 30.15)—not only appear in Egyptian reliefs and painting, but originated in Egypt as well (Caras 1985). The great diversity of canine types depicted in Egyptian art is remarkable, however. In the tombs of Beni Hasan (Twelfth Dynasty, ca. 2000–1800 B.C.), dogs of many sizes are depicted with much variation in head shape, coat color, tail length and carriage, limb proportions, chest depth, and neck length (figure 30.16). Beni Hasan is only the best known of many sites that display this diversity. One early authority expressed a widely held belief when he wrote: "In Egypt dogs were very much as they are to-day and doubtlessly were kept pure. . . . It is significant that definite types of dogs are depicted over and over again in the Tombs not only of one period, but in those separated by great numbers of years. These we can, therefore, consider native breeds" (Ash 1972 [1927]:49).

Egyptian art is reputedly some of the best in the ancient world with respect to accuracy of animal representations. But do these images represent "breeds"? Modern breeds are defined as much by outward characteristics that are not registered skeletally, such as ear shape and coat color and texture, as by variations in height, weight, and skull shape. Furthermore, the skeletal distinctions presented as evidence for breeds are not in themselves definitive. Constance Miller, for many years a dog show judge and well known gazehound and greyhound authority, notes that these modern dogs have long jaws with no surplus skin at the oral area, moderate to no "stop" of skull, long and low-held tails, and slender but chase-worthy frames (pers. comm.). These features, she points out, are extremely similar to the wolf forms of Asia Minor and in fact are adaptive characters suited to the arid, open steppes of the region. So greyhound-type features represented in Egyptian art are as likely to be natural morphological adaptions as they are the result of human selection.

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[175] We would like to thank Constance Miller, a noted gazehound authority, for sharing her wealth of knowledge on this subject. She provided us with much information about cursorial adaptations in the skeleton, especially regarding the innominate morphology.
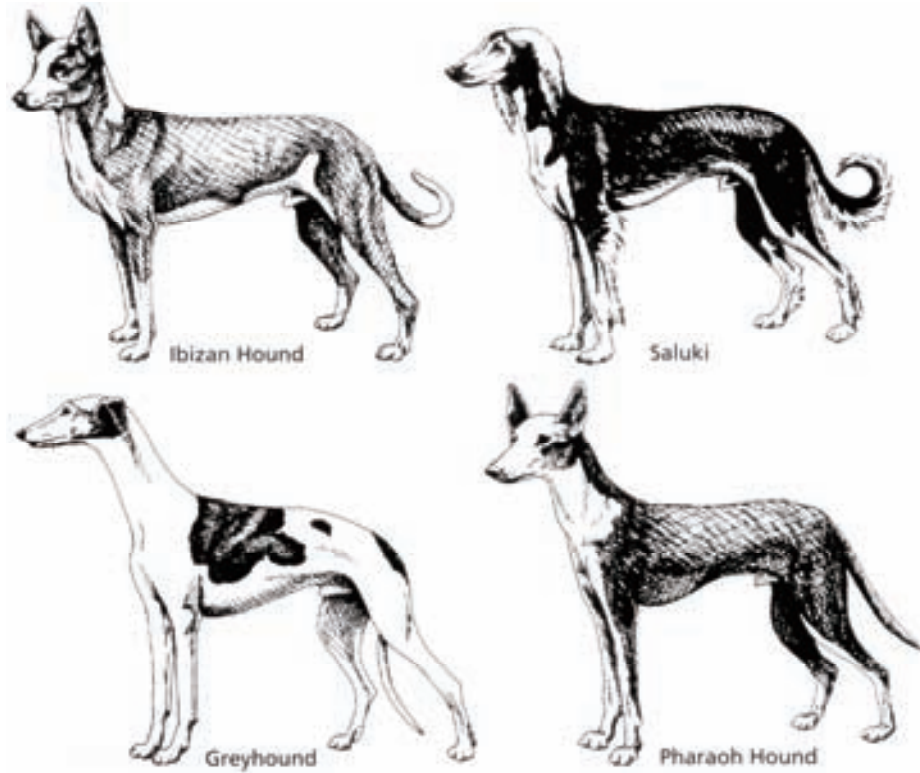
Figure 30.15: Dogs of the greyhound group

Dogs of the greyhound group are often said to be represented in Egyptian art; however, it is unlikely that the Egyptian paintings depicted "breeds" of dogs or that they aid in identifying the osteological remains. *Drawings by Rhonda Root.*

Figure 30.16: Depictions of dogs in the Beni Hasan tombs (12th Dynasty, ca. 2000–1800 B.C.)

However distinctive in appearance, these illustrations are as likely to represent natural adaptations as the result of human breeding. Textual evidence for dog-breed maintenance emerges only in classical times. *From Ash 1972: pl. 6.*

This brings us to the main point concerning breeds, namely, that they are as much human social phenomena as they are biological expressions. Without a sustained human network to establish standards, cull deviants, and so forth, a breed cannot exist. Artistic evidence of different dog types should therefore be evaluated on a number of levels short of assigning the animals breed status. With no evidence of the artist's intent, there is no a priori reason to assume that the images are meant to represent *populations* of similar appearing dogs. They could just as well stand for a single animal. If that is the case then the artistic depictions simply represent a random selection from the whole range of dogs present in the region. Furthermore, there is a whole suite of problems (which cannot be dealt with here) involved in how accurately any artist renders a living animal. A combination of features might portray an animal type generally, but breeds are not general types, having a host of very specific characteristics and proportions, which we would do well to doubt were repeatedly captured by ancient artists.[176] In any case, the key point is that breeds deal with populations, not individuals.

Not until classical times is there some textual evidence for the maintenance of dog breeds. Hull (1974) claims that the Greeks carefully bred hounds for hunting based on the admonitions of Oppian and Xenophon to keep bloodstock pure. This is certainly in the right direction, but probably represents no more than "down-the-line" breeding, or breeding like to like, which ancient peoples had been practicing for thousands of years with varying intensity. There is no evidence for established standards, culling to standard, studbooks, pedigree records, or any of the other essentials of breed maintenance. Roman authors also stressed pure bloodlines, but again, all the particulars necessary for true breeds are not unequivocally present in the written material.[177]

Boessneck (1988:Abb. 90b) has illustrated bones from Elephantine dated to the Fifth Dynasty that came from a relatively short dog. However, the calculated stature for that animal is 40 cm, not far below the range in the Ashkelon sample, and certainly not as extreme as the dachshund-type dog from a Beni Hasan Tomb (Twelfth Dynasty), which Boessneck illustrates with bones (ibid., Abb. 91). The best evidence for distinct dog types based on skeletal remains comes from the Roman period. For example, Bökönyi's (1984) study of Roman dog remains from Tác Gorsium in Pannonia shows enormous differences in height and limb shape, indicating that the dog population was comprised of individuals whose aggregate variations fell outside an expected adaptive range. Even if the types he discerns were not recognized by the Romans who raised the dogs, they were forms with particular characteristics which could have been manipulated in breeding practice. This perspective legitimizes our search of the skeletal remains for morphological trends in the development of physical types in a manner that is not based on breed standards, the strict definitions of which make methodological demands that we are unable to meet with archaeological evidence.

The truth is that "the only modern breeds that can be told from skeletons are the really *aberrant* ones. Normal dog breeds are characterized by *surface* phenomena that make animals *look* to be far more different than their skeletons confirm" (Constance Miller, pers. comm.). However, skeletal demonstration of distinctive types either far removed from or outside of natural adaptive ranges, coupled with written references to human behavior suggesting selection, can reasonably be construed as the introduction of different stock or human manipulation of indigenous domesticates. Artistic evidence can reinforce these data but cannot by itself establish the validity of ancient physical animal types.

Another approach to understanding the variability of the Ashkelon dogs is to consider modern dogs in the region. Fortunately, we have the resource of two dedicated scholars, Rudolph and Rudolphina Menzel, who produced descriptive studies of unmanaged dogs in Mandate Palestine (1948; 1960; see figure 30.17 below). They applied the term "pariah" to these dogs, using a label that had a long history of application to canids in the broad belt from Morocco to India (cf. Studer 1901). They recognized four naturally occurring types of medium-sized animals, varying in body and head characteristics from a sheepdog to a greyhound type. These types show a considerable degree of variation in head form, muzzle shape, and ear carriage, ranging from shepherd-like dogs (Type 1) to

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[176] In a very interesting article regarding the drawing of gazehound skeletons, Jaques (1986) notes that almost no accurate drawings of saluki skeletons by technical artists exist, because they are unfamiliar with the detailed fine points of the breed's skeletal proportions for every part of the body.

[177] Lest it be thought modern dog breeding is far advanced over ancient methods, consider this quote from a recent *New York Times* article (Tuesday, December 3, 1991:B7–8) by Jasper Rine, Director of the Dog Genome Project, a study seeking the genetic roots of complex physical traits, diseases, and behaviors: "Dog breeding is a well-established art, but a crude, unestablished science. . . . Breeders mate two dogs who look good and see what comes out. There is not enough understanding of chromosomes to track the things that they're interested in."

dingo-like dogs (Type 2), collie-like dogs (Type 3), and gazehound-like dogs (Type 4). Variability of coat color and quality, tail carriage, and stature can be seen in the figures that accompany their article. This foundation stock has been selectively bred in recent decades to create a breed, the "Canaan" dog, which is recognized internationally by some kennel societies. Considering the variability of the pariah dog skeleton implied by the Menzels' study, we believe that the Ashkelon dogs would fit comfortably within this group. The Ashkelon sample is best viewed as a naturally occurring canid population with physical characteristics adapted to the hot and semiarid conditions of the southern Levant. This is reinforced by the slight cline in stature and robustness seen in archaeological dogs throughout the Middle East.

Figure 30.17: Pariah dogs of British-Mandate Palestine

The dogs of Mandate-period Palestine were classified by R. and R. Menzel (1948, 1960). Head shape was one important criterion they used. The four photographs reproduced from their 1960 work represent the four basic types, although mixed categories were recognized. The variability expressed by this group matches that seen in the Ashkelon dog burials.

Other Ancient Near Eastern Dog Burials

A further source of comparative data are burials of dogs at other archaeological sites in the Middle East (figure 30.18). There is considerable evidence for dog burial throughout the region, but we hasten to add that our review should in no way be considered exhaustive. With the exception of Egypt, at no site were as many dogs buried as at Ashkelon. The most efficient way to evaluate the comparative burials is to organize the data by time, space, and context, and then to consider the various features. Closest in these particulars are the burials at Ashdod.

The site of Ashdod, located a few miles north of Ashkelon just off the coast, was also one of five major Philistine cities. The city declined precipitously after conquest by the Neo-Babylonians at the beginning of the sixth century B.C. Five burials of mature dogs are dated to Persian levels (Strata V–IV) in an area given over to industrial activities, mostly metal-working, after the Babylonian conquest. The animals are lying on their sides, usually one dog to a pit (Dothan and Porath 1982). No measurements or anatomical details are given, and the published photograph does not permit any morphological assessment. In an earlier Ashdod report (M. Dothan 1971), Haas reported that a refuse dump of Hellenistic Stratum III yielded many animal bones mostly in anatomical relation. These included the remains of one wild boar, many large cattle, two felids, and nine adult and three immature canids; no details of the skeletons are given.

During the summer of 1992, excavations by the Department of Antiquities of the State of Israel uncovered a series of dog burials in a Persian-period site located near Ben Gurion Airport. Details of interment appear to be similar to the Ashkelon examples. While no osteological specifics about these finds were available at the time of writing, they do enlarge the regional pattern.

Figure 30.18: Near Eastern archaeological sites that contain dog burials

Unfortunately, our information about dog burials from other sites in Israel is not more revealing. In the Persian-era Stratum V at Tell el-Ḥesi, a collection of dog remains found in a single pit could have come from a single juvenile individual (Bennett and Schwartz 1989). No cranial elements were found. An articulated dog skeleton was uncovered in a mud-brick silo that had been constructed inside a large circular pit shaft. The dog burial was part of the fill in this pit and is dated to Stratum IV, Late-Persian/Hellenistic. The animal was headless, lying on its side with legs flexed and extended (Bennett and Blakely 1989:65, fig. 60). The upper section of an amphora lies next to the dog.

The site of Dor, a port city about 12 km north of Caesarea in modern Israel, was one of five principal Phoenician cities on the southern Levantine coast during the Persian period. In 1990 we were told by Ephraim Stern, the excavator, that about seven dog burials from Persian deposits were found there.

From the site of Tel Batash in the Shephelah the remains of a complete dog were found under a vessel of Persian date. The excavator suggests that the animal was just thrown in a pit and not carefully interred (Amiḥai Mazar, pers. comm.). The Batash dog compares favorably with the Ashkelon material, though it is at the small end of the range in height. The skull is also similar to those in the Ashkelon corpus.

The ceremonial relationship between humans and canids in the eastern Mediterranean is found first in the Natufian deposits (ca. 9600 B.C.) at Ain Mallaha in the Huleh Basin, where the burial of an old woman(?) was accompanied by a wolf or dog puppy (Davis 1987:147). Closer in time to the Ashkelon deposit, Levy (1991) reports two articulated dog burials with accompanying grave goods at the site of Gilat, a Chalcolithic cemetery. One of the present authors examined the burials *in situ*, noting that both the burials and the animals were like the Ashkelon inhumations. Levy suggests that the tradition of dog interment may be more continuous than imagined. This is certainly the case in Egypt, where a survey by Bonnet et al. (1989) reveals that complete dog skeletons were found with human burials as early as the Neolithic and as far south as the Sudan.

Buried dogs of slightly later date are also reported from the region. At Gezer, more than a dozen articulated dogs were found in Hellenistic deposits. We saw two of these dogs briefly in 1985 (before the Ashkelon discovery), and they too fit within the variability seen for the region. At the site of Hesban northeast of the Dead Sea, six partial and complete skeletons of puppies and subadult dogs were found in Hellenistic deposits (Weiler 1981).

Moving farther afield, Doyen and Gautier (1986) describe articulated dog skeletons in a fosse dated 250–100 B.C. at the site of Abu Dane, east of Aleppo. Some of the burials were disturbed, but the position of the complete skeletons was more extended than those at Ashkelon, Ashdod, Tell el-Ḥesi, and Gilat. A minimum of eight dogs were present, including two puppies and six adults. Morphologically, the height of the dogs is at the top end of the Ashkelon distribution. The authors compare the dogs to Persian hounds, salukis, and sloughis, as well as to the dogs from Isin described next.

At the site of Isin in southern Mesopotamia 33 dog burials were found in a ramp leading to the temple of Gula/Ninisina, the goddess of healing. The temple was called the "House of the Dog" (É *ur-gi$_7$-ra*), with depictions and figurines of dogs found in the area. Dogs are linked to the goddess Gula in texts and iconography from the second and first millennia B.C. (Fuhr 1977), during which time a dog cult associated with healing rites probably existed (Livingstone 1988). No details or ritual requirements of this cult are known, although a later text suggests that the dog acted as a messenger from Gula (Livingstone 1986).

The excavators date the dogs to 1000 B.C. Sixteen of the skeletons are puppies, 6 young adults, and 10 adults (one skeleton was lost). Although the number is small, the demography of this sample also reflects a natural mortality of unmanaged dogs. The number of pathologies found in these remains is much higher than that found in the Ashkelon material. Half the young adults and 70% of the adults are reported to have either missing teeth, or more commonly, fractures of the limbs and feet (Boessneck 1977). These wounds seem to have healed at least partially by the time of the animal's death, and there is no reason to implicate the injuries directly in the mortality.

As discussed above, these dogs are not distinguishable skeletally from unmanaged urban dogs. Several points may be drawn from this example. Dogs did not have to be specially treated in life (these seem to have been kicked around) or of special size to be given burial. If the association of these burials with the temple ramp attests to a ritual interment rather than just ridding Isin's streets of dead dogs, then what seems to have made the dogs special is that they died. If they had been protected in life one would expect them to be in better physical shape, with fewer puppies and subadults present among the burials.

Excavations by Mary Voight at Hajji Firuz Tepe in northwestern Iran yielded two dog burials (Anthony et al. 1984). The first, and more complete, was found in probable association with a human skeleton and

dates to 1450–1150 B.C. The second, less complete skeleton was found in a pit within the Iron Age settlement. From the photograph (ibid., p. 35), the pelvis looks like that of a cursor. The head, however, has somewhat of a pronounced stop.

Additionally, the bone report from Takht-i Suleiman in Azerbaijan mentions two dogs found in burials below floors in village houses (Steber 1986). They date (probably) to the Achaemenid period (sixth to fourth century B.C.). Tentatively, these might be linked to the incomplete dog skeletons which Bökönyi (1978) claims were found in pits at Tepe Nush-i Jan in west-central Iran. Unfortunately, we have not been able to establish if or how these dogs were associated with the eighth- to sixth-century B.C. fire temple at the site. Taken together, all of these remains hint at a long and multifaceted regional tradition of burying dogs. A sketchy outline of roughly contemporary dog interments scattered across the ancient Near East in the mid-first millennium B.C. can be constructed, but there is no reason to assume that all of these were similarly motivated. In fact, a range of attitudes toward dogs can be identified in the textual record.

Historical Evidence about the Treatment of Dogs

Egyptian veneration and inhumation of animals is well known. Herodotus, whose travels and writings date to the Persian period, tells us that "bitches are interred in the cities to which they belong, also in sacred burial-places . . . and the wolves, which are not much bigger than foxes, they bury wherever they happen to find them lying" (2.67). At Cynopolis, according to Strabo (812), dogs were venerated and mummified. Keller's (1909) remarks on this topic are most interesting. He notes that great numbers of pariah dogs roamed the streets of ancient Egypt and that their mummies have been found in great numbers at Abydos, among other places. Their corpses were not given any special treatment—theirs were mass-produced mummies—in contrast to the care lavished on mummies of hunting greyhounds.

Dog mummies have been found in large numbers at Roda in Upper Egypt, at Thebes, at Suares near Maghagha, and at Abydos. The mummies at Abydos are Roman in date, perhaps belonging to the period between the first century B.C. and the fourth century A.D. Peet (1914) estimates that tens of thousands of dogs were buried there as poorly mummified corpses. The dogs were macerated in natron, allowed to dry, then wrapped loosely in plain linen. Because no adhesive such as bitumen was used, the mummies fell apart at the slightest touch, and the excavators found

it difficult to extract even twenty complete animals for closer examination. The Roda burials (of indeterminate date) were also summarily prepared corpses. This may explain why so few dog skeletons of the many thousands interred were carefully studied or collected, although some dog mummies, such as those at Thebes, were considerably more elaborate.

Not all buried dogs were mummified. At Gurob, a dog skeleton was found in the fish section of the animal cemetery, which may date from the Nineteenth Dynasty. The animal was carefully placed in a circular pit, its position like that of the Ashkelon burials. No preservatives were used in the preparation of the corpse (Loat 1904).

Lortet and Gaillard (1903) recognized four types of dogs among the mummified canids of Egypt. These were the pariah dog, the greyhound, the Egyptian dog—midway in size between the first two—and the Egyptian spitz. This general classification has been repeated by many authors through the years. However, a study by Haddon as early as 1914 showed that considerable variation in the length of the limb bones and cranial dimensions of the mummified dogs did not support the four broad types. Rather, she identified all but the spitz with Studer's group of southern dogs, those of the pariah type. The so-called spitz dog, known from only one mummified skull, as well as the small dog bone from Elephantine (see above), are undoubtedly examples of individuals that fell at the low end of the diverse size range characteristic of pariah dogs. So, contra Keller, it seems that the Egyptian sliding scale of funeral preparation was not conditioned by dog type.

In sum, we know that dogs and their relatives were highly esteemed early in Egypt's history, with burials reaching back as far as the Neolithic and Badarian cultures (Bonnet et al. 1989). However, these were for the most part sporadic, and their total numbers were few compared to the later burials and the number of dogs at Ashkelon. Large-scale dog burial does not appear to have much predated the practice at Ashkelon, and belongs to the phenomenon of the enormous animal cemeteries of later periods. Still, the tradition of dog burial as a sign of the special relationship between man and canids did persist from early times. Therefore, we have to ask why dog burials do not turn up in earlier contexts in Canaan during periods of Egyptian political and cultural domination.

Nowhere in the ancient Near East were dogs more revered than in ancient Persia, where they occupied a singular position in Zoroastrian religion. The dog had pride of place after humans among the creations of the chief deity, Ahura Mazda. In later Zoroastrian rituals, dogs played a key and protracted role in

funeral rites as protectors and agents of safe passage to the next world (Afshar 1990). Medieval Zoroastrians neither buried nor cremated their dead since a corpse, the ultimate contaminant, would pollute the sacred earth and sacred fire. Instead, a dog or bird of prey would gaze at the corpse to drive away evil and then the body would be exposed inside a funerary tower. "The origin of the practice of exposing corpses to dogs and birds is unclear, but it is known to have been performed by the pre-Zoroastrian Magi and Persians" (Choksy 1989).

Even though Herodotus (1.140) recounts this custom, the remains of contemporary Achaemenian royalty were placed in rock-cut tombs, the stones apparently containing the contagion of the dead (Choksy 1989). It seems clear then, that dogs would not have been buried directly in the ground in ancient Persia, and indeed, no dog burials have been found there, except for the partial skeletons at Tepe Nush-i Jan of unclear context. Egypt and Persia are the two places in antiquity where dogs appear to have been regarded with unsullied benevolence. Not so the rest of the ancient world, where sentiments were more complex; more like ours, in fact.

Puppies are specifically called for in Hittite rituals of prevention and purification (see Collins 1990 for textual citations). In some rites the puppy was waved over the patient or touched to afflicted portions of the body in hopes of drawing the disease into the puppy, which would then sicken and die. The latter practice may have its origins in Mesopotamia where similar rites are present in Babylonian magical texts. The most common use of the puppy involved severing the animal, perhaps splitting it longitudinally. The offerer would then pass between its two parts which, like a magnet, attracted the impurity. In only one text is a puppy sacrificed as an offering. This is undoubtedly related to the stronger belief that dogs were equated with pigs as unclean animals, and therefore unfit as sacrifices to the gods. They were contaminators as well, to be kept away from food and equipment used to prepare divine meals.

Billie Jean Collins (1990) suggests that the Hittite practices were based on the dog's expendability and their limited usefulness compared to other animals. Certainly, the attitude expressed in Hittite written material, where dogs are on the one hand unclean, yet possess magical powers to purify, is paralleled by Mesopotamian and Greek beliefs. There is no physical evidence however, of Hittite ritual severing of puppies—perhaps, as Collins suggests (ibid.), because the practice was part of popular religion unrelated to the royal family and less likely to be preserved.

The Greeks held ambivalent views about dogs. The animals were at once unclean and ordinary yet could be regarded sentimentally or imbued with ritual and therapeutic potency. Day captures this polarization well: "A good example of the ambivalence and the juxtaposition of two contradictory views can be seen in the burial of Patroklos (*Iliad* 23:173–83). Here Achilles sacrifices two of Patroklos' faithful dogs on the funeral pyre, yet he boasts that he will give Hektor's body to the scavenger dogs rather than giving it proper burial" (1984: 29 n. 38).

From the Late Bronze Age through the Classical period, dog sacrifice and burial were not uncommon in Greece, but only in a few instances were the animals carefully interred. Most often they were thrown in pits or tombs, or even sacrificed and simply left in whatever position they met death. The majority of the Greek dog burials involved sacrifice and were associated with human burials. From Lydian levels at Sardis, 30 caches of jugs containing the partial skeletons of butchered puppies are reported to have been buried in pits. They are thought to be the remains of ritual meals, despite the lack of evidence that they were cooked (Greenwalt 1978). It would seem that even at death, Greek veneration did not translate into careful treatment of the dog corpses. The later Greeks, however, exhibited a more sentimental regard for dogs as pets: "By the Late Hellenistic Period, pets were buried and may even have been given their own gravestones and epigrammatic epitaphs" (Day 1984:29). There would seem to be little in the Greek world parallel to the Ashkelon burials.

Dogs also had a mixed profile in Semitic culture. Although the dog was associated with Gula, a Mesopotamian goddess of healing, and may have been a protagonist in restorative and apotropaic rites, there is a great deal of textual evidence that dogs were scorned as curs, the bearers of uncleanness, and harbingers of misfortune (see the *Chicago Assyrian Dictionary*, vol. 8:68–73, s.v. *kalbu*). Dogs almost always have negative connotations in biblical texts (e.g., Exodus 22:31; 1 Kings 21:23; Ecclesiastes 9:4).

A dog figures prominently in a Greek legend about the discovery of the purple dye for which Phoenicia was renowned (cited in McGovern 1990). When Melqart, city god of Tyre (called Herakles in Greek), was walking along the beach with the nymph Tyros, their dog bit into a large whelk that stained its mouth purple. Melqart immediately seized upon the idea of dyeing cloth with the substance and a flourishing industry was born. Although this particular legend is Greek, it must have had wide currency, because a Tyrian coin commemorating the founding of the city depicts a dog and a murex shell (Meshorer 1983).

The idea that Phoenicians had a positive view of dogs is contradicted by claims that the Carthaginians reviled and ate them (Pompeius Trogus-Justin, 19.1.10), although this may be mere propaganda because extensive excavations at Carthage have not turned up the remains of dogs used for food.

Conclusions

Before drawing together the data on the Ashkelon dog burials, some historical background on this Persian-period seaport is in order. Ashkelon was the site of a large, fortified city in the Middle and Late Bronze Ages. During the Iron Age it became one of the five major cities of the Philistines. When the Assyrian Empire extended its hegemony to the Levantine city-states and eventually to Egypt during the eighth and seventh centuries, Ashkelon experienced varying degrees of Assyrian rule. As Assyrian power evaporated in the last days of the seventh century, the Neo-Babylonian Empire took over Assyria's western possessions. But this was a short-lived regime: in 538 B.C. Babylon fell to Cyrus, inaugurating two centuries of Persian rule.

The designation "Persian" for this period in Ashkelon's history is a political rather than a cultural label, because few manifestations of material culture from the Persian homeland are present in Palestine. Rather, the Palestinian littoral was part of the empire's western territories, administered through a client-state arrangement with the Phoenicians, whose major cities were given control of sections along the coast. The *Periplus* of Pseudo-Scylax (last half of the fourth century) names Ashkelon as a city of the Tyrians with a Tyrian governor headquartered there. Phoenician pottery, inscriptions, and religious symbols (Tanit amulets) attest to a strong Phoenician presence. But throughout its history Ashkelon's role in overland and maritime trade attracted an international business community to its streets. Textual and artifactual evidence point to an ethnically diverse population in this period with Phoenicians, Persians, Philistines, Egyptians, Greeks, and native residents contributing to a vibrant economy.

Where do the dog burials fit in this mix? Above all, a convincing explanation for this phenomenon must account for all of the archaeological data. As we have emphasized repeatedly, the dog burials indicate a population of local, unmanaged pariah dogs typical of the region. The dogs do not appear to have been pampered. On the other hand, they do not seem to have been deliberately killed because their mortality pattern matches that of an unmanaged urban dog population. The burials accumulated over several decades. Most of them are found in an area that was previously the site of warehouses but had fallen into disuse. No dog interment was marked or accompanied by grave goods. Many burials disturbed earlier inhumations.

What inferences are we to draw from these data? It does not seem to be anything that the dogs *did* that earned them a careful burial. The fact that so many were puppies implies that there was not enough time for strong ties of affection to have been forged. The key feature seems to be simply that they died. Burial did not give them a lasting significance, since there were no artifacts deposited with them as grave goods and there was no compunction about disturbing previous burials. The behavioral core of the ideology surrounding dogs was the act of burial itself. The goal was not to produce a cemetery or to preserve the memory of the animals, but simply to inter them.

The inhumations were not scheduled. The fact that the dogs were not sacrificed but simply died from any one of a host of natural causes suggests that their availability for interment was sporadic and unpredictable. Thus, the burials are not likely to have been associated with some calendrical ritual.

The closest parallels to the Ashkelon dog burials are those found at Ashdod and the site near Ben Gurion Airport. However, the number of interments at these sites pales in comparison. The report from Dor is suggestive but only anecdotal. Early dog burials are found in Cyprus, but the practice "seems to have died out after MC I (1850–1800 B.C.), many centuries before the custom appeared in Greece" (Day 1984:26), or in Ashkelon. No dog remains are reported from Phoenician settlements outside of Ashkelon (and possibly Dor). Ashdod, despite its proximity to the coast, was a much smaller settlement in the Persian period and does not seem to have been part of the Phoenicians' sphere of interest (Elayi 1980; 1987). The Greek materials, as discussed above, are not similar. Later Greek treatment of pet dogs is supported by little physical evidence and much of the phenomenon may be only literary (Day 1984). The primary archaeological similarity lies in Mesopotamia; the parallel, however, is not exact. The dogs of Isin are clearly associated with a temple, but no temple has been found at Ashkelon. Moreover, the scale of the Ashkelon burials dwarfs other dog finds, with the exception of certain sites in Egypt.

Perhaps, then, we should not look elsewhere for the source of this custom but should attribute it to a particular local belief and practice that arose in Ashkelon itself and remained confined, by and large, to that city. In the Persian period Ashkelon was a cosmopolitan center, a seaport that drew people from all

over the Mediterranean and Near Eastern worlds. It may be best to view the striking and unusual practice of burying large numbers of ordinary dogs as a local innovation that emerged from this cultural mix and was unique to it.

GLOSSARY

Articulation: An articulation is several bones found in correct anatomical relationship. We designate a specimen a "partial skeleton" when two or more parts of an (apparent) individual animal are present; for example, an articulation of forelimb bones juxtaposed with bones of the vertebral spine. Even relatively complete skeletons are rare (except for microfauna) because of the disturbance to the carcass during and after burial.

Baculum (os penis): A slim bone that supports rigidity of the penis in some mammals such as dogs, cats, and whales.

Canid: Member of the family Canidae, which includes domestic and wild dogs, wolves, foxes, jackals, coyotes, and dingoes.

Cline: A gradual change in a trait or its frequency within a species over a geographical area.

Cynophagy: Dog-eating, which was not widely practiced in the ancient Mediterranean. The clearest cases (based on faunal not textual evidence), which are from Early Bronze Age Lerna and Troy (Gejvall 1969), did not last beyond the Middle Bronze Age.

Dentition: Deciduous dentition is the milk or baby teeth that are replaced by the permanent or adult teeth as an animal matures. In puppies, the deciduous teeth erupt (approximately) between 3 and 8 weeks of age. The permanent teeth erupt between 4 and 7 months (Amorosi 1989).

Felid: Member of the family Felidae, which includes the big cats (lions, tigers, leopards, etc.), and the small cats (the domestic cat, wildcat, ocelot, sand cat, etc.).

Microfauna: Our use of the term refers to the remains of animals smaller than dogs or cats. Microfauna at sites in Israel include commensal house mice, field mice, rats, moles, voles, shrews, the smaller weasels, and birds (except ostrich and the larger birds of prey).

Morphology: The form and structure of an organism. We use the term to refer to the overall skeleton and to a particular bone or bone element.

Pariah: A term used to refer to dogs of distinctive morphology that inhabit much of the arid region of the Old World.

Stop: An indentation in a dog's face between the forehead and the muzzle.

Unmanaged urban dogs: Dogs who do not belong to any particular household but are socialized to humans, existing within a framework of human settlement; in other words, domestic. The term "domestic" has two main senses, a biological and a cultural. We prefer, following Ducos (1989), to emphasize the social aspects of the process of domestication of the tamer, rather than the behavioral and morphological impact on the tamed.

Withers: The highest part of the back of a four-legged animal, located between the shoulder blades.

Dogs and Healing in Phoenician Ashkelon

by Lawrence E. Stager

MANY of the dogs buried in Ashkelon during the Persian period had lived for only a short time, so the special treatment accorded to them at death could not have been based on emotional attachment resulting from long companionship. In ancient Greek society, where dogs were greatly appreciated, poets sometimes wrote very moving epitaphs for deceased dogs, to be inscribed on markers over the pet's grave, as in this example penned by the poet Tymnes in about 300 B.C.: "The stone tells that it [the grave] contains here the white Milesian dog, Eumelos' faithful guardian. They called him 'Bull' while he still lived, but now the silent paths of night possess his voice" (Paton 1917:117, poem 211). But in ancient Greece, as now, special burials were reserved for pets old enough for some kind of human bonding to have occurred. This could not have been the case for the majority of dogs buried at Ashkelon.

The best explanation seems to be that the Ashkelon dogs were revered as sacred animals. As such, they were probably associated with a particular deity and with that god's sacred precinct, about which the dogs were free to roam. We have not yet found a shrine or temple associated with the Ashkelon dog burials, but much of the area in the vicinity of the burials has not been excavated, and a substantial area to the west of the Grid 50 burials long ago eroded into the sea.

Although dogs were valued and sometimes even venerated by Greeks, Egyptians, and Persians, it is unlikely that fifth-century Ashkelon had large numbers of residents from any of these ethnic groups—certainly not enough to account for what must have been thousands of dog burials. The almost total lack of native Persian material culture points to a minuscule Persian population, and neither Greeks nor Egyptians would have had the political authority to convert prime sea-front real estate into a sacred precinct for dog burials.

The only ethnic group with sufficient authority and a large enough population to account for so many dog burials in such a short time were the Phoenicians. Beginning in the late sixth century B.C., Persian imperial rulers had allowed or encouraged Phoenicians to inhabit the formerly Philistine city. They and their material culture subsequently dominated Ashkelon throughout the Persian period, as is shown by the ubiquity of the "sign of Tanit," the main Phoenician goddess, and the abundance of Phoenician-style pottery. Although other ethnic groups, such as the Egyp-

tians or the Persians, might have had an influence on Phoenician attitudes and rituals concerning dogs, it was the Phoenicians of Ashkelon themselves who must have buried the dogs, and who presumably considered the dog to be a sacred animal.

In the ancient Near East, dogs were often associated with deities to whom one appealed for healing. This association probably arose because of the curative powers exhibited by dogs in licking their own wounds or sores. In Mesopotamia, dogs were associated with Gula, the goddess of healing (discussed in more detail below). In Egypt, sacred dogs participated in rituals in which, according to Diodorus Siculus (*Bibliotheca historia* 1.83.2), the Egyptians "make vows to certain gods on behalf of their children who have been delivered from an illness, in which case they shave off their hair and weigh it against silver or gold, and then give the money to the attendants of the animals mentioned [including dogs]." This frequent association between dogs and healing may explain the peculiar care taken in the burial of dogs at Ashkelon. It is thus worth considering Phoenician and other Near Eastern evidence for the relationship between dogs and gods of healing.

In the legend about the discovery of Phoenician purple dye by the dog of the god Melqart at Tyre, cited above by Paula Wapnish and Brian Hesse, we have an interesting association between a Phoenician deity and his dog. More relevant to our discussion, however, is a small limestone plaque (ca. 15 × 10 cm) of the mid-fifth century B.C. that is inscribed on both sides in Phoenician (CIS 86; *KAI* 37). It was found in 1869 at the Phoenician port city of Kition on Cyprus. The Kition plaque lists personnel associated in some way with the temples of the goddess ᶜAštart (*ᶜaštrt*) and a more obscure male deity, Mukal (*mkl*; the vocalization of this name is uncertain). Included in the list are dogs (*klbm*) and puppies (*grm*), although the meaning of the latter term is disputed.

The name Mukal appears as part of a compound divine name, Rašp-Mukal (*ršpmkl*), in several fourth-century B.C. inscriptions from Idalion in Cyprus, where this god's cult flourished. In a trilingual inscription from Idalion, Rašp-Mukal is equated with Greek Apollo-Amuklos (*KAI* 39).

The god Rašpu (biblical "Resheph") is known from earlier Ugaritic and Aramaic inscriptions as the lord of the underworld (equivalent to the Mesopotamian god Nergal) who is also the lord of plague, pestilence, and disease—and conversely the god of

healing. William F. Albright (1968:148–50) suggested that Ešmun, the Phoenician god of healing *par excellence* (whose Greek equivalent was Asklēpios), had a Canaanite precursor, Šulmānu (literally, "One of Welfare"). The Canaanite underworld figure named Rašap-Šulmānu, then, represented both polarities, namely, sickness and health.

Phoenician Rašp-Mukal (Gk. Apollo-Amuklos) seems to have been the same sort of bipolar deity, embodying what appear to us (but not to the ancients) to be mutually exclusive aspects. In Late Bronze Age Ugarit, Rašpu bore the title "Lord of the Arrow" (*bᶜl ḥẓ*). A millennium later in Cyprus, he was still called "Rašap of the Arrow" (CIS 1.10).[178] The name "Rašpu" itself probably means "burning," "fever," or "plague," according to Frank Moore Cross (pers. comm.).

The Greek god Apollo also had an ambivalent nature: besides being a god of healing, the father of Asklēpios and bearer of the epithet "physician" (*iatros*), Apollo was the god of plague. In the *Iliad* (1.43–52), an angry Apollo marches down from Mount Olympus, carrying his silver bow, the arrows rattling in his quiver. He sends a plague upon the Achaean army by shooting a "tearing arrow" into them. For nine days Apollo bombarded them with arrows, with the result that "the corpse fires burned everywhere and did not stop burning." As William Fulco (1976:49–54) and Walter Burkert (1985:145–47) have pointed out, the "arrows of Apollo," like those of Rašpu (and, we might add, those of Yahweh), signify pestilence.[179] Conversely, Apollo's image was capable of warding off plague. In light of the many borrowings from Phoenician religion and mythology into Greek, it is likely that Rašp-Mukal bequeathed many attributes to the archer Apollo, god of healing and plague—at least as Apollo was understood in Cyprus and Phoenicia.

