The Iron Age Settlement at 'Ain Dara, Syria

Survey and Soundings

Elizabeth C. Stone and Paul E. Zimansky

With contributions by

Patricia L. Crawford, Carol J. Frey,
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BAR International Series 786
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For Edward Luby and Charles Pennington

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Chapter 1

Introduction

The great temple of 'Ain Dara, overlooking the 'Afrin Valley from the summit of a steep-sided tell approximately forty kilometers north of Aleppo, is one of the most impressive monuments of the north Syrian Iron Age. In both size and intricacy of workmanship it is virtually unparalleled: squared limestone and basalt blocks of enormous size pave the approach to it, reliefs of lions and sphinxes surround its exterior, rows of lions in protome standing more than two meters high once formed the facades of both the inner courtyard and the building itself, and four enormous footprints—each approximately one meter in length—carved into its threshold blocks give measure to the awesome majesty of the deity who resided there.

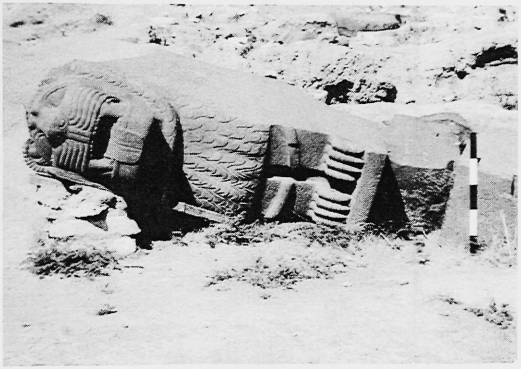

Figure 1: Unfinished sculpture on the 'Ain Dara citadel.

In a program of excavation extending over more than three decades, expeditions sponsored by the Syrian Department of Antiquities and Museums have completely exposed the temple's ground plan and recovered a major corpus of associated sculptures (Abu 'Assaf 1983a, 1983b, 1990, 1993, 1994, n.d.; Abu 'Assaf and Khayata 1983; Seirafi 1960; Seirafi, Kirichian and Dunand 1965). This rich archaeological harvest, however, poses important questions to which excavation in the temple itself has suggested only incomplete answers, or none at all. What was the ancient name of this ancient site? When was the temple constructed and when did it go out of use? To what god or goddess was it dedicated? Who were its builders and under what circumstances and influences did they undertake their work?

The research presented in this monograph is the product of a project undertaken in the early 1980's to provide a context for the temple by investigating the settlement that surrounded it. We had envisioned a much more extensive exploration than it proved possible to execute and long hoped that it might be pos-

Figure 2: The 'Ain Dara temple during the 1982 excavations.

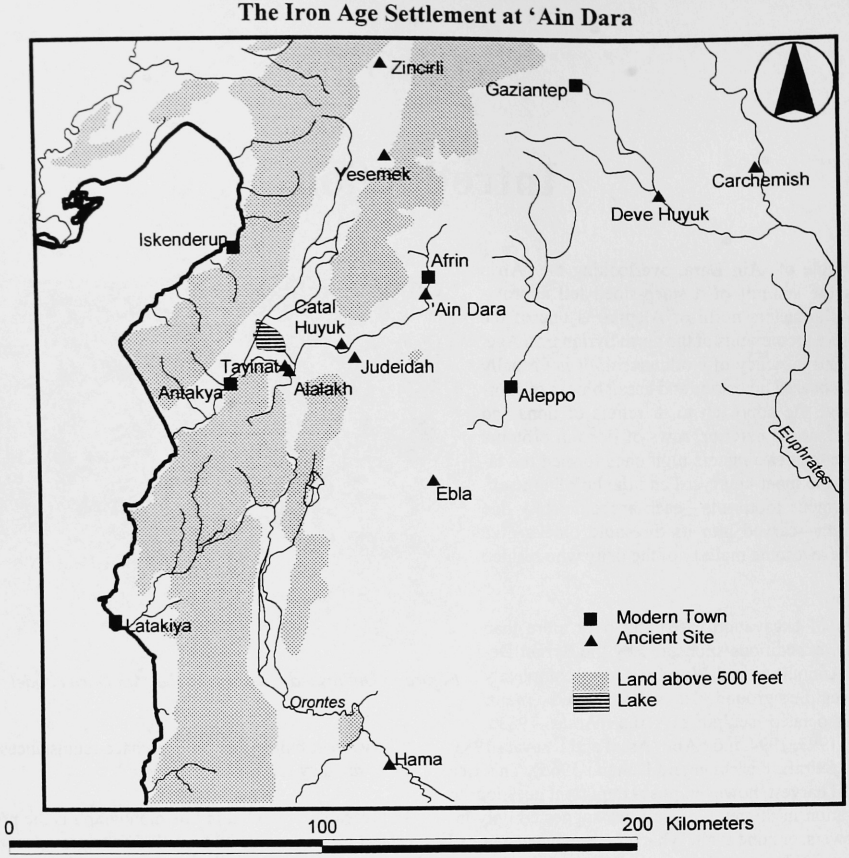

Figure 3: The location of 'Ain Dara

sible to amplify these findings with further work. Since unpublished excavations are artifacts of professional malpractice there seems little justification for further delay in presenting our findings. Although they do not provide unambiguous answers to any of the questions posed above, we hope they will serve as a modest contribution to our understanding of an obscure phase in the archaeology of northern Syria and southern Anatolia.

It is clear that 'Ain Dara was a good deal more than a religious center during the Iron Age. From the foot of the citadel mound beside the 'Afrin River on which the temple was built, ruins of an adjacent settlement much greater in area but lower in profile stretch northward and eastward into the alluvial plain. The edges of this lower mound are elevated in such a way as to suggest that it was walled, and depressions punctuating its four sides mark the position of what were once city gates.[1] On the flat terrain outside the walls sporadic sherds and building stones indicate that there was still more settlement, albeit not of sufficient duration or consequence to have created perceptible stratigraphic deposition in most instances. The walled area of the lower mound and citadel together is roughly twenty-four hectares, making 'Ain Dara the largest of the excavated sites in the vicinity of the 'Amuq (see Fig. 5) and its configuration replicates Carchemish on a somewhat reduced scale.

Until 1981, this settlement mound remained essentially unexplored. It was clear from the surface debris that it had multiple periods of occupation, and earlier excavators had made a few soundings, the results of which were never published. The priorities of the Syrian expedition, however, had been understandably centered on the citadel and the temple which

1. Seirafi (1960: 89-90) mentions the north and east gates at 'Ain Dara, and refers briefly to a sounding which uncovered a small part of the former. The position of a west gate near the base of the acropolis mound and a south gate, beside which the modern dig house stands, seem equally clear from the contours of the plan.

Figure 4: Citadel mound from northeast quadrant of lower tell.

dominated it. As the excavation of the temple entered its final phase, it became increasingly clear that not all of the significant issues could be resolved by clearance of the building alone. Chronology was certainly one of these.

The temple's embellishments, executed in a style that clearly owes much to the artistic traditions of the Hittite Empire, appear to offer paradoxical grounds for dating. Some regard them as "Late Hittite" or "Syro-Hittite", belonging to a time relatively early in the Iron Age, shortly after the collapse of the Hittite Empire, ca. 1200 B.C. (Seirafi, Kirichian and Dunand 1965:19; Orthmann 1971:136-138). In his most recent publications, the excavator argues that some of the sculptures may belong to the Empire itself, but others were carved as late as the mid Eighth Century, B.C. (Abu 'Assaf 1990:39-41; 1994:3). Even a consensus that the 'Ain Dara sculptures are "early" Neo-Hittite art would not give them a precise date, since the absolute chronology of the sequence is a matter of controversy. Furthermore, the relationship between the sculpture and the building itself is somewhat ambiguous. On the one hand, there are indications that the adornment was never finished: stone lions in various degrees of completeness were found on the citadel and a grooved edge around the foundation blocks of the temple mysteriously stops near the south corner. On the other hand, there are signs of rebuilding and discard. Some reliefs were found in secondary contexts like rubble fill within the temple (e.g. Abu ᶜAssaf 1990:61, Taf. 51), and others were put over carved guilloche patterns on the temple facade.

The stratigraphy over and around the temple is complex, and cannot be called upon for much in the way of clarification. The building apparently stood exposed for some time after it was abandoned (Abu 'Assaf 1990:10), and sherds of the Hellenistic period were found lying on its floors and courtyards. At a later date, the entire top of the tell was fortified, and a mortared stone wall cut through the southern and eastern sides of the temple. The *terminus post quem* for the construction is equally vague. The architects prepared the surface carefully, laying down a rubble foundation several meters thick. In doing this, they presumably cut away any living debris of the periods close to their own. A few late Bronze Age sherds were found under the front courtyard of the temple, but these tell us little, since they could have been imported with the rubble. Any possibility for further examination of stratigraphic connection between the temple and its surroundings was recently eliminated when a trench, several meters deep, was dug around the building to support a roof to help preserve the building plan. Abu 'Assaf reports finding Middle Bronze Age sherds as well as a piece of Imperial sculpture below the level of the temple floor when he dug this (1994:3). In essence, the archaeological context tells us that the building was constructed some time after the beginning of the Late Bronze Age and ceased to have any religious significance in the latter part of the first millennium, but sheds no light on the period in which the edifice was in use.

Another area in which the discoveries in the temple excavations seemed to raise as many issues as they resolved was in the cultural identity of its creators. Certain elements reflect the legacy of the Hittites, who controlled this area in the Bronze

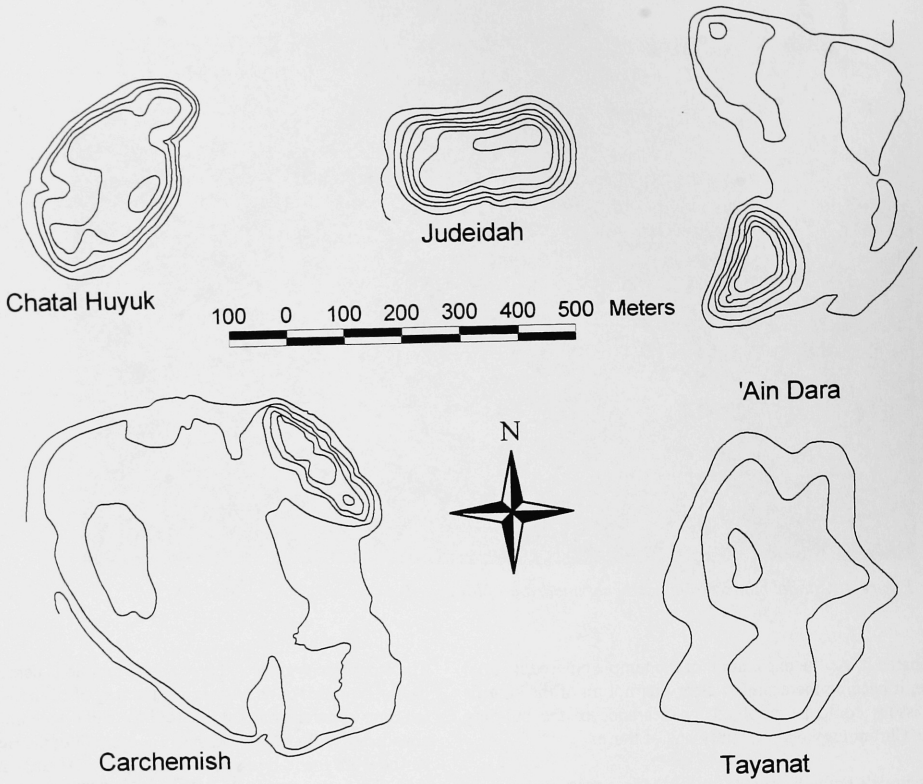

Figure 5: Comparative sizes of 'Amuq sites, Carchemish, and 'Ain Dara

Age, although they brought little of their art to Syria at that time. The spread of Luwian-speaking population groups toward the southeast in the wake of the Empire's collapse and the creation of principalities that borrowed something of their ideology and cultural identity from the Hittites clearly extended into the area of 'Ain Dara. Politically this was known as the land Unqi or Patina in the ninth century.[2] The names of Lubarna and Sapalulme, born by rulers of this kingdom mentioned in texts of Assurnasirpal II (883-859 B.C.) and Shalmaneser III (858-824 B.C.) (Hawkins 1982:389, 395, passim) recall the founder of the Hittite royal line, Labarna and two kings of its imperial period, respectively. The Anatolian characteristics of the temple sculpture are manifest, most unambiguously in the row of mountain god and demon figures that extended across the innermost courtyard (Seirafi, Kirichian, and Dunand 1965: pl. ix a-b). Although no lengthy Luwian hieroglyphic inscriptions have been discovered at 'Ain Dara itself, a few fragments have been found in secondary contexts in and around the temple (Abu 'Assaf 1990:61, Taf. 51; 1994:3-4[3]).

2. The clearest evidence on toponymy is found in the annals of Assurnasirpal II, who marched from the Euphrates to the Orontes via Hazazu (modern 'Azaz) and the river 'Apre (modern 'Afrin) (Liverani 1992:73-75). Assurnasirpal's account mentions Kunulua as a royal city of Lubarna, and since 'Ain Dara lies along one of the possible routes, Seirafi (1960:102) suggested that these were one and the same. Recent assessments of the geography of this campaign come to other conclusions. Liverani (1992:74-75, note 354) states "An identification with 'Ain Dara...does not fit in the itinerary of ASN." He prefers to seek Kunulua closer to the Orontes, suggesting Tell Tayinat as the best candidate, a view seconded by Hawkins (1995:95).

3. There is some confusion between the illustrations and text in this article. The relevant piece is Taf. I, Abb. A, described under the rubric "Stele 2", but found in the position noted for "Stele 1" on p. 2, Abb. 1.

Figure 6: 'Ain Dara from the southwest.

It would be misleading, however, to claim that this was more than superficially a "Hittite" temple. Its ground plan, with a straight-axis approach to the cella though a columned porch and courtyards resembles nothing in Anatolia, nor are there parallels there for the raised "annex" around three of its sides. Instead it conforms to a building type that has a long history in Syria, represented as early as the Middle Bronze Age at Ebla and depicted verbally in the Biblical descriptions of Solomon's temple (Busink 1970).

That "Neo-Hittite" principalities had a complex cultural identity has been apparent since they were first discovered, and throughout the long history in the Iron Age their cultures changed in character. Each site appears to have a slightly different understanding of the Hittite legacy from the outset, and in northern Syria the linguistic balance seems to shift increasingly from Luwian to Aramaic with the passage of time. From the ninth century on, the encroaching influence of Assyria is also felt. How deeply these trends affected the majority of the denizens of these polities or is reflected in material culture at more mundane levels than monumental art and public architecture is poorly understood because very little archaeological work has been done in residential areas.

Besides the enigma of the temple and our general ignorance of the character of early Iron Age settlement in northern Syria, the lower mound offered an additional incentive for investigation. The scale and date of this extensive settlement would suggest it contains information of significance for understanding the immediate aftermath of the collapse of the Hittite Empire and the emergence of the quite different political matrix of the early first millennium B.C. The crucial developments that brought the Bronze Age to an end and culminated in the widespread use of iron took place in this general area. Stratified sites with domestic occupation spanning this transition are rare, and it is in domestic assemblages that evidence for the meaningful social and economic changes associated with the new technology are to be sought.

'Ain Dara's location seems unusually favored for survival in an age of chaos, particularly if, as some have suggested, drought was a factor in the closing centuries of the second millennium. It is positioned in one of the broadest parts of the 'Afrin valley, at a point where a series of springs deliver substantial quantities of water from below the limestone massif lying to the east. Thus, even if rainfall was insufficient for reliable dry farming, the population at 'Ain Dara would probably have had some water for irrigation in addition to that carried by the river. In short, the site appeared to be an excellent laboratory for investigating the problem of social and economic changes that accompanied the transition between the Bronze and Iron Ages.

The project that we initiated on the lower mound in 1982 was made possible by the generosity of the directors of the directors of the Syrian 'Ain Dara Expedition, Dr. Ali Abu 'Assaf and Wahid Khayatta. The authors were in Syria for the 1981-82 academic year under the sponsorship of the Fulbright lectureship program and the University of Aleppo. In September, 1981, before the term started, we visited the excavations in progress at 'Ain Dara, and in the course of our stay at the site,

the question of what kinds of remains might be found in the lower town was discussed. Responding to our inquiries, Abu 'Assaf and Khayatta invited us to work under their auspices in the following season. We were happy to agree to the informal terms that they proposed for this cooperative sub-project. We were offered accommodation in the expedition house on the site and the services of locally hired workmen. We would conduct our campaigns at the same time the Syrian excavators worked on the citadel in order to coordinate our activities. We sited our trenches in consultation with Abu 'Assaf and Khayatta and generally relied on them for advice and logistic assistance. We would keep our own records in English and would submit annual reports on our work to the Syrian expedition. Our findings were to be be submitted first the the *Annales Archeologiques Syriennes*, and after they appeared there we would be free to publish elsewhere, if we so desired. We worked under these arrangements for approximately eight weeks in each of the following three summers.

It was obvious from the outset that the lower mound at 'Ain Dara might well contain assemblages bridging the Bronze and Iron Ages, but their extent and accessibility were unknown. Our initial priorities were to determine the periods in which this settlement was occupied and to identify an area in which stratified remains of the Bronze Age-Iron Age transition would be accessible to excavation. In the 1982 this was accomplished through surface survey of the lower tell and soundings in three slit trenches in its northwestern quadrant.[4] In the summers of 1983 and 1984, two ten-by-ten meter units in the northeastern quadrant were excavated in an effort to secure a detailed stratigraphic record of floral, faunal, and ceramic changes from the 13th to the 8th centuries, B.C.[5] The lower mound was found to have attained its present dimensions at least as early as the Late Bronze Age and to contain Early Iron Age deposits several meters in depth. Occupation in the Hellenistic and Roman periods was attested in the survey findings, but was not of sufficient consequence or state of preservation to impede immediate access to Iron Age levels. The excavations conducted in 1983 and 1984 revealed a sequence of Iron Age domestic structures in which we were able to discern twenty sequential phases of indeterminate length. The ceramic assemblages they contained correspond to those defined as phases O and N by the excavators of the 'Amuq. By and large, these material remains were local and betrayed no trace of the Anatolian influence so evident in the sculpture of the temple, although both Aegean and Egyptian imports were in evidence. Preservation of floral and faunal materials was adequate to establish shifting patterns of subsistence during the time period in question.

We were only partially successful in our original objective of recovering detailed information on changes in ceramics, artifact types, and biological evidence for subsistence and climate throughout the Iron Age. At the end of the 1984 campaign, as the soundings reached a level dating to the late 12th or early 11th century, we covered the bottoms of our trenches with plastic and partially backfilled them for protection against the winter weather. Unexpectedly, this proved to be our last season. We have never fully understood why the cooperation, which was operating successfully when we left the field in September, 1984, was terminated. When we wrote to Abu 'Assaf the following January to make what we assumed were routine arrangements for the summer of 1985, we were told that we could not return. No consistent explanation was ever given to us as to who made this decision or why. For a time we hoped that it would be reversed, but after a few years found ourselves involved in other projects.

While the full sequence between Bronze and Iron Ages was not exposed, enough information was recovered to reveal something of the character of the Iron Age settlement at 'Ain Dara when the temple was in use. Other sites in the nearby 'Amuq Plain have produced materials of a comparable period, but they were excavated in a different era when techniques such as flotation were unavailable, and when the emphasis was on broad exposure rather than small-scale stratigraphic investigation. In any event, they still await full publication. As studies of Iron Age sites proceed elsewhere in the Levant, it has become increasingly clear that the materials from 'Ain Dara have a contribution to make toward understanding larger cultural patterns of this era. For these reasons, we make this belated offering of the results of our work. It was certainly not our intention to leave the lower tell project at 'Ain Dara unpublished this long. Preliminary reports were submitted after each of the three annual campaigns, but never found their way into print. At this point, more than fourteen years after the termination of excavations, these no longer have any value as updates on ongoing research. The appearance of Abu 'Assaf's comprehensive and final report on the temple (1990) eliminates the possibility of our anticipating any of his discoveries in print, and makes available essential information on some of the issues we sought to explore in our work. Therefore, we offer principal findings of the lower tell project to the scholarly community in this monograph, before our notes, photographic negatives, and memories suffer further degradation.

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4. Our 1982 staff consisted of the two authors and Kathy Yunger and Steven Erikson, students in the Department of Anthropology of the State University of New York at Stony Brook, supplemented by Hamido Hammade of the University of Aleppo and Daniel Snell, Fulbright Professor at the University of Aleppo. The work was conducted from 20 May to 22 August 1982, with a recess during the month of Ramadan; and a crew of eleven workmen was hired locally to assist with the excavations.