There may be much earlier evidence of the bipolar Rašp-Mukal in Late Bronze Age Beth-Shean. An Egyptian stela found there in a temple from Stratum IX depicts a bearded deity who sits enthroned before two worshipers. The god wears a high conical cap with two streamers down the back and two small horns protruding from the front—horns very much like those worn by Rašpu, whose animal emblems included the gazelle. However, the seated deity is identified by the hieroglyphic inscription as "Mukal, the great god, lord of Beth-Shean." From the same temple of Mukal comes one of the finest pieces of Canaanite art: a beautifully carved basalt relief (probably an orthostat) that stood ca. 1 m high, on which was the following scene: in the upper register, a dog and a lion stand on their hindlegs, engaged in battle; in the lower register, the dog is prevailing over the lion as he bites the haunches of the lion. It is tempting to link the victorious dog with the god Mukal.

It seems clear that the Greek god Apollo, as understood in the Hellenistic Levant, inherited his darker side as the god of pestilence, as well as his brighter side as the god of healing, from Canaanite Rašpu. It was this Cypro-Phoenician Apollo who gave his name to the Roman-era city Apollonia, on the Palestinian coast between Caesarea and Jaffa, which had earlier been named for Rašpu, as the modern Arabic placename "ᵓArsuf" still attests. Likewise, the worship of Apollo in Hellenistic Ashkelon probably bore more resemblance to that of Rašp-Mukal in Phoenician Cyprus than to the sun-worship and youth cult of Apollo in Greece. One tradition has it that King Herod's grandfather served as a hierodule in the temple of Apollo at Ashkelon. The specially treated dogs of Ashkelon, like the dogs and puppies at Kition, might have been part of a healing cult in the tradition of Rašp-Mukal/Apollo.

By classical times in Greece, Asklēpios, the son of Apollo, had become more popular among the Greeks than even his father Apollo, who was also a healing deity. The most famous shrine of Asklēpios's healing cult was at Epidauros, where patients would come to spend the night in the dormitory (*abaton*), in the hope that Asklēpios would appear to them in a dream vision and reveal a cure for the sleeper's illness. Or the patients might be visited during the night by surrogates of the god—sacred dogs and snakes whose tongues were believed to have a therapeutic effect.[180]

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[178] There are echoes of this in the Hebrew Bible. The suffering Job laments that the "arrows of the Almighty" are in him and that he "drinks their poison" (Job 6:4). Just prior to this passage there is a reference to the god Rešep (Rašpu), when Job's friend and "comforter" Eliphaz says: "Man is born to trouble as surely as the 'sons of Rešep' [usually translated 'sparks' or 'birds'] fly upward" (Job 5:7). That firebrands were meant here seems likely from Psalm 76:4, where God "breaks the burning arrows (*rišpê-qešet)*, the shield, the sword, and the weapons of war." And in Habakkuk 3:5, Yahweh, the Divine Warrior, marches forth with two angels of death in his vanguard: "Before him Pestilence (*Deber*) marched. Plague (*Rešep*) went forth at his feet" (see Albright 1968:186; Cross 1973:102–3).

[179] See also Burkert 1983:39 n.19. On the survival of older cults in Hellenistic-Roman Palestine, including that of Rašp-Mukal, see Flusser 1976:1070.

[180] The motif of dogs licking wounds appears in many places. For example, in the parable of Jesus about the rich man and poor Lazarus, the starving Lazarus lay at the rich man's gate, covered with sores, which the dogs would come and lick (Luke 16:21).

Howard Clark Kee (1983:85) provides this memorable description of the experience: "It is easy to imagine the vigil of the suppliants, lying in the total darkness of the *abaton*, listening for the padding feet of the priests or the sacred dogs, or the nearly noiseless slithering of the sacred snakes."

Among the temple personnel mentioned in the Kition plaque are builders, marshals, singers, servants, sacrificers, bakers, barbers, shepherds (who may have raised flocks for temple sacrifices), maidens (ᶜlmt, sometimes rendered "temple prostitutes"), and—relevant to our topic—dogs (*klbm*). In short, here we find dogs associated with a Phoenician temple, or temples, of ᶜAštart and Mukal. All of the personnel mentioned in the Kition plaque, including the dogs (or their attendants), receive particular payments for services rendered.

The word "dogs" (*klbm*) appears in the same line of this inscription as the much-disputed term *grm*. Van den Branden (1956:92) argues that the "dogs" were actually humans who served as male prostitutes in the temple rituals. This is the service for which they were paid. The *grm* were "lambs" or adolescent male prostitutes. Van den Branden later modifed his interpretation and suggested that these two groups of temple prostitutes received their names—"dogs" and "lambs"—from the animal masks and costumes they wore (van den Branden 1966:257–59). The masked humans symbolized an earlier era when bestiality, involving real dogs and lambs, was performed in the cult.

However, van den Branden bases this interpretation on a common but questionable interpretation of Deuteronomy 23:18: "You shall not bring the fee of a prostitute or the wages of a dog (*klb*) into the house of Yahweh your God in payment for any vow, for both of these are abhorrent to Yahweh your God." I do not see the necessity of assuming that "dog" in this passage is the male counterpart of a female prostitute. It is not sodomy or pederasty that is the abomination in the context of this passage; rather it is the polluted money a man might earn by providing sacred prostitutes and dogs of the sort found in non-Yahwistic Phoenician temples. To use that kind of money to pay a vow in the Jerusalem temple was abhorrent to the Israelite deity Yahweh.

Brian Peckham (1968b) has published a superb analysis of the Kition plaque in which he too discards the connotation of sodomy and pederasty that some scholars have imputed to the terms *klbm* and *grm*. He has also decisively dated the Kition plaque to ca. 450 B.C., in precisely the same period as the dog burials of Ashkelon. On the other hand, Peckham agrees with van den Branden that the *klbm* and *grm* were

humans disguised as animals—dogs and lions, respectively—who participated in some kind of temple ritual. The identification of *grm* with lions is based on Hebrew *gûr*, which refers to the young of lions in several biblical passages (Genesis 49:9; Deuteronomy 33:22; Nahum 2:12; Ezekiel 19:2–5). But the term *gûr* is used in reference to the young of jackals in Lamentations 4:3, and its meaning should be rendered as "whelp, young animal," and not "young lion" in particular.

I prefer to adopt a literal interpretation of *klb* in both Deuteronomy 23:18 and the Kition plaque. In both texts the authors are referring not to humans acting like dogs in cult dramas but to actual dogs that performed services in the sacred precincts of the Phoenicians. The *grm* associated with *klbm* in the Kition plaque would then be puppies, like the many puppies who received individual, careful burial at Ashkelon. These dogs and puppies (or better their owners or attendants) received payment for services rendered, probably in the temples of Mukal/Rašp-Mukal.[181] Although we have not found a temple or any other architecture that can be associated with the many dog burials at Ashkelon, I think it very likely that there was either a temple or a sacred precinct with which these animals were associated.

The high concentration of dog burials, the type of interment in unlined pits, and the mortality profile of the Ashkelon dogs correspond to similar dog burials in Mesopotamia that are clearly associated with Gula/Ninisina, the goddess of healing. Her healing cult flourished at several centers in the second and first millennia B.C. A temple dedicated to this goddess was excavated at the site of Nippur in southern Iraq. A votive figurine found there of a man clutching his throat has been interpreted by the excavator, McGuire Gibson (1990), as signifying the ailment from which the suppliant hoped to be healed, or had already been healed. In cuneiform texts the temple of this goddess of healing is sometimes referred to as the "House of the Dog" (É *ur-gi₇-ra*), and her emblem is the dog (Livingstone 1988).

At Isin, another site in Mesopotamia about 30 km south of Nippur, numerous votive plaques and figurines depicting dogs were found in another temple of Gula, the goddess of healing. But even more revealing for our purposes were the 33 dog burials found in the ramp leading up to the temple, dated to ca. 1000 B.C. Like the Ashkelon dogs, these dogs were placed in shallow pit graves and then covered with soil.

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[181] Note the parallel to the Egyptian practice of paying the attendants of sacred animals associated with healing, described by Diodorus Siculus (*Bibliotheca historia* 1.83.2).

Although the sample of dogs excavated at Isin is quite small in comparison with Ashkelon, the mortality profile of the two dog populations is similar. Puppies comprised nearly half (16 of 33) of the Isin dog burials; the rest were adults and subadults. As with the dogs of Ashkelon, there was no sign that the Isin dogs had died of anything other than natural causes. And, like the dogs of Ashkelon, the Isin dogs were given careful burial, regardless of age at death (Boessneck 1977). At Isin, however, the dog burials are clearly related to the temple of Gula. These were once the dogs of Gula, the goddess of healing, roaming about the sacred precinct and participating in healing rituals. Although we have not yet found such a temple at Ashkelon, it is nonetheless likely that the dogs of Ashkelon performed the same role.

PART EIGHT

ARTS AND CRAFTS

31. A Cappadocian Cylinder Seal

by Abbas Alizadeh

[Editors' note: This chapter was submitted by the author in 1988 and has not been updated.]

A CYLINDER SEAL made in the "Cappadocian" style characteristic of the Old Assyrian merchant colony at Kaneš (Kültepe) in Anatolia was found in 1985 in Grid 38, Square 64, Layer 6. The layer in which it was found is dated ceramically to the Middle Bronze IIB. The design of the cylinder seal (figures 31.1 and 31.2) consists of scenes depicting three different themes: (1) worship/presentation to a king or god; (2) worship of a bull statue with an altar on its back; and (3) a chariot.

Theme 1. The first scene is a typical Isin-Larsa/Old Babylonian ritual theme. The main elements consist of a seated king,[182] an interceding goddess, and a personage following the latter. The seated figure is dressed in the usual Mesopotamian divine attire and holds a cup in his right hand. A long-necked bird is perched on his right forearm. In front of him in the background appear a crescent and a sun-disk with a double incomplete cross (see Buchanan 1981:no. 850). Below, in the space between the seated figure and the interceding goddess, are a V-shaped symbol or object consisting of two narrow, pointed petals[183] and an elixir vessel.[184]

The goddess has long, wavy hair and wears a typical Mesopotamian horned crown. Her costume consists of a long pleated and flounced robe. Her left arm is raised in reverence while her right arm presumably is clasped to her waist.[185] Above the goddess's head is a stylized vase.[186] Behind this interceding deity stands a personage with his right arm raised. He wears a long robe with a fringed edge draped from his left arm. From his waist the robe is divided into two vertical parts represented by oblique strokes meeting in the middle. His calotte is shown simply by incised diagonal lines, tapering toward each end.

Theme 2. In this scene a god, clad in a kilt and wearing the usual Mesopotamian horned crown, raises his right hand as he approaches an offering table and a statue of a bull. Above him is placed a typical Anatolian V-shaped symbol. The offering table has four legs, each terminating in a bovine shin. On top of the table there are four flat objects, probably loaves of bread, and a schematized bird. The bull is placed on a statue base or a schematized platform, which is crossed by three pairs of short vertical incisions at the center and ends.

Theme 3. The third scene consists of a four-wheeled chariot drawn by probably four animals. Standing in the chariot is a nude figure wearing a calotte depicted in the same fashion as that of the person following the goddess. He is holding the reins with his left hand and what appears to be a staff or whip in his right hand. In front of the chariot is a crouching feline with gaping mouth and upturned tail.

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[182] The head of this figure is damaged; the reconstruction of the hat as well as my assumption that he is a king rather than a god are based on the fact that in all worship/ presentation scenes of Ur III through Old Babylonian periods, as well as in the local Anatolian styles classified as Old Assyrian and provincial Old Babylonian, seated deities never hold a cup in their hands as opposed to the enthroned kings and rulers who usually do. Since the Ashkelon cylinder is basically of the Old Assyrian style, the seated figure must be a mortal being; cf. examples in Porada 1948, nos. 844–52, with Özgüç 1965, nos. 5–7. For an extensive treatment of the enthroned gods and kings, see Van Buren 1952.

[183] This element is similar to the Anatolian V-shaped symbol. The V symbol is normally placed on the upper part of the field; it is unusual to see it in the middle of the field near the elixir vessel. The V element on the Ashkelon cylinder is rather different from the one next to the elixir vessel and is placed as usual on the upper register. It might, however, represent an abstract rendering of a stemmed dish not so common in Babylonia (see Eisen 1940:pl. 7:54; Buchanan 1981:no. 421).

[184] This motif, common in the glyptic art of the early second millennium B.C. in both Mesopotamia and Anatolia, was originally a libation vessel (see Ward 1910:408–9, and, for a less abstract example, Buchanan 1981:no. 553; also Frankfort 1939:179; von der Osten 1936:40–41, fig. 12; Porada 1948:153). This vessel probably appeared during

the period between the end of the Akkadian and the beginning of the Ur III dynasties (cf. the example in Porada 1948:no. 254). In Anatolia, although this motif was popular during the period of Kanesh II, it was rarely depicted in the later Kārum Ib glyptic (cf. Özgüç 1968:pls. 1–29; see also examples in Lewy 1937:230ff.).

[185] This presumption is based on the traditional iconography of these ritual scenes; see the examples cited above.

[186] This vase is a schematized form of a vase of Mesopotamian origin. It is usually associated with the elixir vessel and commonly depicted above it; there are, however, examples that show this vase next to the elixir vessel or, rarely, right on top of it (cf. von der Osten 1934:pl. 15:180, p. 142). For various examples see the references cited above. For less abstract specimens, see von der Osten 1936:48–49, fig. 18:47, 49, pl. 6:49; Teissier 1984: pls. 139, 142, 215, 217.

Figure 31.1: Cappadocian cylinder seal and seal impression

Figure 31.2: Drawing of cylinder seal scenes

Discussion

The cylinder seal contains numerous elements in the details of the individual figures, the overall composition, and in the cutting technique that are readily comparable both to the glyptic style of the Old Assyrian colonies in Anatolia and to the glyptic style of the Isin-Larsa/Old Babylonian periods in Mesopotamia (see Porada 1948:pls. 46–51, 127–35; Moortgat 1966: pls. 38–41, 61; Buchanan 1981:nos. 694–753, 1100–4, 1118–19, 1128–29, and passim).

The first theme is a typical Babylonian worship/ presentation scene of the early second millennium B.C. (cf. Porada 1948:nos. 274ff.). It differs, however, from the Babylonian style in both overall composition and the depiction of various details (see Frankfort 1939:147, 155; Moortgat 1966:31–37; Porada 1948:37–41; Buchanan 1981:266, 277–79). Unlike the Babylonian style, the heads and facial features are very exaggerated and abstract. A thick, deep gouge makes up the entire neck and head; the faces are highly schematized and the prominent nose makes up almost the entire face. The space within the triangular or rectangular nose represents the eye, which sometimes bears a horizontal or oblique stroke for the pupil. Lips, chin, and, in the case of the seated figure, the beard, are indicated by shallow and short incisions. The hands are depicted in the shape of three-pronged forks; thumbs are not shown. The hand of the seated personage is not, however, rendered in the shape of a cup as is characteristic of the Old Assyrian/provincial Old Babylonian groups.[187] Instead, its curvature is very similar to the less abstract styles of the local Anatolian groups, in which four fingers and often the thumb are shown (see Özgüç 1965:pls. 2:5, 8:24a, 10:30, and passim).

Both the seated personage and the interceding goddess are clad in the usual Mesopotamian long pleated and flounced robes while the worshiper is shown wearing a garment with a fringed end, depicted by a vertical line crossed by short horizontal incisions and draped from his elbow (this detail seems to be limited to the Old Assyrian group; cf. Porada 1948:nos. 844–53 with 862–86). The costume

of the worshiper is closely paralleled in the Old Assyrian style of Anatolia; it differs slightly, however, from the usual costume of that style in that the lower part of the garment is divided into two parts by a vertical line and patterned on each side by a series of short, neat incisions. This detail is the usual element of the styles of the early second millennium B.C. in Babylonia (e.g., Moortgat 1966:pl. 38; Porada 1948:nos. 307, 315, passim), but it is rare in Anatolia.

In its iconography, costumes, and execution, this scene compares very closely with cylinder seals classified as Old Assyrian style in Anatolia. It differs from that style, however, in some minor details such as the rendering of the hand of the seated ruler, which is comparable to those of the local Anatolian style, the lower part of the costume of the worshiper, and the composition of the elements in the field. In the Old Assyrian style the figures involved in the worship/presentation scene are placed at the same level, whereas the Ashkelon cylinder seal resembles the local Anatolian style in that its elements are distributed in the field at various levels (see Özgüç 1965:pls. 1:2, 2:7, 5:15a, 8:24a). Moreover, in this scene the seated figure is depicted as larger than the goddess and personage, a detail that it shares with the local Anatolian styles but not with the Old Assyrian style.[188]

The second theme on the upper left is typically Anatolian. It consists of a bull statue with a pyramidal altar on its back, an offering table, and a worshiping deity advancing toward the latter. This god has a typical Mesopotamian horned crown and is clad in a knee-length flounced costume. The offering table is typically Anatolian. It has four legs, each with a bovine shin terminal (for an analytical treatment of this element, see Özgüç 1965:55–56).

Although the bull statue is a common component of the glyptic style of the Old Assyrian colonies, there are some details of rendering that have not been seen before (see Özgüç 1956:64–65 for a discussion of the bull-statue). The body is rather naturalistically rendered and patterned with oblique vertical short incisions, unlike the box-shaped and compartmentalized versions of the Anatolian styles. Though coarsely depicted, the hooves are carefully rendered and the bull seems to be advancing. A unique detail is

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[187] For the sake of convenience and to avoid confusion, the long established, although not indisputable, classifications and terminologies of Edith Porada, Nimet Özgüç, and Mebrure Tosun are used here. For discussion of the Old Assyrian, provinical Old Babylonian, and Anatolian groups, see Porada 1948:107–13 and Özgüç 1965:47–48; 1968:47–49; and for subdivision of the Anatolian groups into Saluwanta, Iliwedaku, and Rab-hättim styles, see Özgüç 1949:236ff. and Tosun 1965:186–87; see also Özgüç 1953:237–40 and nos. 709–23.

[188] In the great majority of Old Assyrian and provincial Old Babylonian examples, the seated figure is not larger than the worshipers, although sometimes because of carelessness and/or poor-quality draftsmanship he appears somewhat larger. In contrast, in local Anatolian examples it is obvious that in most cases an attempt was made to depict the seated figure as larger than his entourage.

the bull's dewlap. This naturalistic feature is rather schematically rendered by some oblique, shallow incisions. Although the head assumes a somewhat naturalistic shape and proportion, the horns and the muzzle are uncharacteristically highly schematized. The bull itself has natural proportions, and the tail is carefully rendered. These two details are shared by the local Anatolian styles (Özgüç 1965:pls. 4:2a, 5:15b, 7:21, 11:33b).

The overall composition and subject matter of this theme are certainly Anatolian, and the theme of the worship of the bull statue does occur frequently with the worship/presentation scenes. There are three iconographical details that distinguish this scene from known Anatolian styles of the Old Assyrian colonies. First is the short costume of the worshiping deity, who is rendered in the style of the Old Assyrian group. Deities in short kilts are known only in the local Anatolian and more frequently in the Old Syrian styles,[189] but never before in the Old Assyrian/ provincial Old Babylonian groups, in which deities are depicted with both typical Mesopotamian costumes and horned crowns.

The bull statue is also peculiar. In the Old Assyrian style the bull, when depicted, assumes a frozen gesture, and is box-shaped. The body is usually divided horizontally into two, three and sometimes four parts, each decorated with a series of either vertical, oblique, or herringbone patterns. It usually lacks the tail, but its horns and hooves are carefully and naturalistically depicted (see Porada 1948:nos. 847–48, 851–52, 855–61). Notwithstanding the highly schematized horns and muzzle, the bull statue of the Ashkelon cylinder seal compares more closely with those of the local Anatolian styles rather than other styles of the Old Assyrian colonies.[190]

Third, in the styles of the Old Assyrian colonies, when the worship/presentation scene is depicted, the V-shaped element, if present, appears in the scene and is sometimes repeated beyond it (see, e.g., Garelli and Collon 1975:pls. 48:4–5, 49:12, 53:48, 54:49, 55:60, 64). In the Ashkelon cylinder seal the V-element is absent from this scene, being associated instead with the worship scene of the bull statue.

The third theme is especially Anatolian and only appears in the local Anatolian styles. On the lower left part is depicted a nude man standing in a four-wheeled chariot drawn by probably four animals.[191] Only the hindquarters of one of these animals are preserved. The animal seems to have a stiff, short tail and short legs. Judging from the tail and legs it is unlikely that this animal was meant to represent an equid. Elsewhere on the seal the long tails of the bull and the feline are depicted and the one remaining animal of the chariot team proves that there is enough space for the long tail which one would expect if an equid were intended.

The crouching feline in front of the chariot has a gaping mouth and a tail turned up and forward, parallel to its body. It is rendered in the linear style, whereby the neck and the entire body are shown by short gouges that change direction to show different parts of the body.

Not only the chariot itself, but also the iconographic details and execution are typically Anatolian. Judging from the extant examples of the chariot scenes, they appear to be limited to the Rab-hättim style (see Tosun 1965:187; Goetze 1957:pl. 7:13); however, the Ashkelon scene is different in its composition and position (see Özgüç 1965:pl. 3:9; Tosun 1965:pl. 10:18; Frankfort 1939:pl. 11:n; Porada 1948:pl. 134:893). In the glyptic art of the Old Assyrian colonies, the chariot scenes are traditionally shown either filling the entire field or as a dual theme occupying a major area of the cylinder seal. In our example the chariot scene is pushed into the corner, becoming subsidiary to the main worship/ presentation scene.

In conclusion, we should be able now to discuss the problem of attributing the Ashkelon cylinder to one of the glyptic styles of the Old Assyrian colonies. The excavations at the Old Assyrian colonies in Anatolia and the numerous so-called Cappadocian tablets that have found their way to museums and private collections have produced an invaluable and vast repertoire of the glyptic styles of the early second millennium B.C. in Anatolia. The abundant examples and diversity of styles have long provided archaeologists and historians of ancient Near Eastern art with an inexhaustible and challenging body of material.

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[189] For local Anatolian examples, see Özgüç 1965:pl. 8:24a; and for First Syrian groups, see Porada 1948:nos. 964–68.

[190] Compare, e.g., Özgüç 1953:pl. 61:684; Özgüç 1965:pl. 2:7, 11:31b, 13:39. A cylinder seal from Kayseri shows on the lower register a row of lions and antelopes; the rendering of the heads and tails of these animals and the way the bodies are patterned with short, oblique incisions closely resemble the bull-statue on the Ashkelon cylinder (see Özgüç 1966:171ff., pl. 46:1).

[191] For identification and origin of this figure as Pirwa, an Indo-European deity, see Özgüç 1965:67–68 and references there. For his Anatolian origin, see Porada 1948:110, no. 893.

Attempts have been made primarily to classify the diverse glyptic styles of the Old Assyrian colonies (Frankfort 1939:242–51; Moortgat 1966:47–49; Porada 1948:107–14; Özgüç 1953:226–42; 1965:45–74; 1968: 39–61; Tosun 1965:183–88). Notwithstanding differences in terminology and iconographic interpretations, it seems warranted to conclude that the glyptic art of these colonies falls into at least four major groups: Old Syrian, local Anatolian, Old Assyrian, and provincial Old Babylonian. Except for some minor differences in iconography and subsidiary elements, the latter two groups are closest to the Mesopotamian glyptic styles of the Isin-Larsa/ Old Babylonian periods.

The local Anatolian group represents a style that has "emancipated itself most completely from the Old Babylonian style" (Özgüç 1965:47). This style is not homogeneous, however, and attempts have been made to subdivide it into three different local styles under the rubrics "Saluwanta," "Iliwedaku," and "Rab-hättim (Özgüç 1953:237–40; Tosun 1965:186–87). Whether the neat compartmentalization of the glyptic art of the Old Assyrian colonies into several styles is justifiable and applicable to the entire repertoire is outside the scope of this article. What is important to our study is that we have sufficient knowledge about the subject matter and composition of the glyptic art of the Old Assyrian colonies to enable us to distinguish examples that were produced in those colonies from those that were inspired by them and do not exactly fit within the glyptic tradition of early second millennium Anatolia.

At first glance, the Ashkelon cylinder seal exhibits great similarity to the styles of the Old Assyrian colonies, but it contains elements in both iconography and composition that do not fit the known Anatolian styles. The composition and distribution of elements in the field are within the tradition of the local Anatolian styles and the rendering is similar to that of the Old Assyrian style; however, the Ashkelon seal combines subject matter from different Anatolian styles. For example, the worship of the bull statue occurs with either the worship/presentation scene or the chariot scene, but never are all three themes seen together on the Anatolian seals. Some details are also inconsistent with the glyptic styles of the Old Assyrian colonies. The rendering of the head of the bull statue, the association of the V-element with the bull statue worship scene, the costume of the deity worshiping the bull statue, and the small space assigned to the chariot scene are all new in the Ashkelon cylinder and are foreign to the styles of the Old Assyrian colonies. It is therefore not unwarranted to assume that the Ashkelon cylinder was cut by a person who, though adhering to the principles of the traditional school of glyptic art of the Old Assyrian colonies, nevertheless had not been trained in that school.

32. THE CANAANITE SILVER CALF

by Lawrence E. Stager

IN THE summer of 1990 the Leon Levy Expedition unearthed an exquisitely crafted statuette of a calf, a religious icon associated with the worship of the Canaanite gods ꜂El and Baꜥal, and later with the Israelite god Yahweh (figure 32.1). The calf statuette was made of bronze overlaid with silver. It lay buried in debris on the ancient rampart that protected the city during the Middle Bronze Age. It was housed in a pottery vessel in the shape of a miniature shrine, which itself had been placed in a room of a small mudbrick building situated on the slope of the rampart. Other pottery found in this building dates to the MB IIB (see the discussion of "North Slope" Phase 11 in chapter 14 above and figure 14.30).

The ceramic shrine that housed the calf is cylindrical in shape with a beehive roof (figure 32.2). It has a knob on top of the roof and a flat bottom. A rectangular doorway raised slightly above the floor is just large enough for the calf to pass through. Hinge scars on the door jambs indicate where a separate clay door had once been fitted into place. The calf in its shrine can be compared to an image engraved on a second-millennium B.C. cylinder seal found at the site of Acemhöyük in Turkey, which shows a worshipper with raised hands standing before a bull or bull-calf that is poking its head out of a cylindrical shrine.

The Ashkelon calf statuette was located in what may have been a wayside sanctuary outside the northern city gate. Travelers entering the city from the Mediterranean shore, on the road that angled across the massive rampart up toward the city gate, would have been dwarfed by the imposing earthworks and towering fortifications on the north side of the city. About 100 meters along their ascent from the sea, they might have paused to make an offering at the calf sanctuary, beside the roadway on the right.

Figure 32.1: The silver calf and its shrine

Figure 32.2: Drawing of the pottery shrine
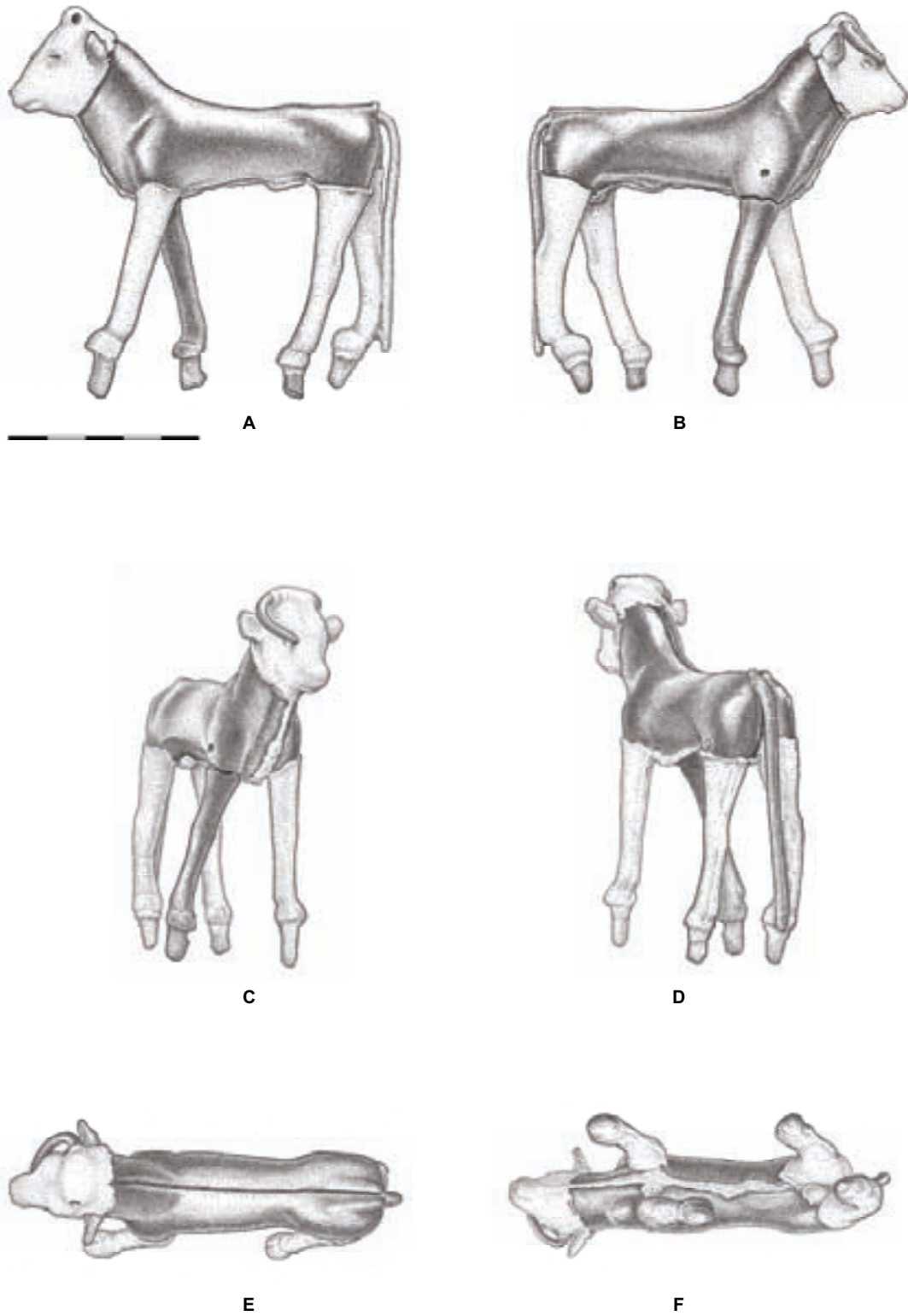
Figure 32.3: Drawings of the calf from various angles
A left side; **B** right side; **C** front view; **D** rear view; **E** top view; **F** underside
Drawings by Sarah Landry

Description

The calf statuette was nearly complete and intact when it was found (figure 32.3). The left horn was missing and the right foreleg was detached from the rest of the body. Although it is only 11 cm long and 10.5 cm high, the calf nonetheless weighs ca. 400 g. It is a superb example of Canaanite metalwork, as is shown by the delicate and naturalistic rendering of the features. It depicts a male calf about a year old in highly accurate detail. The ratio of body length to leg length, the slenderness of the body, the high setting of the tail, the high carriage of the scrotum, and the lack of development of the penis sheath all depict a yearling bull-calf (Stager 2006b:407).

The calf's body is made of an alloy of leaded tin-arsenic bronze. The body, head, and left front and right hind legs were cast as a single piece, probably using the lost-wax method. The right front and left hind legs were cast separately and joined to the body by tenons secured by rivets. The calf was cast upside down; the sprues, which would have been extensions of the rectangular tenons below the hooves, were then trimmed off. The tenons below the hooves were no doubt used to mount the statuette on a small platform or dais, which has not been preserved.

Analysis of the metal indicates that the right horn is nearly pure copper (the left horn is missing); the ears and tail are probably also made of copper. Holes were bored into the torso and the head of the statuette to attach these appendages. They were held in place by friction, not by solder. Such copper appendages indicate that the artisan knew the metallurgical properties of his materials, because pure copper is more ductile than copper alloys and can be more easily hammered into thin, wire-shaped pieces. On the other hand, it is much more difficult to cast pure copper than a copper alloy because the alloys are more fluid at lower temperatures than the pure metal. This accounts for the fact that the body of the statuette is made of a copper alloy.

The calf was once completely covered with an overlay of silver, traces of which have survived on the legs, head, and tail. The surviving silver leaf is 1.5 mm thick, but this includes corrosion products (silver chloride and silver bromide); the original silver leaf was probably only half as thick. Grooves 2–3 mm deep along the back and underside of the bronze body and around the neck still contain remnants of the thin silver sheets that had been fastened to the bronze casting to cover the calf. The silver was worked into the grooves, which were incised with a knife around the underside of the neck, along the middle of the back, down between the buttocks, and

along the center of the underbelly. The attention to naturalistic detail is especially noticeable in the treatment of the underside of the calf, where the silver sheeting was closely fitted around the cast scrotum of the young bull.

After the silver sheets had been carefully trimmed and fitted into the grooves, the soft silver was hammered to eliminate the seams, giving the statuette the appearance of solid silver. Indeed, this is an example, in bronze and silver, of the biblical *pesel ûmassēkâ* (e.g., Isaiah 30:22, "Then you shall consider unclean your silver-plated statues and your gold-covered images"; see King and Stager 2001:130).

Interpretation

It is significant that the Ashkelon bull-calf statuette depicts a calf and not a mature bull, for this is important in determining which deity he represents. The major gods and goddesses of the ancient Near East were sometimes identified by their sacred animals, whose characteristics emphasized prominent attributes of the deities themselves. ᵓEl, the father of the gods and the head of the Canaanite pantheon, was depicted in Ugaritic myths as a senior deity, a bearded patriarch. He was known by the epithet "Bull" (Ug. *ṯōru*; Heb. *šōr*). It would have been unseemly to describe or depict him as "Bull-calf" (Ug. ᶜ*iglu*; Heb. ᶜ*ēgel*), whereas this is a description of the storm-god Baᶜal (cf. *KTU* 1.3 and 1.6). Although Baᶜal is called the "son of Dagan" in the Ugaritic texts, a few texts refer to ᵓEl as Baᶜal's father and progenitor: for example, "Bull ᵓEl his father, King ᵓEl who created him" (*KTU* 1.3 v 35f.). Furthermore, in the Hurrian-Hittite pantheon, there was a clear distinction between the deity represented by the mature bull and the junior deity represented by the calf; for example, the storm-god Tešub and his consort Hepat had a son named Šarruma, the "bull-calf of Tešub" (Wilhelm 1989:50f.; see also Brody 1998:56f., n. 95).

The silver calf of Ashkelon was therefore most likely a divine emblem of the Canaanite god Baᶜal and not of ᵓEl. More specifically, it was probably an emblem of Baᶜal Ṣaphon. As W. F. Albright remarks: "Hadad [Baᶜal Haddu] was himself in a general way the storm-god, but Baᶜal-Ṣaphon was the marine storm-god par excellence, like Greek Poseidon" (Albright 1968:127). In the Assyrian king Esarhaddon's treaty with the king of Tyre, Baᶜal Ṣaphon (among other deities) was invoked to "raise an evil wind against your [Tyre's] ships" should the Tyrians violate the terms of the treaty (cf. Ezekiel 1:4; Proverbs 25:23). In later tradition, Baᶜal Ṣaphon was identified with Zeus Kasios, who was known as the protector of

sailors. His abode was Mount Ṣaphon (classical Mons Casius, today called Jebel al-Aqraᶜ), a mountain on the Syrian-Turkish border that descends dramatically to the Mediterranean Sea and is visible from far offshore. Baᶜal Ṣaphon seems to have been known already among the Canaanites and Egyptians living at Avaris (Tell el-Dabᶜa) in the Nile Delta in the early 13th Dynasty, where a cylinder seal was found that depicts Baᶜal Ṣaphon striding from mountain-top to mountain-top as a ship sails and a dolphin leaps in the sea before him (Porada 1984).

Although Yahweh, the god of Israel, inherited many characteristics from Canaanite ᵓEl, Frank Cross has noted that "Yahwism also owes a debt to the myths of Baᶜal. In the earliest poetic sources the language depicting Yahweh as divine warrior manifest is borrowed almost directly from Canaanite descriptions of the theophany of Baᶜal as storm god" (Cross 1973: 147). It was just such associations of Yahweh and Baᶜal, and the imagery of the bull-calf in particular, which led to the eventual prohibition of the bull-calf as an illicit symbol. After the kingdom of Israel split in two around 925 B.C., Jeroboam, the first king of the northern kingdom, installed "golden calves" (ᶜăgālîm) in the two main religious centers of his kingdom, Dan and Bethel. The association of Yahweh with calf images was obviously acceptable there.

Even earlier, during the United Monarchy, a terracotta cult stand from the Levitical city of Taanach depicts, in the top register, a frisky bull-calf with a winged sun disk on its back—a solar symbol of Yahweh, as in the "sun of righteousness . . . with healing in his wings" (Malachi 4:2; see King and Stager 2001:341–44). In the early monarchical period, therefore, the bull-calf was a permissible symbol of Yahweh. But after the United Monarchy had split apart into northern and southern kingdoms, certain prophetic groups and southerners (Judahites) rejected the bull-calf imagery, which continued in use in the northern kingdom, and they declared it an "idol." They saw it as an emblem of Canaanite Baᶜal, whose worship was not to be tolerated (in their view) by true Yahwists.

Thus the prophet Hosea disparaged the northern shrine at Bethel, calling it "Beth Aven," meaning "house of iniquity" (Hosea 4:15; 5:8; 10:5); and, in terms that recall the craftsmanship of our silver calf from Ashkelon and the cultic use of such images, the same prophet declared that the northern kingdom (here called Ephraim) was doomed:

> When Ephraim spoke, there was trembling; he was exalted in Israel; but he incurred guilt through Baal and died. And now they keep on sinning and make a cast image for themselves, idols of silver made according to their understanding, all of them the work of artisans. "Sacrifice to these," they say. People are kissing calves! (Hosea 13:1–2 [NRSV])

33. AN EGYPTO-PHOENICIAN STONE STATUE FROM THE SEA

by Avner Raban

IN the course of the initial offshore survey that was conducted in 1985 by the Centre for Maritime Studies of the University of Haifa on behalf of the Leon Levy Expedition to Ashkelon (see chapter 4a), we discovered a life-size stone statue of a barefooted male done in an Egypto-Phoenician style (figures 33.1 and 33.2). This statue was discovered quite fortuitously on the last day of diving. Our survey had begun with remote sensing and manual bathymetric mapping of the near-shore sea bottom to determine the topography of rocky formations and the location of encrusted debris, clay sediments, and seasonally shifting sand bars. Our maps were then corrected and completed with additional data recovered during visual surveys by divers and with data derived from sedimentological probes, both in the sea floor and on land. The outlines of various geomorphological features were detected and surveyed further in order to reconstruct ancient waterlines and beach deposits.

During the final phase of our survey we studied archaeological materials on the sea bottom, in an attempt to determine how they got there and to use them to date of submergence of various topographic features. Stone and iron anchors indicate locations of ancient anchorages, while submerged walls and structural components (e.g., stone columns) indicate the submergence of ancient land sites. Wave-worn sherds of transport amphoras indicate the places where goods were loaded and unloaded at mooring sites, and well-sorted debris indicates breaker zones.

Our survey found no archaeological evidence for maritime activity near the present shoreline from any period before the Persian era, even though Ashkelon has been a bustling seaport since at least the Middle Bronze Age (early second millennium B.C.). The sea may have been shallower during the Bronze and Iron Ages, so that the water line was farther west than it is now. There is considerable evidence of activity in the Roman and Byzantine periods, on the other hand, suggesting that by then the shore was close to its present line. Indeed, the sea level may have been somewhat higher than it is now, providing inlets at Ashkelon that are silted up at present.

Despite the dearth of preclassical finds, we came across one fascinating artifact—the stone statue— which probably dates to the late Iron Age (eighth or seventh century B.C.). During the very last day of the underwater survey, the sea bottom off the north end of the tell was searched by our divers (see the map in figure 4.1, Grid 101). At this place there are remains of reused Roman columns that were laid from the beach into the water, as if to form the base of a sea wall or some kind of pier. This structure is buried in sand most of the time, and it is almost completely eroded on its western side, being constantly undercut by the waves and carried off by the rip current.

This northern pier made of stone columns resembles a more elaborate pier off the southern end of the site. Both of them seem to have been originally incorporated into the sea walls that were built to protect the city during the medieval period. Similar structures are known at Caesarea Maritima (Raban et al. 1976:32–34). As it happens, the position of the ever-shifting sand bars at the time of the survey (in September 1985) had caused extra sand to cover the northern pier itself, but had also exposed the rocky sub-bottom farther west to an unusual extent. There, about 100 m offshore, at a depth of 3–5 m on the very uneven rocky bottom, we found a large group of stone architectural components and heavy, stela-like pillars, among which was the statue (see the photographs in figures 4.29 and 4.30).

Since it was the last day of the season and the sea bottom was exceptionally free of sand, it was decided to salvage the statue, mark its exact location, and come back to the area at a later time. As expected, the area was soon covered by an additional 1–2 m of sand, and only during the latter part of the 1987 season was it again exposed enough to be excavated. An area of approximately 50 × 50 m was carefully surveyed. Most of the manmade features there were cleared of sand, drawn, photographed, and plotted on a master plan. The wave action, friction from shifting sand, and marine growth had caused extensive distortion of the original shape of the architectural components and other artificial features. Marble columns and architrave blocks were eroded by the shifting sand to approximately half their original size, mainly by losing much of their breadth at the elevation of the average sandy floor. Higher parts were found to be encrusted by a biogenic coating some 0.2–0.3 m thick. Some basalt stelae were less eroded, but coated with marine encrustations to the extent of becoming agglomerated to the natural rocky outcrops.

Figure 33.1: Life-size basalt statue of a male figure found on the seabed near Ashkelon (front, side, and back)
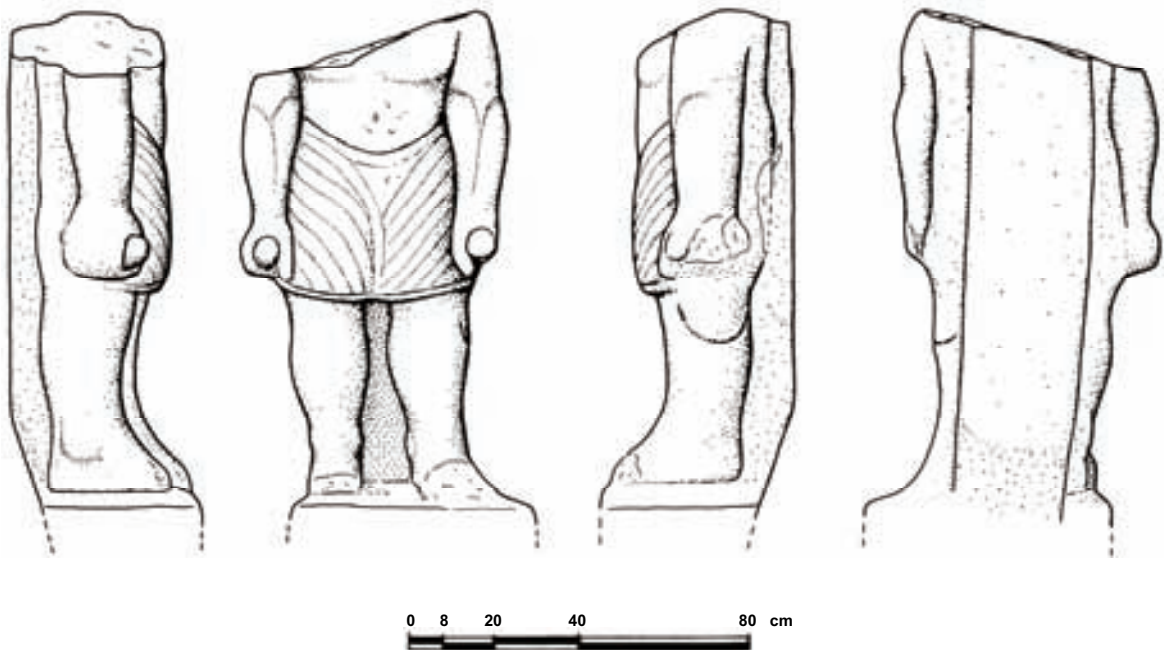
Figure 33.2: Drawings of the statue showing (right side, front, left side, and back)

Among the archaeological remains in this location were approximately a dozen large, stela-like slabs of basalt and sandstone, four of which were salvaged in 1987, as well as two marble column drums. These were put on display next to the statue at the Municipal Museum of Ashkelon.

Several stone anchors were also salvaged, although the larger ones were left in place. These anchors vary in shape and size and seem to come from different time periods. Among the largest of them are two three-hole stone anchors and one single-hole anchor that each weighed well over 100 kg. Other anchors found in the same area are smaller; they may have been made by local Arab fishermen in recent centuries.

Although the rate of marine faunal growth and the rate of abrasion caused by shifting sand are not known, the extent to which both phenomena have affected the stelae and column drums suggests a relatively long period of exposure to these processes. It is very unlikely that such heavy stone objects had been washed by high waves from a position on land, in light of their close proximity to one another and their distance from the shore. It is more likely that they represent the site of a shipwreck, where a vessel carrying them had capsized. It is true that the statue and some of the stelae appear to be from an earlier period (i.e., late Iron Age) than the architraves and columns, but this can be explained by supposing that the various materials had been robbed from a temple or other public building in Ashkelon and were being shipped together away from the city.

The Statue

The stone statue is made of gray, fine-grained basalt with some limonite particles in it. It has been preserved to a height of 1.28 m, but its original height was ca. 1.7 m. It is a lifesize figure of a barefooted male, stepping forward with his left foot and holding his hands down along both sides of his torso. His only dress is a knee-length, two-part kilt with no separate belt. The kilt has folds going diagonally inward and down from the hips to between the slightly parted legs, to a trimmed lower edge. Both hands form fists around objects with rounded ends that face forward. No necklace or other neck ornamentation is visible, even though the statue has been preserved to just below the shoulders. Although the statue was sculpted in the round, a rectangular pillar was left along the center of the back.

The maximum width of the statue is 0.63 m and its maximum depth from the front of the chest to the back of the pillar is 0.46 m. The sculptor hollowed out the space between the parted legs to a depth of 12–15 cm, backed by the pillar. The stepping forward of the left leg is only hinted at—more by emphasizing the right knee and placing the lower part of the right leg slightly behind than by the fact that the left foot is a couple of centimeters forward. Looking at the statue from the side or from the front gives the impression of a figure standing stationary rather than one in motion.

The statue's surface is somewhat abraded, so it is probable that some of its features are worn away or have been distorted and rounded. This may be the case with the missing belt, the rounded ends of the objects held in the fists, and the rounded shape of the limbs. In this context it is interesting to note the relatively well-developed muscles on the inner sides of the arms.

Discussion

The statue's findspot on the sea bottom cannot indicate its date or origin. As mentioned above, the most likely explanation for its location among various stone slabs and columns is that it was part of a cargo of reused building materials that sank as it left Ashkelon. Alternatively, it could have been on its way to Ashkelon, although this seems less likely in light of the miscellaneous character of the cargo, unless it were booty robbed from some other site and sent to Ashkelon as building material. Least likely is the scenario in which the statue was not submerged at the same time as the stelae and columns but somehow fell into the same spot on the sea floor at a different time.

Stylistically, it is clear that this statue belongs to a long-lived Egyptian tradition of sculpting barefooted and kilted males whose fists hold rod-like objects pressed close to the sides of the body and whose left legs step forward. This can be found in Egyptian sculptures as early as the beginning of the Old Kingdom; for example, in the Fourth Dynasty statue of Men-ka-re at Giza (Reisner 1931:109–10, pl. 45d). The same basic style can be found in Egyptian sculptures of all periods, including the the Hellenistic and Roman periods.

The dress is also of Egyptian origin, yet not truly Egyptian. Divine or royal figures in Mesopotamia and Anatolia are usually depicted wearing long garments that fully cover the body, but Egyptianizing statues from the Levant feature variations on the three-part kilt typical of the Nile Valley. An Egyptianizing bronze figurine with the same pose and kilt was found in a Middle Bronze Age context at Byblos (Seeden 1980:pl. 85, nos. 1503 and 1506; pls. 86–87,

nos. 1511–16). No life-size stone statues of this type have been found in Bronze Age contexts outside Egypt, but there are Iron Age examples from Byblos. The upper part of a basalt statue of Pharaoh Osorkon I (924–895 B.C.) was found there, with an additional inscription dedicating it to Eliba^cal, king of Byblos (Dussaud 1925:pl. 25). This is not a direct parallel to the Ashkelon statue because only the upper part is preserved and it is not Egypto-Phoenician but rather a purely Egyptian statue, as can be seen in its style, the type of stone used, and the artistic execution.

A few other locally made stone statues were found in Byblos, however (Dunand 1928:pl. 1:15; pl. 49:2). Two are broken lower parts of life-size sitting figures, another depicts a royal figure sitting on a throne (Montet 1928:29–30, pl. 29), and another is a standing male of colossal size, 2.9 m high, made of limestone (Dunand 1939:67, pl. 26). This colossus is the closest parallel, both in style and execution, to the statue found in Ashkelon. Unfortunately, it cannot be dated on stratigraphic grounds because it was found in a fill of tumbled debris at the foot of a Roman colonnaded street (Montet 1927:127; Zidezian 1968: 114). The excavator dates it stylistically to the Iron Age Phoenician period, placing it among "provincial imitations of Egyptian sculpture, to be considered as classical Phoenician craftsmanship" (Dunand 1929: 213).

The limestone colossus from Byblos has the same pose as the Ashkelon statue, with its left leg slightly forward and feet somewhat apart (figure 33.3). The lowered arms are pressed to the sides of the torso with hands clasping round-ended objects, but the kilt is somewhat different. Being made of limestone, it was even more eroded than the basalt statue from Ashkelon, missing surface features such as the details of the kilt or the outlines of muscles.

The Byblos colossus probably depicts a local ruler. It was presumably made in a strongly Egyptianizing style at a time of renewed Egyptian influence in Byblos, either during the time of Sheshonq I and Osorkon I in the late tenth century B.C., or in the heyday of Necho I near the end of the seventh century B.C. (Dunand 1939:71–72). Although the other broken limestone colossi found earlier by Montet were probably re-erected for display in a Roman Temple of Isis(?), it is quite clear that they originated from an earlier Phoenician temple that had been on that site (Dunand 1928:176–77).

Aside from providing a close stylistic parallel to the statue from Ashkelon, the colossus from Byblos resembles it also by having the same kind of secondary archaeological context in the midst of later Roman and Hellenistic material. Since both Byblos and Ashkelon partook of a strong Egypto-Phoenician tradition from the Bronze Age to the time of Alexander the Great, these similarities are more than coincidental. In both cities there was a famous temple for Isis-Aphrodite. At Byblos this temple was probably the original site of the limestone colossi (Zidezian 1968:114), and, according to Herodotus (1.105), a similar temple at Ashkelon was plundered by the Scythians when they raided the coast of Philistia in ca. 633–632 B.C.

There are not many other Egyptianizing stone statues known in the Levant; the few that have been recovered so far come mostly from sites in Syria and Lebanon—for example, the statues from Umm el-^cAmed, in southern Lebanon that were found in the Phoenician temple of Milk^ɔaštart-Hammon of the Hellenistic era. One statue there, which probably came from the right pilaster of the temple's gate, was found with its head missing. It retained only the right hand, in the same lowered position as on the statue from Ashkelon. Although it is also made of limestone

Figure 33.3: Limestone colossus from Byblos
(Dunand 1939: plate 26)

and therefore badly eroded, the artistic treatment is not the same as that of the colossus of Byblos or the statue from Ashkelon.

Two other, somewhat smaller than life-size limestone statues were found at the same site. They are also Egyptianizing in style but they differ in their posture from the Ashkelon figure. One is dedicated to ᵓEl and the other to Osiris (Dunand and Duru 1962: 49, 156, 193–94, pls. 30, 68, 83). A similar statue of a standing male with his right hand outstretched and his left hand on his chest was found in Motya, the Phoenician settlement in western Sicily. It was dated to the sixth-fifth centuries B.C. (Tusa 1965:pl. 19:3).
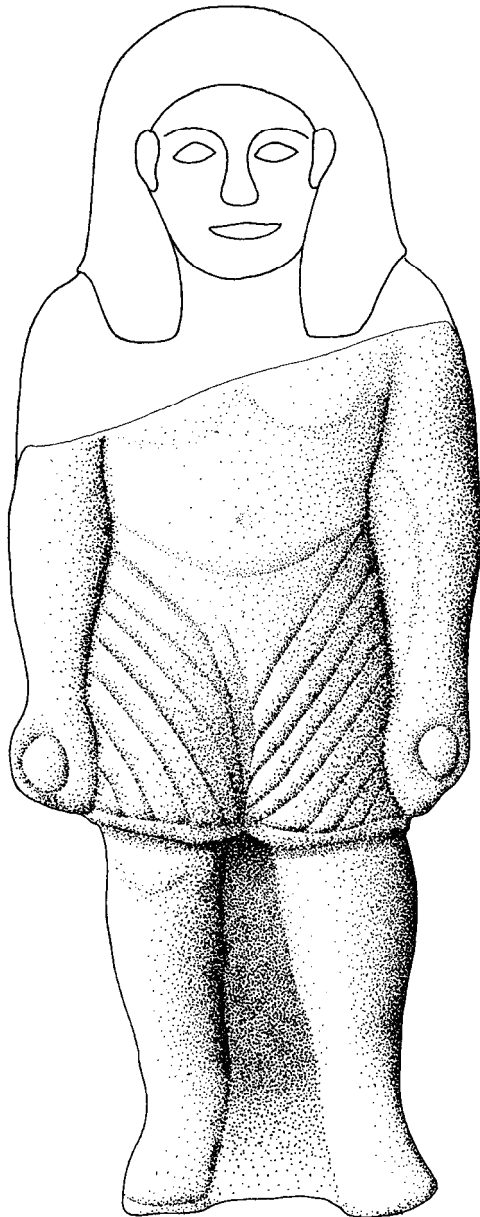
Figure 33.4: Reconstruction of the Ashkelon statue

Two other stone statues made of basalt have been found, one in Hama in Syria and the other in Tyre. The statue from Hama is of a half-reclining male wearing an Egyptian kilt much like that of the Ashkelon figure (Fugmann 1958:240, fig. 315). Although the Hama statue was found as a headless and limbless torso, the part that remains shows a much more "freestyle" pose than the frozen, ritualistic pose of the Ashkelon figure. The Hama statue is dated on stylistic grounds either to the seventh or fourth century B.C., reflecting renewed Egyptian influence in Phoenicia either at the time of the Twenty-sixth Dynasty (663–625 B.C.) or the Thirtieth Dynasty (378–341 B.C.). The earlier, sixth-century date was preferred for the statue from Hama (Spycket (1981: 425–26, fig. 88), and the later, fourth-century date was preferred for the statue found at Tyre (Spycket 1981:424, pl. 275).

The Tyre statue had lost its head, right hand, and legs below the knees. It is of a male wearing an Egyptian kilt and *shendit* shoulder dress. The remaining hand holds an object in its fist, but it is depicted in a freestyle manner, with the elbow pulled somewhat backward. The left leg matches this gesture by moving forward. The execution of the muscled surface of the torso is by far more realistic and elegant than that of the Ashkelon statue. The same is true for the detailed treatment of the kilt, the belt, and the series of Egyptian-style ornaments attached to it.

Bronze figurines are another source of comparative material for sculptures such as our Ashkelon statue. Although they are miniaturized versions of the life-size statues, these figurines represent the same Egyptianizing tradition in Phoenician art, with the same traditional prototypes in mind. Of the hundreds of bronze figurines of this sort found in the Levant, the group that depicts a standing male with Egyptian-style kilt, stepping forward with his left leg, is divided into two subgroups. In one subgroup are figurines in which the hands are raised, either in a gesture of prayer (with two forearms toward the front, or else with the left arm on the chest) or brandishing weapons (see Negbi 1976:21–28; Seeden 1980:123–26, nos. 1790–1801, 1803–1812). In the other subgroup are figurines with their hands down along the sides of the hips, clasping rod-like objects, like the statue from Ashkelon.

Some of these figurines were found in the Byblos excavations. The earliest context is the Temple of the Obelisks, which is dated to the Middle Bronze Age (see, e.g., Seeden 1980:pl. 84, no. 1500; pl. 85, no. 1510). A better parallel comes from the Offering Field next to the Temple, which might be dated to the Late Bronze Age or perhaps even the early Iron Age

(twelfth–eleventh century B.C.; Seeden 1980:pl. 33, no. 210). This figurine has a kilt which, along with the figure's gestures, causes it to resemble the Ashkelon statue more closely than any other figurine from Byblos. The problem of accurate dating for the various artifacts retrieved from the Byblos excavations is rather annoying, however. Both in the Offering Field and the Temple of the Obelisks there are finds from a wide range of time periods.

Other and perhaps even better parallels—with broader waists, lumpier legs, and hands closer to the torso—come from Cyprus. One such figurine was found at Kition, outside the courtyard of the Temple of ᶜAštart in a layer corresponding to Floor 2A of the second Phoenician temple, dated by the excavators to ca. 800–600 B.C. (Karageorghis 1976:104, pl. 19:3; Seeden 1980:124, pl. 112, no. 1802). A very similar figurine, now in the Fitzwilliam Museum in Cambridge, was acquired in Cyprus, but from an unknown provenience (Seeden 1980:124, pl. 113, no. 1803). Another figurine was found in Idalion (Dhali) in 1868, at the site of the sanctuary; it is dated to the "Archaic Period" (Gjerstad et al. 1948:8; Seeden 1980:125, pl. 113, no. 1806).

Other bronze figurines from Cyprus, also from the Archaic Period, are of the same type but have less similarity to the statue from Ashkelon, mostly because they depict a posture in which the left foot is placed well in front of the right (Seeden 1980:nos. 1804, 1805, 1807). A similar type of figurine was found at the site of the Heraion on Samos, probably also from the same period (Jantzen 1972:22–23, pl. 25.B.1604). There is a comparable bronze figurine from Ashkelon itself, found with a group of other bronze figurines and dated by the excavator to the fourth century B.C., but possibly to be dated earlier (see Iliffe 1936:64, pl. 32.1 and chapter 9 above).

Conclusion

The basalt statue that was found on the sea bottom offshore from the site of Ashkelon is the first of its kind to be found in the region of Philistia, or in Palestine in general. Although the head and shoulders of the male figure did not survive, the remaining portion preserves enough of its original features to allow us to identify it as an Egyptianizing sculpture of a type commonly used to depict Canaanite deities and probably even human rulers, although this type was more often rendered in the form of small bronze figurines than life-size stone statues. The Ashkelon statue is quite similar to Phoenician stone sculptures of the first millennium B.C.

From the ill-dated repertory of parallels from Syria, Lebanon, Cyprus, and the Aegean, the closest parallels in style and execution are the limestone colossus from Byblos and the bronze figurine from Kition. Both of these are very probably products of the Iron Age—perhaps from closer to the end of that period (seventh century B.C.) than the beginning. Later statues of this type are less rigid and more realistic, more "freestyle" in their posture, perhaps due to Greek artistic influence. In the earlier parallels more emphasis is placed on certain details, especially the kilt and other aspects of dress.

As for the place of manufacture of the Ashkelon statue, it is certainly to be sought in the north, in a Phoenician or Phoenician-influenced workshop that had access to fine-grained basalt. Although its date of manufacture is difficult to determine, the strongly Egyptianizing character of the statue points to either the pre-Assyrian era, during the Twenty-third Dynasty, or the short period of renewed Egyptian political presence in Philistia under the Saite dynasty, in the second half of the seventh century B.C.

These conclusions concerning date and provenience are necessarily tentative, being based on plausible inferences rather than direct evidence. More firmly established conclusions might be possible in the future, if more components of the statue's original context are recovered from the sea floor, or if the site of the alleged temple from which this monument was plundered is located and excavated on land.

34. The Manufacture of Bone Artifacts

by Paula Wapnish

The 1985 excavations at Ashkelon yielded evidence for the large-scale manufacture of bone tools and artifacts at the site. In addition to finished pieces, numerous wasters and blanks were recovered, along with pieces in various stages of manufacture. Taken together, they show a reduction sequence from raw material to finished product that has not been documented previously on this scale at a historical-period site in the Levant.

Most of the material comes from deposits of the Byzantine and Islamic periods, with some specimens coming from Hellenistic and mixed Hellenistic-to-Byzantine deposits. It is possible to show that the scanty earlier material belongs to the same long-lived boneworking tradition as the Byzantine and Islamic material; thus all suitably worked specimens will be treated here as part of a coherent manufacturing tradition.

Table 16 shows the spatial and temporal distribution of specimens organized by category. The overall criterion by which these categories were defined is the visual similarity of the worked specimens, but so broad an organizing principle makes for groups of mixed character. An apparent similarity between specimens sometimes results from the fact that the pieces in question derive from the same types of bone (e.g., the shafts of long bones). In other cases, the similarity results from the fact that the pieces are unfinished and reflect the same stage in the reduction sequence. And sometimes the categories are based simply on shape; that is, similarly shaped sections of bone from the same or different bone-element types are grouped together regardless of the stage in the reduction sequence. Thus bone waste, blanks, and finished pieces may all be present in the same category. The numerical sequence of the categories broadly follows the reduction sequence, however, so that lower numbers usually signify bone that is not worked or was only minimally worked, while higher numbers represent the more modeled or finished pieces.

At present, a more consistent organization of the material cannot be achieved. It is fair to say that the classification employed here is the result of a pragmatic attempt to arrange more than 300 specimens into a coherent whole for study rather than an attempt to delineate classificatory units with theoretical elegance. This untidy arrangement is due to the fact that our knowledge of the reduction sequence is incomplete. It is often difficult to determine whether a given piece of worked bone had been completed because we do not know how many stages intervened between the initial blank and the final piece.

What is clear, however, is that rough-outs or blanks are missing for some artifact types that are represented by finished pieces. This is probably due to the nature of the deposits from which the pieces were recovered, rather than being due to the practice of manufacturing only certain items at the site while importing others. The fact that similar working techniques were used to produce both finished and unfinished pieces, and the wide variety of finished pieces that were found at Ashkelon, point to local manufacture.

We can compare this to the situation at Carthage, where Hutchinson and Reese (1988) report that bone-working debris recovered from dumps of the late fourth and early fifth centuries A.D. in the vicinity of the circus reflects workshops that specialized in the making of pins and inlays, to the exclusion of most other types of bone implements. Bone needles, spoons, and combs are, however, reported from other locales at Carthage. These could have been imports, but it is more likely that they were manufactured at different local workshops whose dumps are as yet unexcavated.

The contrast with Ashkelon is probably rooted in taphonomy rather than differences in the organization of production. The Ashkelon sample comes from cultural debris that seems to have accumulated in a wider set of contexts than at Carthage. Most of the finished pieces in the Ashkelon collection can be classed as utilitarian objects, but the workmanship with which they were executed testifies to the professional status of their makers. Some of the carved pieces may be said to exhibit the qualities that render fine bone carving one of the minor arts.

Bone was not the only skeletal material to be worked, and the craftsmen who modeled bone often worked with ivory and antlers as well. Several ivory pieces present in the Ashkelon collection are discussed below because the techniques of modeling are parallel to those used in boneworking. No worked antler was found.

Table 16. Distribution of Bone Artifacts by Date Range and Grid Location for Each Category

Category	Grid-squares (in bold type) and date-range codes of bone artifacts					
1a	**57.58**: 1, 1, 4, 1	**50.58**: 2, 2, 4, 1	**57.68**: 2, 1, 1	**38.53**: 2		
1b	**38.54**: 1	**57.68**: 1				
1c	**57.68**: 2, 1	**38.54**: 2				
2a	**50.58**: 1, 1	**57.58**: 2, 1	**57.68**: 3, 2			
2b	**50.58**: 1	**57.58**: 3	**57.68**: 2			
2c	**50.58**: 1	**57.68**: 1, 2				
3a	**38.54**: 4	**41.7**: 3	**50.58**: 2	**57.58**: 2	**57.58**: 4, 1, 1	
3b	**38.54**: 1	**41.7**: 4	**57.58**: 1	**57.68**: 1		
3c	**41.7**: 1	**57.68**: 1				
3d	**41.7**: 3					
3e	**41.7**: 1					
3f	**38.54**: 2, 1, 1	**38.64**: 1, 1	**50.58**: 1	**57.58**: 1, 1	**57.68**: 1, 1	
3g	**38.54**: 2	**41.7**: 1	**50.58**: 1	**57.58**: 1	**57.68**: 1	
3h	**57.68**: 1					
3i	**38.54**: 1	**50.58**: 1, 1				
3j	**38.83**: 1					
3k	**38.54**: 1	**41.7**: 1	**57.68**: 1			
3l	**50.58**: 1					
4a	**38.54**: 3	**41.7**: 4, 1, 14				
4b	**38.73**: 1	**41.7**: 1				
4c	**38.73**: 1					
4d	**38.54**: 1					
5a	**57.58**: 1	**57.68**: 1, 2				
5b	**38.83**: 1	**50.58**: 1				
5c	**41.7**: 1	**57.58**: 1, 1, 1	**57.68**: 4, 1, 3			
6a	**57.58**: 1	**57.68**: 1				
6b-1	**38.64**: 1	**57.58**: 1	**57.68**: 1			
6b-2	**38.54**: 1	**57.58**: 1, 3	**57.68**: 1, 2			
6c	**38.54**: 1	**50.58**: 1				
6d	**50.58**: 1					
6e	**57.58**: 1					
6f	**38.63**: 1					
7a	**38.53**: 1, 1	**38.54**: 1	**41.9**: 1, 1	**50.58**: 1, 3	**57.58**: 2, 1, 7, 1, 1	**57.68**: 1, 4, 2, 3, 6
7b	**38.83**: 1, 14	**41.7**: 2, 3	**57.58**: 1, 1	**57.68**: 1	**50.58**: 1	**38.52**: 1
8a	**38.54**: 1	**57.68**: 1				
8b	**50.58**: 2	**57.68**: 2, 2				
8c	**41.7**: 1	**50.58**: 1				
8d	**41.8**: 1					
8e	**38.54**: 1					
8f	**41.7**: 1					
9a	**38.64**: 1	**41.7**: 2	**50.58**: 1, 1	**57.58**: 1	**57.68**: 1, 1	
9b	**57.68**: 1, 1					
9c	**38.83**: 1	**57.68**: 1				
9d	**38.54**: 1	**50.58**: 6	**57.58**: 13	**57.68**: 1, 11		
10a	**57.58**: 2, 1	**57.68**: 1				
10b	**38.54**: 1					
11	**57.58**: 1	**57.68**: 1				
12	**38.83**: 1					
13	**38.53**: 2	**38.54**: 1	**38.64**: 1	**57.58**: 1	**57.68**: 1	
14	**38.73**: 1	**38.53**: 1	**38.54**: 1, 1			

Date-range codes: 1 = Persian to Hellenistic; 2 = Persian to Islamic; 3 = Hellenistic; 4 = Hellenistic to Byzantine; 5 = Hellenistic to Islamic; 6 = Late Roman/Byzantine; 7 = Late Roman to Islamic; 8 = Byzantine; 9 = Byzantine to Islamic; 10 = Islamic; 11 = Islamic (13th cent.); 12 = Mixed; 13 = No date assigned; 14 = Late Bronze Age/Iron Age I

Horn, the keratinous sheath surrounding the bony horn core structure of bovids, is another skeletal material fashioned into various items. The horner's techniques and procedures differ enough from those of bone-carvers that two groups of craftsmen usually exist. But both groups draw on the same supply of raw material in the form of animal carcasses, so the horn cores found at Ashkelon are also considered below.

More than two-thirds of the specimens in the Ashkelon collection are from unfinished pieces. Interestingly, none of the finished or nearly finished pieces shows evidence of coloration, which may be a possible gauge of their incompleteness. Marangou (1976) notes extensive use of pigments on bone and ivory carvings from Alexandria to camouflage blemishes or highlight decorations. Almost all extant incised plaques show traces of colored inlay applied to the grooves, and whole figures or motifs were often colored for embellishment. Light to dark reds and black were commonly used. MacGregor (1985) also mentions the use of color on European bone items. Green was a favored hue, and frequently applied to bone pins of the Roman period.

Bone Composition and the Mammalian Skeleton

Bone is a readily available raw material, but not all kinds of bone, or all parts of a single bone, can be worked.[192] It is useful to review here the main characteristics of mammalian bone as an aid to understanding the manufacturing sequence.

Mammalian bone is a tissue composed of organic and inorganic elements. These combine in various ways, depending on the part of the skeleton, to form two distinctive osseous macrostructures. Cortical bone consists of dense layers deposited during bone formation and remodeling. It appears solid, with no spaces except channels for blood vessels. It contrasts with trabecular or cancellous bone, which is formed by tiny interwoven bony plates that give it a porous appearance.

Each of these two bone types occur in different parts of the mammalian skeleton. Cancellous bone is found at the ends of long bones where it forms the supporting structure for articular surfaces. Bone from these areas is characterized by a thin surface backed by spongy material. Cortical bone makes up a strong

external envelope surrounding the internal tissues, as in the shafts of long bones. The typical distribution of these tissues is seen in figure 34.1, while figure 34.2 illustrates the main zones of a long bone.
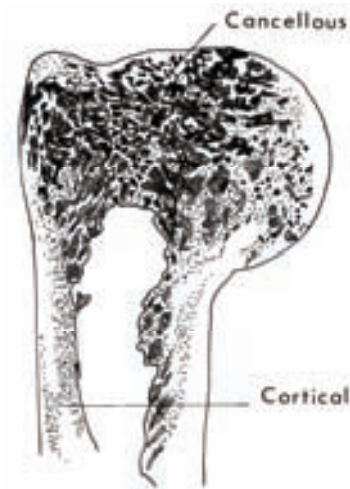
Figure 34.1: Distribution of cortical and cancellous bone tissue
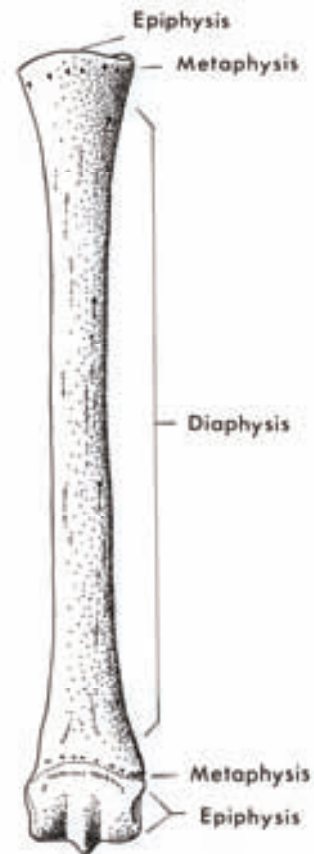
Figure 34.2: Zones of a long bone

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[192] Currey (1984) provides an excellent description of the composition and nature of bone. For shorter treatments of the topic emphasizing the use of bone as a raw material for manufacture, see MacGregor (1985), S. O'Connor (1987), and T. P. O'Connor (1987).

Most bone objects require the solid structure of cortical bone, with a few exceptions as noted below. Examination of the finished pieces in the Ashkelon collection shows this very clearly. Needles, dowel-like tools, and the thicker bone sections modeled into decorative elements require cortical bone. Thinner decorative elements, such as inlays, need at least one side with no interior bone and a minimum of natural curvature so that they can lie flat. Bone that is fashioned into implement handles has to be strong enough to withstand the shock of use.

The Raw Material Supply

The mammalian skeleton is conventionally divided into two parts. The axial skeleton comprises the skull, vertebrae, ribs, and sternum. The appendicular skeleton consists of the shoulder bones (scapulae) and hip girdles (pelves), the long bones of the limbs, and the extremities (figure 34.3).

Figure 34.3: The mammalian skeleton

Although we can assume that entire skeletons were available for boneworking, it is apparent that only some bone elements from certain animals were selected, depending on the finished product to be made.[193] The earlier stages of the manufacturing sequence (Categories 1–5) often allow distinctions of bone type and species to be made, a determination that cannot be made for pieces from later stages of manufacture, when the raw material has been considerably altered.

When species could be identified, the specimens in Categories 1–5 show that only the bones of camels (*Camelus* sp., probably the dromedary) and cattle (*Bos taurus*) were selected; eighteen camel bones and thirty-six cattle bones are present. Specimens designated "Large Mammal" might have come from cattle, camels, donkeys (*Equus asinus*), or horses (*Equus caballus*).

This restricted list of species points to the almost exclusive utilization of the large domesticates. Only one specimen considered part of the sequence derives from a sheep (*Ovis aries*) or goat (*Capra hircus*). No wild animals were detected in the worked bone corpus, even though a likely candidate among undomesticated animals is the hartebeest (*Alcelaphus* sp.), a large African antelope whose remains have been recovered in the excavations at Ashkelon. As was mentioned above, no worked antler is present, despite the fact that antler is a sturdier raw material than bone (MacGregor 1985). We might also have expected to find small numbers of deer, although their absence is not too surprising because the coastal region around Ashkelon does not provide the kind of forested habitat preferred by the cervid species that was most common in the area, namely, the Mesopotamian fallow deer (*Dama mesopotamica*). The hartebeest and fallow deer are smaller than cattle but are considerably larger than sheep or goats, and several elements of their skeletons provide sufficient cortical bone for boneworking. On the other hand, because they are wild animals that could only be procured by hunting or trapping from small local populations, they could not have provided the reliable supply of raw material that large-scale bone manufacture requires. For this reason, craftsmen turned to carcasses of large domesticated mammals that were used locally for food and traction.[194]

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[193] In his valuable survey of European bone tool manufacture since the Roman period (and with some examples from the Roman period), MacGregor (1985) stresses the consistent selection of certain bones for modeling to the exclusion of others. In addition to the selection of certain bones of certain species at the Saxon site of Hamwich in Britain, Driver (1984) notes that males were selected over females because their bones are more robust, and that bones from fully adult animals were preferred to those of juveniles because of their greater size and density.

[194] Camels and equids were not routinely used as food but were eaten on occasion, probably when slaughtered because of old age or lameness (see Wapnish 1981). The small amounts of camel bone utilized at Carthage (Hutchinson and Reese 1988) may indicate that they were only very sporadically eaten and therefore not processed through the regular slaughter and butchering channels. The authors do not mention if unworked camel bones bear cut marks related to dismemberment and consumption, so it cannot be judged if this was the case. However, a large amount of camel bone has been recovered at Ashkelon, especially from Byzantine and Islamic levels. Since a significant pro-

In terms of bone type, as opposed to species, bones of the axial skeleton were not used at Ashkelon, except for ribs. In addition, only selected bones of the appendicular skeleton are present as waste: the shoulder (scapula), lower forelimb (radius or radius/ulna), lower hindlimb (tibia), and most common, the metapodials of front and rear limbs. Conspicuously absent are any toes, bones of the wrist and ankle joints (with one possible exception, see the discussion of Category 11 below), the pelvic girdle, and the upper fore- and hindlimbs (humerus and femur, respectively). Although the humerus and femur are large bones, they apparently had too much natural curvature in the shaft to extract usable sections of cortical bone.