5. In 1983 we were joined by Virginia Heisey and Edward Luby, then students in Anthropology at the State University of New York at Stony Brook; and Hamido Hammade, a graduate of the University of Aleppo's program in Ancient Semitic Languages. Charles Pennington of Boston University and Edward Luby of the State University of New York at Stony Brook served as field supervisors in 1984, and short-term help in the field also came from Arthur Heyman and Hamido Hammade. The chemical analyses of manufacturing debris were conducted by Garmon Harbottle of Brookhaven National Laboratory.

Introduction

The debts we owe to the people and institutions who made this project possible are enormous. The greatest are to Dr. Ali Abu 'Assaf and Wahid Khayatta, whose hospitality and generosity made our summers in the field not just possible, but thoroughly enjoyable. Virtually every member of the Syrian team also helped us in one way or another. We would like to offer special thanks to Burhan Nisani, the expedition's artist, architect and recorder, who found time to make drawings of many of our finds. We were able to initiate the project because of the broad scope of opportunity offered by the Fulbright program. Funding for the second and third seasons came from grants made by the National Geographic Society.

Chapter 2

Surface Survey

The first step in our 1982 survey was to lay out a grid of fifty by fifty meter squares over the surface of the site and collect all visible sherds on a square by square basis. Diagnostic types for each period were identified, and their frequency noted. The low density of sherds was to a certain extent responsible for our modus operandi. It spared us the necessity of adopting a selective sampling strategy, but also dictated that we treat relatively large squares as units in order to make even the roughest of statistical comparisons. The large-scale contour map of the site prepared by the Syrian Expedition provided the basic grid, which we replicated on the ground with ranging poles. Collections were not made on the citadel mound, where years of excavation and dumping vastly increased the amount of material we would have to process without providing us with any new information. At the southern end of the mound, the squares proximal to the dig house and those in which our sherd yard and discard pile were located were left out of the survey as well. All other squares were taken into consideration, each being walked by either one or two researchers. The amount of time it took to collect from a given square varied between two and four man-hours, depending on the number of sherds and the nature of the ground cover. In some cases the latter was enough of an obstruction that it may have had an impact on the percentage of material actually present that was collected,[1] so we have not attempted any but the roughest of statistical comparisons. In general, however, the bare ground was clearly exposed to view and the number of sherds that escaped observation may be dismissed as inconsequential. All diagnostic sherds were drawn and photographed, and a study collection of the most distinctive examples was retained in the storage room in 'Ain Dara dig house.

Although several thousand sherds were collected in the course of the survey, only a small proportion of these could accurately be dated to particular periods. In part this was due to the paucity of pottery corpora from reliable stratigraphic excavations

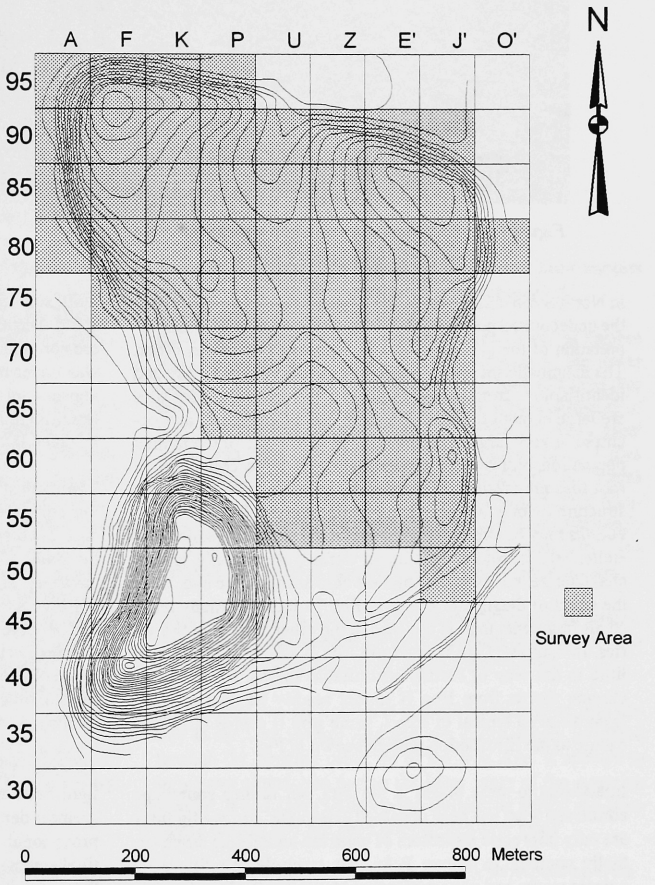


Figure 7: Survey area.

1. Vegetation on the following squares was particularly dense: A85, P85, U70, Z70, U65, Z65, E'65, U60, Z60, E'60, Z55, E'55. We could not collect sherds from Squares K70 and K65 since they were covered by large numbers of rocks (presumably from the collapse of a city gate) and vegetation.

Figure 8: Citadel mound from northwest corner of lower tell.

in North Syria and in part to the largely non-descript nature of the undecorated pottery in this area. Some caveats on the interpretation of the data presented in Figures 11-15 are in order. The diagnostic sherds or "index fossils" vary in frequency and identifiability from period to period. For example, roof tiles are large enough to attract attention, easily identified, and occurred in very large numbers relative to the size of the human population represented. Consequently, a large collection of roof tiles may reflect no more than the occupation of a single structure by one family over a few decades. Hellenistic distributions may be similarly exaggerated in Fig. 14. Fragments of Hellenistic red and black slipped wares were not only easy to characterize, but even the smallest chip attracted the eye. Thus the count of diagnostic sherds in Fig. 14 included many more small fragments than is the case in the other figures in the series. In contrast, Late Bronze and Iron II assemblages contain little in the way of readily identifiable sherds. Since monochrome sherds from Iron II cannot readily be distinguished from those so typical of Iron I, some Iron II sherds may contribute to the distribution pattern shown in Fig. 12.

In addition to these biases in the data, our limited soundings confirmed what has been observed elsewhere: surface findings are only imprecise indicators of what the underlying strata actually contain. In square P 85, for example, we found no painted wares and only minimal evidence for the Iron I period in survey, but these were well represented in the test trench we dug there. The remains of Hellenistic settlement proved to be quite superficial in the places we dug, despite relatively high sherd densities on the surface, but this may be largely due to erosion and disruption of the uppermost levels. The mound was under cultivation during the years we worked on it, and appears not to have been a place of habitation for at least the last millennium, so loss as well as accumulation of strata must be taken into consideration.

The earliest datable evidence of settlement we discovered in our survey of the lower mound belongs to the Late Bronze Age, but there are earlier remains in the area. A small mound to the south of the main settlement area, which was partially excavated after our work ended, dates to sixth millennium, and in our own excavations we found Halafian materials out of context. But the first major occupation of the Lower Mound seems to have occurred in the Late Bronze age, although in the absence of adequate documentation of local pottery assemblages for that time period, we were compelled to rely largely on unpublished 'Amuq materials and pottery from areas some distance away to postulate a set of diagnostic types (Fig. 10: 10-12).[2] Thus the distribution pattern in Fig. 11, showing a light but even scatter over most of the lower mound with the greatest density on the northeast eminence, must be taken as provisional. Our conclusion that the lower mound was effectively created in the Late Bronze Age rests less on this than on the fact that several meters of deposit clearly lie below the earliest Iron Age material in our soundings, and no Middle Bronze or earlier sherds were found in the survey.

2. We would like to thank Professor Robert Braidwood and the Director and Curators of the Oriental Institute for permitting us to examine the unpublished materials from the 'Amuq. In addition to parallels with 'Amuq M, the bowls with the in turned rims (Fig 10: 10) can be compared to those from the upper levels at Alalakh (Woolley 1955: Plate CIX), with sherds from the river Qoueiq (Matthers 1981: part ii, fig. 225), and with bowls from Late Bronze Age levels in Palestine (Amiran 1970: Plate 38).

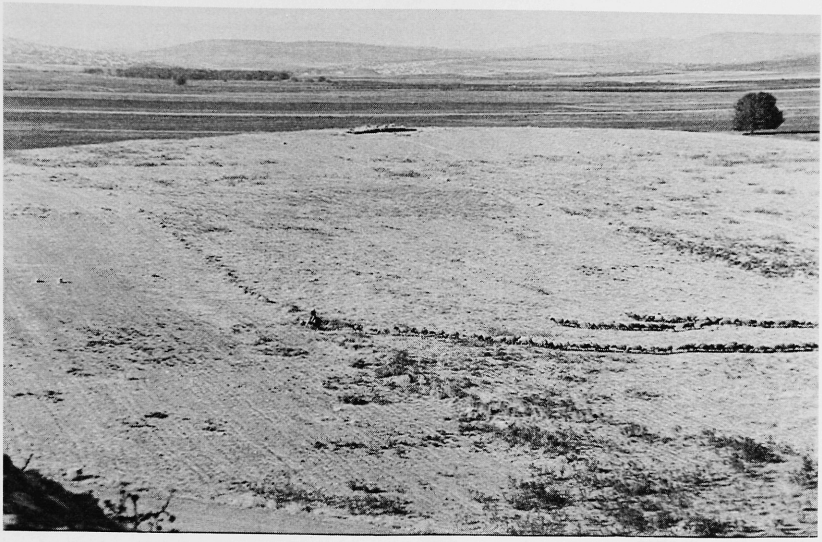


Figure 9: Lower tell from citadel, facing northeast.

We were able to distinguish two Iron Age assemblages, which may be categorized as Iron I (Fig. 12) and Iron II (Fig. 13), corresponding to 'Amuq N and 'Amuq Oa respectively. The first was characterized by shell-tempered cooking ware and monochrome painted wares (Fig. 10: 9).

Iron II is distinguished by red-slipped burnished wares, bichrome painted wares, and finger/fingernail impressed decoration (Fig. 10: 4-8). In neither the survey nor the soundings did we recover any sherds with the concentric circle designs associated with Cypro-Geometric III and Cypro-Archaic wares, leading us to conclude at the time that the lower mound at least ceased to occupied early in Iron II. This conclusion had to be revised, however, as a result of the excavations carried out in 1983 and 1984, in which such sherds were not uncommon. The evidence suggests a terminal date for the Iron Age occupation of 'Ain Dara sometime in the 8th century B.C.. The distribution of the Iron II materials that were found is, like that of Iron I, relatively even, with concentrations on the high areas in the northeast and northwest corners (Fig. 13).

There seems to have followed a period of abandonment which lasted for roughly half a millennium. No later Iron Age pottery, or sherds that were definitely either Persian or Greek imports pre-dating the founding of Antioch were discovered.[3]

Hellenistic red wash and black glazed wares, as well as Eastern Sigillata A, speak for an extensive occupation of the lower mound in the last three centuries before the birth of Christ. For this and the next Byzantine occupation, see the comments of Murray McClellan below. It is probably to the latter period that we should date the occasional concentrations of roof tiles which were encountered at the site,[4] particularly in squares K75, P75, P70, P65 and U60 (see Fig. 15), where stone foundation remains are also visible on the surface. They apparently represent the ruins of several free-standing villas, since the roof tiles clustered in discrete pockets within these squares.

Only two pieces of glazed ware that might be termed Islamic were found. Thus it seems unlikely that there was any substantial post-Byzantine settlement on the lower mound.

In summary, we are confident that the lower mound was settled in the Late Bronze Age and was continuously inhabited through the opening centuries of the Iron Age. It appears to have been abandoned during the latter years of the Assyrian Empire. It was again settled in the Hellenistic period and Byzantine periods and has been uninhabited ever since.

3. During this hiatus, the citadel was apparently occupied, however. Abu 'Assaf distinguishes two levels there, 6 and 5, corresponding to the 7th-6th centuries B.C. and 6th-4th centuries B.C., respectively (Abu 'Assaf 1990:7-9).

4. See Sodini et al. (1980:205-214) for a discussion of Byzantine roof tiles, and for an illustration of the cord-impressed pithos ware that was so typical of Byzantine levels at 'Ain Dara (*Ibid.*: Fig. 332). This cord-impressed ware could be readily distinguished from what we, following G. Swift (1958:137), have described as fingernail impressions. This Iron II decoration, like the Byzantine, was sometimes made by impressing a rope in the wet clay, but where the Iron II rope was thick, loosely twisted and shallowly impressed, the Byzantine cord was thin, tightly twisted and deeply impressed. In addition, the Byzantine sherds were mostly of hard-fired red ware, whereas those dating to Iron II were usually of buff or orange-buff ware.

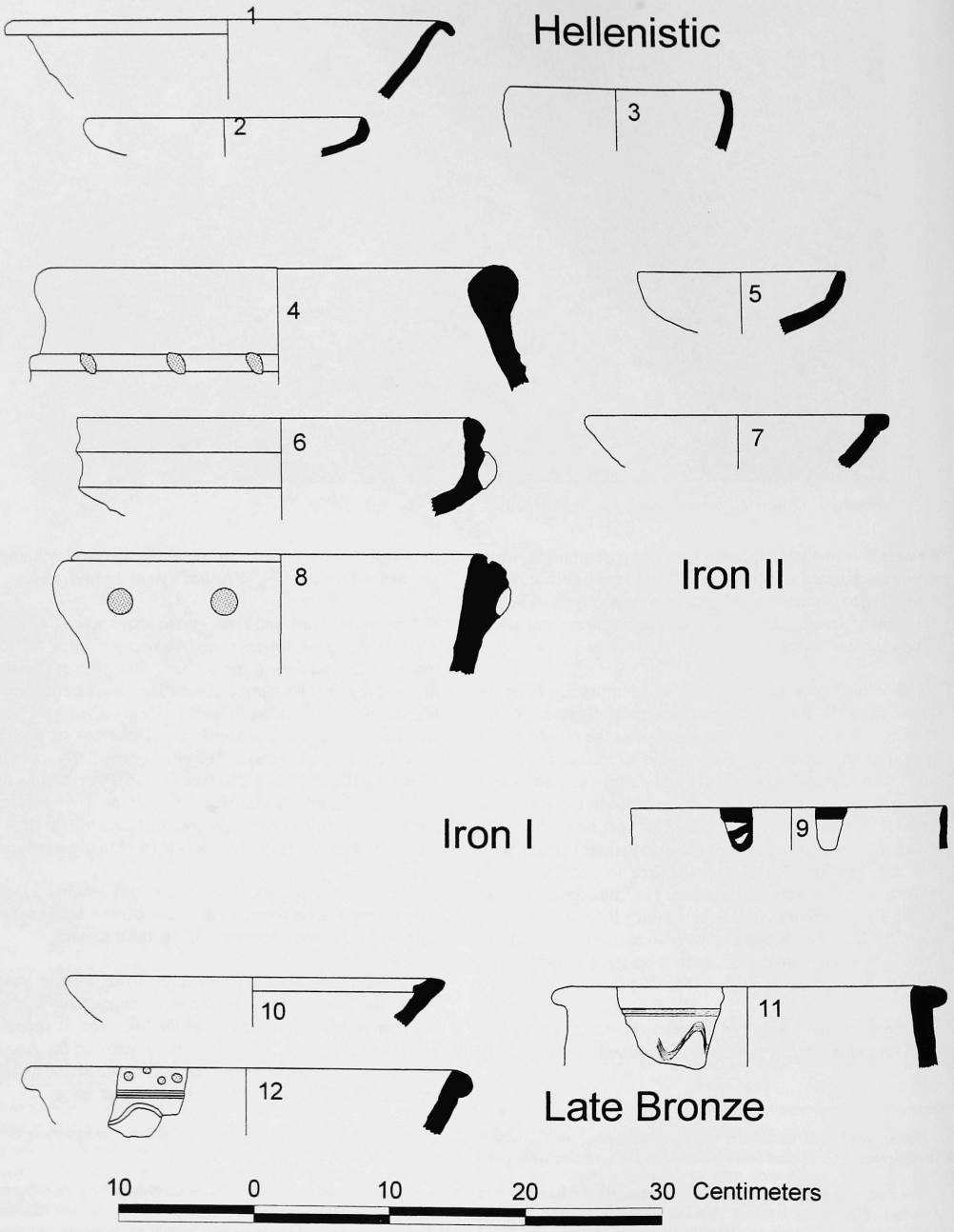


Figure 10: Selected "Index Fossils" from surface survey. Descriptive details are presented in table, above right.

Surface Survey

No.	Description (color references to Munsell Soil Color Chart)	Square	Period
1	Fine orange ware (5YR 7/6), shiny orange (2.5YR 5/8) to black slip	E'90	Hellenistic
2	Fine buff ware (5YR 8/4), orange-brown (10YR 4/8) slip	U60	Hellenistic
3	Fine buff ware (5YR 8/4), orange-brown (10YR 4/8) slip	P90	Hellenistic
4	Coarse orange ware (5YR 7/4), chaff temper, self slip, finger impressions	F80	Iron II
5	Medium orange-buff ware (5YR 6/6), burnished orange (7.5YR 5/8) slip	F80	Iron II
6	Medium grey-brown ware (7.5YR 6/2), burnished pink (7.5 R 6/8) slip	J'85	Iron II
7	Medium orange-buff ware (5YR 8/4), burnished red-brown (10R 3/6) slip	U65	Iron II
8	Medium orange ware (5YR 7/4), grey core (5YR 5/1), self slip, thumb impressions	J'85	Iron II
9	Medium to fine buff ware (10YR 8/2), self slip, black paint	E'85	Iron I
10	Well fired, medium red ware (5R 4/6), self slip	E'80	Late Bronze
11	Medium light orange ware (5YR 8/4), self slip, combed decoration	K85	Late Bronze
12	Medium orange ware (5YR 7/6), self slip, combed and impressed decoration	K85	Late Bronze

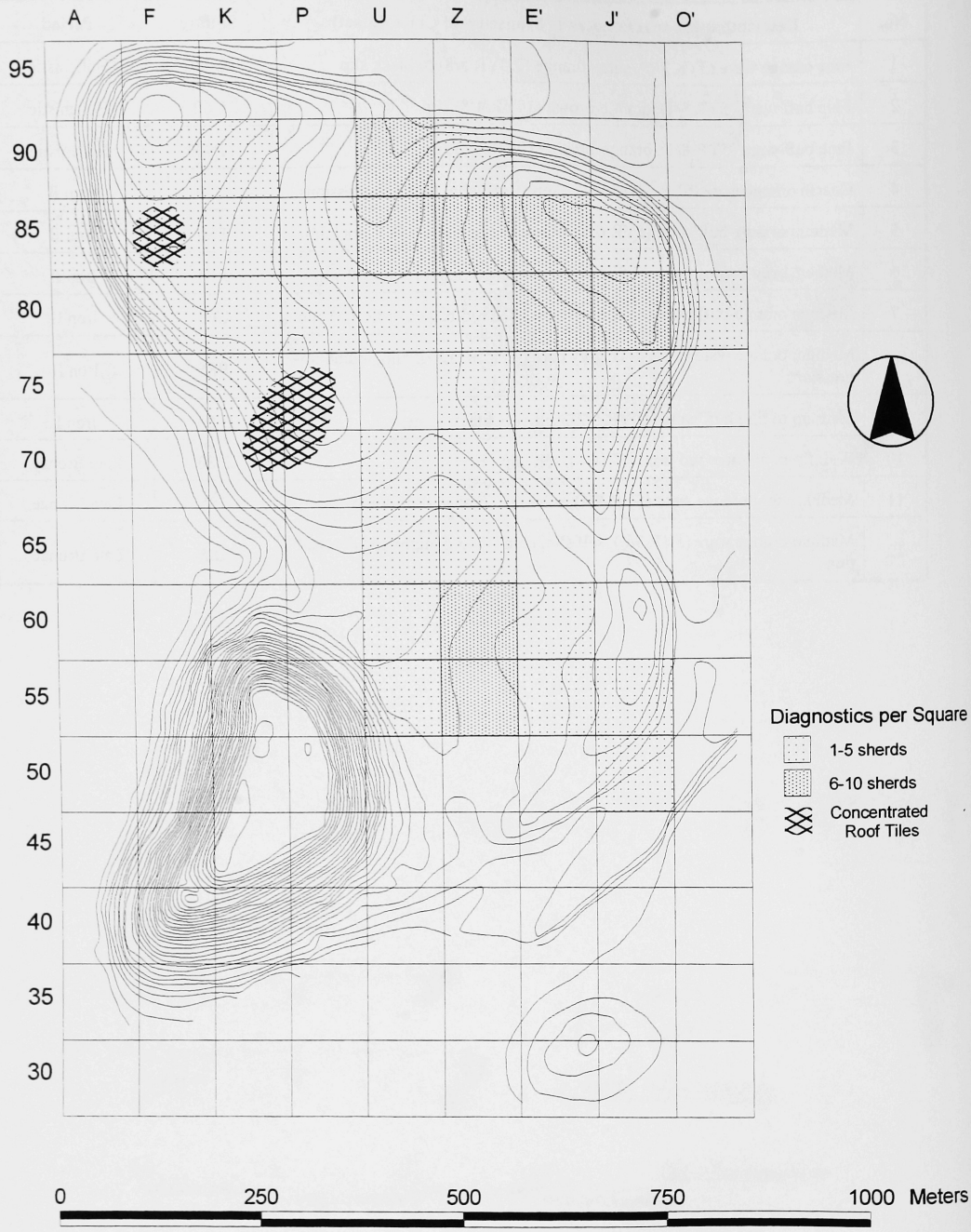


Figure 11: Surface distribution of Late Bronze Age sherds.

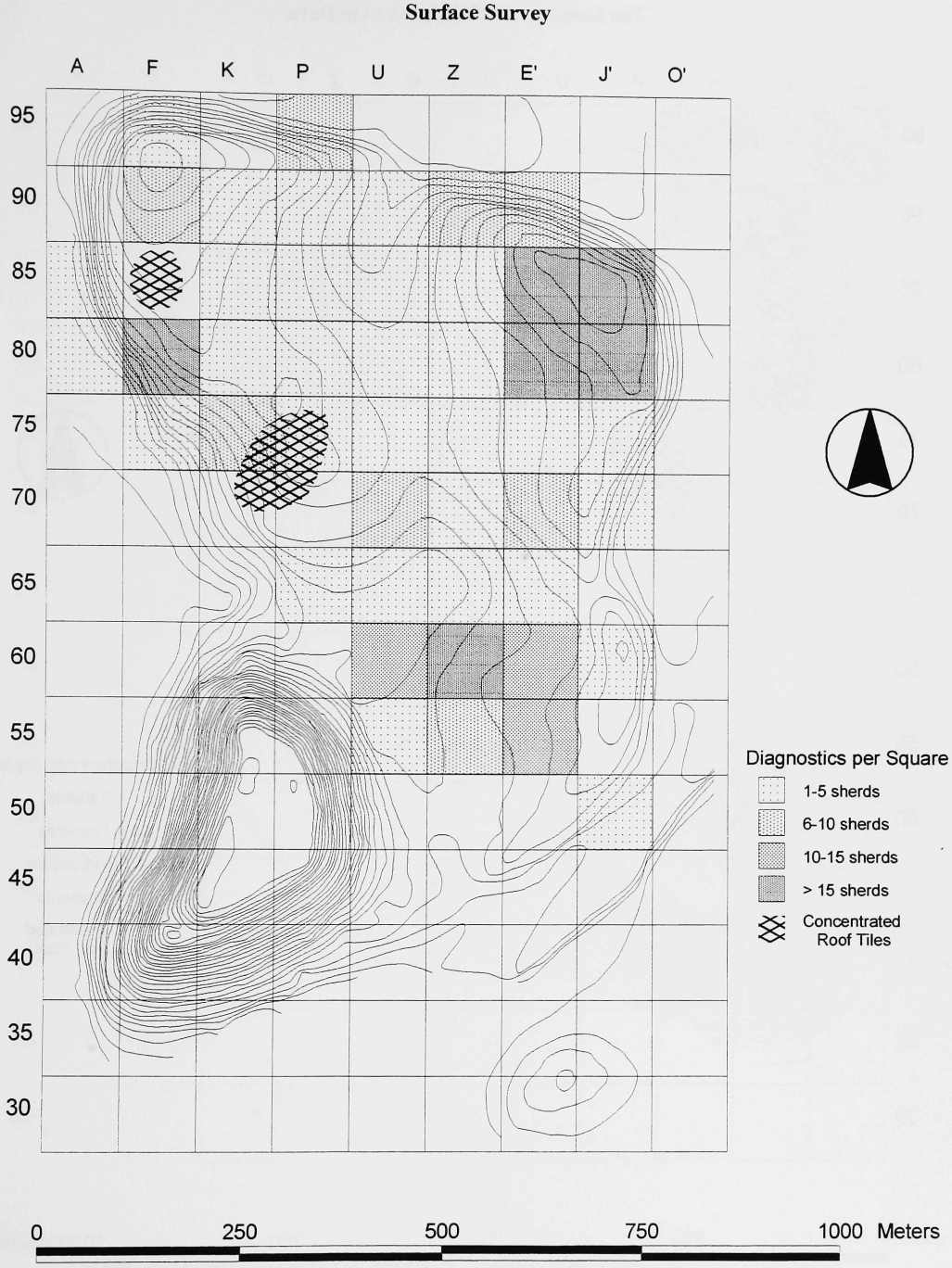


Figure 12: Surface distribution of sherds dating to the Iron I period.

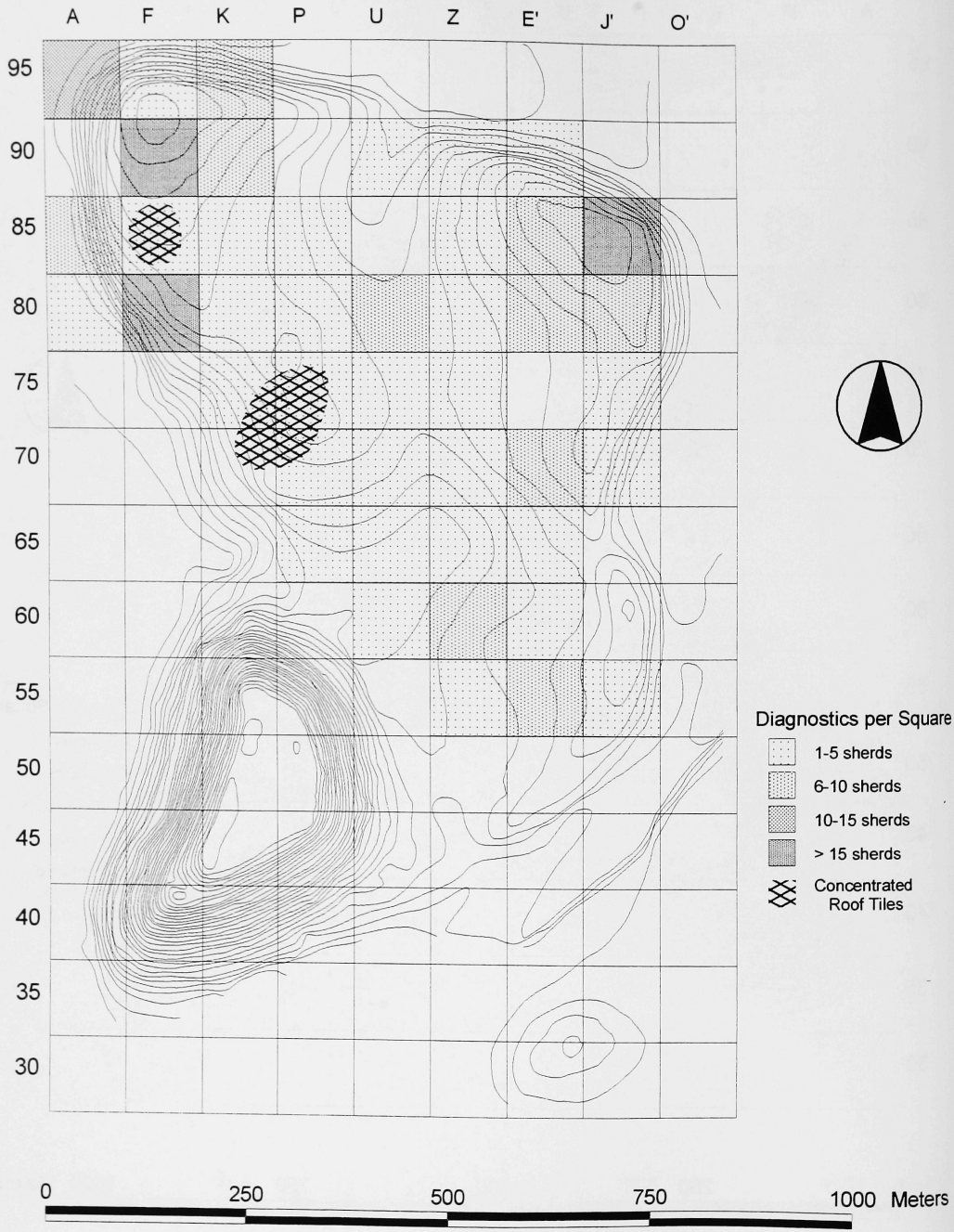


Figure 13: Surface distribution of sherds dating to the Iron II period.

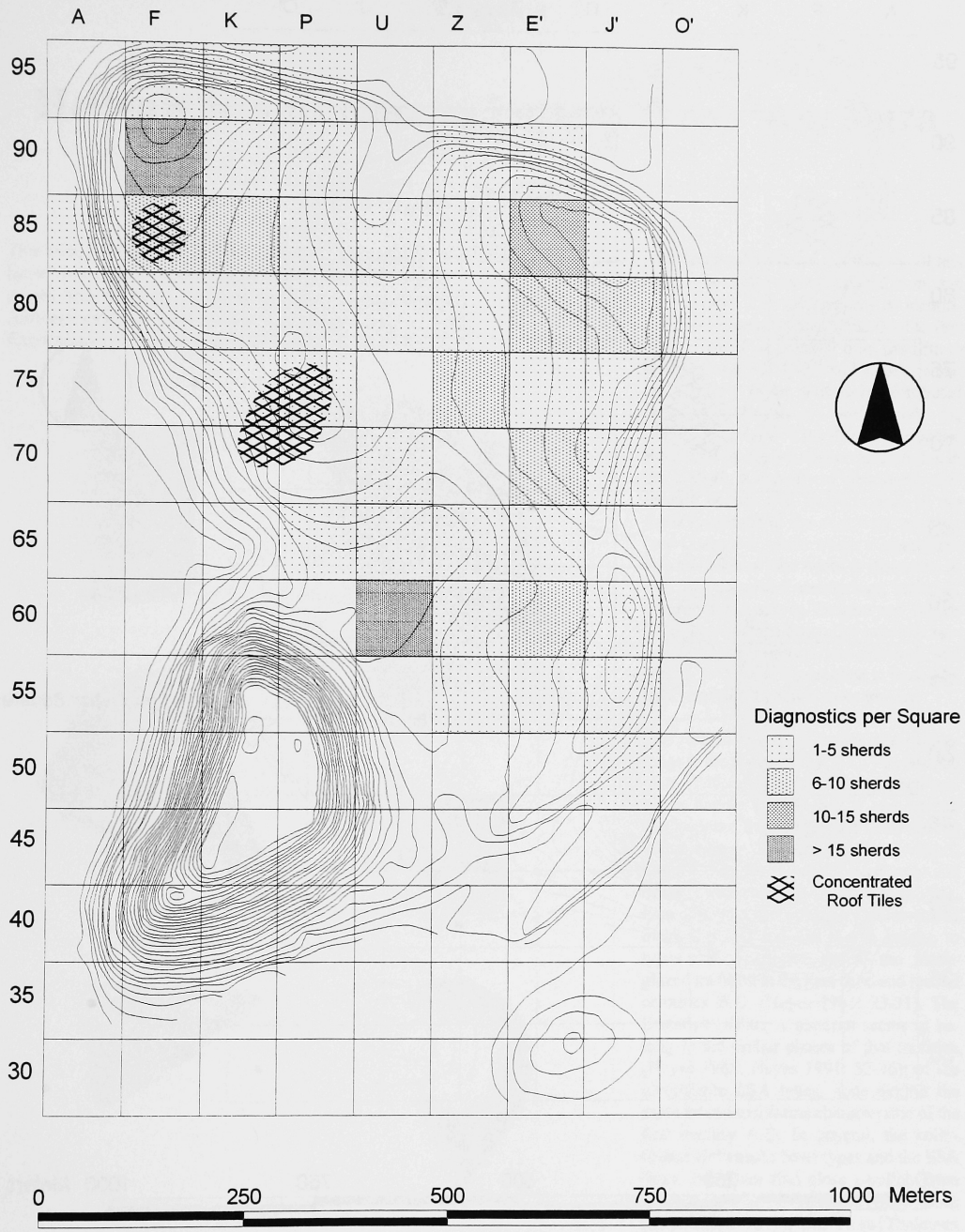


Figure 14: Surface distribution of sherds dating to the Hellenistic Period

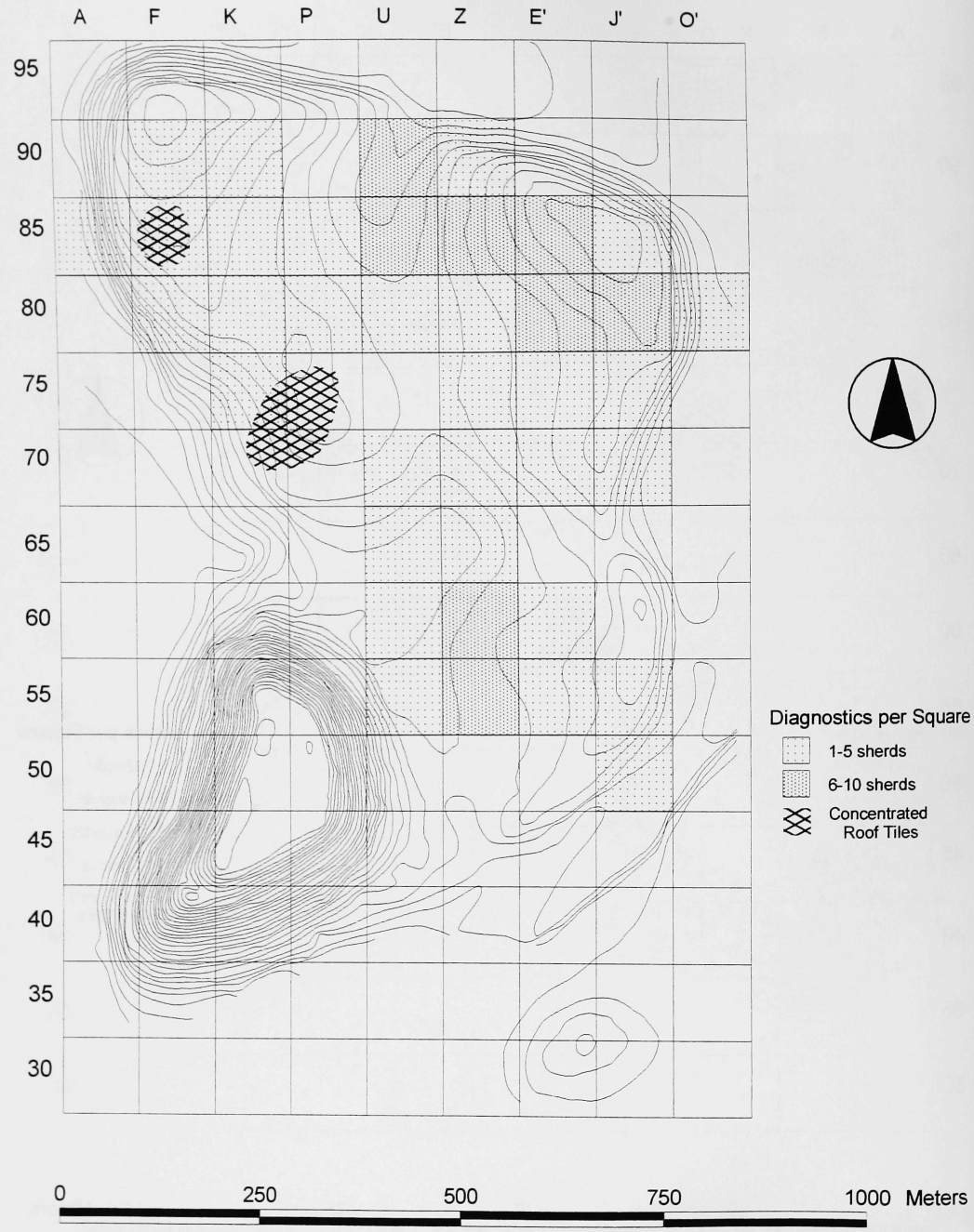


Figure 15: Surface distribution of sherds dating to the Late Roman/Byzantine Period.

Chapter 3

Hellenistic and Roman Pottery from 'Ain Dara

By Murray C. McClellan

This brief overview of the Hellenistic and Roman pottery collected from 'Ain Dara was based on an examination of photographs and drawings made at the time of the collection. Although only the most readily identifiable sherds—mostly fine-wares—were noted and much more could undoubtedly be accomplished with a thorough, first-hand examination of this collection, a very clear picture of the survey material from 'Ain Dara has nonetheless emerged. The vast majority of identifiable Hellenistic and Roman sherds belong to the third to first centuries B.C., with a scattering of material from the fifth to seventh centuries A.D. The Hellenistic material seems to be uniformly distributed throughout the survey units, while the much less frequent Late Roman/Byzantine material may show a slight concentration in the U units. A quantity of identifiable Hellenistic pottery was found in each of the three soundings in the northwest quadrant (see Chapter 4), from which a representative selection of fine wares is illustrated in Fig. 16. Associated architecture, however, was recovered only in Trench 3 and Trench 2. No Late Roman/Byzantine could be recognized in excavations field drawings, and sherds were not photographed in these earliest stages of the lower town project.

Figure 16: Selected post Iron-Age sherds from uppermost excavation levels in 1983 excavations. Scale 1:1.

The earliest of the Hellenistic material belongs to the third century, B.C. The late fish plate (F90, no. 1), Rhodian stamped amphora handle (E 65, no. 2) and several black-glazed fragments most likely belong to this century. The lamp found in Trench 3, Level 1 (Fig. 19) should be dated to the end of the third century, B.C. (cf. Waagé 1941, type 11). The more frequent color-coated black-slip and red-slip sherds belong to types that developed out of the black-glazed tradition in the later third and second centuries B.C. (Hayes 1991: 23-31). The Eastern Sigillata A material seems to belong to the earlier phases of that tradition (Hayes 1985; Hayes 1991: 32-36); of the identifiable ESA types, none exhibit the more articulated forms characteristic of the first century A.D. In general, the color-coated Hellenistic bowl types and the ESA from 'Ain Dara find close parallels from Antioch (Waagé 1948), Hama (Christensen and Johansen 1971), Tell 'Arqa (Thalmann 1978) and Dura-Europos (Cox 1949; Alabe 1992). None of the identified sherds from

the 'Ain Dara survey need date to the time of the Roman control of Syria. It would thus seem that the Hellenistic settlement at this part of 'Ain Dara began in the later third century BC and lasted for no more than two centuries.

With the limited amount excavated data it is difficult to speculate on the exact nature of the Hellenistic occupation of this sector of 'Ain Dara. The prevalence of fine wares suggests that the zone was residential. In general, a Hellenistic settlement at 'Ain Dara would have emerged within the network of new urban centers that the Seleucids initiated in northern Syria (Millar 1983; Sartre 1989; Will 1989; Grainger 1990; Sherwin-White and Kuhrt 1993). Recent scholarship has suggested that this network of Hellenistic settlements represents a fundamental change in the economic structures of northern Syria, one in which traditional agricultural practices were augmented by non-agricultural production and exchange (McClellan 1997).

The virtual lack of material from the second through fourth centuries AD from 'Ain Dara fits a pattern that has been frequently noted in northern Syria and elsewhere (Kenrick 1981). While it has been suggested that this gap may only be an artifact of our inability to recognize material from this period (Lund 1992)—a problem that is clearly relevant on rural sites without major architecture—the fact that the survey area of 'Ain Dara seems to have been abandoned by the early first century A.D. suggests that the absence of identifiable later Roman material at 'Ain Dara does reflect a real hiatus in occupation.

The few 'Ain Dara sherds that have been assigned to the fifth to seventh centuries A.D. show a different character from those of the Hellenistic period. The majority of these Byzantine sherds are transport amphoras or other plain wares. The paucity of identifiable fine wares of this period at 'Ain Dara is somewhat surprising since African Red Slip and other late sigillata types are frequently found in north Syria and are very easy to recognize. This would suggest that the Byzantine material recovered from lower part of 'Ain Dara may represent an agricultural use of this land rather than an actual settlement.

Register of Identifiable Hellenistic and Roman Sherds by Survey Square

A80

1. Black-slip. Fragment of a small bowl? 3rd-2nd century B.C.

A85

1. Eastern Sigillata A (ESA). Fragment. Late 2nd to late 1st century B.C.
2. ESA. Fragment. Late 2nd to late 1st century B.C.

A95

Nothing identifiable.

E60

1. Black-slip. Fragment of bowl with incised double concentric lines. 2nd century B.C. Cf. Waagé 1948, fig. 2: 17-22.
(Eight other Hellenistic fragments)

E65

1. Black-glazed. Fragment from bowl with metallic glaze. 3rd century B.C.
2. Rhodian transport amphora. Stamped handle with rose. 3rd century B.C. Cf. Empereur and Hesnard 1987.