The choices of Ashkelon's bone carvers with respect to bone type and species largely mirror those of their counterparts at other sites and testify to the need for dense cortical bone. Hutchinson and Reese (1988), for example, comment on the absence of larger ribs, scapulae, and pelves from their collection at Carthage, as well as the lack of pig fibulae—a curious omission, since its shape is a natural one for modeling into pins, needles, awls, or other pointed tools. Most of the bones worked at their site were from cattle. Less frequent were various equids (horse, donkey, mule), while other species were quite rare: only five worked camel bones, ten worked sheep/goat bones, and two worked ostrich bones were found. The metapodial was the most frequently selected bone element, while the radius/ulna was a distant second.

The British and Canadian excavations at Carthage also yielded evidence of boneworking with a similar selection of species and bone elements (ibid.). After surveying six other sites in the Mediterranean, Hutchinson and Reese (1988) found similar patterns: cattle bones were by far the preferred material, followed by those of equids, with minimal use of

camel, deer, and ostrich. They conclude: "As more evidence is published, it is likely that bone-working will be found to have been a common industry at a very large number of sites throughout the Mediterranean, and that the types of bone preferred as raw material will also be found to be fairly limited" (Hutchinson and Reese 1988:562).

A large body of comparative data is available from northern Europe, especially Britain. For example, Greep's (1987) study of boneworking at Roman sites in Britain showed that while a variety of bone types were worked, cattle metapodials were favored; the ribs and scapulae (presumably of cattle) were rarely utilized because of their high percentage of cancellous bone, nor were pig bones often selected. Driver's analysis (1984) of a bone-waste assemblage from a Saxon site in England where composite combs were manufactured also reveals strong preferences for particular bones of certain animals. Cattle and horse were the species selected, while tibiae (lower hindlimb), radii (lower forelimb), mandibles (lower jaw), and especially metapodials were utilized. Of the available animals, only cattle and horses have bones of sufficient size, and their metapodials, tibiae, radii, and mandibles have areas of flat cortical bone from which the toothed sections of the combs could be cut. Ribs were utilized as connecting plates between the toothed segments.

The absence of worked pig bone at most sites (including Ashkelon) seems curious at first glance. Although pigs are smaller than cattle and equids, they are relatively large animals, especially those found at European sites, and many elements of their skeletons would provide sufficiently dense bone. But it appears that the sheer number of cattle available obviated the need to utilize the bones of smaller species. The lack of worked pig fibulae from both Carthage and Ashkelon may indicate that any pig fibulae used at these sites were used in their natural state, with perhaps minimal sharpening at the tip.

Intersite differences in the use of certain bone elements appear to have been dictated by the kinds of objects manufactured, such that larger ribs would not have been employed at the Saxon site were they not so suitable for comb plates. Setting aside the question of depositional bias, various aspects of the manufacturing process must have played a role in determining which bone elements were selected. For example, the fact that ribs were not used for making inlays at Carthage even though they were extensively used for this purpose at Ashkelon might be due to differences in the procurement of raw materials or to a Carthaginian specialization in modeling sections of limb bones.

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portion of these bones have cut marks that can be related to such food-processing activities, we may assume that camel meat, even from old animals (when it is reported to be tough and gamey), was sufficiently on the menu to warrant preparation via the slaughterer and the butcher, whence it became grist for the craftsman's lathe. The absence of worked pig bones at many sites may also be due in part to pigs escaping the professional meat handlers, only to be done in by household butchers. Urban pig-raising is frequently based on small individual holdings, with animals slaughtered within the unit. What meat distribution takes place, if any, bypasses market exchange. Finally, MacGregor (1985) notes that the horse bones used in Britain probably did not come from animals slaughtered for food but from skinning activities, particularly in light of the high proportion of metapodials among the bones recovered.

Likewise, intersite similarities may be due to similar factors. Metapodials were always favored because they provide so much dense cortical bone, but the circumstances of their removal and discard may have been even more important. Metapodials are often removed together with the toes when the carcass is skinned, providing complete bones that are more easily obtained than bones from the meat-bearing parts of the skeleton (Driver 1984).

Although the refuse from ordinary processes of butchering and consumption may have provided enough bone in some cases, large-scale specialized production of bone artifacts depends on a regular supply of raw materials (Driver 1984; MacGregor 1985). This could not have been achieved by ad hoc scavenging but required that arrangements be made beforehand with slaughterers and butchers, especially when specific bones were desired. Skinners and tanners also provided raw materials—the metapodials—which in some cases constituted the bulk of the bone supply.

Reliance on garbage middens for raw material can also be ruled out on the ground that many of the discarded bones would have been roasted or boiled and all would have been less than fresh. Recent studies by White (see Lewin 1989) emphasize how quickly the surface of fresh bone hardens, so that engraving—an easy task with new bone—becomes very difficult. The rapid alteration of a bone's mechanical properties after slaughtering makes it less desirable for boneworking and less able to withstand the stress of subsequent use.

The manufacturing process began by separating off the articular ends containing most of the cancellous bone, which are represented at Ashkelon by the specimens in Category 1. This left the diaphysis or shaft portion, which was cut horizontally or vertically into smaller workable sections (figure 34.4). These reduced units are illustrated by the specimens in Categories 2–5, which are tubular chunks cut from shafts, thin slices of shaft bone, or sections of the thicker parts of scapula blades. If only Category 1 bone were present, we could legitimately ask why it represents manufacture and not simple butchering. But the existence of bone material that reflects later stages in the manufacturing process makes it likely that the Category 1 material is derived from the first stage.

The Process of Slaughtering and Butchering

A city like Ashkelon would have had a regularized system to provide meat for its inhabitants. The evidence for the manufacture of bone tools on a large scale points to some degree of centralization in animal slaughtering and meat distribution (Driver 1984:403). Based on the large collection of bones recovered in Hellenistic, Byzantine, and Islamic levels at Ashkelon, it appears that slaughtering was done at the site and was organized on several levels—there is little indication that substantial quantities of meat were imported. After animals were killed they were bled, skinned, and cut into parts. It would not have been unusual for skinning to have been done immediately, at the abbatoir, from which the skins were passed on to tanners (assuming that the tanning of hides also took place at the site). The metapodials needed for boneworking would thus have been available from either the slaughterer or the skinner.

It is likely that partial dismemberment of the carcass also took place at the slaughterhouse, including the removal of the head and viscera, and the cutting of the carcass into halves or quarters. These sections would then have been passed on to butchers at a local market. It is possible, of course, that all of these activities were confined to one location, but the segregation of these activities is likely in view of the large number of animals to be processed.

Slaughterers and butchers working on many large animals would have wanted to dismember carcasses with tools more efficient than knives. The use of small axes or cleavers is indicated by the marks left on the bones found at ancient urban sites. Hecker (1984) has demonstrated this at the New Kingdom Egyptian capital built by Pharaoh Akhenaten at el-Amarna in Egypt, where the cattle that were imported from outside the city came as cleaver-chopped parcels of meat while knives were used to separate the meat and bone of local livestock.
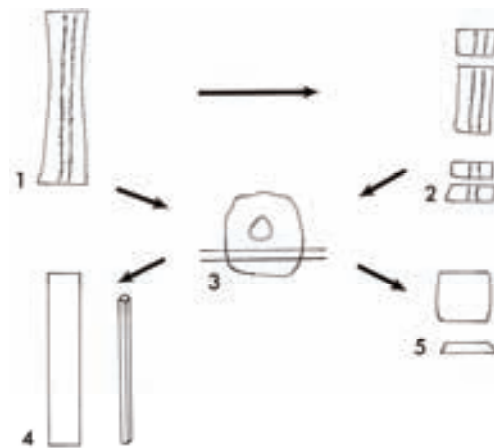
Figure 34.4: Stages in the bone-cutting process

Dismemberment is hard work, and the path of least resistance is to cut through the meat and sinew at articular joints: "Even in the context of the modern, pre-industrial village, it is more common for butchers without power saws to cut around bones than through them." (Gilbert 1988:87) According to Greep (1987), the widespread use of saws for animal dismemberment is a modern innovation. Their use in antiquity is always a sign of industrial-scale meat processing, which was relatively rare. Most investigators would agree (see MacGregor 1985).[195]

The Ashkelon material seems to support this, for the most part. The only sawn long bones in the collection were those that were manufactured into tools. But several vertebrae of large and medium-sized mammals (sheep and goats) were also sawn, and this phenomenon has been noted by the author on faunal remains from other sites in Israel (e.g., Tel Batash and Tell Jemmeh). Since vertebrae are the least likely bone elements to have been worked, they could only have been sawn during butchering. This makes some sense, because the spongy bone of vertebrae are not difficult to saw through. In certain cases, therefore, saws may have been used for dismemberment, although this needs to be confirmed by examining the cut-marks on all element types found in in these faunal collections.

On some of the Category 1 worked bone specimens from Ashkelon the presence of hacking or chopping marks near the articular surfaces indicates that dismemberment occurred during the butchering process, which is a good sign that the meat of these animals was consumed. At Carthage, Hutchinson and Reese (1988) likewise conclude that there was prior consumption of the meat from bone that was subsequently worked on the basis of such cut marks. However, the articular ends of the Category 1 bones were most likely sawn from the shaft not by butchers preparing cuts of meat but by the bone craftsmen themselves, who required whole bone to work with.

This is supported by contemporary observation of the practices of meat purveyors in markets in modern Turkey, Iran, Lebanon, and Israel, who do not sell small "cuts" of meat—steaks, roasts, chops, etc.—as we know them. As Gilbert (1987:86) notes: "The preparation of steaks and chops is . . . at variance

with anatomy, and a far simpler method of dividing a carcass is to follow the natural paths of muscles and cut them only where they need cutting, at their skeletal attachments." Accordingly, butchers who lack modern power saws will hang a fore- or hindquarter on a hook—usually the upper section which contains the heavy musculature, or part of the axial column incorporating the choice meat of the lower back (the tenderloin)—and then cut chunks of meat from it at the customer's request, following the muscle bundles. Alternatively, individual muscles are stripped from the carcass intact, a practice detected by Gilbert (1987) in ancient Egyptian models found in the tomb of Meketre (ca. 2000 B.C.). The muscles thus separated become the preparatory cuts of meat to be further divided upon demand.

The use of either of these butchering procedures in ancient Ashkelon would have yielded relatively well de-fleshed whole bone to supply to the bone carver, who would then have extracted the raw material he needed. Driver (1984) notes that integrating the specialized selection of material by craftsmen (who needed whole, fresh bone) into the overall meat economy of the town meant that procurement of raw bone material must have taken place before most of the butchering and processing of carcasses had occurred.

The Nature of the Deposits

Most of the bone-manufacturing specimens discovered at Ashkelon were mixed with the kinds of bone debris normally found at tell sites. This means that they were associated with food garbage, at least at the time of their final deposition. This is characterized by relatively few complete long bones and very few skeletal articulations. The grid locations of the specimens are shown in table 16. Much of the sample comes from Grids 50 and 57 near the seashore, but most areas with post-Hellenistic deposits that were excavated in 1985 yielded some material related to boneworking.

In two instances, a noticeable cluster of bone-working material was recovered. Grid 41, Square 7 yielded nineteen wasters from cutting out flat, discoid pieces, and a smaller amount of waste associated with the preparation of shaft tubes. In Grid 38, Square 83, many finished needles or pins were found. But only the Grid 41 cluster might have come from an actual site of manufacture, as will be explained below. In none of the excavation areas was there a concentration of shavings ("bone debitage") and bone off-cuts indicative of a true workshop. Only five specimens of indeterminate waste flakes or trim were found that

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[195] MacGregor (1985:55) cites a personal communication of Dr. P. Armitage, who has analyzed the bones from many sites in Britain, and who finds no evidence that saws were used in the butchering process prior to the late eighteenth century. Bourdillon and Coy (1980) conclude that only knives, cleavers, and axes were used in butchering during Saxon times because butchered bones lack saw marks. Sawing was restricted to artifact manufacture.

might represent this kind of workshop debris (see Category 1c), three from Grid 57, Square 68, and two from Grid 38, Square 54.[196] The absence of shavings and the predominance in our sample of larger waste fragments indicates that most unfinished specimens of the manufacturing sequence were redeposited at some point and were not found in a primary context.

This is not surprising because Grids 50 and 57 were riddled with pits of the Islamic and Byzantine periods that contained a back-fill of ash, humus, and much pottery and bone. Some of the bone from Grid 50 was covered in a black or brown coating that did not penetrate and stain the bone appreciably, but was a surface residue difficult to remove with water. This coating layer consisted of an ashy powder overlying a greasy slick on the bone's surface, so that handling the specimens was messy even after washing. The humus and ash in the pits undoubtedly acted in concert to produce this residue.

On the other hand, relatively few pieces linked to the boneworking sequence were affected by this surface slick. Why some pieces picked up this coating while others did not is still a matter of conjecture. It is possible that the back-fill accumulated in the pits during numerous episodes of redeposition of diverse primary (or secondary) layers, some of which may have included the ash/humus mixture.

A similar argument for successive redepositions of diverse material from other contexts may be drawn from the burned bone specimens. A higher proportion of burned bone occurred in Grid 57 and especially in Grid 50, in contrast to the bone found elsewhere on the site. Bone refuse in the pits was commonly a mix of burned and unburned material from the same limited excavation unit, and only 13 of the 150 or more pieces of worked bone that came from those grids are burned. None of these are "finished" pieces: 12 of the 13 are rough-outs or blanks, and the other one is quite complete. Since only some of the bones from these deposits were burned, and there does not appear to be the color gradation from brown to black that usually results when a group of bones are burned together, it seems unlikely that the material was burned *in situ*, despite the ash in the pits. The burning occurred elsewhere, before the material was redeposited in the areas eventually excavated.

Alternatively, it could be argued that the burned bone resulted from *in situ* burning, so that only the unburned material was redeposited; and although this might be true of normal bone debris, it is very unlikely for the worked bones. None of the finished pieces were burned, which suggests that bone artifacts were preferred in their natural state; hence burning (actually subjecting the tool to heat to produce a brown hue with a polish-like surface) was not a decorative technique. This is likely in any case because burning removes much of the water content of bone, making it brittle and more difficult to carve, in addition to diminishing its strength and its shock-absorption capacity.[197] If we keep in mind that an abundant supply of raw material was available, and that there is evidence for the preferential selection of particular species and bone elements, there is no reason to think that Ashkelon's bone carvers would have chosen to work with burned bone.

If the 13 burned pieces of worked bone were not burned *in situ* in the pits from which they were recovered, and if they were not carved after they had already been burned, the burning must have occurred after the pieces were separated from the whole bone or form larger sections of it—at which point some of them were already waste, while some were rough-outs ready to be modeled further. The degree and extent of burning of the 13 specimens precludes the possibility that they were separated from unburned, workable sections of bone. They could only have been burned as smaller sections to begin with. In sum, the evidence of burning points to a secondary or even tertiary redeposition of the bones recovered from the pits in Grids 50 and 57.

As was mentioned above, there is one cluster of worked bone finds that might not have been redeposited but rather was found in its primary context. Forty-three worked bones were recovered in Grid 41, Square 7, from a relatively limited vertical exposure. Twenty-three of these clearly relate to the production of flat discoid pieces (Category 4), and another thirteen are strong candidates for this (Category 3). Here is the only area to have produced evidence of several stages of the manufacturing sequence leading to a finished (or almost-finished) product. Curiously, however, the initial stage of wasters (Category 1) is not represented.

This may indicate the site of an actual workshop, although because of the missing first stage of manufacture we cannot rule out a redeposition of

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[196] It is unlikely that inadequate collection procedures account for the paucity of small waste flakes, since the excavated debris was systematically screened (the minimum screening ratio was 1:5 for fill layers; for occupational debris on floors it was 1:1).

[197] If anything, bone carvers wish to make the bone softer rather than more brittle. MacGregor (1985:63–64) discusses at length whether ancient bone carvers soaked the fresh bone in water or other liquids to make it softer and thereby easier to carve.

workshop refuse during which the debris from earlier stages of the manufacturing sequence was lost in transit. In support of the latter interpretation is the fact that most of the material came from pits dug into a complicated series of deposits rather than from floors or surfaces.

A third possibility is that the worked bone was found at or near the site of a workshop but the craftsman did not himself saw the articular ends from the long-bone diaphyses, instead receiving his raw material as pre-cut shafts through a "wholesaler." In light of the discussion of raw material acquisition above, however, this is the least likely explanation.

Grid 38, Square 83, also yielded a cluster of bone artifacts, in this case 17 needles or pins. But no rough-outs or blanks were found in association with these that could have been fashioned into the same type of finished artifact. This accumulation of bone artifacts was therefore due not to manufacturing activity but to other activities that went on in the area (see below, Category 7b).

The only other deposit to produce a substantial number of worked bone pieces was an enormous trash pit of Byzantine date in Grid 38, Square 54. So much pottery and bone was recovered from this context that it is reasonable to assume that the pit contained garbage from throughout the city or from a substantial part of it. A wide range of manufacturing stages is represented here, as in the worked bone found in the Islamic-period pits in Grid 57, which may also have been trash pits.

The remaining areas of the site produced a few specimens representing one or another stage of manufacture, but none revealed significant patterns in the material. It is noteworthy that the majority of the sample of worked bone was recovered from pits of Byzantine and Islamic date which also yielded a great deal of other, unworked bones of mixed character.

The State of the Bone When Worked

The condition of the bone when it was worked is a further indication of how the raw material supply operated and the nature of the bone deposits. Marangou's (1976) comments on bone carvings from Egypt are instructive here. She evaluates the quality of the artifacts and the degree of skill with which the pieces were executed, and her observations are quite valid, in most cases—for example, when she evaluates the success of the carver in adapting a traditional scene or motif to the constricted space provided by a particular bone's configuration. Poor renderings, with some justification, are taken as evidence of inferior craftsmanship.

But a number of the pieces Marangou labels "poor" are so called because, among other factors, the bone is of inferior quality. One is left with the impression that the carver not only worked with substandard material, but that this choice was related to many other aspects of the modeling, such as the shape of the design, perspective, precision in carving, etc., so that the finished piece was bound to be mediocre. Her photographs of these pieces do indeed show poor-quality bone, but in most cases this appears to be due to postdepositional processes that eroded the osseous matter. Since the metropolis of Alexandria was the provenience of most of the Egyptian bone carvings which Marangou studied, it is unlikely that its cosmopolitan craftsmen would deliberately have worked with bone of inferior quality when an extensive supply of raw material was at hand.

A similar argument can be advanced for the Ashkelon bone artifacts. None of the Ashkelon pieces shows the degree of erosion found on some of the Egyptian pieces. But many pieces, representing different stages of the manufacturing sequence, have longitudinal cracks, particularly the wasters and blanks. Longitudinal or split-line cracks are a common form of bone destruction precipitated by changes in temperature and moisture and the geochemical conditions to which the bone is subjected after deposition (Bonnichsen 1979). Longitudinal cracking is not limited to worked bones but is evident in unworked bone debris as well. The cracks run parallel to the longitudinal axes of the bone, are vertical to the exterior surface, and may penetrate to the bone marrow cavity. In a series of laboratory experiments, G. J. Miller (1975) demonstrated that variation in the water content and temperature of the bone plays a critical role in the repeated expansion and contraction that produces the cracks. Laboratory simulations of freeze-thaw and wet-dry cycles resulted in fractures structurally identical to those occurring under field conditions.

Other processes can produce the same effects, such as when bone undergoes mineral replacement during exposure to ground water that contains mineral elements in solution. Split-line cracks will also develop in freshly cleaned bone left at room temperature for a few months, as the water in the bone evaporates and it dries out. The loss of organic content and water may shrink bone mass by as much as 30% (Bonnichsen 1979, citing Berg 1963).

Although it is usually not possible to determine which of these processes resulted in a particular crack, it is possible to narrow the range of options for the Ashkelon bone. Given prevailing climatic

conditions, it is unlikely that the bone was subjected to freezing-and-thawing cycles of any significance. Moreover, that process often produces a fracture pattern considerably more complex than longitudinal split-line cracks, involving the development of transverse and diagonal breaks intersecting the longitudinal ones. None of the Ashkelon bone bears such a fracture pattern.

It is possible that the replacement of bone tissue by minerals with a large expansion factor could have produced the split-line cracks. Other than the breaks, this process leaves no visible residues such as mineral accumulation (Bonnichsen 1979, citing Cook 1951). Radioactive tracers can be used to test for mineral replacement, but this is a fairly expensive procedure and has not been done for the Ashkelon specimens. The Ashkelon bone shows no other evidence of gross mineral alterations, however, such as crystalline growth between intra-bone spaces, which destroys the internal structure and produces a cross-cutting pattern of surface fractures (Hesse and Wapnish 1985). It is not certain whether the absence of gross mineral alterations also diminishes the probability that invisible mineral replacement has occurred.

In any case, alternating wet-dry cycles of high atmospheric humidity followed by relative desiccation is the process that is most likely responsible for the split-line cracks in the worked bone found at Ashkelon. As a coastal site, Ashkelon experiences intense heat and humidity during the summer months, thus the cracks are in all likelihood the result of just this postdepositional process. Some cracking might already have occurred between the time the fresh bone left the butcher (or other supplier) and the time it was worked by the carver, but several considerations point to postdepositional cracking.

First, drying or dried out bone is more difficult to work than fresh bone. Cutting and modeling of dry bone increases the risk of unwanted fractures and splitting, which wastes material and labor. Second, numerous specimens show the effects of working green bone. These include the striae left by the teeth of saws, the presence of nodules on many sawn surfaces (a result of "snapping-off" the section during final separation; see MacGregor 1985:55), and small spiral fractures above the saw line that only occur when the bone is fresh. Third, the burned specimens have many fewer cracks than those that are not burned, presumably because the burned bones were already dried out and their surfaces sealed, preventing the repeated absorption and evaporation of water that causes the cracking. Finally, craftsmen would not have chosen to work with cracked bone if

they had a choice. It might be argued that bones can develop cracks differentially, so that some portions of a bone will be affected and others not at all or to a lesser degree. On this argument, waster fragments that were cracked might have been trimmed from a bone, leaving intact a portion to be carved. That this was not the case at Ashkelon is demonstrated by the fact that not just wasters but pieces representing all stages of the manufacturing sequence exhibit some degree of cracking. It is true that there are relatively fewer cracks in the completed or nearly completed pieces, but this is attributable to their smaller size and the fact that the weaker cancellous bone had been pared away from the dense cortical bone of which the artifact is comprised. It is also possible that the initial postdepositional environment of finished pieces was different from, and more protected than, that of wasters or blanks.

In sum, we may say that the worked bone material was worked when it was fresh and in good condition, having been subjected to only limited dessication or chemical alteration. Any burning or longitudinal cracking of the pieces occurred after the bone had been worked. On the other hand, no agents of severe bone erosion were at work during the postdepositional period, judging by the condition of the materials recovered.

Tools of Manufacture

It is often possible to tell which implement or implements were used to fashion a piece, particularly if it is unfinished. A variety of tools must have been used to model the Ashkelon artifacts, including several kinds of saws, knives, chisels, lathes, drills, scribers or incisers, rasps, files, and other tools used to smooth and polish the artifact. Such instruments are described in texts from Roman times and the early Middle Ages, which are treated in some detail by MacGregor (1985). Evidence for the kinds of tools used in the manufacture of bone artifacts at Ashkelon is discussed below, together with the descriptions of the types of pieces they fashioned.

Stages of the Manufacturing Sequence

CATEGORY 1: OFFCUTS

CATEGORY 1A (catalogue nos. 1–22). The 22 bones in this category represent the first stage of the reduction sequence. They are the residue of the initial partitioning of a whole bone, or a sizable portion of it, into workable sections. Most of the specimens (19 of 22) are the articular ends of appendicular bones of domestic cattle or camels that were cut away from the

shaft, the portion of dense cortical bone used to make artifacts. The other three bones in this category are midsections of ribs of the axial skeleton. One is too small to have come from anything but a cow, but the other two are large enough to have come from a camel, horse, or donkey. Indeed, of all the pieces in this category for which the genus can be identified, only these two ribs might possibly have come from equids. These rib sections are included in the category of initial boneworking residue because their curved shape and thinness indicates that they would not have been worked further—any workable sections of rib bones were presumably detached from them.

Only selected parts of the appendicular skeleton are present: proximal scapula, proximal radius, or radius-ulna (fused), distal tibia, and proximal and distal metapodials. The absence of certain appendicular elements can be attributed to their low proportion of dense cortical bone. The distal tibiae (3 camel, 1 cow), proximal metatarsals (2 camel, 2 cow), and distal metapodials (4 camel), all derive from the non-meaty parts of the animal. They are the points at which the lower fore- and hindlimbs (and feet) are usually removed from the carcass during the skinning and butchering process, because of their low food value. They would be expected in archaeological deposits of skinning and butchering refuse rather than in food garbage (Reitz 1986). Lower limb bones present to an appreciable degree in food refuse usually point to additional activities of tool manufacture and cordage preparation, since the sinews of these skeletal parts make excellent lashings (Gilbert and Steinfeld 1977; Reitz 1986). In contrast, the proximal scapulae (1 camel, 3 cow), proximal radius (1 camel), and radius-ulna (2 camel) of the shoulder and elbow joints, plus the three ribs (1 cow, 3 other "large mammal"), are from meaty carcass parts, and are likely the remains of meals. That sawn bone of meaty and nonmeaty carcass parts were recovered from limited deposits would suggest that slaughter, butchering, and consumption activities are all documented in the discarded bone material. While this is not extraordinary in some contexts, particularly in pit accumulations, it is unusual to find remains of the three major stages of carcass reduction together in similar proportions. As was noted above, however, the bones were probably sawn by the craftsmen who obtained the raw materials in the form of whole bones; thus the offcuts found in the Ashkelon deposits represent boneworking residue.

The surfaces of all the separation cuts are typical of bone that has been altered by a sawing action, whose effects are known from modern experiments and are attested in archaeological finds worldwide. All of our specimens were sawn perpendicular to the longitudinal axis of the bone, close to the proximal or distal epiphysis. Macroscopic examination of the saw cuts reveals that the tools used had teeth varying from fairly coarse to fine, because several specimens have quite smooth surfaces while others show the distinct striae left by a coarse-toothed saw (Lyman 1977).

None of the saws used was as robust as some mentioned by MacGregor (1985:55), who notes that unfinished cuts 2.6 mm wide have been observed on wasters. A saw-cut width of 2.0 mm is the greatest found in the Ashkelon material, where even finer saw marks are common. MacGregor (1985:55) also notes that "the saw marks clearly show how the material was rotated periodically so that the blade never became too deeply embedded; final separation was usually by breaking." Many of the sawn Ashkelon pieces show evidence of this kind of rotation, and four specimens in Category 1 have the nodules that result from final separation by breaking.

CATEGORY 1B (catalogue nos. 23 and 24). The two specimens in this category are thick, rectangular pieces of waste bone that have been sawn on at least one preserved surface. They could have come from any long bone of the appendicular skeleton. Subsequent stages of the manufacturing sequence produce wasters and blanks from scapulas, long-bone shafts, and ribs, but it is not possible to determine whether these specimens fall into this category. For that reason, they are included in Category 1, which has the widest range of possible bone types.

CATEGORY 1C (catalogue nos. 25–29). These five specimens are small waste flakes that could have been trimmed from any long bone of the appendicular skeleton. All have been sawn on at least one preserved side, and one piece was also smoothed on its cut side. They are included in Category 1 for the same reason as the the two specimens in Category 1b.

CATEGORY 2: WORKED SCAPULAE

CATEGORY 2A (catalogue nos. 30–39). All Category 2 bone derives from the scapula. In Category 2a, the bones are sections of the neck which were blade-sawn perpendicular to the bone's axis.

CATEGORY 2B (catalogue nos. 40–46). Bone in this category is all cut from the scapula spine. Five of the pieces are waste, but two would have provided substantial bone to model, especially for the long rod or dowel pieces in Category 6.

CATEGORY 2C (catalogue nos. 47–50). The four specimens here are all flat sections cut from the thin, interior portion of the scapula blade where there is no cancellous bone. Judging from the thicknesses, which range from about 1.7 to 3.3 mm, these were cut from cattle scapulae.

CATEGORY 3: LONG-BONE SHAFTS

All specimens in Category 3 are parts of long-bone shafts in various stages of reduction or manufacture, which are reflected in the subcategories below. It is possible to determine the bone element type and species on some of the larger sections, but in most instances, one can only tell from the overall shape of the piece that a long bone was used.

CATEGORY 3A (catalogue nos. 51–68). Sawing the shaft perpendicular or parallel to its axis produced the smaller sections of Category 3a bone. None of the specimens in this category are complete tubes and all are broken on at least one dimension. Three have been sawn through longitudinally (parallel to the axis of the bone) to the marrow cavity, partitioning the shaft in circumference. More usually, the pieces are broken along this dimension, making it impossible to determine if they were given similar treatment, so they are partial tubes by default.

The lack of a specimen with two longitudinal saw cuts makes it impossible to determine the intended width of the blank. Five specimens preserve two perpendicularly sawn surfaces. The two that are blanks (nos. 55 and 57) indicate a desired length; the other three are waste fragments. The designation of a specimen as a probable or possible blank/waste fragment is determined by the overall shape, length and/or width, and density of the bone preserved.

CATEGORY 3B (catalogue nos. 69–75). The seven specimens in Category 3b are long-bone shaft sections which are generally smaller than those in Category 3a. What sets them apart is that they have all been shaved on the exterior surface of the shaft, probably with a flat chisel or knife (compare Hutchinson and Reese 1988:fig. 9, no.5). Like the specimens in Category 3a, they are composed of thin, cortical bone, but they are more tightly curved (i.e., they have a smaller circumference) than many of the pieces in Category 3a, which tend to have a broader and relatively flatter area of denser cortical bone.

Since all of the specimens are broken parallel to the axis of the bone, it cannot be determined whether sections of complete or partial circumference were desired. If the whole section was intended as a blank,

the curved surfaces would have been most suitable as decorative overlays for furniture or for handles. Three of the pieces are really too short for this, but they could have been used as mounts on caskets. The longer sections could have been worked as tubes or cut lengthwise into needles or pins, but not into flat objects of any size. The fact that the rough marks of shaving have not been smoothed and polished may indicate that these pieces were discarded and were never intended for to be modeled further. Nos. 69, 70, 73, and 74 are all from the same provenience (Grid 41, Square 7) and may relate to the manufacture of flat discoid pieces (see below under Category 4).

CATEGORY 3C (catalogue nos. 76–77). Both specimens in Category 3c are small chunks of *Bos* metapodial diaphyses, one of complete circumference. Both are offcuts from preparing shafts for further modeling into tubes (Categories 3e–f), or from creating larger shaft sections which were then cut into blanks (Categories 3a–b) from which other objects, including discs (Category 4), were manufactured. Hutchinson and Reese (1988:558) refer to sections such as these as "rings" even when they are of appreciable length and better approximate partial tubes. At Carthage, these offcuts were themselves cut and modeled into finger-rings or objects of less certain use (alternatively, leftover sections of lathe waste were used). The modeling of lathe waste or diaphyses offcuts into rings is yet to be documented at Ashkelon.

CATEGORY 3D (catalogue nos. 78–80). The three specimens in this category—all from the same excavation unit in Grid 41, Square 7—appear to be end-trims from turned diaphyses. None are complete in circumference. So little of each piece survives that it is impossible to determine with certainty the species or bone element, but it is likely that they are from *Bos* metapodials.

One surface is flat, showing the saw marks that detached the trim from the larger section of shaft. The markings on the other surface resemble the turning waste illustrated by MacGregor (1985:fig. 29c) from lathe-worked pieces (see also Hutchinson and Reese 1988:fig. 11, no.1). A long-bone shaft shaped and/or decorated by turning develops a characteristic shoulder edge or collar on the ends attached to the lathe. This was removed from the finished piece by sawing.

Using a lathe to fashion shapes and decorations of precise circumference was a well-known technique in the ancient world. Simple lathes were in use in the eastern Mediterranean by ca. 1500 B.C. Aldred (1957)

traces the origin of this technique to the wood-producing and woodworking areas of the Middle East, whence it spread to mainland Greece. In the later Hellenistic period, the technique was introduced into Egypt and became a very popular method of decoration (Lucas and Harris 1962). The instrument "was probably a development of the bow drill in which the object to be turned was the stock of the drill, rotated by a bow between two fixed points" (Aldred 1957:232). No ancient lathes have survived, but until innovations in the Middle Ages, they must have been relatively simple, and even portable, devices (MacGregor 1985; see also the discussion by Hutchinson and Reese 1988).

CATEGORY 3E (catalogue no. 81). The one example in this category, a complete section of a *Bos* metatarsal, also relates to the manufacture of discs or tubes, judging by its findspot in Grid 41, Square 7. The section is sawn at both ends and a large nodule occurs on one surface as the final break of separation. Some of the shaft has been pared away with a knife or chisel on the dorsal surface preparatory to further working. For use in disc manufacture, the shaft section would have been the core from which longitudinal slices were sawn parallel to the axis of the bone. This would have yielded thin, relatively flat rectangular blanks from which to cut the discs. Alternatively, the shaft section could have been intended for use as an object of tubular form (a handle or furniture mount). But this piece was probably a discard and not worked further, even though it is a dense portion of cortical bone, judging from the rudimentary way it was shaved, the presence of a sizable nodule at one end, and the relative shortness of the section length (which would also rule out pin and needle manufacture).

CATEGORY 3F (catalogue nos. 82–92). The specimens in this category are portions of decoratively worked tubes (figures 34.5–34.7). Some are too fragmentary to determine whether they were intended for use as handles as opposed to furniture mounts.

Figure 34.6: Portion of a decoratively worked tube
Category 3F, catalogue no. 88

Figure 34.7: Portion of a decoratively worked tube
Category 3F, catalogue no. 89

Figure 34.5: Portion of a decoratively worked tube
Category 3F, catalogue no. 92

CATEGORY 3G (catalogue nos. 93–98). These specimens result from the further reduction of short lengths of shaft by sawing slices through the bone parallel to the axis.

CATEGORY 3H (catalogue no. 99). The sole specimen in this category is one of the most finely executed pieces in the collection. Two saw cuts perpendicular to the axis of the bone produced a 3.2-cm-long shaft section; two parallel cuts at oblique angles resulted in a section somewhat uneven in width, 2.3 cm at one end and 2.0 cm at the other. The interior of the bone was sawn and then finished further with a file so that no cancellous bone remains. The interior surface is not absolutely flat, however, and a hint of the bone's original curvature is just perceptible. Two series of parallel lines forming horizontal grooves were produced by turning on a lathe, as was the slight swelling and concavity between the bands of incised lines. There is a narrow border with a slight bevel at the wider end and a wider, but flat border at the narrower end. The piece is also polished all over. While this is clearly a finished piece, it is difficult to say of what. It may have been an inlay or attached decoration, or intended for part of a composite cylindrical pyxis. Marangou (1976:pl. 64) shows several ivory pyxides made of joined pieces; the decoration of no. 220 is similar to the section discussed here.

Bone was often smoothed by drawing a knife blade crosswise along the surface, which produced numerous fine transverse parallel lines known as "chatter marks" (MacGregor 1985). A two-handled draw knife may also have been applied to the surface of bone, but its regular use must have been more for cutting thin slices off the bone than for smoothing. Rasps were used for cursory smoothing, while files of varying coarseness produced a finer and more even finish. Both tools leave distinctive marks on bone. Wet sand, leather and sand, or a variety of other minerals could have been used for smoothing and polishing. Barnett (1982) notes that during the Roman period, ivory was smoothed with the coarse skin of sharks and rays. Finally, the very act of working bone results in some surface polish by the tool employed in concert with the transfer of oils from human hands to the raw material. The most refined finished pieces might be oiled or waxed for a high gloss.

CATEGORY 3I (catalogue nos. 100–102). The three finished pieces in this category are dice or gaming sticks fashioned from long-bone shafts. The values on all the pieces are represented by inscribed dot-and-ring motifs. No. 100 is very similar to the parallelepiped dice recovered from pre-Roman sites in Britain and described by MacGregor (1985:129). The choice of raw materials used in the manufacture of parallelepiped bone dice varies to some extent from that noted below for the cubical variety: the majority are made from the shafts of small long bones, comparable with the metapodials of sheep, and indeed their characteristically elongated shape may be seen as resulting from this repeated selection. A corollary of this choice is that the ends are usually open and hence the die's values are normally restricted to the four elongated sides, the numbers 1 and 2 usually being omitted. No. 100 is open at the ends and differs from those described above only by displaying the value "1" at the sawn edge (see MacGregor 1985:fig. 71a).

Too little of no. 101 is preserved to indicate its original shape, but it was probably cubical rather than elongate. MacGregor (1985) notes that cubical dice became popular during the Roman period and subsequently became the shape most widely used in northern Europe. Cubical dice of bone would normally have had to be small, not larger than 1 cm square, because of the dimensional limitations of the raw material. For this reason, larger Roman dice were most often made from antler, which can provide larger areas of dense tissue to model. But larger dice could be made out of bone, if necessary, by cutting a bone plug to fill the medullary cavity of the sawn long-bone shaft, which resulted in a relatively solid cube (see MacGregor 1985:fig. 71b–e). Pieces in the Ashkelon collection that may have been cubical dice are discussed in Category 11.