E70

1. Red-slip. Fragment of moldmade relief bowl with rosette and other floral patterns. 2nd century B.C. Cf. Laumonier 1977, pl. 53:3257.
2. Red-slip. Fragment of a bowl with incurving rim. 2nd century B.C. Cf. Cox 1949:18-20, nos. 111-113; Jones 1950, fig. 180; Crowfoot, et al., 1957:223, fig 38.
(Four other Hellenistic fragments).

E75

1. Black-slip. Fragment of bowl with short flat rim; incised double concentric lines on interior. 2nd century B.C. Cf. E60 no. 1.
2. Plain ware. Fragment of a jar (?) with out-turned rim. Possibly 2nd century A.D.

E80

1. Black-slip. Fragment of a bowl or plate. 3rd to 2nd century BC.
2. ESA. Fragment of a bowl or plate. 2nd to 1st century BC.
(Two other late Hellenistic fragments)
3. Glazed ware. Fragment of a bowl(?) with handle. Possibly 17th to 19th century A.D.

E 85

1. Black-glazed. Fragment of plate with rolled rim. Late 3rd century B.C. (One other black-glazed fragment)
2. Black-slip. Fragment from kantharos (?). Late 3rd to 2nd century B.C.
3. Black-slip. Fragment from bottom of moldmade relief bowl; rosette within dotted circle. 2nd century B.C. cf. Laumonier 1977, pl. 24:617.
4. Red-slip. Fragment of a bowl with concentric ribbing. 2nd century B.C.
(Four other Hellenistic fragments)

E90

Nothing identifiable.

F80

1. ESA. Fragment of bowl (Hayes 1985: form 2A). Second half of the 2nd century B.C.

F85

1. Black-slip. Fragment of a bowl with in-curving rim. 3rd-2nd century B.C.
(Three other Hellenistic black-slip fragments)
2. Red-slip. Fragment of plate with painted floral pattern. 2nd century B.C. Cf. Schäfer 1968, F56.
3. ESA. Fragment. Late 2nd to late 1st century B.C.

F90

1. Black-glazed. Rim fragment of fish plate; possibly Attic import. 3rd century B.C.
2. Black slip. Fragment of bowl or plate. 2nd century B.C.
(Two other black-slip fragments)
3. ESA. Fragment of bowl with stamped, pendent egg and dart decoration. Hayes (1985) form 9. c. 50-25 B.C.
4. ESA. Fragment of bowl with double-dipping streak. Late 2nd to late 1st century B.C.
(Two other ESA fragments)
5. Cooking-ware (?). Fragment. 3rd to 1st century B.C.

F95

1. Black-slip. Fragment. 3rd to 2nd century B.C.
(One other black-slip fragment)
2 ESA (?). Fragment. 1st century BC to 1st century A.D.

J50

1. Red-slip. Fragment of bowl with incurving rim. Late 3rd to 2nd century B.C. Cf. E70, no.2.
(Two other red-slip fragments).

J55

1. Red-slip. Fragment from base of bowl. Late 3rd century to early 2nd century B.C.
(Two other fragments of red-slip)
2. ESA. Fragment. 1st century B.C.
(Two other possible ESA fragments)
3. Transport amphora. Body fragment with grooves. Probably 4th to 6th century A.D.

J60

1. Black-slip. Fragment of bowl with incurving rim. 2nd century B.C. Cf. E70, no. 2.
2. ESA. Fragment. Late 2nd to 1st century B.C.
(One other possible ESA fragment)

J70

1. Black-slip. Fragment of a bowl or plate. 3rd to 2nd century B.C.
2. Plain ware. Fragment of basin with tall neck and triangular rim. Possibly late Hellenistic or early Roman.

J75

1. Black-slip. Fragment of a bowl with incised double concentric lines on interior. 3rd to 2nd century B.C.
2. Red-slip. Fragment of a bowl with in-turned rim. 2nd century B.C.
(One other red-slip fragment)
3. ESA. Fragment. late 2nd to 1st century B.C.
4. Cooking ware. Fragment of casserole. Probably late Hellenistic or early Roman.

J80

1. Black-slip. Fragment. 3rd to 2nd century B.C.
(One other black-slip fragment)

2. ESA. Fragment of a plate. Late 2nd to 1st century B.C.
(Four other ESA fragments).

J85

1. Black-glazed. Fragment of a bowl with incurving rim. 3rd century B.C.

K75

1. Red-slip Fragment. 2nd century B.C.
2. Plain-ware. Fragment probably from transport amphora or storage jar. 5th to 7th century A.D. Cf. Diederichs 1980, no. 193.

K80

1. Red-slip. Fragment of bowl or plate. 2nd century BC.
(One other fragment)
2. Plain-ware. Ridged body fragment. Possibly late Hellenistic or early Roman.

K85

1. Black-slip. Fragment of a bowl with incurving rim. Late 3rd to 2nd century B.C. Cf. E70, no. 2.
2. Black-slip. Fragment of a bowl with out-turned rim. Late 3rd to 2nd century B.C.
3. ESA. Fragment. Late 2nd to 1st century BC.
4. Cooking ware. Fragment. Probably late Hellenistic or early Roman.

K90

1. ESA. Fragment. Late 2nd to 1st century B.C.

K95

1. Black-glazed. Fragment. 3rd century B.C.
2. Black-slip. Fragment of bowl (?). Probably 2nd century B.C.

O80

1. ESA. Fragment. Late 2nd to 1st century B.C.

P65

1. Black-slip. Fragment of a bowl with incurving rim. 2nd century B.C. Cf. E70, no. 2.
2. Red-slip. Rim of juglet. 2nd century B.C.
3. Cooking ware. Fragment. Probably late Hellenistic.

P75

1. ESA. Fragment. Late 2nd to 1st century A.D.
(Two other ESA fragments)

P80

1. ESA. Fragment. Late 2nd to 1st century B.C.

P85

1. African Red Slip (ARS) (?). Fragment of body with grooves. Possibly 5th to 7th century A.D.
2. ESA. Fragment. Late 2nd to 1st century B.C.
3. Transport amphora. Body fragment with grooving. 5th to 7th century A.D.

P 95

1. Red-slip. Fragment of bowl with incurving rim. 2nd century B.C. Cf. E70, no. 2.
(Two other similar red-slip bowl fragments)

U60

1. Red-slip. Fragment of bowl with incurving rim. 2nd century B.C. Cf. E70, no. 2.
(Six other similar red-slip bowl fragments)
2. ESA. Fragment. Late 2nd to 1st B.C.
(One other ESA fragment)
3. Cooking ware. Fragment with ridging. Probably late Hellenistic or early Roman.
4. Transport amphora. Fragment of panel amphora. Probably 5th to 7th century A.D.

U65

1. Black-slip. Fragment. 2nd century B.C.
2. Transport amphora. Handle of Koan (?) amphora. 3rd to 2nd century B.C.
3. Cooking ware. Fragment with ridging. Probably late Hellenistic or early Roman.
4. Transport amphora. Fragment of panel amphora. Probably 5th to 7th century A.D.

U70

1. Black-slip. Fragment. 2nd century B.C.
2. Red-slip. Fragment of bowl with incurving rim. 2nd century B.C. Cf. E70, no. 2.
3. Cooking ware. Fragment with grooves. Probably late Hellenistic or early Roman.

U75

Nothing identifiable

U80

1. Black-slip. Fragment of bowl with incurving rim. Late 3rd to 2nd century B.C.
(One other black-slip fragment)

U85

1. Red-slip. Fragment. 3rd to 2nd century B.C.
(One other red-slip fragment)
2. ESA. Fragment. Late 2nd to 1st century B.C.
3. Transport amphora. Fragment with grooves. Possibly 5th to 7th century A.D.

Z55

1. Black-slip. Foot of bowl. Late 3rd to 2nd century B.C.
(One other black-slip bowl fragment)

Z60

1. Red-slip. Fragment from base of bowl. 3rd to 2nd century B.C.
2. Unidentified terra sigillata. 1st century B.C. to 1st century A.D.
3. ESA. Fragment. Late 2nd to 1st century B.C.
4. ARS (?). Fragment. Possibly 4th to 6th century A.D.
5. Cooking ware. Fragment with ridging. Probably late Hellenistic.

Z75

1. Red-slip. Fragment of plate. 2nd century B.C.
2. ESA Fragment. Late 2nd to 1st century B.C.
(Two other ESA fragments)

Z80

1. Black-slip. Fragment. 3rd to 2nd century B.C.

Z85

1. ESA. Fragment. Late 2nd to 1st century B.C.
2. Red-slip. Fragment of a bowl with incurving rim. 2nd century B.C. cf. E70, no. 2.
3. Plain ware. Fragment with light grooving. Probably late Hellenistic.

Z90

1. Red-slip. Fragment. 2nd century B.C.

Chapter 4

Trenches in the Northwest Quadrant

The three soundings excavated in 1982 were designed to supplement the survey by providing information on the depth and character of the stratified remains in the lower mound. Since collection of ceramic assemblages from sequentially defined strata was the primary objective, we sought to maximize baulk length by digging two-by-nine meter trenches. Our resources were sufficient to open three of these, laid out along a single axis running perpendicular to the contours of the inside slope of the mound's northwest, and highest, corner. This seemed the most effective way of sampling at different elevations; a step trench on the outside of the mound would undoubtedly have run immediately into the city wall and failed to yield a satisfactory sequence. By spacing the trenches sixty meters apart we were able to start from near the summit (at approximately fifteen meters above plain level), near the lowest point (at seven meters), and at a location halfway between (at eleven meters above plain level) (see Fig. 17). The drawback to this strategy was that it was impossible to trace any direct continuity in strata between trenches. For the purposes of record-keeping, we numbered these trenches, one to three, starting the

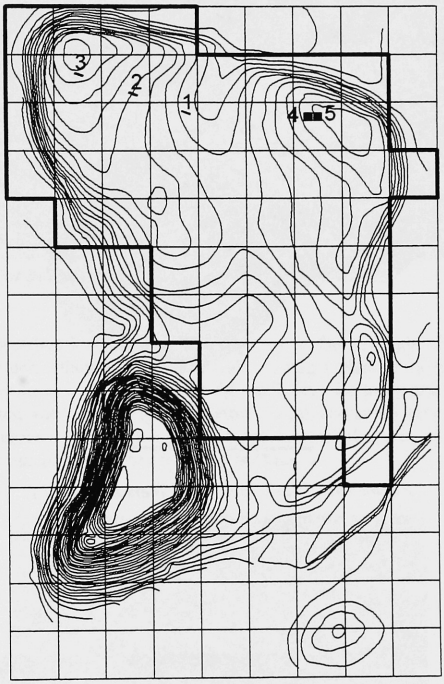


Figure 17: Location of soundings in the 1982 and 1983-84 seasons

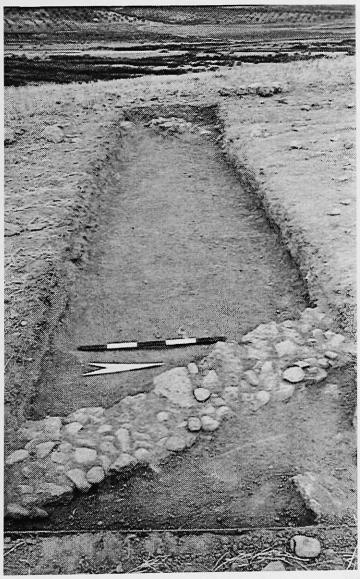


Figure 18: Trench 3. Hellenistic fountations

sequence on the downhill end. We shall retain those numbers here in order to avoid confusion, but discuss them in the opposite order, beginning with Trench 3 at the top of the hill.

Trench 3 was in many ways the most disappointing of our soundings. We found no Byzantine deposits here, despite hints of their presence in the surface collections. Although much of the material from Trench 3 was Hellenistic, little evidence for actual settlement was found. Stone foundations for walls (Fig. 18) were uncovered close to the surface at opposite ends of the trench, but only one layer of stones was preserved and no associated floors were discovered. Both around and below them were the fine red and black slipped wares of the 3rd to lst centuries B.C., and a nearly complete lamp (Fig. 19) was found in the disturbed soil about halfway between the two walls. Beneath these levels we encountered an area covered with cobblestones, raised toward the edges and depressed toward its center, running three meters along the central part of the trench

Figure 19: LT82-7, lamp from Trench 3, Level 1.

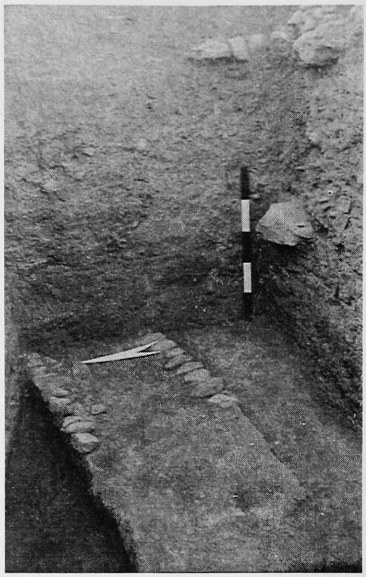


Figure 21: Trench 3. Iron Age wall.

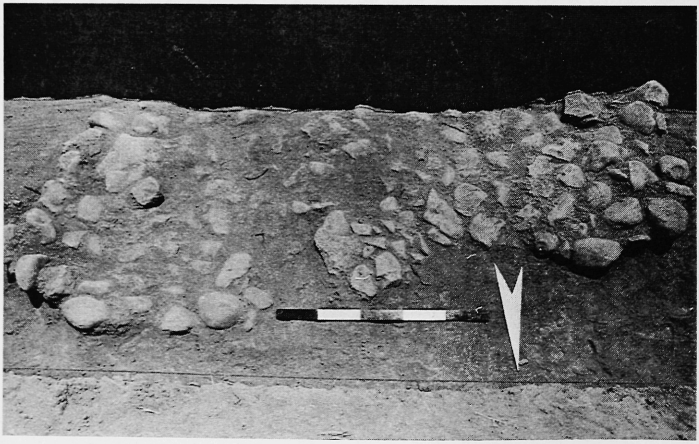


Figure 20: Trench 3. Stone feature over Hellenistic pit.

(Fig. 20). It did not reach our north baulk,[1] but in its place there was an area of hard-packed soil. The feature generally lay about one meter below the modern surface, and was unassociated with any floor or level that we could detect elsewhere in the trench. It appears to have sealed a large pit, which had its bottom more than a meter below the cobblestones and, to judge from the sherds it contained, must have been deliberately filled in during the Hellenistic period.

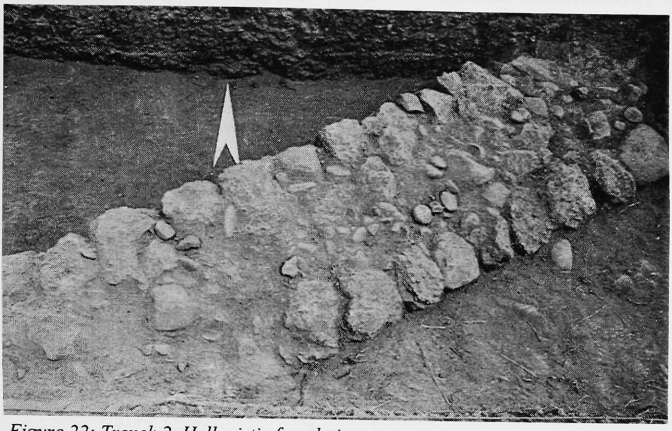


Figure 22: Trench 2. Hellenistic foundation.

The disturbance caused by this pit left us with very little earlier stratigraphy intact, at least insofar as we had time to excavate. It was clear that the pit had been cut into Iron II levels, and none of the ceramic evidence uncovered before we reached our stopping point nearly three meters below the surface was earlier than Iron II. Although we were thus unable to make any fine chronological distinctions in this particular sounding, it is apparent from the absence of wares decorated with concentric circles, which so dominate the Phase O assemblages of the 'Amuq excavated by the University of Chicago, that even here we must be very early in that phase. Our best undisturbed levels of the Iron Age lay in the east side of the trench, where a mud-brick wall, its edges marked by small stones at its base, ran from the baulk into the locus and was then interrupted (Fig. 21). Below the pit, and below this wall fragment, lay another row of more substantial stones, one of which had been used as a door socket.

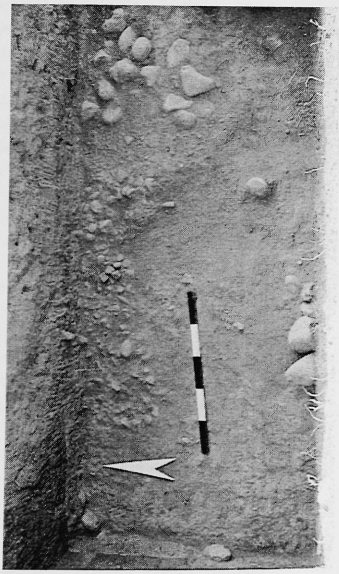


Figure 23: Trench 2. Cobble floor, Level 2.

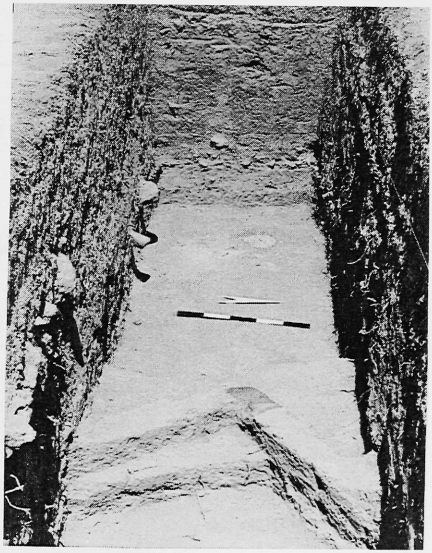


Figure 24: Trench 2. Level 5, with top of tanour visible near west baulk.

1. The axis of the trenches actually runs east-south-east to west-north-west, but for the sake of economy we shall use terms for direction as if they ran east to west.

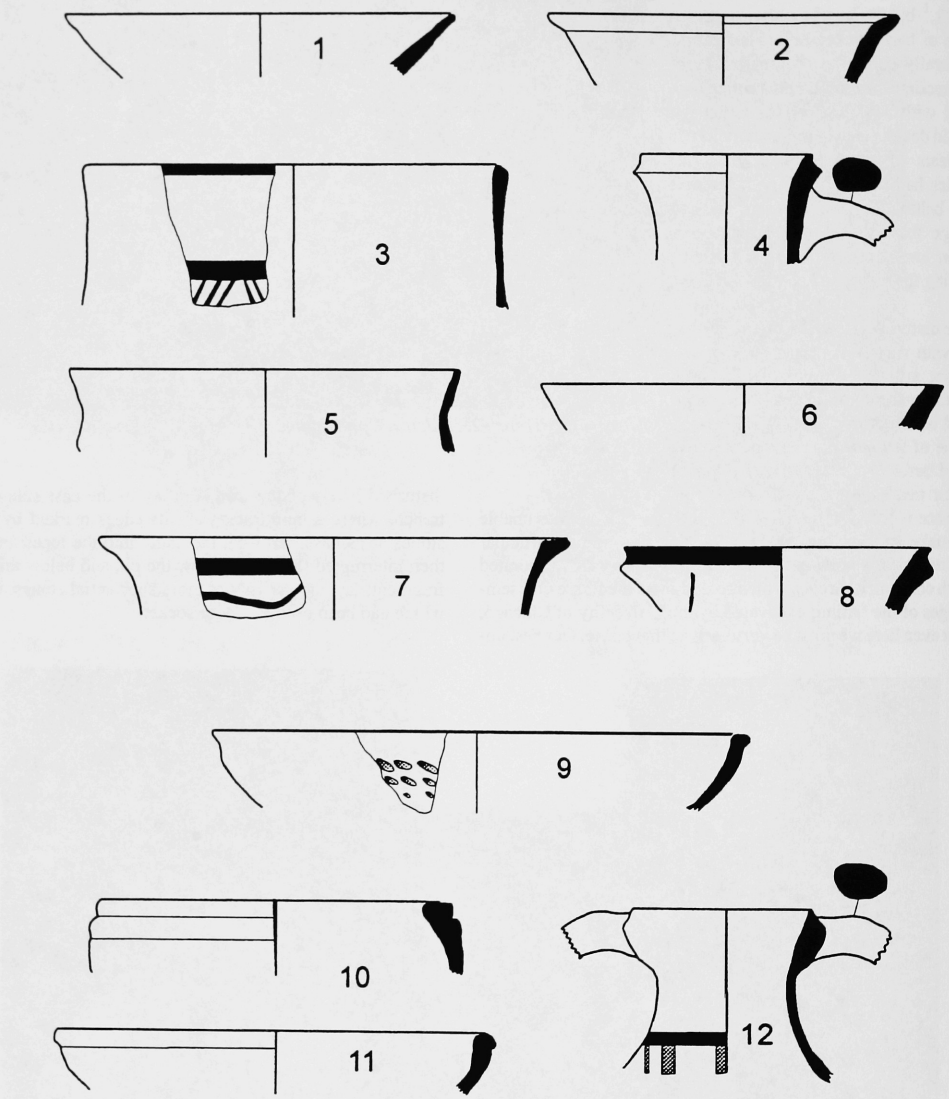


Figure 25: Pottery from Trenches 2 and 3. Scale 1:4.

We could detect no evolution in ceramics in these meager undisturbed levels, and the poor definition of the strata themselves leads us to consider all of the pottery from them as a group. The wares fall into three broad categories: red-slipped burnished, plain (many sherds of which came from quite large vessels), and painted wares. About ten percent of the sherds were of red-slipped burnished ware, including both open and closed shapes, which varied in color from dark orange, through

Trenches in the Northwest Quadrant

No.	Description	Trench	Level
1	Medium buff ware (7.5YR 8/4), burnished red-brown (10R 4/6) slip	2	3
2	Medium orange-buff ware (5YR 8/4), burnished red (7.5R 3/6) slip	2	3
3	Medium orange (10R 6/6) to buff (7.5YR 7/4) ware, self slip, dark brown (7.5YR 4/2) paint	2	5
4	Medium buff ware (10YR 7/3), self slip	2	4
5	Medium orange ware (5YR 8/4), self slip	2	5
6	Medium greenish-buff ware (2.5Y 8/2), self slip, fugitive black to brown (2.5YR 4/6) paint	2	5
7	Medium orange ware (5YR 7/6), cream slip (10YR 8/3), fugitive black paint	2	5
8	Medium to coarse orange ware (5YR 8/3), burnished orange slip (10R 6/8), incised decoration	2	6
9	Medium orange ware (5YR 6/6), self slip, fingernail impressions	3	3
10	Medium buff ware (10YR 8/4), burnished orange (2.5YR 5/8) slip	3	3
11	Medium buff ware (7.5YR 8/4), burnished red (5R 5/8) slip	3	3
12	Medium buff ware (10YR 8/4), self slip, red (7.5R 5/8) and black paint	3	3

maroon, to brown. This relatively low percentage of red-slipped burnished wares again indicates a date relatively early in Iron II. 'Amuq sites in the eighth century B.C. have a much higher percentage of red-slipped burnished wares (Swift 1958:124-161). Plain wares were considerably more common, and some of these were decorated with finger or fingernail impressions (Fig. 25/9). The third category, painted pottery, made up only seven percent of the total number of sherds and of these, all but a few were monochrome painted. Most decoration consisted of horizontal painted bands, although rare examples showed wavy lines or other non-linear patterns. Some sherds had hatching painted on the rim, a motif characteristic of the Late Bronze and Early Iron Ages in the Levant. The roughly ten percent of the painted sherds that were not monochrome, were red and black bichrome (Fig. 25/12), a style which, together with the red-slipped burnished ware, is typically Iron II in date.

We were in a much better position with regard to stratigraphy in our second trench. It was the only one of our soundings which was undisturbed by later pitting, and the one with by far the best preserved architectural features (see Fig. 30). Here, too, the uppermost layer was Hellenistic. Immediately below the half meter of surface soil which had been disturbed by cultivation, the trench was cut by a stone wall foundation, one stone deep, of the type where the outside faces are made of heavier stones than the interior (Fig. 22). Associated with this was a hard-packed layer of clay and scattered pebbles upon which sherds were much more abundant than they were either above or below. This layer sealed the entire trench—everything in it and above it was Hellenistic, while all the pottery below belonged to the Iron Age.

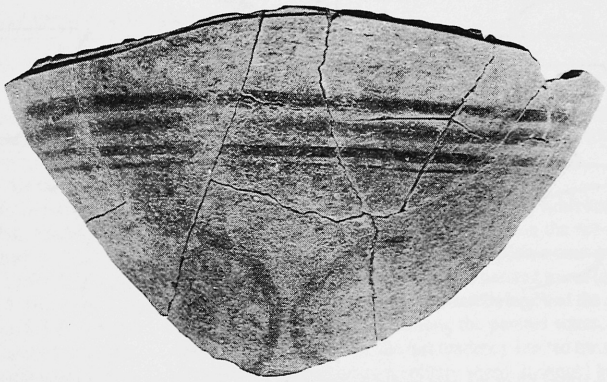


Figure 26: "Krater" sherd from Trench 2, Level 4. ¼ scale.

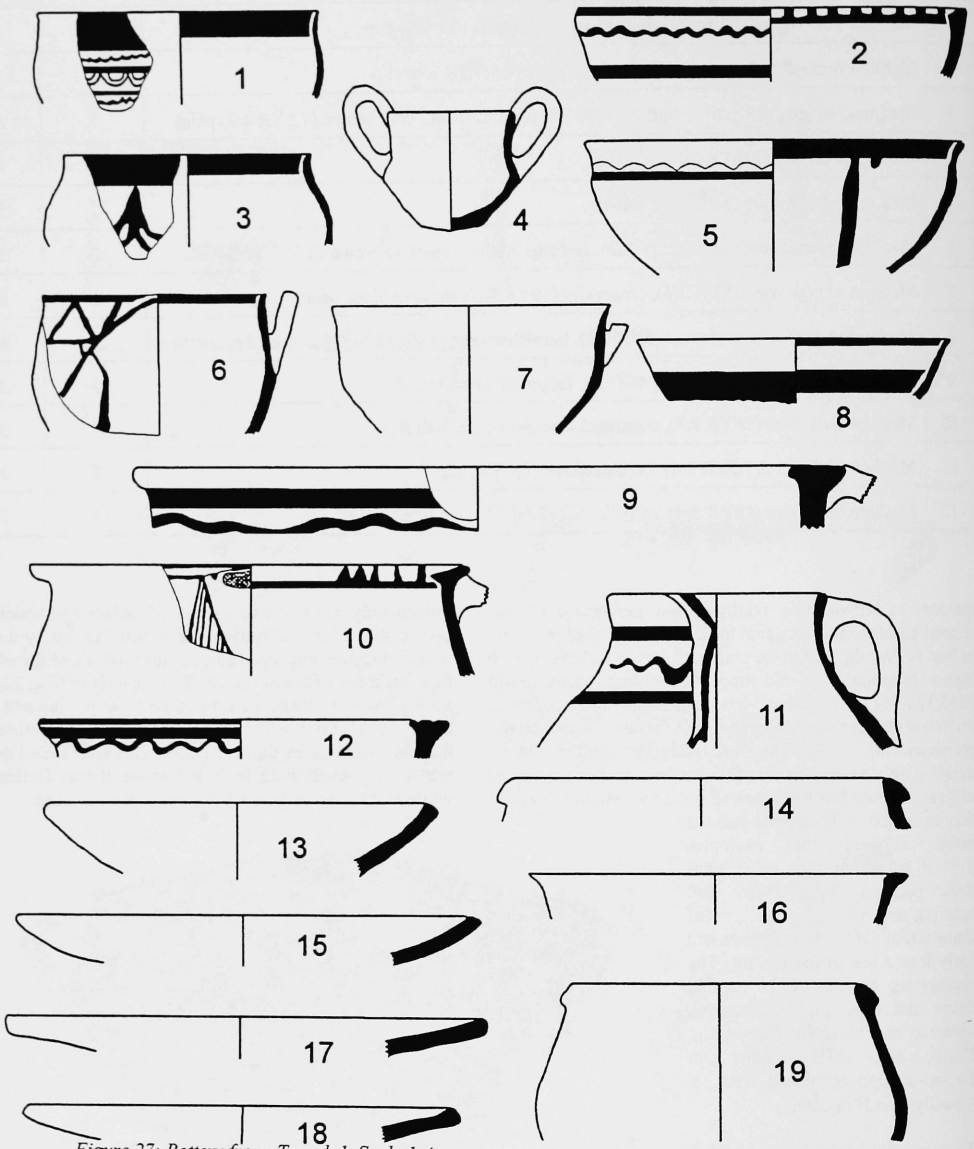


Figure 27: Pottery from Trench 1. Scale 1:4.

In the softer fill of the next levels, Levels 2 and 3, the decayed remains of a mud-brick wall cutting the northwest corner of the trench was very much in evidence. This wall, like ones found in Levels 4 and 5, had no stone foundations and its state of preservation was such that we found it impossible to articulate the face or measure the size of the bricks: one was aware of its existence largely through color differences in the soil.

The pottery of Levels 2 and 3 was essentially the same as that found in the bottommost levels of Trench 3. It was also indis-

Trenches in the Northwest Quadrant

No.	Description	Level
1	Fine greenish-buff ware (2.5Y 8/2), self slip, black paint	2
2	Medium buff ware (10YR 8/3), self slip, brown paint (5YR 4/3)	1
3	Fine buff ware (10YR 8/3), self slip, brown (5YR 5/6) to black paint	2
4	Coarse grey-brown ware (5YR 4/1), inclusions, roughly smoothed	6
5	Medium buff ware (10YR 8/3), self slip on interior, cream slip (2.5Y 8/2) on exterior, yellow-brown paint (7.5YR 6/6) on exterior, red-brown paint (2.5YR 5/6) on interior	4
6	Medium buff ware (10YR 8/2), self slip, black paint	2
7	Medium orange-buff ware (7.5YR 6/6), grey core (7.5YR N4/-), self slip	2
8	Medium to fine buff ware (10YR 8/2), self slip, brown paint (2.5YR 4/2 to 2.5YR 5/6)	4
9	Medium orange ware (5YR 7/6), grey core (7.5YR N4/-), self slip, orange paint (2.5YR 5/8)	4
10	Medium buff ware (10YR 8/3), self slip, brown paint (5YR 4/6)	4
11	Medium orange ware (5YR 6/6), self slip, orange-brown paint (10R 4/8)	4
12	Medium grey-buff ware (10YR 7/2), self slip, black paint	5
13	Medium orange ware (2.5YR 5/6), grey core (2.5YR N3/-), roughly smothed	6
14	Coarse orange-brown ware (5YR 4/6), grey core (7.5YR N3/-), heavy shell temper, self slip	6
15	Medium orange-buff ware (5YR 6/4), roughly smoothed	6
16	Medium grey ware (7.5YR N3/-), horizontal burnishing on interior and exterior	6
17	Medium orange-buff ware (5YR 6/4), roughly smoothed	4
18	Coarse brown ware (7.5YR 5/4), grey core (7.5YR N4/-), large inclusions, roughly smoothed	6
19	Medium orange ware (2.5YR 6/6), grey core (2.5YR N3/-), roughly smoothed	5

tinguishable from that of Level 4, in which the fill consisted of a series of cobble floors (Fig. 23) and ash layers running below the base of the western wall and rising toward an earlier wall, founded in Level 5, which turned a corner in the center of the trench (Fig 24). The three basic wares—red-slipped burnished, plain (with and without fingernail and finger impressions), and painted (including bichrome), were all found here. A large section of an asymmetrical bichrome "Krater" found in Level 4 (Fig. 26) merits special reference. Although it was broken in antiquity, all the sherds that we recovered joined, and more of it presumably lies on this surface outside the area of our excavations. In Level 5 the base of an oven was discovered on a stone platform at the west end of the trench (Fig. 24). The more or less clean, crumbly brown fill below the ashes associated with this were designated Level 6, the lowest level reached in this trench. Several stone foundations for mud-brick walls were found in Level 6, most of which were fragmentary with the exception of one quite well preserved example which ran northeast-southwest across the middle of the trench.

The Iron Age pottery of these soundings exhibited three trends: the deeper we went, the less common the red-slipped burnished wares (e.g. Fig. 25/1, 2) and plain wares with impressions; the higher the percentage of painted wares (e.g. Fig. 25/3, 7, 8) and plain wares with collared rims; and the smaller the proportion of bichrome among the painted wares. By the time we reached Level 6, the last tendency limited the number of bichrome exemplars to a solitary sherd. It should be noted that nowhere in this trench was any Protogeometric pottery discovered, nor was shell-tempered ware significantly present, so the whole range probably dates to the earliest part of 'Amuq O, or Iron II. We were not, on this occasion, able to explore the

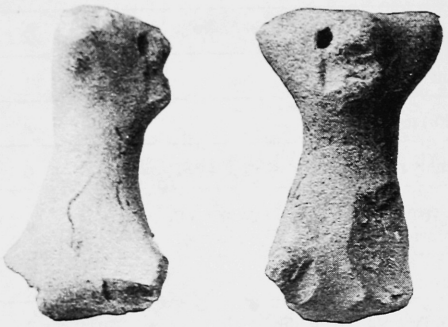


Figure 28: LT82-26, animal figurine from Trench 1, Level 6. Actual size

architecture in any detail, but generally walls were poorly constructed, less than one meter wide, and did not consistently have stone foundations. To all appearances we are dealing with a relatively impoverished domestic area, but the sounding was too limited to say much more than that. Virtually no objects besides pottery were found.

In Trench 1 earlier levels were reached. This area, however, was badly chewed up by later pitting, and access to occupational levels was to a certain extent impeded by erosional debris washed down from higher parts of the mound (Fig. 31). The uppermost level consisted of more than a meter of unstratified, featureless soil in which a mixture of Iron Age and Hellenistic pottery was found. At the east end of the trench there was a large and deep depression filled with the same kind of soil in which Hellenistic sherds and iron artifacts appeared at quite low absolute levels. On the other hand, no architectural remains were found which would permit us to speak of a Hellenistic occupation in this sector.

The earliest well-defined living strata, in Level 2, belonged to the Iron I phase, and appeared to be earlier than the earliest levels of Trench 2. The pottery was characterized by black on buff painted ceramics and open vessels with horizontal loop handles (Fig. 27/1-3, 6, 7). There were several pits cut into these levels, but the pottery found in them was undistinguishable from that found around them, so the pits cannot have been very distant in time from the occupation. Several sherds of the "Granary Style" which were either imports or inspired by Aegean models, serve to date one of the pits to the later Helladic IIIC period (Fig. 27/1; Fig. 29). Cooking wares both in and out of the pits were tempered with ground shell, which was rare in the other soundings.

Levels 3 and 4 were each composed of a series of thin surfaces on a base of compacted sherds and rocks, but offered little in the way of definable architecture. The few fragments of mud-brick that were identified were too cut by later pitting and too poorly preserved to be traced into meaningful patterns. As we went down through these levels, changes in the range of colors of ware and paint suggested some stylistic evolution in pottery. Although Level 3 contained the same black-on-buff as Level 2, there was an increased amount of brown-on-buff and red-on-orange ware. In Level 4, among the painted wares there tended to be a still larger proportion of red-on-orange, the designs tended to be more complex, and there was a higher percentage of large-vessel sherds (e.g. Fig. 29: 5, 9-11).

Level 5 was associated with a poorly preserved wall which cut across the middle of the trench. Pottery tended to be much coarser than in the levels above, buff to orange in color and poorly fired with grey cores. When painted decoration was present, which was not often, it usually consisted of cross-hatched designs in fugitive red to maroon paint. Most common were simple, undecorated bowls (e.g. Fig. 29: 17, 18), but some fine burnished pieces were also found, including evenly fired, fine-tempered grey ware with clearly visible short burnishing strokes.

In Level 6, which we were able to reach in only the western-most two meters of the sounding due to time limitations, we again found a ceramic inventory characterized primarily by simple bowls (e.g. Fig. 27/13, 15), in this case associated with layers of almost pure ash, presumably from an oven that lay to the west of our baulk. We are unable to associate the pottery from Levels 5 and 6 with any other published material, but feel that it cannot be far removed in time from the pottery of Level

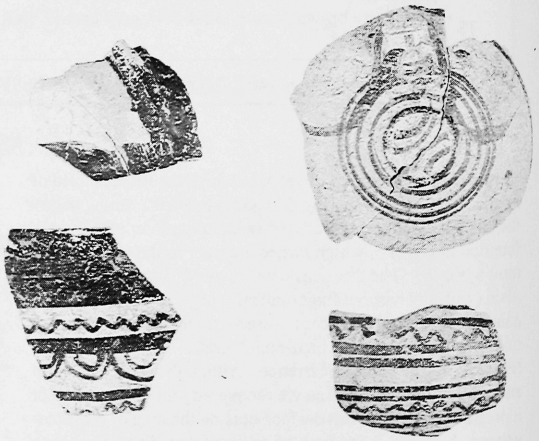


Figure 29: Granary style sherds . Trench 1, Level 2, pit. ¾ scale.

4, because there is continuity in the shell-tempered cooking ware (e.g. Fig. 27/14). This shell tempering, characteristic of Iron I, but probably originating somewhat earlier, is too much of an anomaly to have been introduced independently at widely separated times. A few specific finds in this level deserve mention. The first is a nearly complete carinated cup with a high strap handle (Fig. 27/4). It is broken at precisely the place where a second handle would have been if it were originally bilaterally symmetrical, and the break may indeed reflect the loss of that handle. If so, the complete vessel had a distinctly Anatolian form. Secondly, it was in the ashes of Level 6 that we found the only figurine in these soundings (Fig. 28), albeit not one of artistic distinction or value for dating.

The lowest point we reached in our soundings, 209.60 meters above sea level, was still a few meters above the contemporary surrounding plain to say nothing of virgin soil. That we were already into a pre-Iron Age context at that elevation was not unexpected, given the evidence of survey data indicating that the lower mound at 'Ain Dara was already fairly substantial before the end of the Bronze Age. Overall, the three soundings revealed a sequence of Iron Age pottery that evolved stylistically over an extended period of time, but terminated before the introduction of decorations that are datable to the mid ninth century.[2]

Our soundings in this area were aimed at revealing the stratigraphic sequence as efficiently as possible and were not extensive enough to allow us to say anything very significant about the material culture of 'Ain Dara's Iron Age inhabitants. Artifacts other than pottery were largely limited to grinding stones and small pieces of obsidian, which it would be pointless to discuss in the absence of a more fully explored context. The small size and simplicity of the walls we encountered, the presence of modest ovens, the ubiquity of animal bones, and the frequency of pitting all suggest an area of private houses rather than public structures.

2. For terminology and dating of the relevant Cypriot ceramics, we follow Gjerstad (1960).

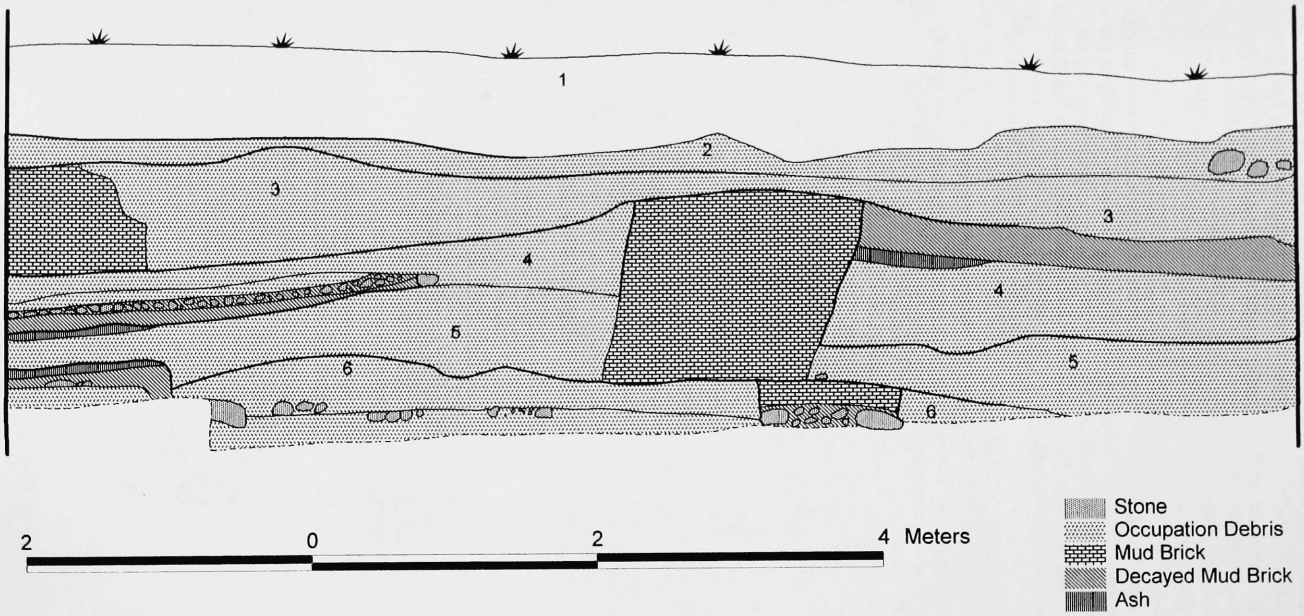


Figure 30: Section through Trench 2, from south-southwest.