No. 102 (figure 34.8) is a gaming stick with incised values very different from those reported for European sites (MacGregor 1985), and unlike the values shown on modern and Roman dice, where the usual numerical arrangement is for opposite faces to total seven. No. 102 may have accompanied a board game. A fourth probable gaming stick in the Ashkelon collection, this one from a Byzantine context, is made of ivory and is grouped below with the other ivory pieces in Category 13. It, too, is elongate in shape rather than a cube.

Figure 34.8: Incised gaming stick
Category 3I, catalogue no. 102

The post-Roman date of two elongate dice (or perhaps three, if no. 100 can be included here) in the Ashkelon collection may indicate the retention of this form of gaming stick in the east in a period when it had been supplanted by cubical dice in the west, possibly because eastern centers of manufacture had less access to antler, the preferred material. Inscribed dot-and-ring motifs were one of the most common on European bone and antler objects (MacGregor 1985). Their long-lived popularity in the decorative repertoire of the Middle East is well known. The longevity of dot-and-ring motifs is demonstrated in the Ashkelon collection, where they embellished objects dating from the Iron Age through the Islamic period.

The rings on the Ashkelon pieces are too perfectly symmetrical to have been drawn freehand with a knife. According to MacGregor (1985:60), the tools most often used to produce the dot and rings were "centre bits, in which the cutting element describes an arc around the centre point." This type of decoration is occasionally referred to as "compass-drawn," but simpler tools with fixed-radius scribing points are more probable than variable compasses. Equally symmetrical double-ring-and-dot motifs show that some of these implements may have had two or more scribing points at differing radii, although two single-toothed implements of differing dimensions could have been used successively to the same effect. MacGregor (1985:fig. 38) reproduces drawings of two single-toothed center-bit tools for scribing found at Slavic sites. Tools with two or more points at different radii are not known archaeologically.

CATEGORY 3J (catalogue no. 103). The one piece in this category is a fragment of a bone-shaft section from a large mammal. It is relatively flat and thin, though thicker than an inlay or mount. Two sawn sides are preserved into which large, squared notches were cut by a metal knife—a single notch on one sawn side, two notches on the other. It is difficult to tell if it was part of an object or is simply waste.

CATEGORY 3K (catalogue nos. 104–106). These three specimens are all short sections of shaft tubes that were lathe-cut into perfect cylinders. All are polished on the surface, and from the shape of the medullary cavity seen in section, were cut from cattle metatarsals. These pieces were probably to be used as hinges, or rather sections of hinges (see MacGregor 1985:203–4, fig. 110).

Cattle metatarsals were the element usually chosen for hinge manufacture at European sites (Fremersdorf 1940; Schmid 1968; cited in MacGregor 1985:203).

Hinge sections were "stacked" by driving tightly fitting wooden plugs of two alternating types into the bone cavity. The ends of Type 1 plugs were whittled into cylindrical processes that projected into the sockets of Type 2 plugs in the next articulated section. Lateral holes drilled into each cylinder accomodated dowels, which were alternately attached to the structure of the box or chest and the pendant lid or door. One or several hinges could be used, depending on what was required. Hinges could also be cut from solid bone tissue (see Category 6d).

CATEGORY 3L (catalogue no. 107). The one object in this category is a finely executed spoon that was cut from a long-bone shaft (figure 34.9). Limb bones of cattle or horse were the raw material of choice for manufacturing the many bone spoons known from post-Roman Britain (MacGregor 1985). The circular bowl of the spoon is dished, but not deeply, because it is almost on the same level as the rounded, tapering handle (the end was broken in antiquity). From the regularity of shape in the handle and bowl, the edges of the bowl, and the fact that it was cut through from only one side, we can conclude that the spoon was almost certainly made on a lathe (see the discussion below concerning Category 4).
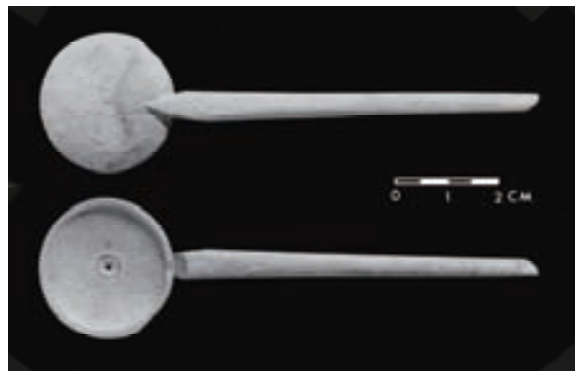
Figure 34.9: Spoon (back and front)
Category 3L, catalogue no. 107

A small, curved chisel was possibly used to create the shallow cavity on the face of the bowl. The handle was smoothed by drawing a knife along the shaft. Knife marks are also visible on the back of the bowl, but their more random placement suggests that they resulted from shaping the slight curve of the back rather than from finishing. A light polish is evident over the whole piece. The spoon is undecorated except for a dot-and-ring motif on the center face of the bowl, which may have been added to disguise the hole that resulted from the process of

manufacture, which involved turning on a lathe. The only other feature that could be considered embellishment is at the place where the line of the handle extends onto the back of the bowl for a short distance, tapering to a "V."

The date of this spoon is unclear. It was recovered from deposits containing a great deal of pottery, the majority of which was Persian in date. But the upper level also included a small amount of Hellenistic-period pottery, and the spoon may have been associated with that material. A date in the Persian period must be questioned, in any case, because no other manufactured piece in the collection comes from so early a context.

CATEGORY 4: DISCS

CATEGORY 4A (catalogue nos. 108–129). The 22 specimens in this category are the waste byproduct left over after cutting out discoid pieces. Nineteen are from Grid 41, Square 7, and three are from Grid 38, Square 54. These pieces are what is left of bone blanks, which consisted of relatively flat slices of long-bone shafts. This is evident from their shape as viewed in cross-section, the presence and texture of the cancellous bone in several pieces, and the channels for blood vessels in the cortical bone of some specimens.

The thickness and diameter of each piece was determined to gauge the degree of consistency in manufacture. Thicknesses ranged from a low of 0.33 cm to a high of 0.75 cm, averaging around 0.51 cm. The pieces are not of uniform thickness: although the reverse is relatively flat, the obverse (the side from which the piece was cut out) is often less so, resulting in varied thicknesses. The measurements given in the catalogue are of the maximum thickness of each piece.

All of these pieces are broken, so the diameters of the bone discs that were cut out from them had to be determined from the arc segments formed by the curved edges that remained. To do this, seven circles were drawn, ranging from 2 to 5 cm in diameter in half-centimeter increments. The arc segments left by the cut-out discs were then superimposed on the drawn circles to find the closest match. Allowing for some distortion, the curvatures of the arcs were amazingly close to those of the drawn circles—in some cases even isomorphic. The diameters of the cut-out discs would have ranged from 2.5 to 4.0 cm, with most between 3 and 4 cm in diameter.

Seven of the pieces preserve the arcs of two or more cut-out discs. On one, two discs were cut through, each from a different side. On three others,

the two discs cut from the original blank were of different diameters, in contrast to other pieces showing evidence of multiple cut-outs, in which the diameter is the same. In sum, there is much uniformity within a range of differing thicknesses and diameters, although no correlation between thickness and diameter is apparent.

MacGregor (1985) describes three techniques that were used to produce the solid discs of perforated bone which became buttons, beads, spindle whorls, and gaming pieces. The first technique involves a version of the center-bit implement used to produce dot-and-ring motifs (see the discussion above concerning Category 3h). Many waste fragments of medieval date resulting from button or bead manufacture are pieces of long bones perforated with numerous holes measuring 0.5–1.5 cm in diameter. According to MacGregor (1985:101, figure 58a–k), "the profile of the holes shows that they were drilled first from one side of the bone and then the other side; the discovery of some fragments with the resulting discs of material not yet removed confirms this fact. The implement used was evidently a centre-bit with a curving profile and with an extended central point which, when it had penetrated the bone from one side, allowed the drill to be aligned on the same spot from the other."

A second method of disc manufacture employed a lathe, as seen in an illustration reproduced by MacGregor (1985:60, fig. 35). This illustration depicts a fifteenth-century German craftsman who is fashioning rosary beads by means of a bow-driven lathe in which the horizontal drilling element has two radiating cutting tips on either side, equidistant from a center point. The craftsman holds the blank from which the beads are cut in one hand, while the other hand holds the bow which turns the drill.

A third technique involves a cylindrical saw. In view of the fact that a disc with no central perforation (and many of this type have been found at European sites) could not have been cut with either a center-bit inscriber or a lathe, a saw in the "form of a hollow cylinder with a toothed cutting edge affixed to a handle," similar to a trepanning saw, would have been required (MacGregor 1985:60, fig. 37). Some tools of this type are known from Roman sites, but only as surgical instruments (they were recovered from a physician's grave). However, MacGregor sees no reason why craftsmen would not have used such saws as well, finding it difficult to envision the manufacture of gaming discs without them.

It is likely that the second technique, employing a bow-driven lathe, was used to produce the discs that were cut out from the Ashkelon wasters included in

Category 4a. Unlike the perforated long bones described above, which were drilled from both sides by a center-bit scriber, the Ashkelon wasters were all cut through from only one side. In addition, almost all the edges of the cut arcs are beveled, and in the cuts themselves there can often be seen incised lines of barely differing diameter than that of the excised disc. It is hard to imagine a center-bit scriber leaving such marks, but when using a lathe of the type described above, a slight movement in the hand holding the blank would produce the extra incised lines.

To test this hypothesis, the arcs left by the cut-out discs were compared under a binocular microscope to the center-bit-inscribed dot-and-ring incisions in the pieces in Category 3h, and to the lathe-turned pieces in Categories 3f and 3i. No resemblance to the dot-and-ring incisions was noted, but the lathe-turned pieces had both the beveled edges and the faintly incised additional lines that are characteristic of the pieces in Category 4a. Hutchinson and Reese (1988: fig. 20, no. 68) also conclude that discoid gaming pieces at Carthage were lathe-cut.

CATEGORY 4B (catalogue nos. 130–131). The two specimens in this category are flat discs. The one from Grid 41, Square 7, is almost complete, but was discarded after being cut without further work. The reverse is relatively flat, but the obverse from which it was cut through is uneven because almost half of it preserves cancellous bone (backed by cortical bone on the reverse). The center of the obverse is marked with an indentation that does not penetrate to the other side of the bone, a sure sign that a center-bit scriber was not used, because the tool could not have been positioned properly when cutting from the other side. The obverse also has an incised circle which varies in distance from 0.1 cm to 0.4 cm from the disc's perimeter. A center-bit tool with two scribing points at differing radii, or even two single-element tools, would not have produced the variation in distance that is evident, but a jerking movement while using a lathe would. Finally, the sides of the disc show that it was cut in only one direction, an additional support for the use of a lathe drill rather than a scriber. The second disc, this one from Grid 38, Square 73, is smaller than the first, but with the same nonpenetrating indentation on one side of the bone. There is no incised circle near the perimeter. This piece was also left unworked after being cut out.

Determining the function of these discs is not as straightforward as determining how they were made. The inclination to identify them as buttons is probably incorrect. Hutchinson and Reese (1988:fig. 20,

no. 71) identify as a button a piece in the Carthage collection that is identical to the Ashkelon discs, but this is probably a gaming counter. Although various opinions exist, especially in the general literature of encyclopedias, there is a consensus that buttons were not regularly used to fasten clothing before the medieval period. MacGregor (1985:102) notes that the flat, thin discoid pieces with central perforations averaging 4 cm in diameter that are found at numerous medieval sites in Europe correspond more closely to the dimensions of modern buttons than the cut-out waste, of greater thickness but smaller perforation, which is probably the byproduct of bead manufacture. One such larger disc even had four holes in the center, a close approximation to the pattern of a modern button. MacGregor also discusses the Roman button-and-loop fasteners classified by Wilde (1970), most of which are from the first century A.D. or earlier. The two main types are both shank buttons (MacGregor 1985:fig. 58l–m), which makes them quite different from the discs considered here.

On the other hand, bone discs are frequently found at European sites from many periods. Most were cut from the lower jaws of cattle (from the gonion or angle at the back of the mandible). When viewed in section, one can plainly see the cancellous bone sandwiched between cortical bone that is characteristic of this skeletal part (MacGregor 1985:figs. 36, 71f,g,h,q, and 72b). These discs, like others made from antler, cetacean bone, and/or ivory, are gaming pieces. They are often inscribed with simple geometrical designs on at least one surface. Curiously, there is no evidence at Ashkelon for the use of mandibular bone as a source of raw material, but the flat discs cut from long bones were probably gaming counters of the same type.

Marangou (1976:65–66, nos. 280–87, pl. 7l) discusses six bone discs and two ivory discs in the Benaki Museum collection, which she calls "tesserae," all but one of which is flat. The exception is slightly convex with the circle somewhat squared. These objects are sometimes called "theater tickets," an identification which Marangou disputes:

> Figural and architectural representations in low relief are incised on the obverse, numerals and inscriptions in Greek and Latin on the reverse. The term "theatre tickets" was given to them in the 19th century, because their use was believed to be connected with theatrical and gladiatorial performances. This term, however, had already been disputed by the beginning of the present century. After the publication of Rostovtsev's study, it has been generally accepted that these objects were in fact game counters. [ibid.]

Rostovtsev (1905:119) identified the buildings carved on such discs with structures in Alexandria and its environs, so it is plausible that the pieces were made there. On the basis of their iconographic style, Rostovtsev places their date of manufacture between the early imperial period and the third century A.D.—a conclusion that may well be adjusted when a definitive study is published, according to Marangou (1976:66). This date fits the earlier end of the range possible for some of the Ashkelon pieces; but much of the Ashkelon evidence was recovered from clear Byzantine deposits, which are considerably later than the terminal date assigned to the Alexandrian discs. Chronological adjustments to both collections may yet show a common period of manufacture, and it is hoped that further excavations at Ashkelon will contribute more of these figuratively carved discs, permitting a comparative study of the iconography.
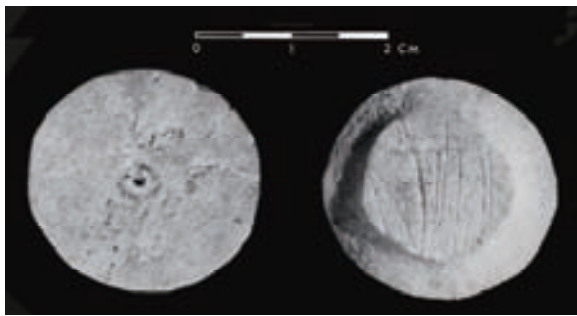
Figure 34.10: Discoid pieces
Left: Category 4B, catalogue no. 131
Right: Category 4C, catalogue no. 132
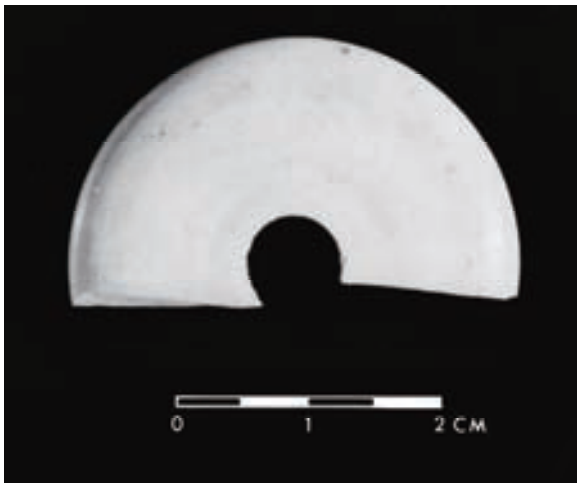
Figure 34.11: Button
Category 4D, catalogue no. 133

CATEGORY 4C (catalogue no. 132). The one piece in this category is a discoid piece, flat on one side, with a raised circle two-thirds the diameter of the disc on the other (figure 34.10). "Scribbling" in the form of incised lines is visible in this raised area, making it certain that the disc was not finished. Its intended use is unknown, but a gaming counter is more probable than a button, although no gaming pieces with this configuration are known. The perimeters of both circles are not very precise and there is no center indentation, making it unlikely that a lathe or scriber was used in its manufacture. The disc was probably knife-cut.

CATEGORY 4D (catalogue no. 133). The one piece in this category is a button with a large central hole, shaped like a fat doughnut (figure 34.11). It has been smoothed and polished all over, obscuring any clues as to its mode of manufacture. The regularity of the piece argues for its being lathe-made, but the other techniques discussed above cannot be ruled out (see Hutchinson and Reese 1988:fig. 20, no. 70).

CATEGORY 5: RIBS

In this category are ribs from large mammals in various stages of reduction. Ribs are characterized by a thin outer layer of cortical bone that surrounds spongier bone, and although the denser cortical tissue is sparse, it can easily be separated from the cancellous tissue, leaving a thin sheet to model that is very suitable for inlay or other attached decorations. Like long bones, rib ends are designated "proximal" or "distal," with a shaft in between. Although ribs are generally curved, there is usually a section of shaft that is flat enough to model.

MacGregor (1985) reports that game counters cut from rib shafts have been recovered from some European sites, and as with game counters made from cattle mandibles, the presence of spongy bone and the greater thickness that results from the use of these particular bone elements were obviously not considered undesirable. The three rib specimens classified as manufacturing residue in Category 1a above are all midsections of rib shafts sawn perpendicularly to the axis of the bone. They could conceivably have been included here, but because they are small sections with a limited area to model, they were grouped with other material thought to be initial discard.

CATEGORY 5A (catalogue nos. 134–137). The four pieces in this category are rib sections that were broken perpendicular to the axis of the bone but were worked on at least one surface.

CATEGORY 5B (catalogue nos. 138–139). Both pieces in this category are sections of rib shaft that have been sawn on two surfaces perpendicular to the axis of the bone, forming small chunks.

CATEGORY 5C (catalogue nos. 140–151). What distinguishes the twelve rib sections in this category is the fact that all have been sawn lengthwise through the cancellous bone. Judging by the marks left on the interior surface, some specimens were also smoothed with a file. In addition, at least one location on the rib has been sawn perpendicular to its axis, but usually two or more sawn edges are present, indicating that the rib was being worked into a blank, flattened, and in some cases smoothed, preparatory to carving. Most of the pieces appear to be unfinished blanks.

CATEGORY 6: THICK RODS (DOWELS AND HANDLES)

Although all of the specimens in Category 6 are broken, they represent forms of what were essentially long rods. Some were shaped by a knife; others were made on a lathe. They could have been cut from the shafts of long bones, but for thicker rods the scapula spine, particularly of camels, would have been easier to model because it provides a long stretch of dense bone.

CATEGORY 6A (catalogue nos. 152–153). The two pieces in this category may have been dowels, even though they are rectangular in shape (viewed from both the long side and in section). At the very least, they are the kind of blanks from which rounded dowels were fashioned.

CATEGORY 6B. The pieces in this category are thick, solid dowels or wand-like pieces, which are further subclassified on the basis of thickness. The specimens in Category 6b-1 are thicker than those in Category 6b-2.

CATEGORY 6B-1 (catalogue nos. 154–156). The three specimens in this group are rather roughly whittled, and were probably unfinished at the time they were discarded. Nos. 155 and 156 still preserve some cancellous bone from the parent piece. No. 156 is actually a cylinder sawn at two ends into a short section. Conceivably, it could have been shaped as a single unit rather than as a section cut from a longer rod. But since more than one such piece would have been needed, cutting a long cylinder into sections is more efficient than making the sections individually. The amount of cancellous bone and the unfinished quality of no. 156 suggest that it was waste from

preparing long sections of thick rods. No. 154, a section of rod broken at both ends, is too short a fragment to determine its function. No. 155 is also broken at both ends, but enough of it remains to detect its ovoid shape and a tapering at one end. It may have been intended for use as a handle.

CATEGORY 6B-2 (catalogue nos. 157–164). The eight specimens in this category comprise the thinner of the "thick rods." All appear to have been knife-cut rather than lathe-made, even nos. 157 and 158, which have been well polished, but which are slightly ovoid rather than round in cross-section (as would be expected in a lathe-made piece). Nos. 157, 162, and 163 all taper to a blunt point at the end of the rod. Along with nos. 158, 159, and 160, they may have been intended as handles or ligulae—thin rods with a small knob, spatula, or spoon at one end and a blunt tip at the other. Bone ligulae were often used as personal toilet articles.

Nos. 159 and 160 are roughly comparable in thickness to the ligulae published by Hutchinson and Reese (1988:fig. 15, nos. 35–38); however, nos. 157, 162, and 163 are substantially thicker, and may be from other implements. Hutchinson and Reese do not discuss how ligulae differ from pins, especially in the shaft portion. From their plates (ibid., figs. 13–15), the pins appear for the most part to be shorter and squatter, while the shafts of ligulae, although they taper along the length of the shaft as many styles of pins do, never appear to have the small knot or swelling on the shaft common to many pins. Indeed, nos. 159 and 160 in the Ashkelon material could be classed with the needles and pins of Category 7b below, except that they are quite a bit thicker. Nos. 161 and 164 are sections of thin rods that are too small to speculate about.

CATEGORY 6C (catalogue nos. 165–166). The two pieces in this category are hollow, tubular handles that taper to blunt points (figure 34.12). Both handles were made on a lathe and both have been smoothed but not polished. A metal implement such as a spoon or a spatula would have been hafted into the hollow end. Judging by the size of these handles, such an implement would have been relatively light. (Compare the piece published in Hutchinson and Reese 1988:fig. 18, no. 58.)

Figure 34.12: Tubular handle
Category 6C, catalogue no. 165

CATEGORY 6D (catalogue no. 167). The one specimen in this category is a hinge that was cut from solid bone (figure 34.13). MacGregor (1985) notes two such pieces, one from Verulanium in Roman Britain (ibid., fig. 110c) and the other from the Egyptian Fayum. The Ashkelon hinge was turned on a lathe and is much longer than the one from Verulanium. The end spigots used for attachment are very attenuated now. Near one end, a lateral hole was drilled in order to hold a perpendicularly projecting dowel. (See the discussion of Category 3k above concerning hollow hinges.)

Figure 34.13: Hinge
Category 6D, catalogue no. 167

0   1   2 cm

Figure 34.14: "Bobbin"
Category 6E, catalogue no. 168

CATEGORY 6E (catalogue no. 168). The identification of the one piece in this category is uncertain. It looks like several known bone-artifact types, but is not quite right for any of them. The piece is shaped like a dumbbell, with a thick rod between two rectangular blocks (figure 13.14). Three incised rings decorate the ends of the rod; these and the rod were turned on a lathe while the blocks were knife-cut. Although architectural in style, no. 168 could not have been a furniture mount because it is complete in outline. It might have been a dumbbell-shaped button, part of a button-and-loop fastening device of a type known from Roman sites; but unlike the fastening device from Carthage (Hutchinson and Reese 1988:fig. 20, no. 73), the rod portion or "stem" is too long to secure the loop properly. It is also longer than the Carthage piece.

A third, and more likely, alternative is that it was a bobbin used in textile manufacture. MacGregor (1985:183) calls this a tentative identification "for a variety of small, well-made cylindrical objects, the precise functions of which are nonetheless not clearly understood." Of the examples he illustrates, the Ashkelon object best approximates in overall shape (but not in detail) a solid rod from Norwich, which is also similar in size (ibid., fig. 100e). Most of his other examples are perforated along the length of the cylinder with large figurative terminals. The late date of the Ashkelon piece (thirteenth century A.D.) also corresponds to the medieval date of the Norwich object.

CATEGORY 6F (catalogue no. 169). The piece assigned to this category is quite distinctive. It was probably made from a rod-shaped section of solid bone (figure 34.15). A closed hand and forearm are carved in the round with a bracelet(?) encircling the arm; the object is broken just beyond this point. The piece may or may not have been finished. The carving is schematic rather than life-like—the curled fingers and the thumb, although unmistakable, are only suggested. The carving is such that this piece does not look like an unfinished rough-out, but that possibility cannot be ruled out.

Marangou (1976:plate 66a–d and p. 132) has published two bone handles from Alexandria in which hands are central to the motif. The anatomical details are more finely rendered than on the Ashkelon piece, and they are larger, to fit the size of the handles. The Ashkelon hand more likely belonged to a figurine than to a handle.

Figure 34.15: Hand-shaped handle
Category 6F, catalogue no. 169

CATEGORY 7: THIN RODS (PINS AND NEEDLES)

CATEGORY 7A (catalogue nos. 170–206). Category 7 includes the "thinner rods," and Category 7a, with 37 specimens, is the largest category. It includes pieces that are shaped like large matchsticks, usually rectangular in section but in some cases more square. They were cut from the limb bones of large mammals. Two pieces preserve an end or tip that was cut at an oblique angle. All of the pieces are broken, so individual lengths are not given; it is sufficient to note that the preserved lengths range from 2.15 to 5.3 cm. Two thickness measurements (maximum and minimum) were taken on each measurable specimen. The range of maximum thicknesses is 0.34–0.61 cm (mean = 0.42 cm). The range of minimum thicknesses is 0.28–0.43 cm (mean = 0.34).

These bone "matchsticks" served as blanks for manufacturing needles and pins. From Carthage, Hutchinson and Reese (1988) report that pin blanks were shaped like wedges, bars, or rods. But no wedge-shaped blanks are present in the Ashkelon corpus.

All of the pieces in this category were cut with a fine-toothed saw (in some cases, no doubt, they are byproducts of shaft preparation for other purposes). The use of such saws illustrates a dichotomy in the manufacture of bone pins and needles, because a fine-toothed saw is not normally found in the toolkit of nonspecialist craftsmen. The Ashkelon "matchstick" blanks must therefore have been made by professional boneworkers. But plain pins and most needles were usually made by the user as needed, since they were simple to carve with ordinary knives from readily available bones. This suggests that the saw-cut blanks in this category were to be made into more elaborate pins and needles with turned shafts or intricately carved heads. These could only have been made by boneworking specialists, who would have possessed fine-toothed saws as part of their professional equipment. In any case, bone pins and needles, whether made by specialists or nonspecialists, are quite common at large, complex sites.

CATEGORY 7B (catalogue nos. 207–234). In this category are finished needles and pins, most of which are broken. When only a portion of the shaft is preserved it is difficult to distinguish between needles and pins. Needles are identified by the presence of an "eye" or, if that is broken off, by a flattening toward the head, if enough of the shaft survives to detect this. Identifying pins can be a problem since their shafts may take a variety of shapes, including robust shapes similar to those of needle shafts. Even pins whose carved heads are preserved do not usually indicate whether they secured hair or clothing.

In theory, the tips of pins and needles should reveal evidence of their past use, even if this is all that remains of them. Sharp, thin points would have been suitable for sewing; moderately sharp but thicker points would have been used as cloth fasteners; and thick, blunt points would have served as hairpins. This logic fails in practice, however, because sewing needles were often thicker and more bluntly pointed than pins, in keeping with the coarse, open-weave fabrics that most people wore.

In the Ashkelon material that is considered here there are five definite needles, six pins, and sixteen undistinguishable shafts. As at other Roman-period sites, lathe-turned pieces are rare and plain, knife-made pieces predominate. Irregularities in shaft circumference indicate that all of the needles and most of the pins at Ashkelon were knife-cut. This is also the case with the pins found at Carthage, according to Hutchinson and Reese (1988). On the other hand, all of the Ashkelon pieces were smoothed and/or polished so that individual knife marks are generally absent. This kind of finishing may be a sign of the professional manufacture of knife-cut pins, just as elaborately carved heads—even when combined with knife-made as opposed to lathe-made shafts—

indicate the work of a professional craftsman. The two pieces at Ashkelon that were turned on a lathe were certainly the work of specialists.

MacGregor (1985) provides a detailed and well-illustrated discussion of many varieties of pins (see especially his figure 64). Only a few parallels can be identified among the Ashkelon specimens because of their fragmentary condition, but MacGregor raises some further points which have relevance here. In addition to pins with heads, he discusses several kinds of headless pins that terminate in a straight-cut, rounded, or pointed end. The shank is generally of one of two types: either of uniform thickness, narrowing only at the tip, or tapering smoothly from a wider end (the head) to the tip. Based on a survey of pins from ten British sites, Crummy (1979) dates the latter type of headless pin to the early Roman period. It is displaced by headless pins of different styles in the first half of the third century. Although pins with heads shared these two shank types with their headless counterparts, they also exhibited a third shape, tapering from the center toward the head such that the shank swelled in the middle. The swollen part of the pin would have held it fast once it had been positioned in cloth or hair. Other devices to hold the pin in place involved incised lines around the shank to prevent slippage (a technique dating from the seventh–eighth centuries), or modeling the shank with flanges about a third of its length above the tip (a technique dating from the sixth century).

The Ashkelon collection consists of one complete needle (no. 233), three incomplete needles (nos. 224–226, although no. 224 is nearly whole), two complete headless pins (nos. 231 and 232), one complete pin with a head (no. 230), three broken pins with heads (nos. 227–229), and seventeen broken shafts. Of these shafts, five are tips whose function cannot be determined (nos. 207–211). Two shafts have center swellings (nos. 212 and 213), one markedly so, which makes them pins—according to MacGregor's (1985) classification they would have been pins with heads. Of ten broken shanks which appear to taper in one direction (nos. 214–223), only one is long enough to determine that it really does (no. 214), although this does not help to determine its function. The pins represent well-documented types known throughout the Roman world. Since all of the Ashkelon examples are dated to the Late Roman period or later, when Roman influence would still have been present, they should be seen in this larger context.

The spatial distribution of the Ashkelon needles and pins is worth noting because 18 of the 28 specimens in Category 7b derive from Grid 38, Square 83. Moreover, 16 of the 18 are from Byzantine contexts, while the other two pieces come from a mixed Late Roman/Byzantine deposit and from an early Islamic level, respectively. All 18 specimens in Grid 38, Square 83, were associated with the sequence of bathhouse buildings in this area, most of which are Byzantine in date.

Only two clearly identifiable needles were found in the bathhouse area, and only two pins (nos. 212 and 213) can be definitely identified among the 16 broken shafts found there. This concentration of broken pin or needle shafts does not represent a workshop situation, however, because the broken specimens were smoothed and polished, which indicates that they derive from finished pieces. A certain amount of unpolished and unfinished material would be expected from a workshop. In addition, none of the 36 "matchstick" blanks in our corpus from which needles and pins were to be fashioned was found in the bathhouse area. The most plausible explanation is that the bathhouse specimens represent an accumulation of broken pins resulting from bathing and washing activities, during which hair and clothing were undone and these simple fasteners were lost or broken.

Pins. The pins with heads (nos. 227–230), in particular, can be compared to specimens found elsewhere. No. 227 is a plain pin that has an ovoid head, no decoration on the head or shaft, and a thin neck just below the head from which the shaft swells to a slight nodule about 1 cm below the head and then tapers toward the tip (figure 34.16). Pins with spherical or ovoid heads and minimal decoration were widespread in Roman Britain (designated Type 3 in Crummy 1979) and were made throughout the Roman Mediterranean. They were the most common pin type found at Carthage: Hutchinson and Reese (1988) document more than 60 examples from the Australian excavations at Carthage and mention examples unearthed by the Canadian and British teams. The shape of the shank on the Ashkelon piece corresponds best to Hutchinson and Reese 1988:fig. 13, nos. 8 and 16.

No. 228 has a conical head incised to resemble a pinecone and two rings carved on the neck just below the head; the shaft tapers from head to tip (figure 34.17). It is very similar to a piece from Carthage (Hutchinson and Reese 1988:fig. 14, no. 20). Variations on the conical head, in addition to or replacing the pinecone design, include an undecorated cone head, a flanged neck, and concentric rings or reel (or reel-and-bead) decorations on the head and neck. These additional styles are known from Carthage and other Mediterranean sites, as well as from Roman sites in Britain.

No. 229 has the most elaborate and finely made head of any pin found at Ashkelon (figure 34.18). It belongs to the category of reel-and-bead decorated pins. This head shape and decoration is well documented (in various permutations) from Roman Britain (Crummy 1979: Type 6) but is less known at Mediterranean sites, according to Hutchinson and Reese (1988). In the Ashkelon specimen the top of the head is a large, well-defined bead followed by a double reel, another well-made bead and then another double reel. There is an incised ring below the second double reel at a distance equivalent to the size of the beads. It is possible that the piece was not finished and that a third bead and reel was intended. Unfortunately, the piece is broken at this point, but this possibility is a good one, because part of the area between the double reel and the ring has been finished like the two beads. There are no published counterparts to this piece in which both bead and reel are so distinct and well made, although these design elements are found in pin heads elsewhere.

No. 230 is a thistle-headed pin (figure 34.19). This is the name that MacGregor (1985:120) gives to a class of pins in which all known exemplars are from Scotland. Two groups exist: short pre-Norse pins, with small thistle-shaped heads that are actually either flat-topped spheres or spheres capped by flat "hats," and more robust pins with larger, elongate thistle heads and thicker shanks that are pre-Norse and Viking in date. The Ashkelon example (no. 230) closely resembles a piece illustrated by MacGregor (1985:fig. 64, no. 35). In both pieces a similarly shaped, flat-topped thistle is followed by a bead which is followed by a ring, except that the Ashkelon pin has five additional concentric rings along the neck of the shaft instead of only one. It is impossible to know how the Ashkelon pin acquired what seems to be a peculiarly Scottish style, except to suggest that this style had a wider distribution than has been realized.

The two headless pins in our corpus are of two different types. No. 231 has a slightly rounded top and a shaft that is widest at the head and tapers to a pointed tip (figure 34.20). The upper part of the shaft is inscribed with six circumferential rings. Crummy (1979) suggested that shafts which tapered in only one direction from head to tip were common during the early Roman period in Britain, losing popularity by the mid-third century. A similar date range applies to the pins with inscribed grooves. The Ashkelon piece is almost a millennium younger, dating to the thirteenth century A.D.

Figure 34.16: Pin with ovoid head
Category 7ʙ, catalogue no. 227

Figure 34.17: Pin with conical "pinecone" head
Category 7ʙ, catalogue no. 228

Figure 34.18: Reel-and-bead pin
Category 7ʙ, catalogue no. 229
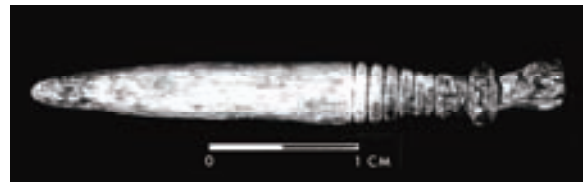
Figure 34.19: Thistle-headed pin
Category 7ʙ, catalogue no. 230

Figure 34.20: Headless pin
Category 7ʙ, catalogue no. 231

Figure 34.21: Headless pin
Category 7ʙ, catalogue no. 232

The second headless pin from Ashkelon (no. 232) is cut straight across the top (figure 34.21). The upper part of the shank is also inscribed with rings, but the shape of the shaft differs from those described at British sites, in that it is narrow at the head, widest in the middle, and then tapers to a point, which makes it more like a pin with a head. This example, of Byzantine date, is also significantly later than the Roman-British pieces with which it shares stylistic features. In addition to regional variations of basic forms, these divergences also point to a later retention at Ashkelon of certain styles known from bone objects of Roman date elsewhere in the empire. Whether this is true for other sites in the Mediterranean that have Roman-era occupation remains to be documented.

Needles. According to MacGregor (1985:193), bone needles became very uniform in style and technique of production during the Roman period. Needle shanks were of even thickness or tapered toward the head, some of the former having points at both head and tip. Needle eyes could be single rounded holes, intersecting holes, or elongate slits. Most needles were too thick to sew finely woven material and must have been used on rough cloth. Not until the medieval period was bone replaced by metal in the production of needles.

Even though only five needles have been definitely identified in our corpus, they correspond to most of the needle types discussed by MacGregor. The three incomplete needles preserve heads with eyes. In one, the head is cut straight across and the eye drilled close to the end (no. 226). The shank is not quite cylindrical, being somewhat flatter on the sides with the holes. In the other two needles (nos. 224 and 225), both of which are broken through the eye, the shank flattens noticeably toward the head.

In these three examples the shafts are quite thin, in contrast to the one complete needle (no. 233), which is uniformly thick along the length of the shaft, tapering only at the point (figure 34.22). The head is rounded slightly and a large slit constitutes the eye. The other needle which is almost complete (no. 234) also has a thick shaft. Here, however, the large slit occurs in the pointed end; the other end is broken, so we do not know whether it corresponds to Mac-Gregor's type with two points.

Figure 34.22: Needle
Category 7ʙ, catalogue no. 233

CATEGORY 8: INLAYS AND FLAT MOUNTS

This category includes bone cut into a variety of shapes that were probably intended to be used as inlays or mounts for boxes, chests, furniture, and the like. All have at least one flat side. They can be designated collectively as "thick plaques" that were cut, almost certainly, from long-bone shafts. All appear to be unfinished although only a few are likely to have been waste. The pieces have been sub-categorized mostly on the basis of shape.

CATEGORY 8A (catalogue nos. 235–236). The two pieces in Category 8a were sawn on four sides into parallelograms. Their front and back surfaces were also flattened by sawing.

CATEGORY 8B (catalogue nos. 237–242). These pieces are (more or less) long rectangles in shape, sawn on at least three sides. Five of the six specimens appear to be waste (nos. 237–241). No. 242, though broken, was probably a finished piece.

CATEGORY 8C (catalogue nos. 243–244). The two specimens in this category are also rectangular but are not as long or as thick as those in Category 8b. All the surfaces and sides of both pieces were sawn.

CATEGORY 8D (catalogue no. 245). The single specimen in this category is a grooved rectangle intermediate in thickness between the pieces of Categories 8b and 8c.