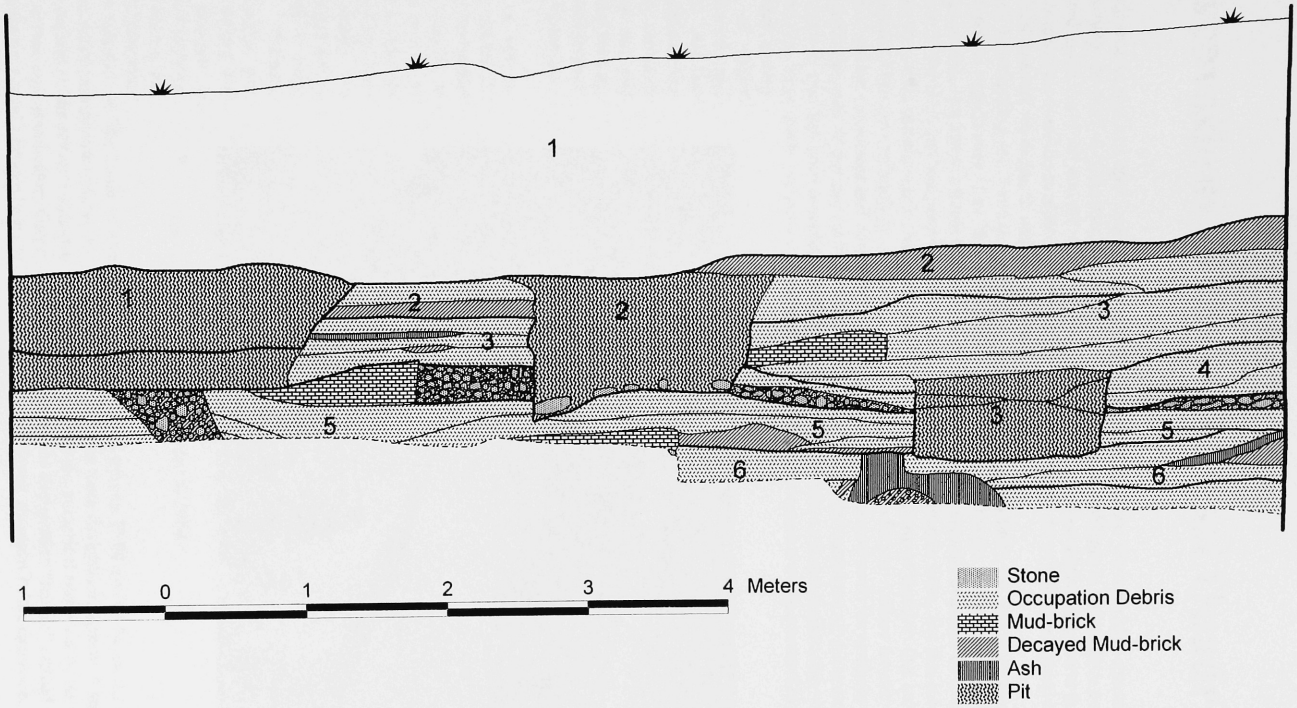


Figure 31: Section through Trench 1, from north-northeast.

Chapter 5

Excavations in the Northeast Quadrant

The work of our first season, reported upon in the previous two chapters, was essentially devoted to understanding what periods were represented in the lower tell and the extent to which Iron Age and earlier materials could be expediently excavated. In the 1983 and 1984 seasons we began to address the more general problem of investigating the Bronze-Age/Iron-Age transition. The theoretical significance of an "iron" age is that metal technology penetrates to a lower stratum of society than when the basic material for tools and weapons is bronze. One expects to see important social and economic changes coinciding with the emergence of this new technology, as the monopoly on power held by palace economies and entrenched elites dissipates. In the particular case of the ancient Near East, the transition from bronze to iron has been associated with such phenomena as drought, large scale population movements, disruption of normal trading routes, collapse of major Bronze Age civilizations, and ethnic realignment. 'Ain Dara was densely settled during the turbulent early centuries of this transitional era, and offers great potential for contributing to our understanding of its cultural dynamics.

The next phase of our research, therefore, called for somewhat broader horizontal exposures. We wanted to place the trenches in such as way as to reveal a long sequence of domestic architecture in which, ideally, we could observe changes in tool types on the basis of lithic and metallic artifacts, changes in subsistence patterns on the basis of floral and faunal remains, changes in trading patterns and regional integration on the basis of exotic goods, and perhaps even changes in social structure on the basis of changing house plans. There was an additional incentive for seeking out houses rather than public buildings: the artifacts found in them might be more sensitive chronological indicators than those found in public buildings since the period a private house remains in use is generally short. We were also concerned that the study of domestic assemblages in the northern part of the Iron Age Levant has been so neglected in general that more excavation is needed even to frame intelligent questions.

The best opportunity for satisfying these desiderata was offered by a knoll in the northeast quadrant of the lower tell. Not only were the greatest densities of Iron I and Iron II sherds found on the surface there, but this location was also distinguished by a group of boulders that belonged to the only demonstrably pre-Roman surface feature on the lower tell. We located our excavations on the southern edge of this feature in order to uncover something of the structure it represented, although this was a minor consideration relative to our interest in the domestic remains which surrounded it. The ten-by-tens occupied squares F' 84 and G' 84 on the contour map (see Fig. 17), and were designated Squares 4 and 5 respectively, continuing the numerical sequence of our earlier soundings, but using the designation "square" instead of "trench" to indicate the different character of the exposure.

Figure 32: Excavations in Square 4, 1984.

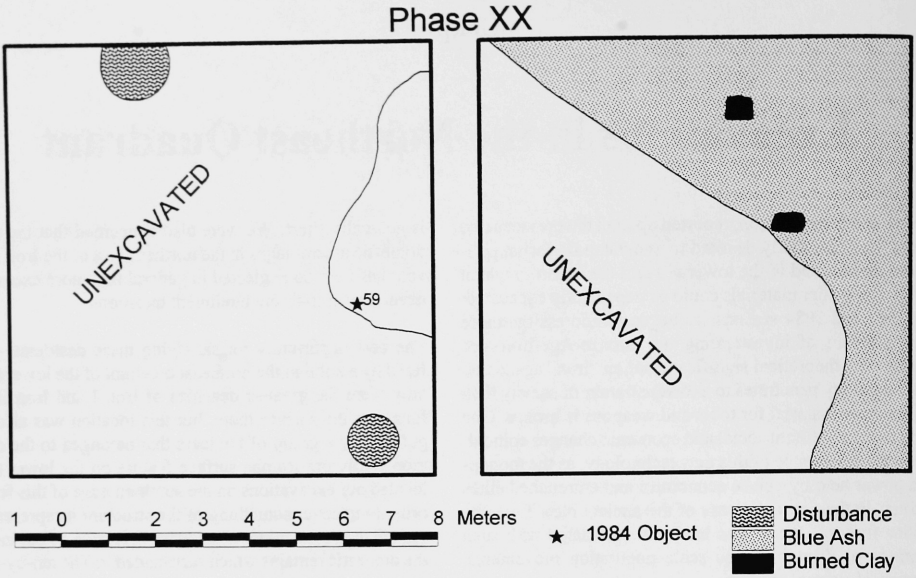


Figure 33: Squares 4 (left) and 5 (right), Phase XX. North at top.

In the 1983 and 1984 seasons we employed essentially the same excavation techniques as we had previously. Local workmen were hired to assist in the removal of dirt, while most of the fine pickwork and all of the recording was done by the expedition staff. We excavated by natural levels and architecturally determined loci. In our recording system, the term "locus" refers to a horizontally defined area that was excavated as a unit, usually corresponding to a room or courtyard, but sometimes with artificially specified boundaries, as in the case where a courtyard would be excavated in two parts, for example. Each square had an independent system of locus numbers, i.e. Square 5, Locus 27 and Square 4, Locus 27 are different and unrelated units. The same system of numbers carried through over through both field seasons. In contrast to the way the term is used in the description of the soundings in the previous chapter, "Levels" here were horizontal units within a locus, and independently numbered in each locus, so similar level numbers in different loci are not to be equated in any way. All macrofaunal remains were collected and samples were taken for flotation in both seasons. In 1983 only hand flotation was used, but in 1984 a "SMAP" flotation machine, designed according to Watson's specifications (Watson 1976:88-89, 94) with minor modifications, increased the efficiency of recovery. The contents of virtually every pit and living surface were floated and all seed remains were taken to Boston University for identification.

The occupational debris we excavated in this area consisted of thin strata covering only parts of each square, poorly preserved stone and mud brick architecture that was frequently repaired, modified, and reused, and pits of irregular size and depth. Since major breaks were scarcely evident in the sequence, we have chosen to organize our discussion in microphases defined by relatively minor, but sequentially distinguishable, changes in building and deposition. Twenty such phases, numbered from the top down, covered a period of approximately four hundred years, which would give an average duration of twenty years per phase were the phases of equal length, which they clearly are not. In the following discussion, plans of the two squares oriented with north at the top, are presented for each of theses phases. The features and findspots of smallfinds are indicated, with locus numbers written in large type and object numbers in smaller type.To avoid unnecessarily clutter in designation of findspots in the plans, object numbers are written without their LT 83- and LT84- prefixes. The full field numbers are, however, recorded in the object catalog published as an appendix to this report. In order to distinguish the two series on these plans, the stars in outline mark findspots of 1983 objects, and solid stars those of 1984 objects. We will discuss these in chronological order, beginning with the earliest, phase and moving toward the surface. The stratigraphy was complicated by the presence of sloping levels, especially in Square 5. Here deposits dropped dramatically from north to south and to a lesser extent from east to west

Phase XX

Phase XX (Fig. 33) was characterized by a series of layers of ashy material mixed with burnt clay unassociated with any structures (Fig. 34). This material was exposed on the north

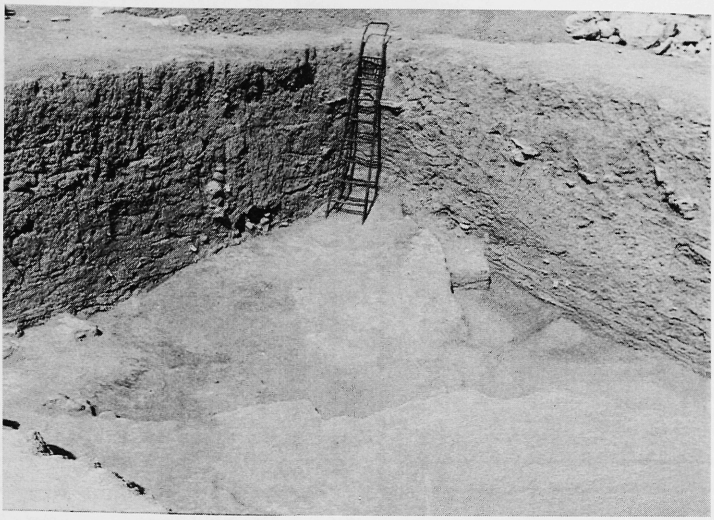


Figure 34: Square 5 at end of excavation, Phase XX blue-grey ash visible beneath the ladder, from southwest.

and west sides of Square 5, where its absolute elevation is highest, and on the west side of Square 4, where our sounding was deepest. Its presence at a still lower absolute elevation could be observed from the "window" provided by the pit in the southeast corner of Square 4. Thus it is presumed to run across all of Square 5 and at least half of 4, sloping sharply downward as one moves from north to south, and somewhat more gently downward from east to west. The ash is generally of a peculiar blue-grey color, and very gritty due to the presence of numerous tiny glass globules. The clay tends to be of an over-fired greenish color, but different layers include more red or yellow lumps. Chemical analyses of some of the larger pieces of this material indicates an abnormally high concentration of copper and zinc, and it may be that these are byproducts of copper smelting.The relatively low levels of iron oxide found in these samples make clear that this cannot be a slag heap; rather we appear to be dealing with highly fired clay, some of which was impregnated with copper and zinc, which had been broken up and discarded together with the ash. Several tiny droplets of metal were found in a flotation sample taken from this ash.

Within the part of this ashy material that has been excavated there were two burned clay features of uncertain significance. They were found at the very end of the 1984 season and never fully exposed or studied. The most completely investigated was roughly rectangular, with a flat upper surface measuring approximately forty by sixty centimeters and the clay below fired to a depth of five to ten centimeters. The surface of the second feature was only just emerging at the close of excavations. Both installations appear to be solid clay platforms upon which a fire was built, and, given the nature of the debris around them, our assumption is that this had something to do with metallurgy. The specific type activity involved here is of some interest, but further excavation would be necessary to clarify what it was. The ceramics of this phase clearly date it to Iron I, a period in which the basic metal technology of the region was presumably in the process of shifting from bronze to iron, and any information on metallurgical practices is valuable for testing various theories about the causes and consequences of the transition. The highly distinctive ashy material appears to be widely spread through the excavated area and can serve as a marking line to re-orient stratigraphy should excavations be resumed here.

The organic materials recovered by flotation of the ash included a small number of charred seeds, mostly wheat and barley. Given the low level of phosphorous in the samples, these seeds themselves offer no support for the thesis that dung was one of the fuels used in this activity. The only object of interest found in this phase was a small, polished greenstone celt, LT 84-59 (Fig. 90/4).

Phase XIX

Phase XIX (Fig. 35) saw the construction of a major building in the northern half of Square 5 and a wall running northeast-southwest part way across Square 4, defining the west edge of a large, dish-shaped courtyard. The building had a substantial stone foundation that was placed immediately on top of the

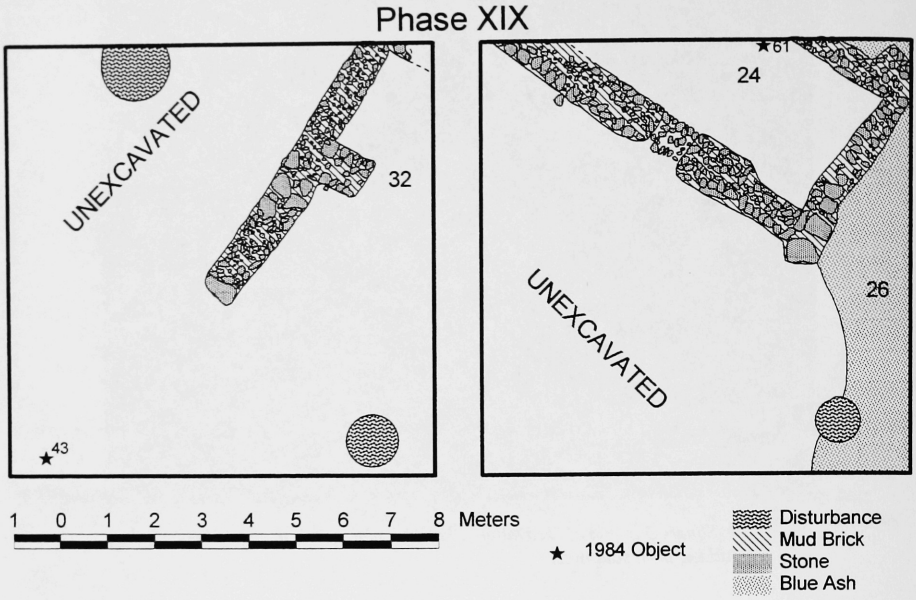


Figure 35: Squares 4 (left) and 5 (right), Phase XIX. North at top.

ashy layers of Phase XX at a point from which they drop sharply down as one moves to the south (Fig 36). In the center of the southern wall of this building the stone foundation steps fifty centimeters downward for a distance of about one meter. This appears to have been a doorway which was blocked in later levels; any steps that might have provided access from the lower courtyard into the broad room, Locus 24, were not preserved.

This building lasted for a considerable time, albeit in a very eroded state. There appear to have been some attempts at repair;

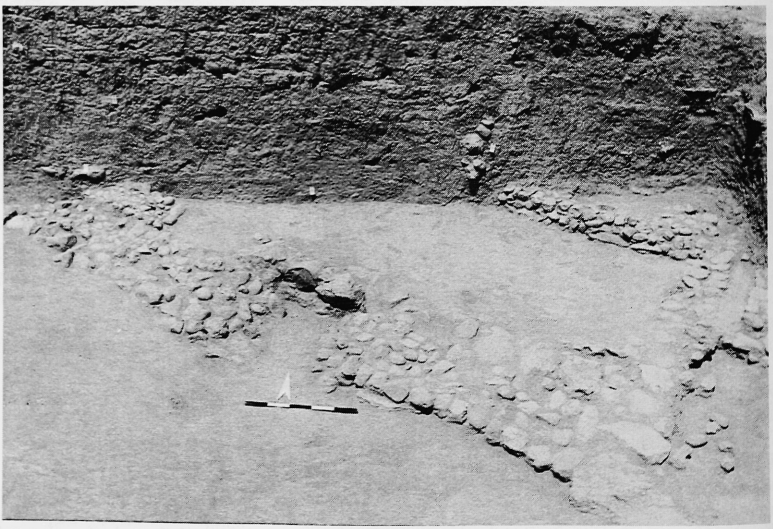


Figure 36: Square 5, Phase XIX, from south.

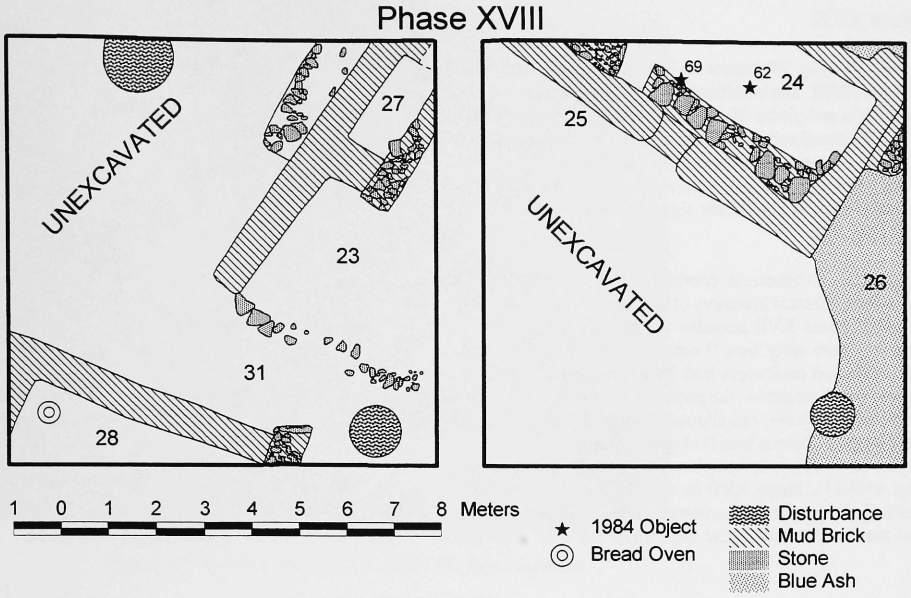


Figure 37: Squares 4 (left) and 5 (right), Phase XVIII. North at top.

its mud-brick walls are preserved to over a meter in height and must have been a feature of the landscape until Phase XIV. Its position on the high ground in Square 5 increased the elevation differences in this area, creating a slope so steep that it was not until Phase V, when erosion had filled in the depression, that any other major construction was again attempted here.

The ceramics from Phase XIX suggest a transitional Iron I-Iron II date. Although the cooking wares were still predominantly shell-tempered—a hallmark of Iron I pottery—and there was much typical Iron I monochrome painted decoration, there were also a few bichrome and red-slipped burnished sherds, which are generally regarded as characteristic of Iron II. The sole smallfind from this phase was a well-preserved iron projectile point, LT 84-43 (Fig. 97/4).

Phase XVIII

In Phase XVIII (Fig. 38) the structures founded in Phase XIX were revamped and a new building was constructed in the southwestern corner of Square 4. Most of the walls of the building in Square 5 were reinforced and thickened with mud bricks placed on stones which exhibited stress fractures as a result of burning. As noted above, the recessed area in the original foundation was now filled in. Since the floors of Phase XVIII do not show significant traces of burning, and since no ash was associated with the foundations, one must conclude that the stones had been burned prior to being used for construction. Within the reconstructed building were fragments of both iron (LT84-62, Fig. 97/3) and copper/bronze (LT84-69, Fig. 95/1) objects.

In Square 4, a small room, Locus 27, was added to the inside of the courtyard occupying the southern part of Square 5, and a small area paved with cobblestones was found across the wall to the northwest of it (Fig. 37). There was also a linear scattering of stones between the end of the courtyard wall and the baulk between the two squares, hinting that there may have been another, slightly larger enclosure to the south. Locus 27 yielded a knob of a kohl box, LT 84-57, the roughly square face of which was divided into a waffle pattern of twelve rectangles by a deep grid of tapering incisions (Fig. 87/2).

Although much of the northwestern portion of Square 4 was not excavated to the level of this phase, it appears to have formed a second courtyard. South of this was a new building, of which only one room (Locus 28), dominated by a sizable tanour, lay within the square.

The ceramics from this phase continued to be mixed. As in Phase XIX, they included what are supposed to be typical Iron I types, namely shell-tempered cookwares and monochrome vessels with shapes and designs reminiscent of Late Helladic IIIC vessels, together with standard Iron II types: red-slipped burnished ware bowls, red-and-black bichrome designs.

Phase XVII

Phase XVII (Fig. 39) represents little more than a continuation of Phase XVIII. The building in Square 5 was again shored up, but the bits and pieces of new walling suggest more the stabilizing of a deteriorating structure than major renovation. Occupation of the newer construction in Square 4 also continued. Locus 27 in Square 4 was apparently destroyed by fire in that the room showed significant signs of burning and brick collapse (Fig. 40).

Despite the architectural continuity from Phases XVIII to XVII, the artifactual inventory of the latter phase is perceptibly different. Phase XVII contains the earliest manifestation of relatively pure early Iron II ceramics and objects. Although shell-tempered cookwares and Iron I painted ceramics continue in small quantities, the pottery is now dominated by grit-tempered cookwares, red-slipped burnished wares and monochrome and bichrome Iron II sherds, including the earliest examples of a rare, quite complex form of bichrome decoration (Fig. 81/8-11). Phase XVII is the earliest of our phases in which Cypro-geometric wares were found, and this would suggest that it dates no earlier than 1050 B.C.[1] In addition, a

Figure 38: Square 4, Phase XVIIII, from north.

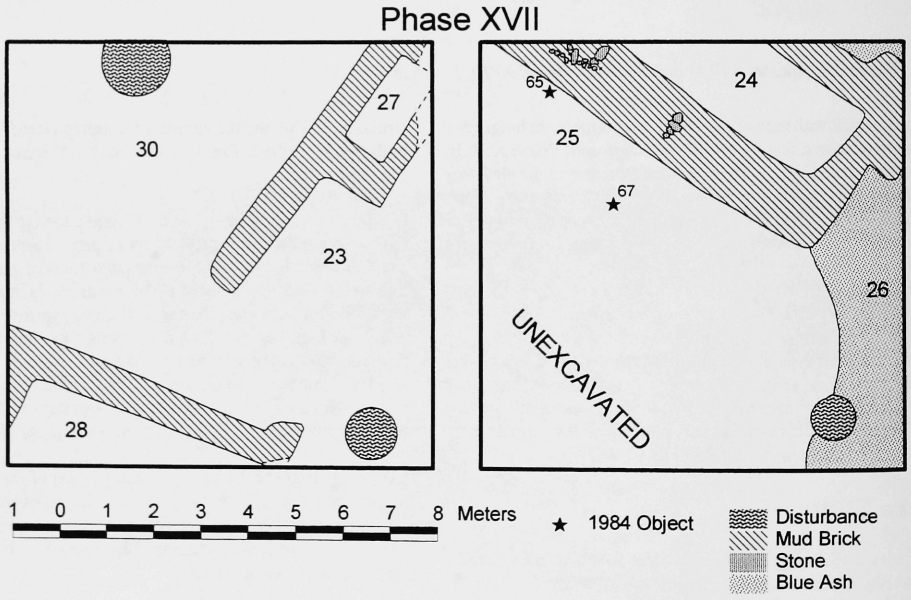


Figure 39: Squares 4 (left) and 5 (right), Phase XVII. North at top.

1. 'Ain Dara has not, as yet, produced any evidence of immediate importance in the various debates over the absolute chronology of ceramic changes in the Levant and Cyprus. As a convention, the year dates we used follow the assessments of Birmingham (1963), which accept the Swedish Cyprus Expedition's supposition that the Cypro-geometric Period began around 1050 B.C. (p. 39), but push back the first appearance of red on black wares from 850 to 1000 (pp. 38-39). Her conclusions on relative chronology accord well with the findings at 'Ain Dara.

Figure 40: Square 4, Phase XVII, Locus 27, from southeast.

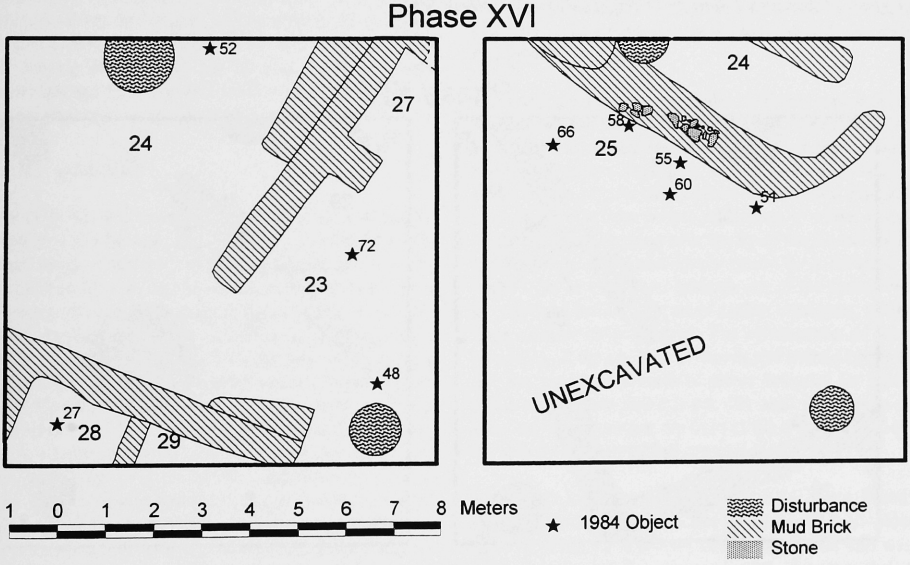


Figure 41: Squares 4 (left) and 5 (right), Phase XVI.

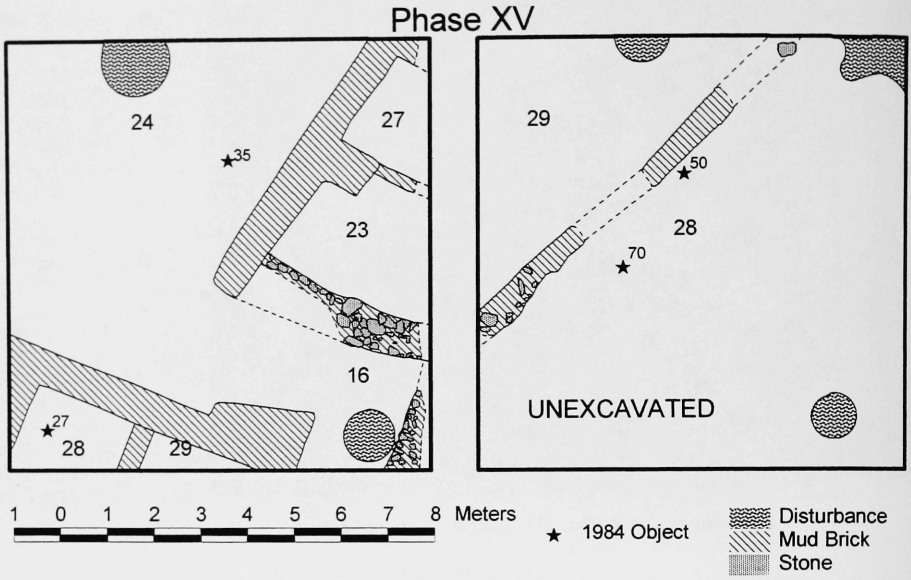


Figure 42: Squares 4 (left) and 5 (right), Phase XV. North at top.

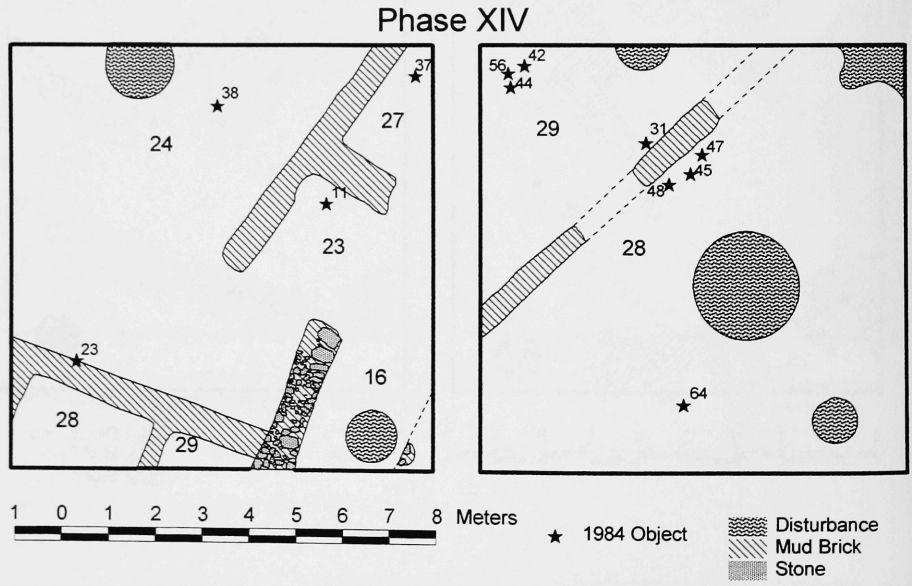


Figure 43: Squares 4 (left) and 5 (right), Phase XIV. North at top.

number of categories of domestic objects which dominate the inventory in the later levels are represented for the first time in this phase. These include bone spatulas (LT84-65, Fig. 89/1), spindle whorls made of broken sherds and solid clay cylinders with rounded ends.[2]

Phase XVI

The building represented by Locus 24 in the north of Square 5 must have been in ruins by Phase XVI (Fig.41). At this level the remaining mud-brick is badly weathered, and the area to the south is no more than a deep depression filled with erosional debris. The soil there fractures in such a way as to indicate that it had been deposited in standing water. In Square 4, Locus 27 had collapsed and some time passed before reconstruction, so only the Locus 28 building shows signs of active occupation. There, a subdividing wall was built, creating two small rooms, but so little remains in the area excavated that the uses to which these were put cannot be determined. The large expanse in the northwest of Square 4, assumed to have been a courtyard, was filled with ashy materials, among which were found seeds of cereals, grapes, and weeds.

The ceramics and artifacts differ little from those of Phase XVII, except that glass (LT84-60, Fig. 94/2) and frit (LT84-52, Fig. 94/1) beads, and stone (LT84-58, Fig. 91/2) and clay (LT84-55, Fig. 91/1) conical spindle whorls are now added to the inventory. Sherds and smallfinds, which include worked pieces of iron and copper, are plentiful in the courtyard areas, as one would expect if they were used in part for trash disposal. Among the ceramics are the odd Cypro-geometric pieces and standard Iron II wares, while those types more directly associated with Iron I levels are now quite rare.

Phases XV and XIV

Phase XV (Fig. 42) saw the reconstruction of the areas in the east of Square 4 and the appearance of a new wall in the southeast corner. Most of Square 5 was still a deep depression; the new wall built on its slope has an elevation difference of over a meter between its north and south ends and was not part of a living structure (See Fig. 67 for an indication of the slope). It seems most probable that at this time the area was predominately open and used for trash disposal and/or keeping domestic animals. This would account for the large number of sherds, as well as other objects, mostly fragments of copper and iron. In Square 4, a large number of joining sherds from two Cypro-geometric barrel jars (Fig. 80) were scattered over a broad area. Their thick white slip points to a Cypro-geometric I date.[3] Although most evidence supports the interpretation that this area was open space, the presence of a tanour and a complete bone spatula, LT 84-23 (Fig. 89/4), stuck into a chink between the bricks of a wall, suggest it was not devoid of occupational activity in Phase XIV (Fig. 43).

Phase XIII

Phase XIII (Fig. 44) appears to represent a brief period of abandonment or destruction. There are no substantial walls to be seen, nor were any other featurres created in this period. However, continuity in both material culture and, in many cases, architectural plan from Phases XIV to XII suggests that this abandonment did not last long, and with so small an exposure it is uncertain how extensive it was. It is possible that this phase represents no more than the clearing of this particular portion of the site for rebuilding, although more than one structure was involved.

Phases XII and XI

In these two phases (Figs. 46, 47) the area was rebuilt—in the southern portion of Square 4 along almost the same lines as before, but elsewhere differently. Again the dominant feature of both squares seems to have been a courtyard, but this time a room or alcove (Square 4, Loci 25, 18, 22) was located on its western side. The northern portion of this room (Locus 18), which must have been used for cooking in view of its two tanours (bread ovens), appears always to have been closed off from the courtyard, but in Phase XII the southern portion was not; it was not until Phase XI that a new wall was built restricting access, an action perhaps associated with the roofing of this area.

A second room (Locus 16) in the southeast corner of Square 4 appears to have been used for storage. In the center of that part of it which lay in our trench was a deep pit approximately one meter in diameter. The room, as well as the other rooms in the south of the square, had a series of well-laid plaster floors, varying in color from yellow, to salmon, to white. These floors could be observed going over the lip of the pit and could again be picked up at various levels inside it. A flotation sample taken from an ashy layer beneath one of the floors within the pit yielded a little wheat, more barley, chickpeas, pulses and a large number of grape pips. The combination of the careful plastering of the pit, lack of sherds and animal bones from its fill, and presence of seeds of plants designed for human consumption indicate that this pit was used for storage. A complete bone pin found at the base of the pit, LT 84-15 (Fig. 89/9), was the only smallfind associated with it.

Very different from the pit in Locus 16 is one found in the northern portion of Square 4 in Phase XI. This pit—located in the courtyard, not a room—had uneven sides and was filled with sherds, animal bones, and broken objects such as the top

2. For the 1983 season, we recorded these objects individually as smallfinds. In the 1984 season, taking note of how common they were, we simply added them to sherd typology and therefore did not list them in the object catalog. The total number found by phase is given on p. 76, below.

3. Personal communication, Per Alin.

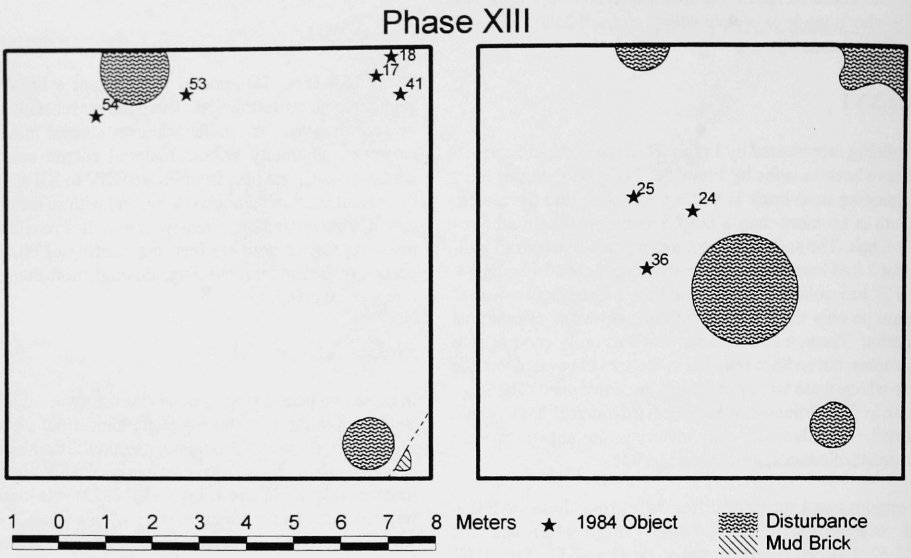


Figure 44: Squares 4 (left) and 5 (right), Phase XIII. North at top.

half of a scarab (LT 84-13, Fig. 84) and part of an iron pin (LT 84-9, Fig. 97/1). A flotation sample taken here yielded much less in the way of seed remains than were found in the pit in locus 16, and included those of weeds as well as crops. There seems no doubt that this pit served for trash disposal.

Square 5 remained too steeply sloped to be a living area, but there may have been an attempt at terracing. The scatter of rocks shown in the plans for Phases XII and XI could well represent a washed out retaining wall (Fig. 45).

The absence of doors preserved in the excavation area is an impediment to the interpretation of the architecture of Phases XII and XI. Although the cooking area and courtyard in Square 4 were clearly part of the same complex, it is impossible to tell from the remains whether the range of rooms to the south represent the north wing of a separate structure or the south wing of the building of the rest of Square 4. It is clear, however, that these southern rooms did belong to the same house. All three exhibit the same series of floors of varying colors associated with Phase XII, and two of the three were paved with stones in Phase XI.

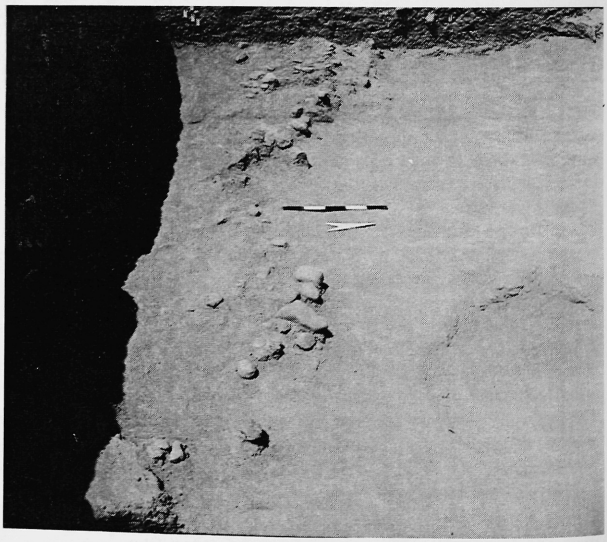


Figure 45: Square 5, Phase XII, from east.

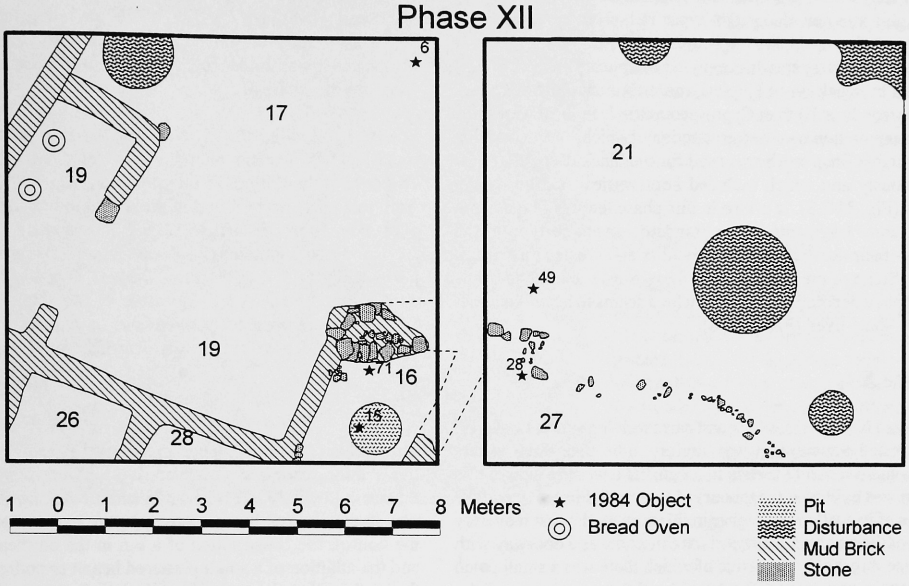


Figure 46: Squares 4 (left) and 5 (right), Phase XII

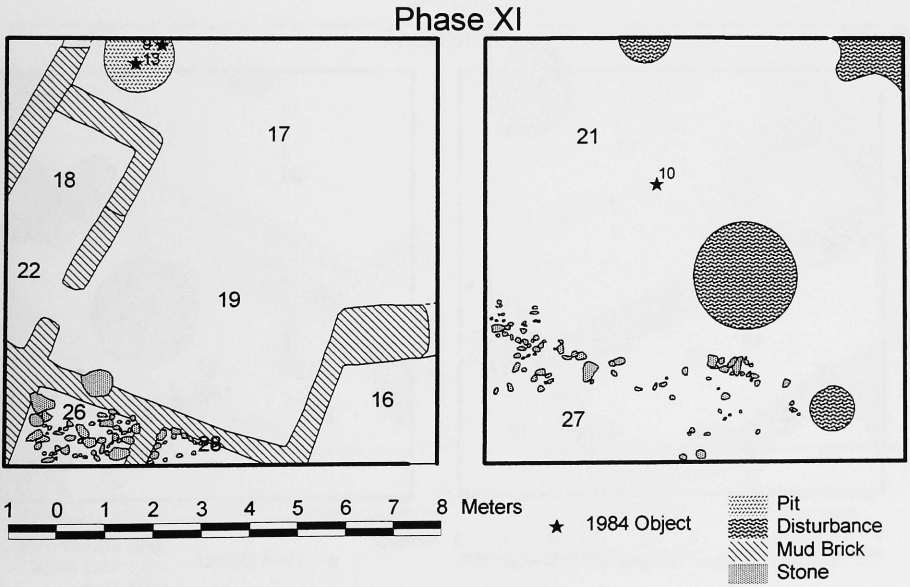


Figure 47: Squares 4 (left) and 5 (right), Phase XI

As noted above, the ceramic inventory is largely unchanged from that which preceded the brief hiatus in settlement, although some new decorative types in both imports and local styles make their first appearance. While black-on-white Cypro-geometric sherds continued to appear, they were now joined by black-on-red juglets, more characteristic of Cypro-geometric II or III than Cypro-geometric I. In local wares, the main innovation was the introduction of a bichrome decoration in which a finer brush was used for the black decoration than previously and which included both vertical and horizontal lines (Fig. 81/2,3). It is also in this phase that we first discovered lamp fragments of the standard Levantine type in the area—their absence earlier is peculiar and presumably fortuitous. Some of the cookwares in these phases exhibited bands of applied decoration, a feature which seems to have been relatively short-lived (Fig. 74/7,8).