CATEGORY 8E (catalogue no. 246). This curious specimen is also a rectangular plaque of intermediate thickness which was sawn, smoothed, and polished on all sides and surfaces. A small hole has been drilled between the surfaces, somewhat off-center, and two additional small holes about 5 cm apart were drilled into one long side penetrating only about two-thirds of the way through to the other side. This piece may have been part of some object rather than a decorative mount or inlay.

CATEGORY 8F (catalogue no. 247). This long rectangle is similar to no. 246 in Category 8e, but it is slightly larger all around. It is broken lengthwise but preserves one complete hole and half of a second hole drilled from the front to the back surface at the median width of the rectangle. These were most likely rivet holes through which metal or bone pegs would have attached the mount to a larger object, often made of wood. MacGregor (1985:62) notes that the utility of bone pegs lies in being able to continue

an incised decorative motif over the head of the peg. Because no decorations are preserved on either surface of what is a sizable fragment, this piece was probably not finished. If MacGregor is correct, such plaques would have been carved after attachment to the larger object.

CATEGORY 9: THIN PLAQUES

CATEGORY 9A (catalogue nos. 248–257). In Category 9 are various thin plaques used as mounts and inlays. The blanks for these are grouped in Category 9a. They were cut, usually on four sides and on both surfaces, into thin slices of bone ranging in thickness from 0.15 to 0.18 cm. Many were also smoothed and polished on what would have been the upper surface, while the back shows file marks from flattening the plaque. The shapes tend to be geometric figures; less well-shaped pieces may have been wasters while those cut in precise shapes were the actual blanks.

CATEGORY 9B (catalogue nos. 258–259). Both pieces are waste flakes from making thin plaques.

CATEGORY 9C (catalogue nos. 260–261). These pieces are thin plaques decoratively carved in low relief; both are broken. The designs were knife-made.

Figure 34.23: Thin plaque with knife-cut relief
Category 9C, catalogue no. 261
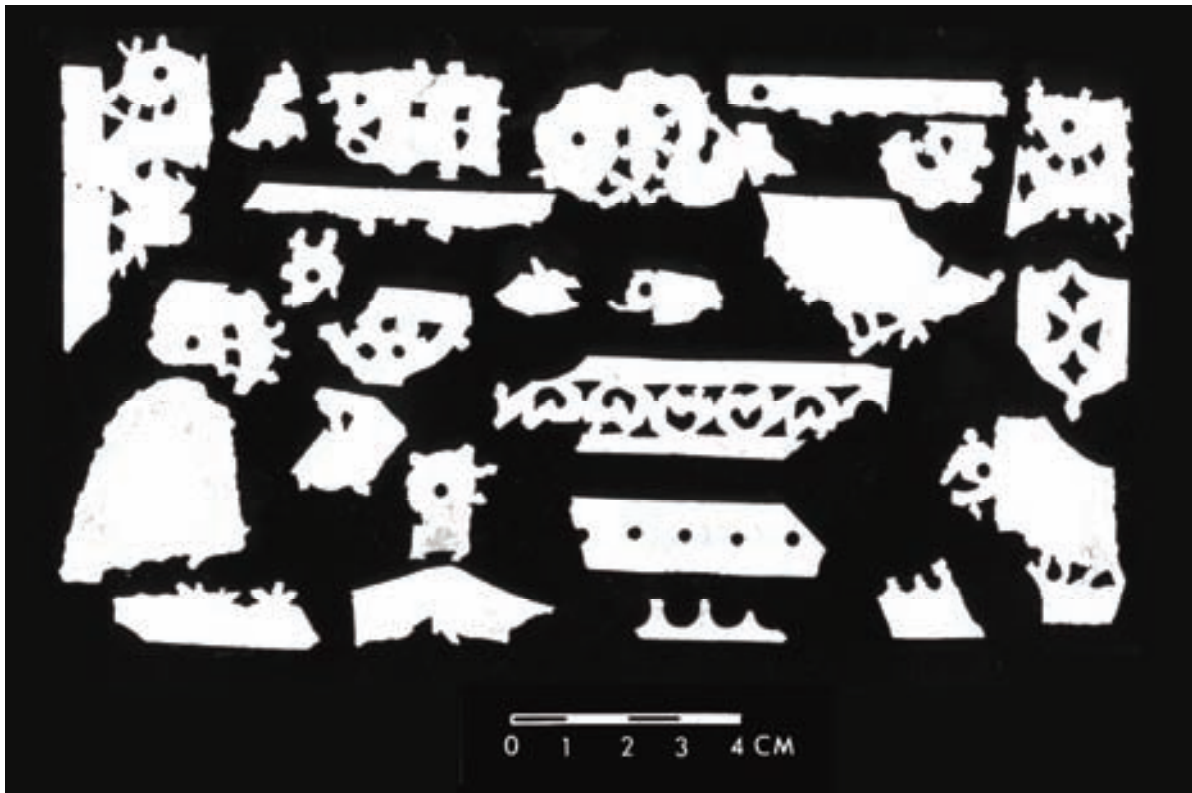
Figure 34.24: Thin plaques with openwork (*ajouré*) decoration
Category 9D, catalogue nos. 269–293

CATEGORY 9D (catalogue nos. 262–294). In this category are fragments of thin decorative plaques (none exceeds 0.25 cm in thickness) carved in an openwork technique known in French as *ajouré* (figures 34.24 and 35.25). The method is an ancient one, used widely in ivory carving prior to its application to bone. Barnett (1982) notes that the process began by making small holes with a bow-drill which were then enlarged and made into designs using fine saws and blades. Small holes in the Ashkelon plaques not only testify to this procedure but were often incorporated into the design. They also provided rivet holes for attachment.

The openwork produced a kind of "osseous lace" on the Ashkelon worked bone similar in effect to the filigree designs on pottery and jewelry of the Islamic period. Indeed, all of the pieces in Category 9c date to that period, except for one specimen from a Byzantine/Islamic context. Some of these lacy bone mounts were quite large, being actually composites of several sections joined together and secured on the finished piece by pegs. While longitudinal slices of long-bone shafts (Category 3) were probably used for most of the sections, the blade portion of the scapula of large mammals would have offered a larger area to carve, as would the pelves, both elements having only a slight curvature to plan around. Halved ribs (Category 5) would have been especially suitable for sections of strip inlay.

Not enough of any single piece is preserved to document more than two shapes: strips of varied widths that formed decorative borders, and large composite circles. But mounts must have been made in rectangular form as well to cover small boxes, etc. On one strip a consecutive line of dot-and-ring figures provides the decoration, but here the dots have been drilled through instead of just perforated.
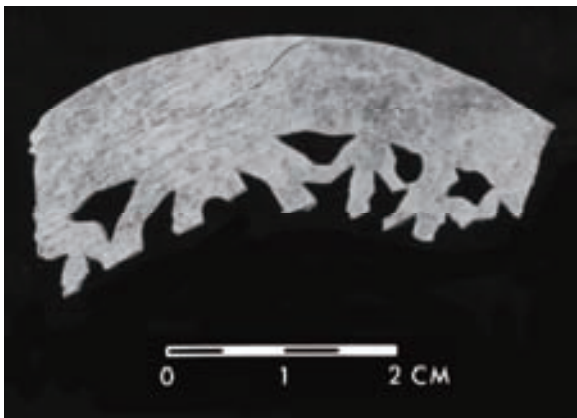
Figure 34.25: Thin plaque with *ajouré* decoration
Category 9D, catalogue no. 294

CATEGORY 10: HALVED RODS

CATEGORY 10A (catalogue nos. 295–298). Category 10 includes pieces fashioned from rods halved longitudinally. The rods may have been prepared by turning. The four specimens in Category 10a are alike, being sections sawn diagonally at two ends so that they appear roughly crescentic in section. These short sections are probably the waste from cutting blanks that were made into decorative moldings (bands or borders) inset or mounted onto boxes, chests, and the like.

CATEGORY 10B (catalogue no. 299). This piece is a halved section of rod decorated with astragals turned on a lathe. It is broken at one short end. The beads are polished although the back shows file marks. The piece was well executed and may have been intended as a corner section, judging from one of the short ends which is cut on the diagonal. A similar (but larger) band from Alexandria is illustrated by Marangou (1976:plate 67e, no. 264).

CATEGORY 11: CUBES

In this category are two fragments of bone that were sawn into cubes, although neither is a recognizable die. No. 300 appears to be a corner fragment of cube, not quite squared in shape. It might have been made from a long bone, but judging by its texture it was probably modeled from an ankle or a wrist bone of a large mammal, making it the only such bone in our corpus. Perhaps it was left unfinished because of its skewed shape, even though assymetrical pieces were apparently quite common in antiquity (Hutchinson and Reese 1988, citing Davidson).

No. 301 is also a fragment of cube slightly out of true. Additional discussion of cubical dice is found in Category 3i.

CATEGORY 12: "PEG"

The single specimen in this category (no. 302) is unique. It is a large "peg" with a diagonally cut pointed tip and a rectangular head, finely carved from a long bone and highly polished all over. The motif on the head appears to be abstract in design; both sides are identically carved. The shank of the peg is grooved down one side, but the other leg formed by this slit has now broken off. The function of this piece is a complete mystery. No comparable bone objects or parts thereof are to be found in the literature.

CATEGORY 13: IVORY

The six pieces in this category are fragments of worked ivory. Nos. 303–305 are from Late Bronze Age or early Iron Age I contexts. Worked ivory is discussed here because bone and ivory are modeled using similar tools and techniques, and it is likely that under certain conditions the same craftsmen would have worked in both materials. The inclusion of these early ivory specimens is not meant to imply that the bone manufacturing tradition of later periods extends so far back in time; indeed, evidence for that is singularly lacking. Even the existence of ivory carving at Palestinian sites in the latter part of the Late Bronze Age is at issue, a point explored more fully below.

All mammalian teeth are technically ivory, comprised of an enamel crown surrounding a dentine layer which forms the body of the tooth, the part that is actually carved (details of the morphology can be found in MacGregor 1985; see also O'Connor 1987). The term "ivory" is usually reserved for the large teeth of certain species from which artifacts have traditionally been fashioned. For sites in the Middle East, hippopotamus canines could have supplied the raw material of smaller items, especially in Egypt. But the ivory most utilized was from the upper incisors of the male Asiatic elephant (*Elaphas maximas*) or the male or female African elephant (*Loxodonta africana*), whose tusks are an excellent medium to carve, being mostly dentine with only a thin cap of enamel.

The structure of elephant ivory viewed in section looks like a series of concentric rings, and it is along these layers that ivory will split if it undergoes an excessive loss of moisture. This tendency to delaminate is not uncommon in archaeological artifacts and can be the chief indication that the material is ivory and not bone. Despite ready identifications in the literature, it is not always easy or possible to tell if a piece is made of ivory or bone, especially when it is intact. The distinctive structure of ivory, the color it acquires as it ages, which may be anything from creamy white to blonde to brown, and the surface finish, are all features that should signal what a piece was made of. In practice, however, this is often not the case, and much bone has doubtless been identified as ivory and vice versa.

There is artistic and literary evidence of the existence of wild elephants in Syria during early historic periods (R. Miller 1986). These Levantine elephants are often thought to have been a variety of the Indian species, but as Clutton-Brock (1981) points out, the absence of a fossil record from the Near East leaves open the possibility that they were indigenous to the region. Past and present geographical distributions leave the door open to various possibilities: the Syrian elephant could have been related to either the African or the Asiatic species, or it could have evolved separately from one of the two extant species.

Whatever their origin, elephants seem to have persisted in Syria until the end of the second millennium B.C. when they were hunted to extinction. The Late Bronze/early Iron Age ivory at Ashkelon could have come from nearby sources in Syria, or from more distant sources in Africa or Asia.[198] Barnett's (1982) detailed account of ivory procurement in different areas of the ancient Near East suggests that there was no period when this precious material was unobtainable, although it may have been rare and expensive. Egypt, in particular, was a conduit for African ivory as early as 4500 B.C. through its southern border. A great deal of ivory was traded to Rome via ports on the Red Sea beginning in the third century B.C. (MacGregor 1985). Originally set up to handle the shipment of live elephants from northeast Africa for military purposes, these ports remained active, partly to carry on the established ivory trade even when the use of elephants in military expeditions diminished after the Battle of Raphia in 217 B.C.

Egypt also handled large quantities of Indian ivory for transshipment, especially after its annexation by Rome. The Romans had an insatiable appetite for ivory "to the point of extreme extravagance," according to Clutton-Brock (1981:118), who attributes the extinction of the elephant in North Africa to their limitless demands. With the fall of the Roman Empire, ivory trading in the eastern Mediterranean fell largely to Byzantine middlemen. "The Byzantine demand was met for the most part by the Islamic markets in Iraq and Egypt, through which passed ivory from India and from east Africa. Zanzibar, Madagascar, Ethiopia and Upper Egypt or the Sudan are mentioned as important sources of African ivory for the Egyptian markets, while a certain amount of

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[198] Barnett (1982) notes that the two kinds of African ivory as well as Asiatic ivory can be distinguished from each other when the tusks are fresh. The types are also said to age differently with respect to color and surface patina, qualities which should permit differentiation of the ivory source in older pieces. Clutton-Brock (1981), however, reports that even the use of a scanning electron microscope on ivories in the British Museum did not distinguish African versus Asiatic origin. It would seem a faint hope then, that such an assessment could be made on archaeological pieces which undergo structural changes during deposition.

Indian material arrived there via Ceylon" (Mac-Gregor 1985:39).

Clearly, the carvers in Ashkelon would have been able to obtain ivory at any time albeit at considerable expense. According to Barnett (1982:23): "The tradition of ivory carving along the broad stretch of the Levantine littoral is second in the Near East in age and importance only to Egypt." Several scholars have noted the proliferation of ivoryworking in the latter part of the Late Bronze Age throughout the Near East.

Did Palestinian workshops take part in the popularity and spread of the craft, or were work-sites limited to Syria? Liebowitz (1987) takes issue with the prevailing scholarly opinion that ivories recovered from sites in Palestine were made in Syria. The two reasons he gives to support a hypothesis of independent Palestinian workshops in the Late Bronze Age include distinctive traditions in the art of the two regions dating from the previous Middle Bronze period, and deep cultural differences between northern and southern Late Bronze Age communities in the Levant.

The debate has centered on aspects of style and other artistic evaluations of Late Bronze assemblages. What is missing is evidence of workshops,[199] or failing that, of ivory in the process of manufacture. Barnett (1982) points out that unfinished pieces or waste could indicate itinerant craftsmen as easily as permanent workshops, noting that the scant evidence that exists about ivory carvers marks them as highly mobile. In general, he argues that preindustrial craftsmen were itinerant, although the one piece of evidence cited (Barnett 1982:76, n. 27), an anecdote by the classical author Philostratus, is far removed in time and place from Late Bronze Age Palestine. In that particular context how would roving specialists have provided themselves with ivory, as the Philostratus story states that they did? There is little support for Barnett's position or for any other reconstruction of how Bronze and Iron Age ivory carvers practiced their craft. Ivory carving at Palestinian workshops in the Late Bronze Age must continue to be inferred from artistic assessments alone.

Unfortunately, the three Late Bronze Age or early Iron Age ivory pieces from Ashkelon that are described below do not help in this regard because none can unequivocally be designated as unfinished or waste. No. 304 has delaminated into numerous

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[199] Barnett (1982:76, n. 26) questions excavators' claims of ivory workshops at Ras Shamra and Megiddo (as well as at sites that are not relevant here).

fragments and there is no indication of decoration on any of them; what was once the back of the piece shows evidence of file marks. No. 303 was probably a completed strip of inlay, a corner of which is preserved. Portions of two inscribed and intersecting arcs are all that remain of the decoration. Rough file marks are visible on the back, as are striations from a finer file that was used to polish the upper surface. The fragment has aged to a medium brown color.

No. 305 is a fragment of a thin plaque. No decoration is present but file marks are visible on both surfaces. This is the one fragment that may be from an unfinished piece but too little of it is preserved to be able to decide. The file marks are not as coarse as those on the back of no. 303, but they are not as fine as those on the upper surface over which the circles were inscribed. One might expect a finished piece to show less evidence of the tools used in its manufacture, but polished ivory seems to take on more marks of the tools used to finish it than does bone (see for example, pieces illustrated in Barnett 1982:plate 20f and g; plate 21c).

The remaining three pieces of ivory are from later periods, contemporary with the worked bone in the corpus. No. 307 is a fragment preserving two sawn edges. A raised border occurs on both surfaces about 0.64 cm down from one edge (not unlike no. 50, the worked section of scapula described above). It was made by a fine saw, judging from the marks that are visible under magnification. The second sawn edge is a shallow diagonal cut roughly parallel to and 1.92 cm from the other edge. It may have been part of a design on one surface (now broken away) since it does not go through to the other side. What the fragment represented and whether or not it came from a finished piece cannot be determined.

No. 308 is a fragment of delaminated ivory with no visible traces of design. No. 306, the one known finished ivory reported here, is a fragment of a paralleliped die (see above Category 3i). One long surface preserves a line of four very small dot-and-ring figures, the other surface the same plus two independent figures, but ultimately the pattern on neither surface can be known.

CATEGORY 14: HORN

In this category is a fragment of worked horn (no. 309) shaped into a thin, flat strip, with a line incised 0.25 cm from the edge of one long side and a slightly raised border carved at the other. Both short ends are broken. A convex area separates the two bands, the result of paring away material to form the raised edge. Evidence of this can be seen under magnifica-

tion in the form of tiny lines across the surface that run perpendicular to the two borders.[200]

The absence of other pieces of worked horn at Ashkelon (and elsewhere) is not unusual because horn is more susceptible than bone to postdepositional attrition. Evidence of hornworking at other sites has therefore most often been inferred from the treatment of horn cores. Concentrations of horn cores hacked from the skulls of sheep, goats, and cattle and/or cut marks indicating the removal of the overlying keratinous sheath, are interpreted as the detritus of hornworking at a number of European sites (MacGregor 1985:51–52).[201] Evidence for the removal of the horny sheath is a key factor in demonstrating that the work was done locally. Among the surest signs of this are horn cores that have been sawn into sections, which facilitates the process.

Because horn is compositionally different from bone and antler it cannot be treated in the same way. In particular, horn must be softened and removed from the core before any actual shaping begins, and this involves a set of procedures alien to bone carving. After detaching the horn cores with their overlying sheaths from the skull[202] and sawing them

into sections, they were softened by soaking. Here is MacGregor's excellent description of the preparatory procedures:

> Following some weeks of soaking in a tub or pit, the keratinous horn sheaths were separated from the bony cores and set to boil in a cauldron. After one to one-and-a-half hours' boiling, the horn was taken out and held over a fire with a pair of tongs or with a special toothed warming tool (Andes 1925) to evaporate the excess water and further soften it by gentle and even application of heat; it was then ready for "breaking" or opening. According to the account of a York horner working in the first quarter of the present century (recorded in Wenham 1964), one of two methods of cutting would normally be used, depending on the desired shape of the resulting horn plate: after the solid tip had been removed, the cut could be made either in corkscrew fashion, to produce an elongated rectangle when opened out with the aid of a pair or tongs, or else a straight cut could be made from the tip to the base, giving a squarish plate. . . . The whole of the above process had to be carried out quickly and efficiently, while maintaining the proper temperature: too much heat would scorch the horn and not enough would result in it readopting its former curvature . . . After some preliminary trimming and removal of blemishes . . . the plates of horn could then be returned to the cauldron for resoftening, after which they were pressed between heated plates. . . . Final smoothing and trimming was then all that was necessary before the plates were ready for manufacture into items such as combs, boxes, etc. [MacGregor 1985:66]

Although MacGregor's description is informed by techniques of the last several centuries, he notes that similar methods must have been used in earlier times: "Blumner (1879) quotes Pausanius on the softening of horn in the second century A.D., and mentions a striking range of utensils known from classical literary sources" (MacGregor 1985:67). The presence of three sawn horn cores in our Ashkelon corpus (nos. 310–312), two from sheep and one from a bovine, in conjunction with the piece of worked horn, provides a tentative indication of the existence of a hornworking industry at the site. The puzzling scarcity of sawn horn cores in otherwise bone-rich contexts may be due to horn's inability to survive in the ground as well as other osseous elements, or it may be that the hornworkers' waste was not discarded in the same trash pits as boneworking detritus. In any case, until a larger quantity of cut horn cores

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[200] This piece was originally identified as tortoiseshell rather than horn, a material obtained from tropical and subtropical turtles such as the green turtle (*Chelone mydas*), the loggerhead (*Thalassochelys caretta*) and the hawksbill (*Chelone imbricata*); see the discussion in S. O'Connor 1987. Only by careful inspection was it established that the structure of the material more closely approximated horn, especially the longitudinal corrugations on the back of the strip, which had been polished away on its upper surface. Tortoiseshell has been highly prized since antiquity for use in jewelry, combs, veneers, and other decorative embellishments. The carapace or curved bony shell of the turtle's dorsal surface, the plastron or flat ventral belly, and the bony bridge between the two are covered with an outer layer of horny epidermal scutes (plates) of dark variegated color resembling marble. When separated from the carapace by heating or boiling, the scales can be treated in a number of ways and subsequently modeled and shaped as desired. Tortoiseshell was known to have been imported to Rome from Egypt, which probably served as a redistribution point for material acquired further east, as in the ivory trade. The Romans used tortoiseshell as a veneer for furniture and also dyed it to imitate costly woods, according to Pliny. Horn was commonly used as a cheaper imitation of tortoiseshell, but this appears to have been a later practice.

[201] MacGregor (1985:53 n.6) points out that horn cores showing only coarse chop marks and no indication of horn removal may be tanners' rather than hornworkers' waste.

[202] The absence of cut goat-horn cores at Saxon Southampton indicating removal of the sheath has prompted Bourdillon and Coy (1980) to suggest that horns severed from the skulls were imported to the site from elsewhere. The inter-

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val of time involved permitted partial decomposition to occur. This weakened the attachment of the horny sheath to the core thus allowing separation without cutting.

or worked horn is discovered the evidence on hand must be considered to be only suggestive and it will not be possible to be certain about the existence of a hornworking industry at Ashkelon.

THE MANUFACTURING SEQUENCE

It is useful to include here a brief summary of the bone-manufacturing process, noting where possible the derivation of the categories utilized above. Category 2 includes the initial wasters and blanks that derive from the usable sections of bone elements included in the Category 1 residue. After this initial stage it is possible in some cases to deduce further more specific categories of bone blanks derived from later stages in the manufacturing sequence. For example, the items in Category 3f were probably produced from the tubes of Categories 3a or 3e. The finely turned piece in Category 3h was likely modeled from a blank in Category 3g. The cylinders in Category 3k were possibly cut from tubes of Categories 3a, 3b, or 3e. Items in Category 4 come from slices cut off tubes in Categories 3e and possibly 3a. Category 5 ribs were cut from rib sections found in the Category 1a residue. The thicker Category 6 pieces probably derive from scapula spines of Category 2b or were cut from items in Category 3a or 3e. The thin rods of Category 7 could have been prepared from any bone of the appendicular skeleton represented by Category 1 residue, but it is likelier that they were cut from the shaft tubes of Category 3a or 3e because of easier preparation. There is little question that the needles and pins of Category 7b were shaped from the matchsticks of 7a or, in the case of very thin slivers, that they were the byproducts of making matchsticks to model. The thick plaques of Category 8 were all cut from the shaft tubes of either Category 3a or 3e, but the thin and smaller plaques of Category 9, while possibly cut from the same source, could also represent the worked, flat section of a scapula blade (Category 2a or 2c), or a longitudinally halved rib (Category 5c). The halved rods of Category 10 could have been cut from long bones of Category 3a or 3e or the scapula spines of 2b. The cube fragment of Category 11 probably was shaped from a wrist or ankle bone but a long bone of Category 3a or 3e cannot be ruled out. Finally, the "peg" of Category 12 was certainly cut from a long bone like those of Category 3a or 3e.

The reduction sequence reconstructed in this way is probably incomplete because of the absence of certain kinds of blanks or rough-outs. For example, between the separation of the scapula spine from the whole bone (Category 2b) and the thick rods of Category 6, there exist no crude, cylindrical blanks of the general spine shape. These gaps in the evidence occur because of the redeposited nature of the material. Where the possibility of an actual work-site is high because of the proximity of blanks with corresponding finished pieces, as in Grid 41, Square 7, the number and variety of waste fragments generated in the manufacture of a restricted number of artifact types increases dramatically.

It is also worth considering the chronological distribution of the various categories of material in the Ashkelon corpus, in light of our assumption that there was a continuous boneworking tradition from the Hellenistic era to the medieval period. Table 16 above shows the number of specimens in each category by period. The concentration of worked bone in Byzantine and Islamic deposits leaves little doubt about the continuity of manufacture between the fourth and thirteenth centuries A.D. Over this thousand-year span the occurrence of similar waste, blanks, and finished pieces attests to a continuous tradition—note especially the similar bone elements of waste residue in Category 1, the isomorphic worked scapulae of Category 2, the analogous treatment of Category 3 shaft tubes, etc., in both Byzantine and Islamic periods. Because many of these reduction stages involve preparation of blanks which could then be modeled into various items, the continuity of the tradition is not affected by changes in the popularity of finished artifact types.

The question is how early to date the beginning of this tradition in light of the scarcity of pre-Byzantine specimens. The earliest worked bone in our corpus is from a late Hellenistic deposit not earlier than the first century B.C.[203] Indeed, all of the Hellenistic-period specimens were recovered from one pit in Grid 41, Square 7, and relate to the preparation of shaft tubes and/or discs. Four are classed in Category 3b, three in 3d, five in 4a and one in 4b. The presence of Category 3b and 4a specimens in clear Byzantine or later deposits, especially in Grid 41, Square 7, leaves open the possibility that some mixing of deposits has occurred and these earliest "Hellenistic" pieces really come from the Byzantine period.

Two other considerations make the Hellenistic date plausible, however. A large-scale boneworking industry began in Alexandria in that period, and practices common in a major cultural center as large

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[203] The one specimen in Category 1a that is attributed to the Persian period is from a predominantly Persian context that contains some later material, thus this specimen probably derives from a later period.

and close to Ashkelon as was Alexandria were likely to have been imitated locally. Second, the long tradition of ivory carving in the Syro-Palestinian region, going back to the Bronze Age, suggests that the necessary techniques were known.

CASUAL WORKED BONE

Almost every faunal collection contains some bone that has been worked into tools. These tools were often made by the user out of fragments of bone at hand. Although forming definite types, these worked items are quite different from the blanks and finished pieces described above. The relative lack of stylization makes production stages unnecessary, so that even tools made from sections of bone will not first be reduced to standardized blanks. The absence of uniformity in size, shape, and even technique are indicators that these are not professionally made, hence their designation as "casual" worked bone.

Casual worked bone also makes use of different species than professionally worked bone. As noted above, professional boneworkers focus on a few bone elements of the large domesticates. In contrast, the nonprofessionals responsible for casual worked bone tend to utilize the lower limb bones of the small domesticates, presumably because of their greater availability. Greep (1987) remarks that during the Roman period in Britain, when boneworking reached its technical and organizational summit, cattle metapodials were the element type most consistently used. On the other hand, Iron Age British bone-workers, lacking a professional scale of production and specialization, most frequently made use of sheep and goat tibiae and metapodials.

In light of these differences it is worth comparing examples of casual worked bone culled from the Ashkelon faunal assemblage during the 1985 season with the professionally worked pieces described above. Some of these examples are not actually worked but derive from the butchering process. In particular, there are five sawn vertebrae: a lumbar vertebra from a large mammal (Byzantine/ Islamic); a cervical cattle vertebra (Persian); and three sheep/ goat lumbar vertebrae from the same location (Byzantine; two mature, one immature). The first vertebra is sawn parallel to the axis of the bone, but the remainder are sawn perpendicularly through the spongy bone of the centrum. It was noted above that this is the easiest fresh bone to saw through, which is why vertebrae will be sawn during the butchering process while long bones are not usually so treated, and why concentrations of sawn long bones can be an indication of something more than animal dismemberment or partitioning.

Three ankle bones or astragali (Byzantine, Byzantine/Islamic, and one from a mixed deposit not later than Hellenistic) have been sawn or "planed" on their medial and lateral surfaces and one has some additional light planing on the anterior surface. Ankle bones, both worked and unworked, were commonly used in antiquity (and are still used today) as gaming pieces. They can serve as a kind of dice when their surfaces are partially flattened to eliminate bony projections that interfere with rolling. This use of astragali is a worldwide practice that spans millennia, and has been extensively documented by Amandry (1984). The present author has found worked astragali in Palestinian faunal collections ranging in date from the Chalcolithic to the Islamic periods. The best-known example in Palestine is the Iron Age assemblage of Megiddo astragali that numbers in the hundreds.

Another common tool type with great time depth is thin, flat, and spatula-shaped. This tool is often fashioned from a rib, with one pointed and one rounded end, and frequently is polished. It is typically several to a dozen or more centimeters long, with a width that does not exceed 4 cm. This spatulate tool is usually interpreted as a netting or weaving implement, although no thorough study of specimens from Palestinian sites has been undertaken and the question of its function must remain open.

In MacGregor's (1985:188) discussion of weaving equipment he notes that until the medieval period the vertical warp-weighted loom was the type most often used. With such a device it was necessary to push the weft into place, and he recognizes three basic types of implements used for this: long sword beaters, shorter pin beaters, and the weaving comb. His sword beater is quite like the wider examples of the tool in question. His pin beaters are shorter and narrower and usually have two pointed ends, and they are thicker than many spatulate tools, probably because they are made not from ribs but from longitudinally halved and shaved long bones. European analogues of these tool types made in metal are taken to be prestige items, since the bone models were certainly home crafted.

If the European weaving implements are shown to be valid parallels then some of the spatulate tools from Palestine may have been textile equipment as theorized. One broken example of this tool type in the Ashkelon collection (Persian period) preserves a pointed tip and was well smoothed and polished. (It is not uncommon for these tools to be fragmentary because of their thinness.) A further significant

feature of the spatulas, aside from their ubiquity, is the careful modeling of many of the pieces, which is always an unexpected surprise in utilitarian objects made by the tool user.

Two additional flat and broken specimens with rounded ends (Iron I, Byzantine) in the Ashkelon material may be parts of spatulas, but they are thicker than usual. One was made from a split rib and retains much of the interior bone; the other was probably made from a long-bone shaft. An additional piece of this type (Byzantine/Islamic), fashioned from a long bone, is similar to a pin beater, but the point of one end has been rounded.

In the category of casual worked bone we must include, finally, simple points, which are among the most common and easily made of bone tools. Three specimens in the Ashkelon collection (Byzantine/ Islamic, Islamic, Islamic) have pointed tips. Two were made from long bones; the other was made from a section along the posterior border of a scapula blade. These were probably used to bore or to drill. Two other fragments with rounded points (Byzantine, Islamic) were also fashioned from long bones, but their function is not known. The last piece (Islamic) is a tool made from a sheep metatarsal. The proximal end was severed about mid-shaft from the distal end, and a longitudinal section of the medial wall was cut away beginning at the break. This left the proximal end, which became the handle, and an exposed end which was rounded and has a slight point. It was probably used as a bore or drill, the point having been dulled from use. These more casual tools of late date should serve to remind us how important inexpensive homemade implements were for day-to-day living, despite the existence of professional bone craftsmen and metal implements.

THE ORGANIZATION OF PRODUCTION

Several conclusions about the organization of bone-working at Ashkelon can be inferred from the data presented and from comparative examples, despite the temporal and typological gaps in the manufacturing sequence. A good way to begin is to take up MacGregor's (1985:44ff.) query—handicraft or industry?—and ask how this can be assessed archaeologically.

For his study of the development of bone- and antlerworking in medieval Lund (A.D. 1000–1350), Christophersen (1980a and 1980b, cited in Mac-Gregor 1985:50–51) has proposed a three-phase model. In the initial "homecraft" phase, households produce the tools they need, with occasional purchases from itinerant craftsmen. This evolves into a "customer production phase" in which households rely more on purchase by commissioning items from itinerant craftsmen. In the third stage of "market production," uninterrupted local manufacture by sedentary workers provides goods for a general market rather than individual demand.

Each production phase is correlated with community size and degree of urbanization, and is potentially detectable in archaeological remains according to criteria described by Christophersen. Household production should create contained concentrations of waste of limited number but varied type in or near dwellings. Itinerant craftsmen should generate more waste than a household, and their waste should be restricted in time and not associated with a particular building for any long period. Their debris will probably be recovered throughout the settlement center, and although individual signatures of technique and style may be detected, it should be on a variety of tools and not a special few.

Market production, on the other hand, implies a larger scale. Waste concentrations should be heavier and span longer periods. They should be recovered from well-delimited workshops and show evidence of specialization and standardized production methods. If local supplies of raw materials were augmented with outside imports to meet the expanding and changing demands of an urban situation, this too should be traceable in the archaeological sample.

In his own study of medieval Lund, Christophersen found much overlap between his model and the archaeological record, although the production stages were not as discrete as he had theorized. Household production was the rule in the early village settlement, with limited input by itinerant craftsmen. But Christophersen also found evidence for specialization in the production of more elaborate items (in this case combs)—a precursor of professionalization—and a demonstration of productive development in a nonurban setting. Greater concentrations of waste were found in limited work sites in the town center from the period of settlement expansion, suggesting professional and probably sedentary craftsmen. However, production at home and by itinerant artisans still continued.

Not surprisingly, the shift to a market-based mode of producing bone and antler items occurred when Lund hit its economic zenith. Specialized manufacturing sites now clustered around the marketplace, with several such areas operating simultaneously over successive generations. Sedentary craftsmen with permanent workshops came to replace itinerant artisans as the suppliers of specialized tools. Christophersen believes that the master craftsman

probably employed unskilled and semiskilled helpers, the latter perhaps as apprentices, to meet the growing demand created by economic expansion. Several key factors which spurred the industrialization of bone and antler carving were paralleled by contemporary developments in metalworking. Christophersen found that workshops specialized in the manufacture of a limited number of items (four or five), with one top-selling product. To increase production and profits, the system was streamlined by standardizing and stylizing forms. The underpinnings of mass production were thus set in place.

When we compare what we know about the Ashkelon manufacturing process to Christophersen's model and his findings, we find several points of similarity. Standardization is evident in the kinds of residue generated and in the rough-outs and blanks. Although there is a limited number of finished pieces to examine, standardization seems to be demonstrated here as well. A varied and specialized tool kit produced these items, some of which show great expertise in carving. These are two additional indicators of the professionalization of the craft. Because of the redeposited nature of the Ashkelon material we can identify only one probable workshop, so inferences based on the distribution and concentration of waste are not possible here. However, the existence and dispersed distribution of casual home-crafted items conform to some of Christophersen's criteria: they are distinct in form and technique from products of specialized manufacture and they are heterogeneous in character. To this we may add the fact that these casual tools are found widely and for long periods at Palestinian sites, no doubt because they were made with simple methods and served immediate needs.

Despite the lack of large concentrations of material in specific locations,[204] the characteristics of the worked bone recovered at Ashkelon from the Byzantine through Islamic periods point to the existence of professional craftsmen engaged in bone-working (and possibly hornworking) on a large scale. This would have required an appropriate raw material supply, which is best realized in an urban situation where regular slaughtering of animals for food provides enough material for craftsmen to choose those elements they want to work and to meet the demand of a large population. If raw material has to be imported from outside, it is the city which can most effectively command these resources.

Further corroboration of the city-based nature of large-scale specialized production is found in the residue in Categories 1 and 2. The high proportion of camel bone from Byzantine and Islamic deposits means that enough of these animals were present for their bones to be selected regularly. This correlates with Bulliet's (1975) argument that wheeled transport ceased to be a major carrier of overland trade in the Middle East between the fourth and eighth centuries A.D. It was replaced by camel caravans, which became economically preferable with the advent of new saddling and handling techniques that reduced the high cost of overland shipping, which had restricted international trade throughout antiquity (Kennedy 1985). The present author has also shown that camel bones are more frequent at sites involved in long-distance trade because donkeys, which entail much less capital investment and are generally more tractable, admirably fulfill the requirements of local transport in the Middle East (Wapnish 1981; 1984). Because urban centers are more likely than small settlements to be centers of international trade, more camels not only pass through but get sold and eaten at such sites, providing bone carvers with a steady supply of their preferred material.

These observations receive support from a study of the faunal remains from Qazrin, a town in the Golan, which provides a striking contrast to Ashkelon. A substantial faunal sample from Byzantine and Islamic periods—mostly of domesticates used for food and motive power—contained relatively few camel bones. The proportion of worked bone was not high, and what was present was of the casual variety and utilitarian in purpose, with no decorative pieces in evidence. Save for an occasional sawn bone (ribs and vertebrae), no specimens comparable to those of the Ashkelon production sequence were found.

Large-scale, urban-based, specialized production of bone tools and artifacts by professional craftsmen has been the explicit assumption underpinning this study. I have refrained from designating it an "industry" because of the relatively small number of many of the types in the reduction sequence and the lack of locational information recovered to date; however, the features we can discern point in that direction. Evidence of professional boneworking at Ashkelon is worth comparing to the evidence from Alexandria. In assessing the situation in Alexandria, Marangou operates with an overly restrictive definition of "industry," focusing too much on the objects

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[204] This is obviously an important indicator of the scale of production. Waste concentrations of a single type number in the hundreds at some European sites and the same should be true at Ashkelon once workshops are located. This is presaged in the concentration of material from Grid 41, Square 7, which suggests either an actual worksite or redeposited waste from one.

themselves and paying little attention to the social conditions of their producton:

> The production of bone objects, most of which were carved, was carried out on a large scale. One might even refer to a "mass," though not an industrialized production. The large number of surviving pieces furthermore leads one to suppose that there existed a kind of workshop craft: at least in the main centre or centres but always on the assumption that the craft was plied in several cities. [Marangou 1976:27]

One wonders what would constitute an industry in this view, and why workshop-based crafts are excluded from an industrial mode of production. Consider instead Cook's description, drawn from his studies of peasant capitalist economies:

> The tendency to define industry as large-scale, capital intensive factory production wrongly deprives much of past and present humanity of any direct involvement in industrial activity. Industry, in broader terms, refers to the systematic fabrication of commodities (on a scale embracing several production units) to satisfy a definite social demand, and its origin and significance in the human economy long pre-date factory production. Max Weber was correct to emphasize that industry "first begins to be interesting . . . when production is carried beyond household needs" (1961:97). This industrial threshold was crossed by human societies in the Stone Age. [Cook 1984:1]

None of the Alexandrian bone carvings studied by Marangou derive from excavated archaeological contexts; thus workshops are virtually unknown and locational data are lacking.[205] But the style, expertise, and range of motifs and artifact types, as well as the number of pieces, strongly suggest that a professional bone-carving industry in Alexandria was responsible for the "mass production" of bone items.

Indeed, this sort of professional mass production constitutes one of the few points of similarity between the boneworking practiced in Ashkelon and in Alexandria. In Ashkelon we have found no figurative representations or applications of varied motifs like those in Alexandria. Likewise, there are no large

bone plaques forming the sides of caskets, pyxides, and other kinds of artifacts. In some cases at Ashkelon we see the use of decorative geometric motifs like those used in Alexandria, but this is all there is in the way of parallels to the Alexandrian material—and such motifs were quite widespread in antiquity.

The same situation obtains with regard to the Late Roman and Byzantine bone carvings from Palestine that have been studied by Rosenthal (1976), who presents a strong case for indigenous manufacture rather than an Alexandrian source. She sees broad parallels between Palestinian and Egyptian bone carvings in function and subject matter, but there are major differences, especially in the expert craftsmanship and artistic excellence of many of the Egyptian pieces as compared to the Palestinian pieces (although Rosenthal maintains that different artistic standards are irrelevant to a search for origins).

A major source of the difficulty in making meaningful comparisons between the Ashkelon bone artifacts and worked bone from Egypt and from other Palestinian locales has to do with differences in the nature of the corpora. At Ashkelon we have more evidence of the earlier stages of manufacture and a relative scarcity of finished pieces, as well as a relative lack of decorative carving. This leaves few points of comparison. What we need is a larger number of finished pieces with more elaborate carving from Ashkelon, and more evidence of the earlier production stages from Alexandria and other production centers. More bone-carving workshops must be excavated before detailed comparisons on various levels can be made that might establish the larger picture of how this craft was practiced in antiquity in the eastern Mediterranean. We have a similar need for more and better archaeological evidence with regard to tracing the "Romanization" of the industry.

Despite the gaps in our evidence, it is worth speculating about some of the factors of production that affected boneworking in Byzantine and Islamic Ashkelon. It has commonly been observed that since early medieval times, at least, Middle Eastern markets were characterized by particular streets or areas given over to the practice of a single trade or craft (see Roll and Ayalon 1987). It is likely that most professional bone- and ivory-carvers worked in these kinds of specialized urban settings. On the other hand, there may also have been craftsmen attached to special patrons (e.g., ecclesiastical institutions) who might have been clustered near their sponsors. Nor should home-based boneworking on the piecework system be ruled out, with entrepreneurs organizing

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[205] The one exception appears to be workshop refuse recovered by Wace (1946) from excavations in Alexandria in 1944–1945. He reported that many cut and carved fragments of animal bones were found, with many unfinished pieces. The most important aspect of this collection for Wace appears to be as proof that Alexandria did indeed contain such an industry, which could not be demonstrated by the earlier known bone carvings lacking provenience. Only a brief report of the excavations and worked bone was published.

the production by providing the raw material, dictating what and how much should be produced, and even arranging for distribution and marketing.

It is possible that craftsmen were not only grouped and specialized by product but also by the stage of the reduction sequence at which they labored. The separate activities of initial preparation of large bone sections, the shaping of blanks, and the ultimate carving of the blanks might have been segregated in different workshops. Aside from the question of the physical setting and spatial distribution of boneworkers, there is the question of the internal organization, recruitment, and training of the craftsmen. Again we are in the realm of speculation, but it is plausible to suppose that the opportunity to learn and practice the boneworking profession depended in many cases on kinship affiliation, as Marangou (1976) notes was the case for Egyptian weavers.

Boneworkers may also have been organized into professional associations—akin to medieval European guilds—which had various economic and social functions. Such groups are known from Roman literary sources. For example, the title *eborarii* identified ivoryworkers as specialized craftsmen in the second century A.D. During Hadrian's reign they were granted the status of a *collegium*, or industrial fraternity, for the first time, although they shared this *collegium* with an allied profession, the carvers of citrus wood. The same period witnessed the emergence of a professional association of makers of dice and theatre-tickets (Barnett 1982)—although these so-called theater tickets are perhaps better identified as gaming pieces. Barnett notes that under the later Roman emperors, professional associations were more closely defined and membership in them was more limited, resulting in more restricted opportunities for specialized craftwork and, eventually, virtual enslavement to the state.

On the other hand, for Roman Egypt, Marangou (1972:27) maintains that there is no proof of the existence of a distinct caste of professional ivory-carvers or tesserae makers. But according to Koester (1987) there were numerous associations of craftsmen and merchants in Asia Minor, especially during the Roman period, which he believes already existed in Hellenistic times as the successors to native guilds extant before the Macedonian conquest. In any case, in the Islamic period, beginning in the period of Abbasid rule, professional groups akin to guilds became prominent features of urban economic life. These groups of craftsmen and merchants continued as a mainstay of economic activity throughout successive caliphates (Perry 1983).

Catalogue of Worked Bone

CATEGORY 1: OFFCUTS

CATEGORY 1A

1. *Genus:* Camelus. *Element:* Proximal scapula, mature. *Period:* Islamic.
A series of fine lines on the lateral surface parallel to the bone's axis and relatively close to the posterior border appear to be flensing marks, the result of scraping meat and attachments from the bone. The marks were probably made with a small metal knife. Two deep hack marks removed two shallow wedges of bone on the dorsal surface of the tuber scapulae, probably from severing the lateral muscles which hold the shoulder joint in place.

2. *Genus:* Bos. *Element:* Proximal scapula, mature. *Period:* Islamic.
Marks of carcass preparation appear as several small cuts on the lateral border of the anterior spinous scapulae, which would have severed attachments there. Most of the spinous scapula was sawn off to obtain the cortical bone (see Category 2b). This is the only bone in Category 1 with a mark relating to other stages in the manufacturing sequence.

3. *Genus:* Bos. *Element:* Proximal scapula, mature; burned. *Period:* Mixed Persian/Islamic deposits.

4. *Genus:* Bos. *Element:* Proximal scapula, mature; burned. *Period:* No date assigned.

5. *Genus:* Camelus. *Element:* Proximal radius, mature. *Period:* Islamic (13th cent.).

6. *Genus:* Camelus. *Element:* Proximal radius/ulna, mature. *Period:* Islamic.
Two light cut marks are visible on the ulna shaft.

7. *Genus:* Camelus. *Element:* Proximal radius/ulna, mature. *Period:* Islamic (13th cent.).
Butchering marks are visible over most of the bone. On the lateral facet of the semilunar notch two light marks remain after severing the muscle attachments; a series of fine cuts also can be seen across the anconium process. Fine cuts appear over the anterior and posterior surfaces, a result of scraping meat from the bone. On the lateral border of the ulna shaft running onto the spine are a series of deep cut and hack marks made by a large and heavy metal knife or a small cleaver. The medial surface of the shaft has two deep cuts probably made by this tool as well. These markings, especially those on the lateral border, would result from severing the ligaments and muscles of the elbow joint.

8. *Genus:* Camelus. *Element:* Distal tibia plus fibula, immature. *Period:* Byzantine.
These three articulated elements reveal that the distal articular end could only have been sawn from the tibia as very fresh bone, when the fascia of attachment still encased this part of the skeleton. Depositional conditions allowed dirt and concretions to act as an adhesive, affixing the fibula to the distal epiphysis of the tibia which in turn was joined to the distal diaphysis.

9. *Genus:* Camelus. *Element:* Distal tibia, mature. *Period:* Mixed deposits, Hellenistic to Islamic.

10. *Genus:* Camelus. *Element:* Distal tibia, mature. *Period:* Islamic (13th cent.).

11. *Genus:* Bos. *Element:* Distal tibia, mature. *Period:* Byzantine/Islamic.

12. *Genus:* Camelus. *Element:* Proximal metatarsal, mature. *Period:* Islamic (13th cent.).
Three small and light cut marks on the posterior border just below the articular surface are the result of removing the lower hind limb.

13. *Genus:* Camelus. *Element:* Proximal metatarsal, mature. *Period:* Byzantine.

14. *Genus:* Bos. *Element:* Proximal metatarsal, mature. *Period:* Byzantine/Islamic.

15. *Genus:* Bos. *Element:* Proximal metatarsal, mature. *Period:* Byzantine/Islamic.

16. *Genus:* Camelus. *Element:* Half of distal metacarpal, mature. *Period:* Islamic (13th cent.).

17. *Genus:* Camelus. *Element:* Half of distal metatarsal, immature; burned. *Period:* Islamic.

18. *Genus:* Camelus. *Element:* Half of distal metatarsal, mature. *Period:* Mixed deposit.

19. *Genus:* Camelus. *Element:* Half of distal metapodial, age unknown. *Period:* Byzantine/Islamic.

20. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Byzantine/Islamic.

21. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Islamic.

22. *Genus:* Bos. *Element:* Rib shaft. *Period:* Byzantine/Islamic.

23. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Thick, rectangular waster, sawn on one surface.

24. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* No date assigned.
Thick, rectangular waster, sawn on one surface.

CATEGORY 1C

25. *Genus:* Unknown. *Element:* Unknown. *Period:* Byzantine or later.
Waste flake, sawn on one surface and smoothed.

26. *Genus:* Unknown. *Element:* Unknown. *Period:* Byzantine or later.
Waste flake, sawn on one surface.

27. *Genus:* Unknown. *Element:* Unknown. *Period:* Islamic (13th cent.).
Waste flake, sawn on one surface.

28. *Genus:* Unknown. *Element:* Unknown. *Period:* Byzantine.
Waste flake, sawn on one surface.

29. *Genus:* Unknown. *Element:* Unknown. *Period:* Byzantine.
Waste flake, sawn on one surface.

CATEGORY 2: WORKED SCAPULAE

CATEGORY 2A

30. *Genus:* Bos. *Element:* Scapula blade, burned. *Period:* Byzantine/Islamic.
Sawn on one surface. Probably a waste fragment.

31. *Genus:* Bos. *Element:* Scapula blade. *Period:* Islamic (13th cent.).
Sawn on three surfaces. Clearly a waste fragment because most of what remains is cancellous bone and the cortical bone that remains is unusable.

32. *Genus:* Bos. *Element:* Scapula neck plus blade. *Period:* Islamic (13th cent.).
Sawn on one surface; two notches perpendicular to the axis of the bone are false starts in sawing.

33. *Genus:* Bos. *Element:* Scapula blade plus small section of the spine. *Period:* Mixed deposits.
Sawn on one surface with a coarse saw. Probably a waste fragment since the remaining bone is largely unworkable.

34. *Genus:* Bos. *Element:* Scapula blade. *Period:* Byzantine.
Sawn on three surfaces. Possibly a blank because some usable cortical bone remains.

35. *Genus:* Large mammal. *Element:* Scapula blade. *Period:* Byzantine.
Sawn on one surface. A small waste fragment.

36. *Genus:* Bos. *Element:* Scapula blade. *Period:* Islamic (13th cent.).
Sawn on two surfaces. Probably a waste fragment.

37. *Genus:* Bos. *Element:* Scapula blade. *Period:* Byzantine.
Sawn on one surface. Probably a waste fragment.

38. *Genus:* Large mammal. *Element:* Scapula blade. *Period:* Islamic (13th cent.).
Sawn on one surface. A waste fragment.

39. *Genus:* Bos. *Element:* Scapula blade, covered with an ashy slick. *Period:* No date assigned.
Sawn on one surface. Probably a large piece of waste, judging by the shape of the bone.

40. *Genus:* Camelus. *Element:* Scapula spine. *Period:* Byzantine.
Sawn along one surface. Possibly a blank.

41. *Genus:* Camelus. *Element:* Scapula spine. *Period:* Islamic (13th cent.).
Sawn along two surfaces. Possibly a blank.

42. *Genus:* Bos. *Element:* Scapula spine, burned. *Period:* Islamic.
Sawn on four surfaces. Probably a waste fragment.

43. *Genus:* Large mammal. *Element:* Scapula spine. *Period:* Islamic (13th cent.).
Sawn along one surface. A waste fragment.

44. *Genus:* Large mammal. *Element:* Scapula spine. *Period:* Mixed Persian to Islamic deposits.
Sawn on three surfaces. Probably a waste fragment.

45. *Genus:* Large mammal. *Element:* Scapula spine, burned. *Period:* Byzantine.
Sawn on one surface. A waste fragment.

46. *Genus:* Large mammal. *Element:* Scapula spine. *Period:* Islamic (13th cent.).
Sawn on two surfaces. A waste fragment.

Category 2c

47. *Genus:* Bos. *Element:* Scapula blade. *Period:* Byzantine.
Sawn on three surfaces. This is probably a waste fragment cut from a larger blank that would have been modeled into inlays or flat, thin mounts.

48. *Genus:* Bos. *Element:* Scapula blade. *Period:* Mixed deposits.
Sawn on one surface. A waste fragment cut from a larger blank that would have been modeled into inlays or flat, thin mounts.

49. *Genus:* Bos. *Element:* Scapula blade. *Period:* Byzantine/Islamic.
Sawn on one surface. A waste fragment cut from a larger blank that would have been modeled into inlays or flat, thin mounts.

50. *Genus:* Bos. *Element:* Scapula blade. *Period:* Byzantine/Islamic.
This section appears larger than the usual size of the mounts or inlays from Ashkelon. It may have been destined to be part of the object itself, such as the side of a small container. The piece is unfinished. The one preserved surface that is sawn is actually a ridge ca. 2.3 mm thick that was modeled on both sides of the blade and probably intended as a border. Oddly enough, the border was cut with a coarse saw rather than with a finishing saw, which left noticeable striae. This is probably why it was discarded.

Category 3: Long-Bone Shafts

Category 3a

51. *Genus:* Large mammal (probably Bos). *Element:* Radius/ulna shaft. *Period:* Byzantine/Islamic.
Sawn on two surfaces, one perpendicular and the other parallel to the axis of the bone. If this is a blank, it could only have been intended for the manufacture of a long, thin object (a needle or pin); otherwise, it is a waste fragment.

52. *Genus:* Camelus. *Element:* Metapodial shaft. *Period:* Byzantine/Islamic.
Sawn on two surfaces, both perpendicular to the axis of the bone. Probably waste, judging from the relatively short length and the shape of the fragment. Length: 6.8 cm.

53. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Sawn on one surface, perpendicular to the axis of the bone. Possibly waste.

54. *Genus:* Bos. *Element:* Metapodial shaft. *Period:* Byzantine.
Sawn on one surface, perpendicular to the axis of the bone. Probably a blank.

55. *Genus:* Bos. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
Sawn on two surfaces, both perpendicular to the axis of the bone. Probably a blank. Length: 7.9 cm.

56. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Sawn on two surfaces, both perpendicular to the axis of the bone. Because of its provenience (Grid 41, Square 7), this specimen may be the waste left over after preparing shafts for the manufacture of flat discs. For subsequent steps in that reduction sequence, see Categories 3b–3e and Category 4 below. Length: 3.4 cm.

57. *Genus:* Bos. *Element:* Metacarpal shaft. *Period:* Islamic (13th cent.).
Sawn on two surfaces, both perpendicular to the axis of the bone. Possibly a blank. Length: 11.3 cm.

58. *Genus:* Bos. *Element:* Long-bone shaft. *Period:* Byzantine.
Sawn on one surface, perpendicular to the axis of the bone. A waste fragment.

59. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Sawn on one surface, perpendicular to the axis of the bone. See comments for no. 56.

60. *Genus:* Bos. *Element:* Metacarpal shaft. *Period:* Byzantine/Islamic.
Sawn on one surface, perpendicular to the axis of the bone. Probably a waste fragment.

61. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Sawn on one surface, perpendicular to the axis of the bone. Possibly a waste fragment.

62. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Sawn on two surfaces, both perpendicular to the axis of the bone. See comments for no. 56. Length: 2.15 cm.

63. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic.
Sawn on one surface, perpendicular to the axis of the bone. Probably a waste fragment, judging by its thinness.

64. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Sawn on one surface, perpendicular to the axis of the bone. Possibly a waste fragment.

65. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Sawn on one surface, perpendicular to the axis of the bone. Probably a waste fragment, judging by its thinness.

66. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* No date assigned.
Sawn on one surface, parallel to the axis of the bone. The amount of cancellous bone comprising this section suggests it was a waster.

67. *Genus:* Camelus. *Element:* Radius or metapodial shaft. *Period:* No date assigned.
Sawn on one surface, perpendicular to the axis of the bone. Knife-cut on one longitudinal surface. Probably intended as a blank, judging by the amount of thick cortical bone preserved. A hole (diam. 0.35 cm) has been drilled from the bone's surface through to the marrow cavity at a point ca. 8 cm from the sawn surface.

68. *Genus:* Camelus. *Element:* Radius/ulna shaft. *Period:* Islamic.
Sawn on one surface, parallel to the axis of the bone. Probably a blank.

CATEGORY 3B

69. *Genus:* Probably Bos. *Element:* Metapodial shaft. *Period:* Mixed deposits, but probably Byzantine in date.
Sawn on one surface, perpendicular to the axis of the bone.

70. *Genus:* Bos. *Element:* Metapodial shaft. *Period:* Mixed deposits, but probably Byzantine in date.
Sawn on two surfaces, both perpendicular to the axis of the bone. Two longitudinal marks from a chisel blade on the interior of the bone near one of the sawn surfaces probably indicate paring away of cancellous bone. Length: 8.1 cm.

71. *Genus:* Bos. *Element:* Metapodial shaft. *Period:* Byzantine.
Sawn on two surfaces, both perpendicular to the axis of the bone. Longitudinal marks on the interior of the bone probably indicate the paring away of cancellous bone, but because these are longer than those found on no. 70, it is more likely that a sharp knife rather than a chisel was used. Length: 4.1 cm.

72. *Genus:* Bos. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Sawn on two surfaces, both perpendicular to the axis of the bone. Chatter marks from a chisel blade are visible on the surface of the bone. Length: 5.5 cm.

73. *Genus:* Large mammal. *Element:* Metapodial shaft. *Period:* Mixed deposits, but probably Byzantine in date.
Sawn on two surfaces, both perpendicular to the axis of the bone. Oblique marks from a chisel blade on the interior of the bone probably indicate the paring away of cancellous bone. Length: 3.47 cm.

74. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, but probably Byzantine in date.
Sawn on two surfaces, both perpendicular to the axis of the bone. Length: 3.75 cm.

75. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* No date assigned.
Sawn on one surface, perpendicular to the axis of the bone. Both the interior and exterior surfaces show evidence of polish. Polish on the inner tube, however, is curious. Greep (1987) notes that small objects in need of a secure stance during modeling were provided with an area of extra bone. This technique was used in the manufacture of furniture and casket mounts in the Roman period and later. If this specimen was separated from a finished piece, it could have been the part providing the firm hold through a kind of hafting arrangement, which would account for the interior polish.

CATEGORY 3C

76. *Genus:* Bos. *Element:* Metatarsal shaft. *Period:* Byzantine.
Sawn on two surfaces, both perpendicular to the axis of the bone. This is a waste fragment probably related to the manufacture of flat discs, given its provenience in Grid 41, Square 7. Length: 2.76 cm. Width: 4.0 cm.

77. *Genus:* Bos. *Element:* Metacarpal shaft. *Period:* Mixed deposits, Hellenistic to Islamic.
Sawn on two surfaces, both perpendicular to the axis of the bone. Length: 1.2 cm.

CATEGORY 3D

78. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, but probably Byzantine in date.
Turning waste from a lathe.

79. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, but probably Byzantine in date.
Turning waste from a lathe.

80. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, but probably Byzantine in date.
Turning waste from a lathe.

CATEGORY 3E

81. *Genus:* Bos. *Element:* Metatarsal shaft. *Period:* Byzantine.
Sawn on two surfaces, both perpendicular to the axis of the bone. Waste from the manufacture of discs or tubes.
Length: 4.8 cm. Width: 3.1 cm.

CATEGORY 3F

82. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, Hellenistic to Islamic.
One sawn surface survives, perpendicular to the axis of the bone. Despite its fragmentary condition, the piece shows good workmanship. The decorative carving that is preserved appears to have been figurative rather than abstract or architectural. It was smoothed and polished all over, a possible indication that it came from a finished piece.

83. *Genus:* Bos. *Element:* Metapodial. *Period:* Mixed deposits.
Sawn on one surface, perpendicular to the axis of the bone. The surface of the shaft was shaved with a flat chisel preparatory to carving. Some crude carving and longitudinally incised lines seem to form the leg and foot of a human figure, but the piece is too fragmentary to discern what was really intended. The unrefined cut and shaving marks suggest that it was not completed.

84. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Twisted spirals crudely carved with a knife are preserved on this fragment. The raised spirals are separated by irregularly spaced grooves and bisected by an incised line in what appears to be a further embellishment. This is the most eroded piece in the collection, but the poor preservation does not hide the careless workmanship.

85. *Genus:* Probably Camelus. *Element:* Metatarsal shaft. *Period:* Byzantine/Islamic.
Sawn on one surface, perpendicular to the axis of the bone. What looks like a turning collar is also visible at the sawn end. Two deeply incised horizontal lines produced by turning occur near the sawn surface; they are not quite perpendicular to the axis of the bone. Another faintly incised horizontal line, visible where the section has broken, looks like the beginning of an unfinished decoration. The piece was probably intended to be a furniture mount but was discarded before completion.

86. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
A section of shaft with three horizontally incised lines produced by turning. The piece is too fragmentary and poorly preserved to speculate about the particulars of manufacture.

87. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
This piece appears to be an unfinished furniture mount made on a lathe and architectural in style. There are two parallel horizontal grooves, and another horizontal line spaced 2 cm from them. The intervening space consists of a swelling and concavity that were also lathe-made. The single band seems to define a column base. For some reason, the piece was then shaved lengthwise down the three preserved sides, cutting away the midsection of the singly incised line on the dorsal surface and almost all of it on what little remains of the two sides. This is the reverse of the usual procedure, in which the outer surface is "roughly whittled before being turned on the lathe, the articular ends finally being sawn off and discarded" (MacGregor 1985:71). That this piece is aberrant in being "roughly whittled" after turning is shown by the shaved but undecorated tubes in Categories 3b and 3e. It is doubtful, however, that pieces were turned with their articular ends still attached, as seen from these sections of sawn and roughly prepared shaft blanks in the Ashkelon assemblage.

88. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
An unfinished furniture mount fashioned into a column. Turned horizontal lines define the base, and a curved chisel was used to carve the flutes. About 4 cm. of the section survives.

89. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic.
Sawn on two surfaces, both perpendicular to the axis of the bone. A lathe-made furniture mount with architectural detail. On top of a rectangular base, four horizontal and parallel grooves define two convex rings separated by a concave reel. The marks of the knife or chisel that prepared the shaft section for turning are still visible, but the piece is well executed. About two-thirds of it survive in circumference. Some partial polish is evident, but this may have resulted inadvertently from turning because overall smoothing and polishing—the hallmarks of a "finished" piece—are absent. A small imperfection at the foot of the base may also signal incompletion. Length: 4.5 cm.

90. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed Hellenistic to Islamic deposits.
Sawn on one surface, perpendicular to the axis of the bone; broken at the other end. A lathe-made furniture mount. The carved decoration consists of a series of thin, convex rings, plus a thicker ring formed by horizontal and parallel grooves. The raised edges of the thinner rings have been squared off. About half of the tube survives in circumference. The piece was well executed and has been smoothed but not polished. Its status as to completion cannot be determined.

91. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed Hellenistic to Islamic deposits.
Sawn on one surface, perpendicular to the axis of the bone; broken at the other end. A lathe-made furniture mount. On top of a thin, rectangular base there is a series of thin, convex rings and reels formed by incised horizontal and parallel grooves. The raised edges of the thinner rings have been squared off. The piece is fairly well executed, but appears to be unfinished, judging by the irregular width of the base and the concentric lines from turning that are still visible in some grooves, which probably would have been smoothed during finishing.

92. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Sawn on one surface, perpendicular to the axis of the bone; broken at the other end. This is a handle, although evidence of hafting is not visible at the intact end. Decorated by incised (knife-cut) lines that form a series of crosshatched patterns. Turning may have been used for the six horizontal and parallel lines present, but two of them are quite irregular and the use of a knife would seem to be more in line with the overall execution of the piece. The decoration seen on this handle is common in the Levant and extends well back in time. Although it is included here, it may not derive from the normal manufacturing sequence and perhaps would be better categorized with the casual worked bone that is described below.

CATEGORY 3G

93. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
A rectangular section of a shaft that was either a blank for a mount or the offcut from making one. It was formed by one saw cut that sliced through the cortical bone parallel to the axis and two perpendicular cuts. Length: 2.68 cm. Width: 3.2 cm. Thickness: 0.55–0.65 cm.

94. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
This piece, more roughly cut than no. 93, was an offcut rather than a blank. See comments for no. 93. Length: 3.45 cm. Width: 3.35 cm. Thickness: 0.85 cm.

95. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Sawn on one surface. This fragment probably resulted from the process of cutting blanks like nos. 93 and 94. Because of its provenience, it may relate to the manufacture of flat discs (see Category 4 below).

96. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Sawn on two surfaces, one perpendicular and the other parallel to the axis of the bone. Waste from cutting blanks like nos. 93 and 94.

97. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Sawn on one surface. Waste from the further reduction of a prepared shaft.

98. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic.
Sawn on three surfaces, one perpendicular and the other two parallel to the axis of the bone. This fragment of waste resulted from the further reduction of a prepared shaft. Its overall wedge shape is similar to shapes documented by Hutchinson and Reese (1988:fig. 10) as blanks for the preparation of pins and needles at Carthage. This specimen is much smaller and thinner, however, and it could only have served for the thinnest of needles. Long, thin, rectangular "matchstick" shapes were the usual blanks for needles and pins at Ashkelon (see Category 7 below).

CATEGORY 3H

99. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Finished mount or part of composite object. Sawn on two parallel and two perpendicular sides; sawn and filed on the reverse. Polished all over. Decoration on obverse is lathe-made. Finely executed.

CATEGORY 3I

100. *Genus:* Ovis or Capra. *Element:* Metapodial shaft. *Period:* Mixed deposits, Persian to Islamic.
Parallelepiped die. The only preserved surface is incised with the value "1" at one end and the value "3" at the other, represented by dot-and-ring figures (diam. 0.46 cm). About 4.9 cm of the die is present.

101. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Probably a cubical die. Three sides are preserved; all have been polished. The one measurable side is 2.4 cm long and is incised with a dot-and-ring motif with two concentric rings, most of which is present. Little remains of the two adjoining sides, but small portions of the arcs of other incised rings are visible on both.

102. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
A rectangular gaming piece or throwing stick. Smoothed all over. Incised with two patterns, one on each of two adjoining long sides, repeated on the opposite faces. In one, each end has three larger dot-and-double ring motifs (diam. ca. 0.3 cm) and four very much smaller dot-and-single ring motifs (diam. ca. 0.2 cm). In the other, each end has two dot-and-double ring motifs plus a centrally placed dot-and-double ring. Length: ca. 8 cm. Width: ca. 0.75 cm.

CATEGORY 3J

103. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Rectangular section of shaft sawn on two surfaces, with a single square-cut notch on one side and two notches on the other. Use unknown.

CATEGORY 3K

104. *Genus:* Bos. *Element:* Metatarsal shaft. *Period:* Byzantine.
A lathe-cut cylinder for use as a hinge section.

105. *Genus:* Bos. *Element:* Metatarsal shaft. *Period:* Byzantine.
A lathe-cut cylinder for use as a hinge section. An elongate lateral hole was cut or drilled from the outer surface to the medullary cavity—at a diagonal angle rather than perpendicular to the axis of the bone. The piece may not have been used for this reason, since the attachment dowel could not have been properly positioned.

106. *Genus:* Bos. *Element:* Metatarsal shaft. *Period:* Islamic (13th cent.).
A lathe-cut cylinder for use as a hinge section.

CATEGORY 3L

107. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Persian or Hellenistic.
A spoon, finely executed. The whole piece was made on a lathe. A knife was used to shape the back of the bowl and smooth the handle, while a center-bit inscriber made the dot-and-ring motif on the center face of the bowl. A light polish covers the entire piece. Overall length is ca. 9.75 cm. Length of bowl is ca. 2.25 cm.

CATEGORY 4: DISCS

CATEGORY 4A

108. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, but probably Byzantine in date. Waste from gaming disc manufacture. Disc diameter: 3.5 cm. Thickness: 0.49 cm.

109. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, but probably Byzantine in date. Waste from gaming disc manufacture. Two discs were cut from this blank. Disc diameters: 3.5 and 2.5 cm. Thickness: 0.50 cm.

110. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, but probably Byzantine in date. Waste from gaming disc manufacture. Disc diameter: 3.0 cm. Thickness: 0.54 cm.

111. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, but probably Byzantine in date. Waste from gaming disc manufacture. Two discs were cut from this blank. Disc diameters: 3.5 and 2.5 cm. Thickness: 0.51 cm.

112. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, but probably Byzantine in date. Waste from gaming disc manufacture. Two discs were cut from this blank, one "front" and one "back." Disc diameters: both 3.5 cm. Thickness: 0.46 cm.

113. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, but probably Byzantine in date. Waste from gaming disc manufacture. Three discs were cut from this blank. Disc diameters: all 2.5 cm. Thickness: 0.55 cm.

114. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine. Waste from gaming disc manufacture. Disc diameter: 4.0 cm. Thickness: 0.60 cm.

115. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine. Waste from gaming disc manufacture. Disc diameter: 3.5 cm. Thickness: 0.56 cm.

116. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine. Waste from gaming disc manufacture. Disc diameter: 3.0 cm. Thickness: 0.47 cm.

117. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine. Waste from gaming disc manufacture. Disc diameter: 3.0 cm. Thickness: 0.53 cm.

118. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine. Waste from gaming disc manufacture. Disc diameter: 3.0 cm. Thickness: 0.44 cm.

119. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine. Waste from gaming disc manufacture. Two discs were cut from this blank. Disc diameters: both 3.5 cm. Thickness: 0.36 cm.

120. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine. Waste from gaming disc manufacture. Two discs were cut from this blank. Disc diameters: 3.0 and 2.5 cm. Thickness: 0.33 cm.

121. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine. Waste from gaming disc manufacture. Two discs were cut from this blank. Disc diameters: both 3.5 cm. Thickness: 0.63 cm.

122. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, Hellenistic to Islamic. Waste from gaming disc manufacture. Disc diameter: 3.5 cm. Thickness: 0.75 cm.

123. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, Persian to Islamic. Waste from gaming disc manufacture. Disc diameter: 3.5 cm. Thickness: 0.60 cm.

124. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, Persian to Islamic. Waste from gaming disc manufacture. Disc diameter: 3.0 cm. Thickness: 0.47 cm.

125. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, Persian to Islamic. Waste from gaming disc manufacture. Disc diameter: 2.5 cm. Thickness: 0.49 cm.

126. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, Persian to Islamic. Waste from gaming disc manufacture. Disc diameter: 3.5 cm. Thickness: 0.49 cm.

127. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic. Waste from gaming disc manufacture. Disc diameter: 3.5 cm. Thickness: 0.46 cm.

128. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Waste from gaming disc manufacture. Disc diameter: 2.8 cm. Thickness: 0.57 cm.

129. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Waste from gaming disc manufacture. No measurements.

CATEGORY 4B

130. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, but probably Byzantine in date.
Flat discoid piece; an unfinished gaming counter. Diameter: 3.5 cm. Thickness: 0.51 cm.

131. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Late Roman to Islamic.
Flat discoid piece; an unfinished gaming counter. Diameter: ca. 2.5 cm. Thickness: ca. 0.50 cm.

CATEGORY 4C

132. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Late Roman to Islamic.
Discoid piece, flat on one side with a large raised circle on the other side. Probably a knife-cut, unfinished gaming counter. Diameter: ca. 2.25 cm. Diameter of raised circle: ca. 1.25 cm. Thickness: ca. 0.50 cm.

CATEGORY 4D

133. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Doughnut-shaped button with a large central hole. Smoothed and polished all over. Probably lathe-made.
Diameter: ca. 3.25 cm. Hole diameter: ca. 0.75 cm. Thickness: ca. 0.60 cm.

CATEGORY 5: RIBS

CATEGORY 5A

134. *Genus:* Large mammal, probably Bos. *Element:* Proximal rib. *Period:* Mixed deposits.
Knife-cut or shaved on the ventral surface.

135. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Byzantine/Islamic.
The edges parallel to the axis of the rib have been sawn or sanded flat.

136. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Byzantine/Islamic.
One edge parallel to the axis of the rib has been sawn flat.

137. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Byzantine/Islamic.
One edge parallel to the axis of the rib has been sawn flat.

CATEGORY 5B

138. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Late Roman/Byzantine.
Small section of rib formed by two saw cuts perpendicular to the axis of the bone. Four additional saw marks parallel to the sawn edges represent false starts in the cutting. Width: 3.8 cm.

139. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Islamic.
Small section of rib formed by two saw cuts perpendicular to the axis of the bone. Width: 4.0 cm.

CATEGORY 5C

140. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Islamic (13th cent.).
Unfinished blank. Halved lengthwise; sawn on two perpendicular surfaces. Length: 8.52 cm.

141. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Byzantine.
Unfinished blank. Halved lengthwise; sawn on one perpendicular and one parallel surface, and obliquely across the width of the rib. File marks from smoothing are also visible front and back. A light polish covers the entire piece.

142. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Byzantine.
Probably a waster from the preparation of rib blanks. Halved lengthwise; sawn on one perpendicular and two oblique surfaces across the width of the rib.

143. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Islamic (13th cent.).
Probably a waster from the preparation of rib blanks. Halved lengthwise; sawn obliquely on two surfaces across the width of the rib.

144. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Islamic (13th cent.).
Unfinished blank. Halved lengthwise; sawn on one perpendicular and one oblique surface across the width of the rib.

145. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Byzantine.
A waster from the preparation of rib blanks. Halved lengthwise; sawn on one parallel surface.

146. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Islamic (13th cent.).
An unfinished or unused blank. Halved lengthwise; sawn on one perpendicular surface across the width of the rib. Smoothed and polished front and back.

147. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Byzantine/Islamic.
Unfinished blank. Halved lengthwise; sawn on one perpendicular surface across the width of the rib. Some file marks are visible on the back, limited to a very small area; most of the back is rough.

148. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Byzantine/Islamic.
Unfinished blank. Halved lengthwise; sawn on one perpendicular surface across the width of the rib and on two parallel surfaces down the length of the rib.

149. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Islamic (13th cent.).
Unfinished blank, or a waster from blank preparation. Halved lengthwise; sawn on one perpendicular surface across the width of the rib and on one parallel surface down the length of the rib.

150. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Byzantine.
Waster from preparation of a rib blank. Halved lengthwise; possibly sawn on one perpendicular surface across the width of the rib.

151. *Genus:* Large mammal. *Element:* Rib shaft. *Period:* Byzantine.
Possibly an unfinished blank. Halved lengthwise; sawn on one perpendicular surface across the width of the rib and on two parallel surfaces down the length of the rib.

CATEGORY 6: THICK RODS (DOWELS AND HANDLES)

CATEGORY 6A

152. *Genus:* Large mammal. *Element:* Long-bone shaft, or spine of camel scapula. *Period:* Islamic (no later than 8th cent.).
Rectangular rod; probably a blank. Both ends broken in antiquity. Thickness: ca. 1 cm.

153. *Genus:* Large mammal. *Element:* Long-bone shaft, or spine of camel scapula. *Period:* Islamic (13th cent.).
Rectangular rod; probably a blank. Both ends broken in antiquity. Thickness: ca. 1.25 cm.

CATEGORY 6B-1

154. *Genus:* Large mammal. *Element:* Long-bone shaft, or spine of camel scapula. *Period:* Islamic (13th cent.).
A short, thick, knife-cut rod, broken at both ends. Unfinished and of unknown function. Thickness: ca. 1 cm.

155. *Genus:* Large mammal. *Element:* Long-bone shaft, or spine of camel scapula. *Period:* Islamic (13th cent.).
A thick rod broken at both ends Ovoid in cross-section and tapering along its length from a thickness of 0.9 cm to 0.75 cm. Unfinished; possibly a handle. Preserved length: ca. 7.5 cm.

156. *Genus:* Large mammal. *Element:* Long-bone shaft, or spine of camel scapula. *Period:* Islamic (13th cent.).
A thick rod sawn at both ends into a short cylinder. Probably a waster from preparing rod sections. Length: 5.8 cm. Thickness: 1.15 cm.

CATEGORY 6B-2

157. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
A short section of rod (handle or ligula?), broken at one end and tapering to a blunt point at the other. Ovoid in cross-section, knife-cut and smoothed. Thickness: 0.64 cm.

158. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
A section of rod (handle or ligula?), broken at both ends. Ovoid in cross section. Although smoothed and polished, the flat panels of the knife marks can still be seen (barely) and felt. Length: 6.4 cm. Thickness: 0.65 cm.

159. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
A section of rod (handle, ligula, or pin?), broken at both ends. The outline of the rectangular blank from which it was carved is still visible in cross-section. Knife marks are prominent. Length: 0.56 cm. Thickness: 0.52 cm.

160. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
A section of rod (handle, ligula, or pin?), broken at both ends. Knife marks are still visible. Length: 2.8 cm. Thickness: 0.56 cm.

161. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
A short section of rod, both ends broken. Function unknown. Knife-cut. No measurements.

162. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
A short section of rod (handle or ligula?), broken at one end and tapering to a blunt point at the other. Knife-cut. No measurements.

163. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
A short section of rod (handle or ligula?), broken at one end; the other ends in a point. Knife-cut. No measurements.

164. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
A short section of rod, both ends broken. Function unknown. Knife-cut. No measurements.

CATEGORY 6C

165. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic.
A hollow, tubular handle, tapering to a blunt point; the other end is broken. Lathe-made. Length: ca. 15.25 cm. Thickness: ca. 0.80 cm (at the thickest point).

166. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic.
A hollow, tubular handle, tapering to a blunt point; the other end is broken. Decorated near the point with four incised concentric rings. Lathe-made. Length: ca. 4 cm. Thickness: ca. 1.4 cm.

CATEGORY 6D

167. *Genus:* Large mammal. *Element:* Long-bone shaft, or spine of camel scapula. *Period:* Islamic.
Solid hinge; lathe-made. Length: ca. 8.25 cm. Thickness: ca. 1.25 cm.

CATEGORY 6E

168. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
Apparently a finished piece—perhaps a bobbin. Length: ca. 5.75 cm. Width of block: ca. 1.75 cm. Width of rod: ca. 1 cm.

CATEGORY 6F

169. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
A carved hand and forearm; possibly an unfinished part of a figurine or doll.
Length: ca. 3.25 cm. Width: ca. 0.8–1.2 cm.

CATEGORY 7: THIN RODS (PINS AND NEEDLES)

CATEGORY 7A

170–206. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* See comment below.
These 37 "matchstick" blanks are identical except for small variations in size. The numbers of specimens from various chronological periods are as follows: Hellenistic–Byzantine, 2; Hellenistic–Islamic, 1; Byzantine, 5; Byzantine/Islamic, 4; Islamic, 7; Islamic (13th cent.), 14; mixed deposits, 2; no date assigned, 2.

CATEGORY 7B

207. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Needle or pin shaft; broken, with a tip formed by cutting the shaft at an oblique angle.

208. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Needle or pin shaft; broken, with a thin, pointed tip.

209. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Needle or pin shaft; broken, with a fairly thick, blunt tip (diameter: 0.4 cm).

210. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Late Roman/Byzantine.
Needle or pin shaft; broken, with a broken tip.

211. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Late Roman/Byzantine.
Needle or pin shaft; broken, with a broken tip.

212. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Pin shaft; broken. The shaft has a center swelling.

213. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Pin shaft; broken. The shaft has a center swelling.

214–223. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine (except no. 215, which is Islamic).
Broken shafts that appear to taper in one direction, but only no. 214 is long enough to confirm that it does.
All are knife-made.

224. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Needle; broken at both ends. Part of the top portion of the shaft is preserved.
A small drilled hole served as the eye; the area around it is slightly flattened.

225. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Needle; broken at both ends. Enough is preserved (length: 7.35 cm) to determine that the area around the eye (a small drilled hole) was flattened, as well as being the widest part of the shaft (0.5 cm), which then tapers toward the tip.

226. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Needle; broken at one end. Head is cut flat across the top. A small hole (diameter: 0.24 cm) was drilled for the eye.

227. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Late Roman/Byzantine.
Plain pin with a spherical/ovoid head; broken at tip (preserved length: 5.6 cm). The neck just below the head is thin, but then the shaft swells to its greatest thickness (0.35 cm) and tapers evenly toward the tip. Knife-cut.

228. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Conical headed pin; broken at the tip (preserved length: ca. 7.6 cm). The cone is incised to resemble a pinecone; two reels decorate the neck. The head and neck are the thickest portion of the shaft (ca. 0.75 cm), which then tapers evenly toward the tip. The shaft may have been lathe-turned.

229. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (10th–11th cent.).
Pin with bead-and-reel shaped head; broken and perhaps unfinished (preserved length: ca. 3.5 cm; diameter: ca. 1.25 cm). Head has two beads interspersed with two double reels. Finely made. The piece was possibly roughed out on a lathe and modeled further with a knife since parts of the beads were carved.

230. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Thistle-headed pin; complete (length: ca. 3.6 cm; diameter: ca. 1.4 cm). Head is shaped like a flat-topped thistle followed by a reel, a bead, and six circumferential rings on neck and down the shaft. The shaft is narrower at neck and tip and thicker in the middle. The piece is quite robust overall, and squat in appearance. Lathe-made.

231. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Headless pin; complete (length: ca. 13.5 cm; diameter: ca. 0.8–0.3 cm). The head is cut flat. The shaft is thin at the head, swells in the middle, and then tapers toward the point. A series of circumferentially inscribed lines decorate the upper third of shaft. Knife-cut.

232. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
Headless pin; complete (length: ca. 12.2 cm; diameter: ca. 0.8–0.5 cm). Head is slightly rounded. The shaft is thickest at the head and tapers toward the point. A series of circumferentially inscribed lines decorate the upper third of shaft. Knife-cut.

233. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Late Roman/Byzantine.
Needle; complete (length: ca. 7.6 cm; width: ca. 0.3–0.85 cm). It has a thick shaft, widest at the eye, which tapers very gradually but does not narrow appreciably until the tip. The eye is an elongated slit. The tip was formed by cutting the shaft at an oblique angle. Knife-cut.

234. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Needle; broken at one end (preserved length: ca. 5 cm). The preserved end is a wide (ca. 1 cm), flattened point, with an eye. The eye may have been made by drilling two or three superimposed holes and then smoothing the areas of the overlapping arcs. What remains is an elongated slit and part of a drilled hole which as a unit appears unfinished. The preserved portion of the shaft is flattened along its length; it tapers slightly below the slit. Knife-cut.

CATEGORY 8: INLAYS AND FLAT MOUNTS

CATEGORY 8A

235. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
Unfinished mount. It was sawn into a parallelogram; the front and back surfaces were also sawn. Widths between parallel sides: 1.17 × 1.46 cm. Thickness: 0.63 cm.

236. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
Unfinished mount. It was sawn into a parallelogram; the front and back surfaces were also sawn. Widths between parallel sides: 1.4 × 0.82 cm. Thickness: 0.63 cm. One of the short sides has been beveled.

CATEGORY 8B

237. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic.
A rectangular waster. It was sawn on three sides and one surface; the other surface is the uncut exterior of the shaft. It is broken at both short ends. Length: 4.7 cm. Width: 1.0 cm. Thickness: 0.6 cm.

238. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic.
A waster almost rectangular in shape. It was sawn on three sides and one surface; the other surface is the uncut exterior of the shaft. It was broken at one short end. Length: 0.7 cm. Width: 0.6–0.85 cm. Thickness: 0.5 cm.

239. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
A rectangular waster sawn on all sides and surfaces. Length: 5.0 cm. Width: 1.13 cm. Thickness: 0.4–0.6 cm.

240. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
A waster almost rectangular in shape. It was sawn on three sides and one surface; the other surface is the uncut exterior of the shaft. It was cut obliquely at one short end and broken at the other. Length: 6.1 cm. Width: 1.0 cm. Thickness: 0.7 cm.

241. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
A rectangular waster, sawn on all sides and surfaces. One short end is broken. Length: 5.9 cm. Width: 0.7 cm. Thickness: 0.45 cm.

242. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Rectangular mount; sawn on all sides and surfaces. A 0.75 cm-wide beveled cut on one long and one short side of the rectangle forms a corner. The second long side has been cut with squared notches giving it a crenelated effect. The piece is broken at one short end. Length: 6.45 cm. Width: 0.6 cm. Thickness: 0.45 cm.

243. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Mixed deposits, but probably Byzantine.
A rectangular piece sawn on all sides and surfaces. Length: 3.0 cm. Width: 2.6 cm. Irregular thickness: 0.23–0.42 cm. This piece was probably a waste fragment produced during manufacture of the blanks and flat discs of Category 4 because it was excavated from a deposit in Grid 41, Square 7, which also contained some of that material.

244. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* No date assigned.
Unfinished mount in the shape of a thick rectangle sawn on all sides and surfaces.

CATEGORY 8D

245. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Hellenistic to Islamic.
A thick rectangle, sawn and polished on all sides and surfaces. A groove about 0.3 cm wide was cut across the center surface of one short side; an incised line flanks either side of the groove. Whether or not this piece was finished or was to undergo more modeling is uncertain. If the former, it was probably not a decorative element but part of some device.

CATEGORY 8E

246. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
A rectangular piece sawn, smoothed, and polished on all sides and surfaces. A small hole was drilled front to back, slightly off center. Two holes drilled into one long side do not penetrate to the other side. Part of some device. Unfinished?

CATEGORY 8F

247. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Unfinished mount consisting of a long rectangle (ca. 4 cm) sawn and polished on all sides and surfaces and broken at one short end. Rivet holes were drilled front to back along the median width of plaque. Thickness: ca. 0.62 cm.

CATEGORY 9: THIN PLAQUES

CATEGORY 9A

248. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
Rectangular blank for a mount or inlay; polished on all sides.

249. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
A slightly irregular rhomboid (widths of parallel sides: 1.94 × 1.74 cm; cf. Hutchinson and Reese 1988:fig. 16, no. 43). This piece was probably an unfinished blank or the byproduct of making a blank for a mount or inlay. It was recovered from Grid 41, Square 7, but because of its thinness and shape was probably not related to the manufacture of flat discs (Category 4). Its presence there does suggest, however, that waste from a workshop producing a variety of items was recovered in those deposits.

250. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
A long narrow strip of inlay, cut at an oblique angle at one short end, broken at the other. Smoothed on one surface, unfinished on the other. Length: 4.1 cm. Width: 0.75 cm. See comments for no. 249.

251. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
A strip of inlay or mount, smoothed on both surfaces. It is broken at the short ends. The long sides were sawn at an oblique angle creating a beveled effect. Width: 1.23 cm. Length: 3.04 cm.

252. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic.
A strip of inlay or mount. Smoothed on both surfaces. Broken at one short end.

253. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Hellenistic to Byzantine.
An inlay in the shape of an acute triangle. Polished on both surfaces.

254. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic.
A rectangular inlay or mount. Polished on both surfaces.

255. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic.
A rectangular inlay or mount. Polished on both surfaces.

256. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic.
Corner of a rectangular inlay or mount. Polished on both surfaces.

257. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic (13th cent.).
Probably waste from cutting out a blank for a rectangular inlay or mount. Broken at one short end. Cutting marks visible on both surfaces.

CATEGORY 9B

258. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic.
A waste flake from cutting thin plaques.

259. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
A waste flake from cutting thin plaques.

CATEGORY 9C

260. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Late Roman/Byzantine.
Mount or inlay carved in low relief; broken on all edges. Too little remains of the design to determine what it represents, but it looks like a decorative background or border. It was well executed and polished all over. Thickness: 2.5 cm.

261. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine.
Mount or inlay carved in low relief; square or rectangular in shape, now broken. Too little remains of the design to determine what it represents. A thin border frames the design. Thickness: ca. 1.5 cm.

CATEGORY 9D

262–294. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Islamic.
Thin mounts in the form of lacy bone cutouts. Some pieces were polished.

CATEGORY 10: HALVED RODS

CATEGORY 10A

295. *Genus:* Large mammal. *Element:* Long-bone shaft or scapula spine. *Period:* Islamic (13th cent.).
A section of halved rod cut diagonally at two ends. Waste from cutting a blank made into a decorative molding. Length: 1.96 cm. Width: 0.74 cm. Height: 0.65 cm.

296. *Genus:* Large mammal. *Element:* Long-bone shaft or scapula spine. *Period:* Hellenistic to Byzantine.
A section of halved rod cut diagonally at two ends. Waste from cutting a blank made into a decorative molding.

297. *Genus:* Large mammal. *Element:* Long-bone shaft or scapula spine. *Period:* Hellenistic to Byzantine.
A section of halved rod cut diagonally at two ends. Waste from cutting a blank made into a decorative molding.

298. *Genus:* Large mammal. *Element:* Long-bone shaft or scapula spine. *Period:* Islamic (13th cent.).
A section of halved rod cut diagonally at two ends. Waste from cutting a blank made into a decorative molding.

CATEGORY 10B

299. *Genus:* Large mammal. *Element:* Long-bone shaft or scapula spine. *Period:* Byzantine/Islamic.
A section of turned molding decorated with astragals. It is broken at one short end and cut diagonally at the other. Length: 3.0 cm. Width: 0.43 cm. Thickness: 0.9 cm.

CATEGORY 11: CUBES

300. *Genus:* Large mammal. *Element:* Ankle or wrist bone? *Period:* Islamic (13th cent.).
A corner fragment of a cube, not quite squared in shape. No markings, but probably intended as a die. May have been unfinished because of crookedness. Width of one pair of opposite sides: 0.55 cm.

301. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Byzantine/Islamic.
A corner fragment of a cube, not quite squared in shape. No markings, but probably intended as a die. May have been unfinished because of crookedness.

CATEGORY 12: "PEG"

302. *Genus:* Large mammal. *Element:* Long-bone shaft. *Period:* Late Roman/Byzantine.
A "peg" (?) sawn and finely carved, with an abstract motif on the head and a pointed tip. Polished all over. No parallels; function unknown. Length: 3.15 cm. Width: 1.68 cm.

CATEGORY 13: IVORY

303. *Period:* Late Bronze/early Iron I.
A corner fragment from a finished strip of inlay. There are coarse file marks on the back surface and finer striations on the upper surface, over which were inscribed two intersecting circles that are represented on this broken piece by portions of arc. Color: Medium brown. Thickness: 0.26 cm.

304. *Period:* Late Bronze/early Iron I.
Numerous small fragments from a piece of delaminated ivory. File marks are visible on some fragments; no apparent design. Thickness: 0.43 cm.

305. *Period:* Late Bronze/early Iron I.
A fragment of a thin ivory plaque (unfinished). Medium file marks present on both surfaces; no traces of a design. Thickness: 0.38 cm.

306. *Period:* Byzantine/Islamic.
A fragment of a paralleliped die, both ends broken. A line of four dot-and-ring figures (diameter: 0.28 cm) are inscribed on one long surface; a line of four plus two independent dots-and-rings on the other surface. No discernible pattern. Thickness: 0.72 cm.

307. *Period:* Islamic (12th–13th cent.).
A fragment with two sawn edges, possibly from a finished piece. A raised border on both surfaces 0.64 cm wide and made by a fine saw abuts one edge. The other edge is a shallow diagonal cut that perhaps was part of a surface design. Thickness: 0.41 cm.

308. *Period:* Hellenistic to Byzantine.
A fragment of delaminated ivory. No visible marks.

CATEGORY 14: HORN

309. *Genus:* Bos/Capra/Ovis. *Element:* Horn. *Period:* Byzantine.
A strip of worked horn, broken at both short ends. A line incised 0.25 cm from one long side and a raised edge at the other long side serve as decorative borders; a convex area separates the two. Length: 3.0 cm. Width: 0.7 cm. Thickness: 0.15 cm.

310. *Genus:* Ovis. *Element:* Horn core. *Period:* Islamic (13th cent.).
A section of horn core. Length: 9.9 cm.

311. *Genus:* Bos. *Element:* Horn core. *Period:* Byzantine/Islamic.
Tip of a horn core. Length: 6.71 cm.

312. *Genus:* Ovis. *Element:* Horn core. *Period:* No date assigned.
A broken section of horn core; burned.

35. GOLD JEWELRY OF THE FATIMID PERIOD

by Myriam Rosen-Ayalon

IN RECENT years a number of publications, symposiums, and exhibitions have stirred interest in the field of Islamic jewelry; however, the history of Islamic jewelry still remains to be explored and written.[206] Inventive, rich, and in many cases very beautiful, this jewelry has always been a source of attraction. But at present [1991] there is not even a typological classification of the different kinds of jewelry. This state of affairs is due in part to the scarcity of early Islamic jewelry, combined with the fact that most of the pieces that do exist are not well dated. Any such jewelry found in an archaeological excavation is therefore a valuable contribution to our understanding of this chapter of Islamic art.

Among the many important finds of the Islamic era that have been unearthed by the Leon Levy Expedition to Ashkelon, four pieces of gold jewelry of the Fatimid period are undoubtedly the most striking and represent an outstanding contribution to this subject. In addition to the remarkable quality of this group, it illustrates the thrill of archaeological discovery. The first two pieces were found in 1986, just a few days apart, during the second season of excavation. A year later, and again a few days apart, two more pieces came to light.

These pieces were excavated in an area labeled "the Fatimid street" on the basis of various archaeological data. The two pieces found in 1986 were excavated next to an east-west wall (Grid 37, Square 46, Feature 521) in a debris layer (Layer 30). Although the stratigraphy in this area is partly disturbed, the jewelry seems to be in its primary context and not simply mixed into a secondary fill, as is shown by the fact that the matching pieces found

during the 1987 season were discovered in the same area as those discovered in 1986 (Grid 37, Square 47, Layer 7). This area was probably destroyed in the great destruction of the city by Saladin in A.D. 1191.

Except for one piece that was slightly crushed and had lost one of its beads, the pieces are in perfect condition. Their untarnished brightness is due to the quality of the gold, which seems to be of 22-carat quality. All four pieces were manufactured by means of the same technique, using the typical combined filigree and granulation, to which were added plain gold beads. More than half a dozen of these beads, of various sizes, could be distinguished on some of these pieces. All four pieces are of the same length—about 6.5 cm—but of varying width.

Piece 1

The first piece to be discovered (hereafter Piece 1) is the largest of the four and the most elaborate (figure 35.1). Clearly, it was one of two terminal components, meeting at the end or in the middle. This piece has a large surface decorated with an elaborate pattern and additional elements, as do the other three pieces.
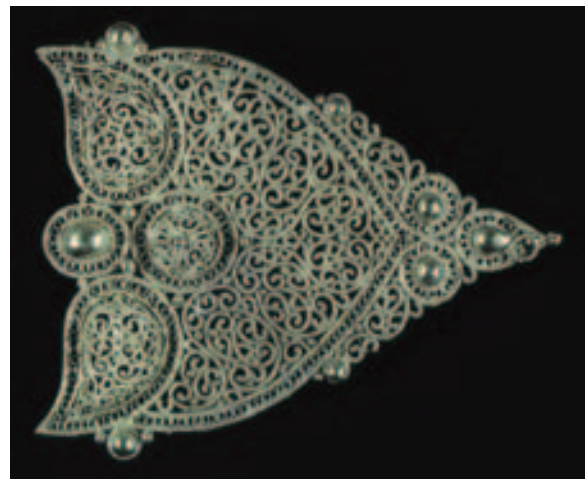
Figure 35.1: Piece 1 (front)   **2 cm**

The major part of this piece is inscribed within a frame in the shape of a pointed arch. Most of its surface is flat, except for the tiny granulations. This main part, framed by the pointed arch at one end, is densely decorated with a repeated S-shaped motif and

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[206] An initial symposium, dedicated to goldsmithing and jewelry in the Jewish communities in the Muslim world, was held in 1981. It was organized by the author under the auspices of the Hebrew University and the Ben-Zvi Institute. A second meeting (at which this paper was presented) was the International Colloquium on Islamic Jewellery, held in 1987 at the Israel Museum in Jerusalem. It was organized by Naᶜama Brosh and the author. Most of the bibliography on this subject up until the mid-1980s can be found in the two volumes published by Rachel Hasson on behalf of the L. A. Mayer Memorial Institute for Islamic Art in Jerusalem: *Early Islamic Jewelry* (Hasson 1987a) and *Later Islamic Jewelry* (Hasson 1987b). These volumes also include references to most of the exhibitions devoted to this subject.

a series of small S-shapes inscribed within similar larger ones. Starting from the point of the arch, they are symmetrically distributed; one pair stands confronted at the head of the composition in a heart-shaped design, flanked by two similar motifs placed back to back, while at the bottom two pairs of half-motifs meet again in the opposite direction.

The larger central part contains four additional elements joined to the main part. Although all were manufactured in the same technique, these elements are somewhat convex, in contrast to the general surface, which is flat. Of these four additional elements the central element is round, and consists of three heart-shaped motifs meeting at their points, crowned by a larger grain of gold, thus creating a roundel in relief. Above it, a large plain gold bead marks the center of that end. Two almond-shaped elements frame this side of the piece; they are decorated with similar motifs, executed in the same technique and shown in the same kind of relief. At the opposite end, the point of the arch is flanked by small areas of S-shaped motifs, echoing the pattern filling the surface within the arch. These are terminated by two plain round gold beads, and a drop-shaped bead, plain as well, at the very end.

All elements of the pointed arch—the roundels, the almond-shaped motifs, and the beads—are framed by a series of figure-eight wires running between two gold strips of granulation. The spaces between the various elements, and particularly the junction of each two elements, provide everywhere a pretext for additional gold beads of different sizes. The end of the drop-shaped bead has a loop, with a ring threaded through it which is still mobile.
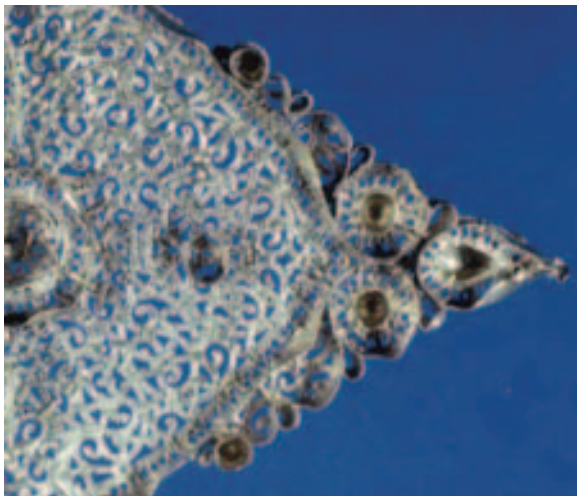
The way the filigree was executed is of particular interest and can be best appreciated when examined from the back (figure 35.2). Indeed, close study of the back shows that each of the lines of filigree is made of two twisted gold wires soldered together, running along the desired curve and then bending and following the same curve on the way back. On the face of the piece, the space between the wires was concealed by granulation. On the back, one can also identify the loop created by bending the twisted wire at the end of each one of the S-shaped motifs, which fill the whole surface. The only exceptions are the tiny flat wires creating figures of eight in the frames of all the elements.

Two other interesting features can be seen on the back of Piece 1. One is connected with the process of manufacturing the jewelry. The whole surface, including the various attached elements, is covered with tiny flat pieces of gold wire, soldered to the back of the ornamental wire, acting as clips for the filigree and adding support to the piece of jewelry rather than forming part of the construction (Keene and Jenkins 1981–82: fig. 17a, pl. 33). These clips are so small that they do not interfere with the beautiful play of the design, for they are not visible through the open-work of the elaborate pattern.

The other remarkable feature is the fact that around all the frames—the pointed arch, the two roundels, and the two almond-shaped elements—both in the larger part and in the pointed end-part, all of the elements are emphasized in the back by a narrow raised flat strip of gold. A similar tiny circle was added in the center of the larger area, halfway between the central roundel and the point of the arch.

Piece 2

The second piece of gold jewelry (figure 35.3) was also found in 1986, as has already been mentioned, a few days after the discovery of Piece 1. This piece is of a completely different shape, and yet all its elements were already encountered in Piece 1. Its central roundel, also convex, is exactly the same as in Piece 1, with the same three heart-shaped motifs meeting in the center and crowned by a golden dot. On four sides there are four almond-shaped elements, identical to those on Piece 1, with their pointed ends turned outward. The design of S-shaped motifs is the same, and so is the filigree and granulation technique. All four elements that make up Piece 2 are convex, except for the regular frame, also encountered previously, which is flat in contrast.

On two sides there are two gold beads, of the same size as the one in the middle of Piece 1. On the other

Figure 35.2: Piece 1 (back; enlarged)

two sides there are drop-shaped gold beads, like the bead at the tip of the Piece 1, but here the round end rather than the pointed end faces outward. Here again all joins have gold grains of various sizes filling in the intersections artistically and providing additional support to the whole composition. On the back can be seen the flat gold strips attached to the overall pattern, as well as the raised strip in the back, framing in relief each of the elements (figure 35.4).

Piece 3

The third piece of gold jewelry (figure 35.5) is violin-shaped, made in one piece with the exception of the central convex inset roundel. At both ends of this piece the decoration is based on a heart-shaped motif similar to that in Piece 1, continuing in an overall pattern of S-shaped motifs filling the whole surface. The technique is exactly the same, using twisted wire filigree and granulation, with gold grains of various sizes. All of these are placed very carefully in order to respect the symmetry, with some occasional exceptions. Here, too, they are framed by a series of figure-eight motifs of flat wire, running between two

filigree wires with granulation. At both ends a large plain gold half-bead, encircled with granulation, gives the finishing touch. Each is flanked by two small plain gold beads, also encircled with granulation. These are similar to the beads at the junction of the almond-shaped elements in the Piece 1 and thus provide an additional parallel. The beads are even of the same size in the two pieces.

The only element in Piece 3 not previously encountered is its central convex roundel. Though quite similar in its concept to Pieces 1 and 2, it differs in its ornamentation. Instead of the elaborate composition seen in the other pieces, this roundel has a decoration based on the figure-eight motif that we saw earlier in the framing scheme, but here the flat wire is replaced by an overall decoration of the convex roundel. Thus a refined contrast is created between the roundel and the piece itself, which has an all-over filigree and granulation decoration. It also differs from the two central roundels of Pieces 1 and 2, avoiding monotony. Once again, the back illustrates the perfect homogeneity of the techniques used in this group of jewelry (figure 35.6).
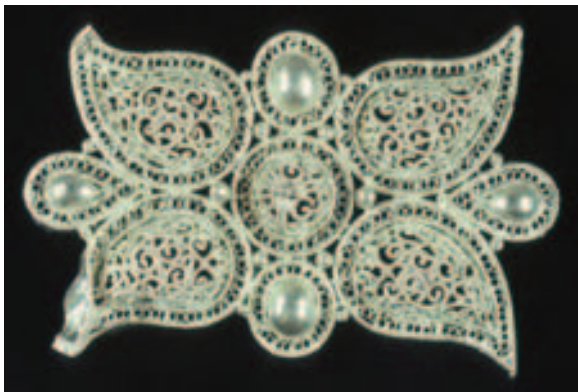
Figure 35.3: Piece 2 (front)　　2 cm
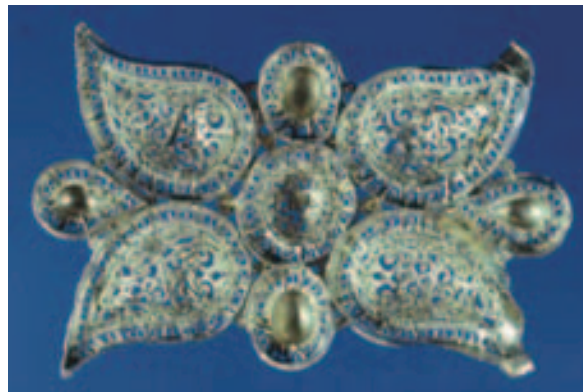
Figure 35.4: Piece 2 (back)

Figure 35.5: Piece 3 (front)　　2 cm
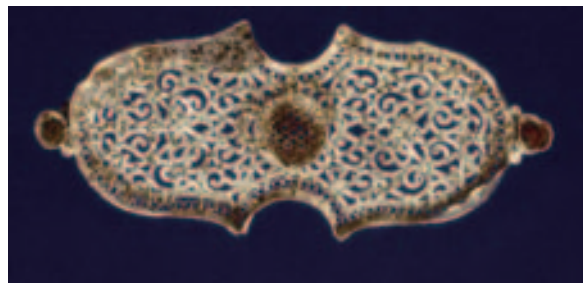
Figure 35.6: Piece 3 (back)

Piece 4

The fourth piece of jewelry (figures 35.7–8) is a replica of Piece 2, except that it is slightly damaged. The ends are somewhat crushed, with some dirt or incrustation that stuck to it during the long centuries underground. One of its plain gold beads is missing as well. Despite these small misfortunes, this last piece matches perfectly the first three already discussed, and it helps to illustrate the manufacturing process used to make such elaborate jewelry, for it appears very clearly in this piece that several of its elements must have been prefabricated. In other words, elements like the roundel with the three heart-shaped motifs would have been prepared in advance in some quantity and then used in various combinations, as can be seen in Pieces 1 and 2 (and of course in Piece 4). The same can be said of the almond-shaped motif, used either as an end element, as on Piece 1, or as the basis of the composition, as in Pieces 2 and 4. Likewise, plain gold beads played an important role in all of the pieces and were probably prefabricated in bulk. Such a procedure would also explain the perfect way that the four pieces fit together. In this way, the goldsmith could ensure his control over the constant dimensions of a given program. It is obvious that all of the pieces are of equal length; one can also see that Piece 3 fits between Pieces 2 and 4, but it could just as well have been placed between Pieces 1 and 2.

We have here four pieces of what must have been a gorgeous "parure." I am not aware of any exact parallels to these pieces, either in shape or in composition. No depiction of any such decoration can be found in painting, drawing, pottery, or the like. Nonetheless, both the motifs and the techniques are characteristic of the Fatimid period.

The most striking comparison is with one of the pieces of the hoard discovered in the excavations of Caesarea. This hoard contains various items belonging to a wide range of jewelry pieces from different periods. Some of the Caesarea pieces undoubtedly belong to the Fatimid period, as can be seen in the details of a large lozenge-shaped bead (figure 35.9). The same filigree and granulation techniques were used for making that bead. The various sizes of granulation and the repetitive sinuosity of the S-shaped motifs appear here too.

If the jewelry itself, and the similarity of the finds from Caesarea and from Ashkelon, does not provide a final dating, we can date our jewelry based on solid examples known definitely as Fatimid, such as the stucco decoration of the al-Azhar mosque in Cairo (Hautecoeur and Wiet 1932: pl. 12). The mosque was inaugurated in A.D. 972, and even if parts of it were redone somewhat later, these parts belong to the Fatimid period. The same can be said of some woodcarvings, such as a piece that is now in the Museum of Islamic Art in Cairo (Pauty 1931: pl. 26). Other aspects each contribute to underscore the direct or indirect confirmation of a Fatimid date. The heart-shaped motif, which can also be identified as an ornamental palmette, has been repeatedly discussed in a study of a painting assigned to the Fatimid period (Rice 1958:fig. 4, pl. 1). It should be noted that even the dating of this Fatimid drawing is to some extent supported by a parallel drawn from the realm of jewelry. This, in turn, has numerous details—motifs and techniques—that are shared with our jewelry from Ashkelon.

While the almond-shaped elements used in Pieces 1, 2, and 4 from Ashkelon seem to be a "paisley" design before its time, the tracing of the arch on Piece 1 may be considered as echoing the famous keel arch also found in Fatimid architecture, and more particularly in the al-Azhar mosque (Hautecoeur and Wiet 1932: pl. 12).

Figure 35.7: Piece 4 (front)   2 cm

Figure 35.8: Piece 4 (back)

Figure 35.9: Half of a bead from the Caesarea hoard

The fact that we have here a set of four pieces, of which at least two are similar, and all four were made in such a way that they could be fitted together, calls for several observations. In the first place, there must have been a number of additional pieces of that sort which could have completed this set. They may have been either of our violin-shaped type (Piece 3) or of the other two shapes (Pieces 2 and 4). These two could have been repeated numerous times, alternating one with the other. In the texts of the Cairo Genizah, which are more-or-less contemporary with our jewelry, we read about jewelry composed of a number of pieces. The number is not always mentioned but in

some cases seven pieces are recorded (Goitein 1983: 204, 210, 216). In one case we hear of 25 pieces in a *miḥbas* described as a jeweled collar (ibid., p. 217). The practice of using multiple elements continued after the Fatimid period (see M. Jenkins 1988).

The perfect fit of these elements, which must have been prepared in advance in some quantity, provided the artist with the possibility, if he so desired, of creating compositions such as that suggested in our first interpretation of the assemblage (see figure 35.10), or also, at least theoretically, in the opposite direction (figure 35.11). With respect to our largest piece, it is evidently an end piece and it is reasonable to expect another such piece at the other end. Such a composition is suggested by the preserved ring attached to the loop at the top. This indicates that an opposite piece would have had a second ring, forming a pair meeting at both ends. But there is another possible way to visualize the composition, as a pair of such elements meeting at the center of a choker or jewelry collar (figure 35.12). Center pieces can be seen in various Fatimid depictions of jewelry in paintings (Rice 1958:figs. 1, 3). Even in literary texts there are references to such compositions (Goitein 1983:217).

Figure 35.10: Probable arrangement of jewelry elements

Figure 35.11: Alternative arrangement of jewelry elements

Figure 35.12: "Choker" or collar arrangement

It is difficult to determine the particular purpose of our jewelry. In studies and publications related to Fatimid jewelry there is nothing comparable. Despite the fact that various elements are referred to in the Genizah texts, as we have seen, and that some of them can be identified by name and exist in various collections, they do not closely resemble our pieces and are basically different.

In most cases, Fatimid jewelry is worked on both faces (see Hasson 1987a:58 and passim; Keene and Jenkins 1981–82: fig. 17:a–b). The Ashkelon jewelry is basically different because from the outset it was not intended to be double-faced. The back, inlaid with tiny flat golden wires that regularly attach all joints of the filigree, remained open. But, as we have mentioned above, all of the frames have at their back a thin raised ridge, with the additional roundel in the middle of our first piece. These particular devices can be explained as supports for the jewel when it was placed on a background of a different nature, to which the gold elements must have been attached. It could have been some kind of very soft suede or velvet, or some other material suitable as a background for the beautiful jewelry, which could have been sewn onto it, probably with a gold thread. This raised framing must have contributed to an extraordinary relief effect, added to the soft relief of the convex surface as opposed to the flat surface of our pieces.

Returning again to the documents of the Cairo Genizah, we find there references to textiles with precious ornaments (Goitein 1983:213, 218). In one case, as Goitein emphasizes, a certain material was sewn with gold and not embroidered (Goitein 1983: 458, n. 147; see also Golombek 1988). The general appearance of the jewelry corresponds to the favorite style in the Fatimid period, which is mentioned in a contemporary passage from the Genizah: "the most common way of beautifying a surface was filigree, named *mushabbak*, literally 'latticework'" (Goitein 1983:211).

When citing the Jewish texts of the Cairo Genizah, we should bear in mind that the jewelry discovered in Ashkelon cannot be assigned specifically either to Jews or to Muslims. At best, the descriptions contained in these texts help us to narrow down the possible date range of the jewelry, which in all probability should be placed in the Fatimid period, and more probably its second half, in the eleventh–twelfth centuries A.D. Until 1153, when Ashkelon was conquered for the first time by the Crusaders, the city was under Fatimid domination. In 1187 Saladin retook Ashkelon, but shortly afterward, in January 1192, the Crusaders regained control of the city.

[EDITORS' NOTE: See the detailed discussion of the events of this period in chapter 22 above.] The Fatimid-era jewelry found at Ashkelon must have been manufactured before the city was captured and subsequently destroyed by Saladin. This enables us to extend the date of Fatimid jewelry beyond the year 1045, which was adopted at one point as a *terminus post quem* on the basis of the finds from Kairouan (Keene and Jenkins 1981–82; it is not possible to discuss here the three stages of granulation proposed by Rosenberg, which should probably be reexamined in light of recent archaeological discoveries).

By way of defending the value of the Cairo Genizah texts in this matter, it should be noted that although they refer specifically to Jewish life in the Fatimid period, many of the goods listed in the marriage contracts and in other documents were by no means exclusively intended for Jews. Most of the trades and manufacturing occupations were practiced in both Jewish and Muslim communities of the period; thus the Genizah texts supply information that is relevant to all sections of the society (see Goitein 1967:70, 80, and passim).

Furthermore, there were close ties between Cairo and other parts of the Mediterranean basin, and to Ashkelon in particular (see Gil 1992, especially the index). In fact, a copy of a copy of a *ketubba* (a Jewish marriage contract) from Ashkelon, dating to A.D. 1100, was found in the Genizah; and it contains some references to gold jewelry (Friedman 1981:388–96). Goitein observes that a particular liking for gold can be detected in the Genizah documents, in a period in which this precious metal seems to have been highly appreciated and abundantly used (Goitein 1983:202).

The gold jewelry found at Ashkelon therefore makes a significant contribution to the study of Islamic jewelry, and more particularly that of the Fatimid period. The fact that it was discovered in an archaeological excavation adds an important dimension. It was not in a well-preserved stratigraphic context, but its context does give a *terminus post quem* for the jewelry corresponding to the end of the twelfth century. It is likely that the jewelry comes from a building that was demolished during the great destruction of 1191.

In addition to the beauty of the jewelry and its extraordinary and intricate decorative design, we have here a unique ensemble of pieces, of a type heretofore unknown in Islamic jewelry, let alone in Fatimid jewelry. In previous attempts to classify Fatimid jewelry, not a single example has been found that resembles the Ashkelon pieces, either in composition or in the sophisticated combination of the pieces.

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