Phase X

In Phase X (Fig. 48), a long and narrow living space, Locus 19, dominated Square 4. It was slightly more than three meters wide and over eight meters in length. The western side of this room was built over the tanours of Locus 18, Phase XI, and the bases of its walls were higher in this area. In the east it overlay part of the northern courtyard. At this end was a doorway with a stone threshold, just inside of which there was a small patch of pebble pavement (Fig. 49). The floors in the rest of the house were found to be plastered and quite clean, except near the hearth located against the south wall. Flotation samples from the ashy deposits beside this hearth exhibit the mixture of seeds and weeds characteristic of the burning of dung cakes, plus a few grape pips. Extending to the east from the north wall of this room was evidence of yet another attempt at terracing the slope in Square 5.

Square 5 was still primarily a sloping, eroding courtyard with trash deposits. The bits of architecture found there in Phase X do not lend themselves to interpretation. Most of the objects from this phase were found in the debris in Square 5, and include copper/bronze (LT 84-12, Fig. 95/7 and LT 84-40, Fig. 95/6) and iron fragments (LT 84-29, Fig. 97/2) as well as glass beads (LT 84-19, Fig. 94/11; LT 84-33, Fig. 94/10; and LT 84-34, Fig. 94/9). The living areas in the southern half of Square 4 were apparently swept out on a regular basis and therefore yielded little in the way of artifacts or animal bones.

Phase IX

This phase (Fig. 50) is a continuation of Phase X with relatively minor changes. The later floors in the living room in Square 4, Locus 19, are associated with a blocking of the doorway in the east (perhaps due to a change in the orientation of the house), the construction of a bin in the northeast corner, and the addition of a small plastered bench or podium against the north wall on the west side of the trench. A second wall was constructed along the main northwest-southeast wall. This di-

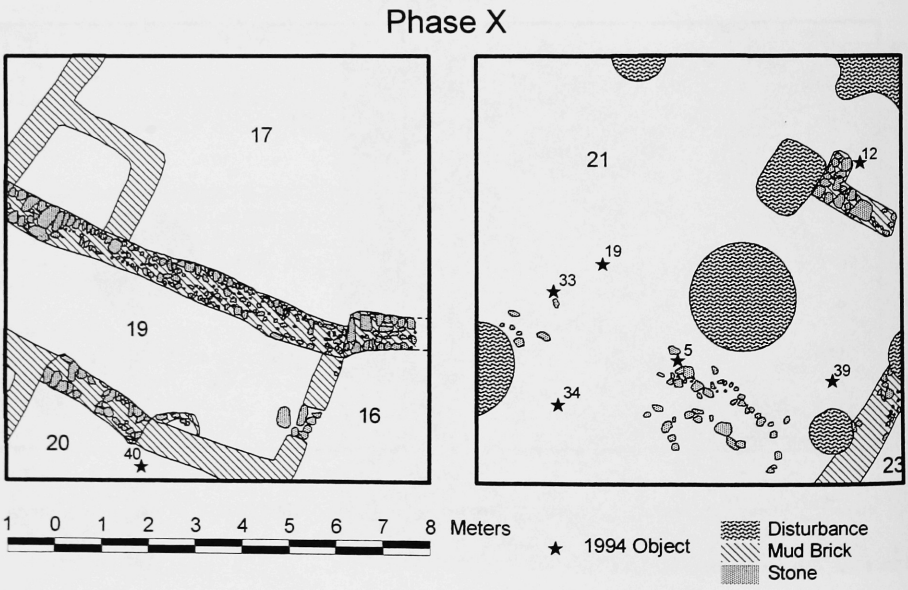


Figure 48: Squares 4 (left) and 5 (right), Phase X. North at top.

Figure 49: Square 4, Phase X, Locus 19, from east.

vision cannot be traced into Square 5, which in this phase is almost featureless apart from an insubstantial line of stones and some traces of walls in the northeast corner. It is possible that a change in entrance of the southern structure left Square 5 as a single open space. Ceramics, animal bones and objects from this phase differ little from the two previous ones, indicating basic continuity in settlement and activities.

Phases VIII and VII

In Phases VIII (Fig. 51) and VII (Fig. 52) the double wall separating Square 4 Loci 19 and 17 continued in use, but the living room—designated Locus 19 in earlier levels—was no longer. Nevertheless, the southern portion of the square with its clean clay floors differed markedly from the area to the north which was characterized by ashy trash deposits. A stone reinforcement added to the southern face of the northwest-southeast wall in Phase VIII of Square 4 suggests that Locus 15 was now exposed to the elements. At the eastern end of this facing the stones formed a small box which contained four sherds pierced for use as

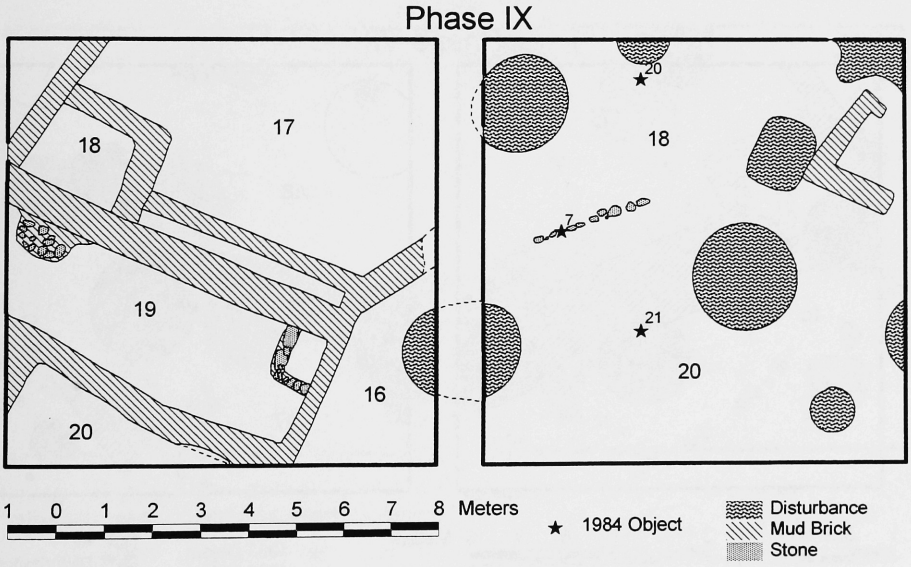


Figure 50: Squares 4 (left) and 5 (right), Phase IX. North at top.

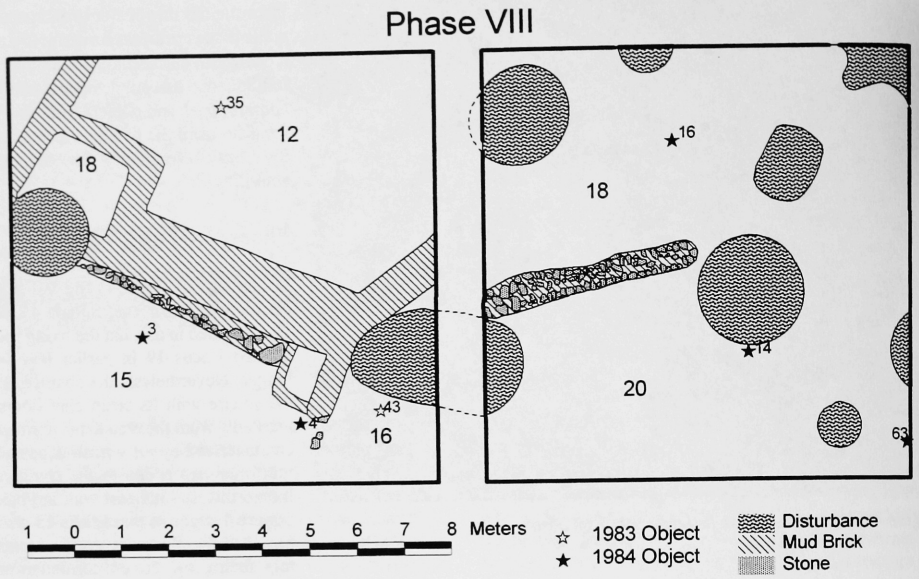


Figure 51: Squares 4 (left) and 5 (right), Phase VIII. North at top.

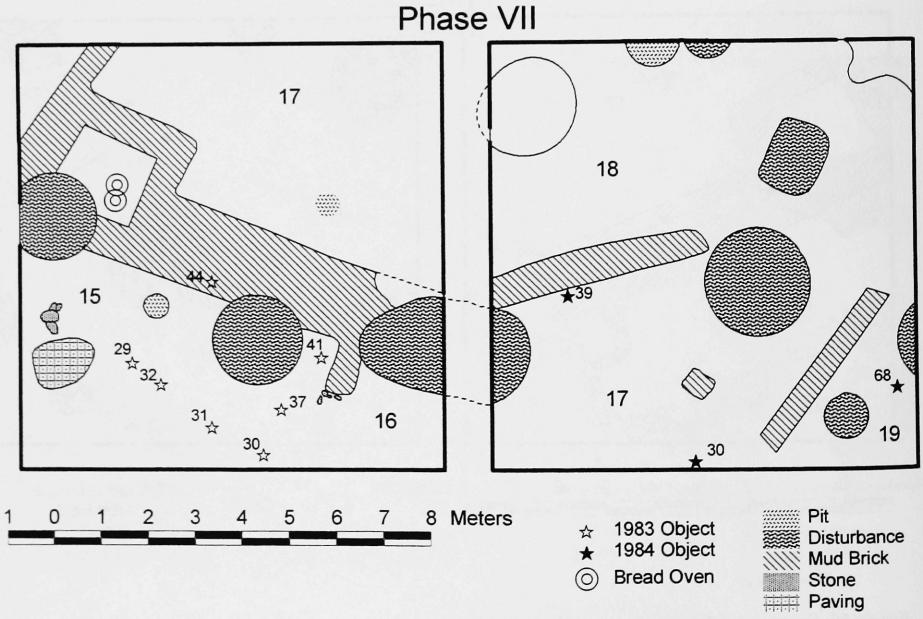


Figure 52: Squares 4 (left) and 5 (right), Phase VII. North at top.

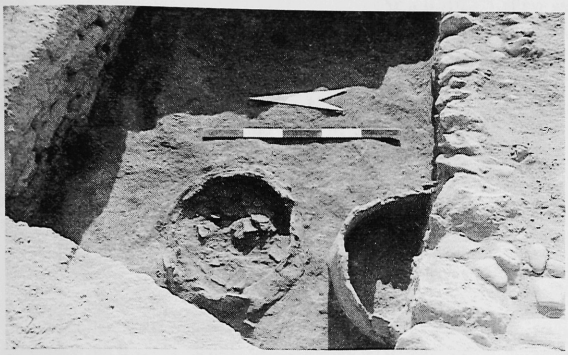


Figure 53: Square 4, tanours in Locus 18, Phase VII.

spindle whorls. The rest of Locus 15 yielded a more finely crafted stone spindle whorl (LT83-41, Fig. 91/7), baked clay cylinders (LT 83-29; LT83-32, Fig. 92/13) and a piece of bone inlay (LT83-37, Fig. 88/8), among other objects. The only well preserved room was Locus 18, which contained two tanours suggesting that it was a kitchen in Phase VII if not also in Phase VIII. These consisted of crude pieces of what were once clay domes which had been fired in place, and it appears that the pair represents the replacement of one tanour by another.

In Square 5 all remains associated with this phase are quite problematic. There are disjointed traces of architecture, but the evidence otherwise indicates that this area continued as an open slope used primarily for trash disposal. Correlations between the two squares are also difficult at this point; all construction seems to vanish in the baulk which separates them.

In general, Phases VIII and VII represent the beginning of a period of transition between early Iron II and later. Objects of common domestic use such as spindle whorls made of pierced sherds and clay cylinders disappear after Phase VII, although conical spindle whorls and bone spatulas continue. Apart from a single sherd in phase VI, black-on-white Cypro-geometric sherds are no more and the Cypriot tradition is represented henceforth by black-on-red juglets, which would suggest a date of around 900 B.C. Otherwise, the ceramic inventory continued with only minor changes.

Phase VI

A pair of large, red-slipped burnished tubs are to be assigned to this phase Fig. 54): one found intact (LT83-21, Fig. 68) in the north portion of Square 5, and pieces of the second vessel from the southern portion of Square 5. Unfortunately, there is little in the way of architectural context which might help in the un-

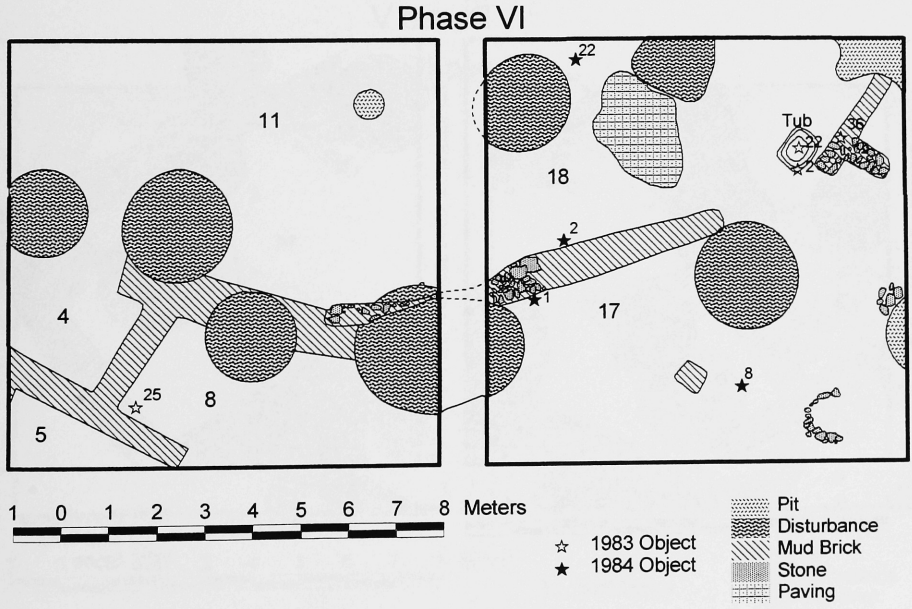


Figure 54: Squares 4 (left) and 5 (right), Phase VI. North at top.

derstanding of the function of these tubs, since the few walls that were found were badly preserved. It is likely that the steep slope that characterized the Square 5 deposits may have aided in the erosion of whatever structures were located in this area. One thing which is clear from the Phase VI remains is that the pyrotechnic activity last observed in Phase XX is again in evidence. Two pits in Square 5, one in the northeast corner and the other south of it on the east baulk, were filled with the combination of blue-grey ashy material and burned clay which covered the area in the earliest levels we reached. Chemical analysis of the ash from the more northerly pit showed that it was generally similar what was found in Phase XX, but contained more copper (see Appendix). This discrepancy notwithstanding, the similarity of the deposits in Phases XX and VI and the presence of occasional fragments in the intervening levels, suggest either that the activity continued in this general part of the city for a considerable period of time or that earlier material was being dug up and redeposited in later phases.

The objects recovered from Phase VI were fairly mundane, but included three more bone spatulas, (LT83-25, Fig. 89/14; LT84-2, Fig. 89/11; and LT84-22, Fig. 89/13) a further indication of continuity.

Phase V

Phase V (Fig. 55) represents the last of the major construction phases preserved. At this time the heavy stone foundations of the courtyard (Locus 14) which was to dominate Square 5 through Phase III were built. In Square 4 it appears that the construction of the court both interrupted and abutted preexisting architecture, but no clearly comprehensible plan can be made out. The only object of note was a fragment of a clay horse-and-rider figurine (LT83-23, Fig. 86/4).

Phase IV

Phase IV (Fig. 56) represents the main occupation level of the large courtyard in Square 5 (Locus 14) and the associated architecture to the north and west. This courtyard had a floor, now only partially preserved, made up for the most part of cobbles, but in places supplemented by large sherds from pithos jars (Fig. 58). It sloped generally down from northeast to southwest, but rose upward along all of the walls on its perimeter. The steep slope upon which the courtyard was laid out undoubtedly caused water to pool up against the north face of its southern wall, necessitating the stone reinforcement of that face. The lower portions of pithos jars had been sunk into the

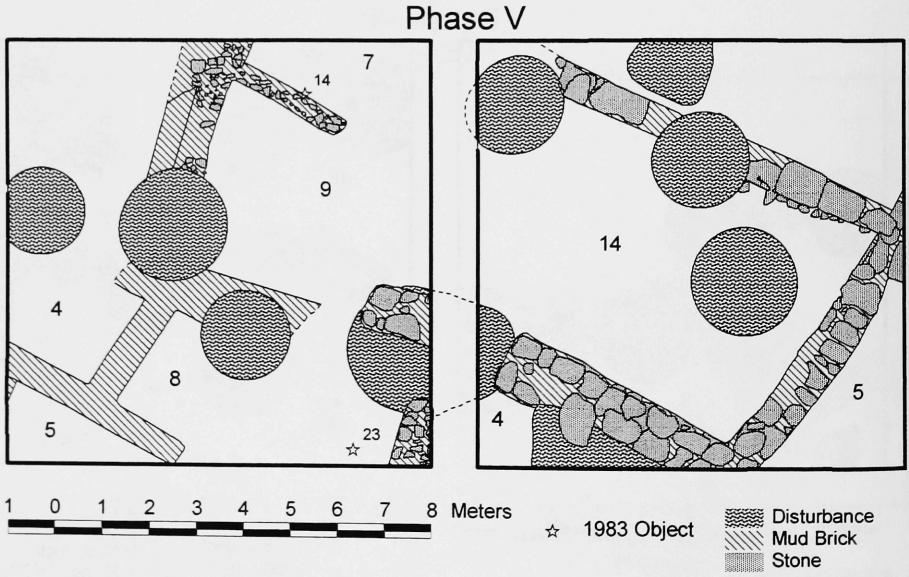


Figure 55: Squares 4 (left) and 5 (right), Phase V. North at top.

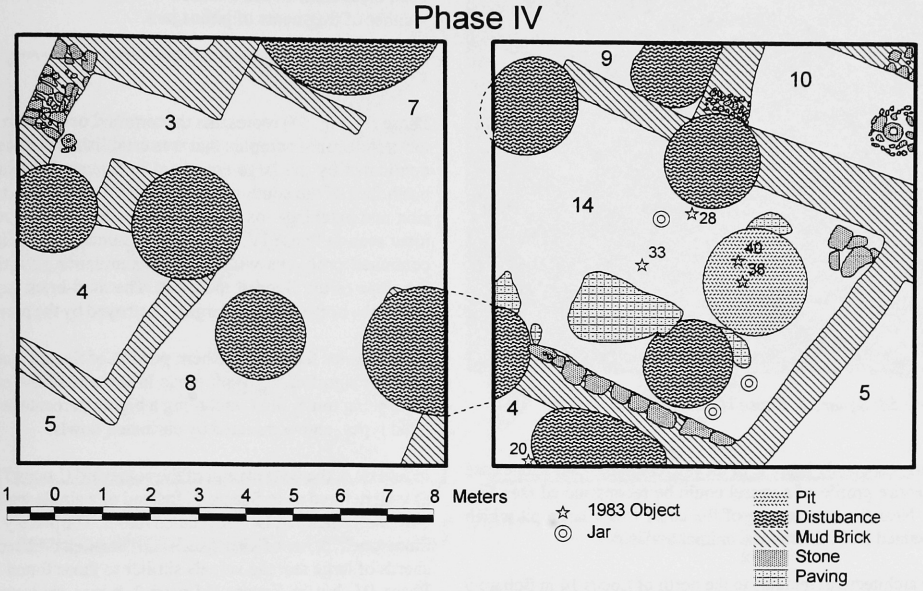


Figure 56: Squares 4 (left) and 5 (right), Phase IV. North at top.

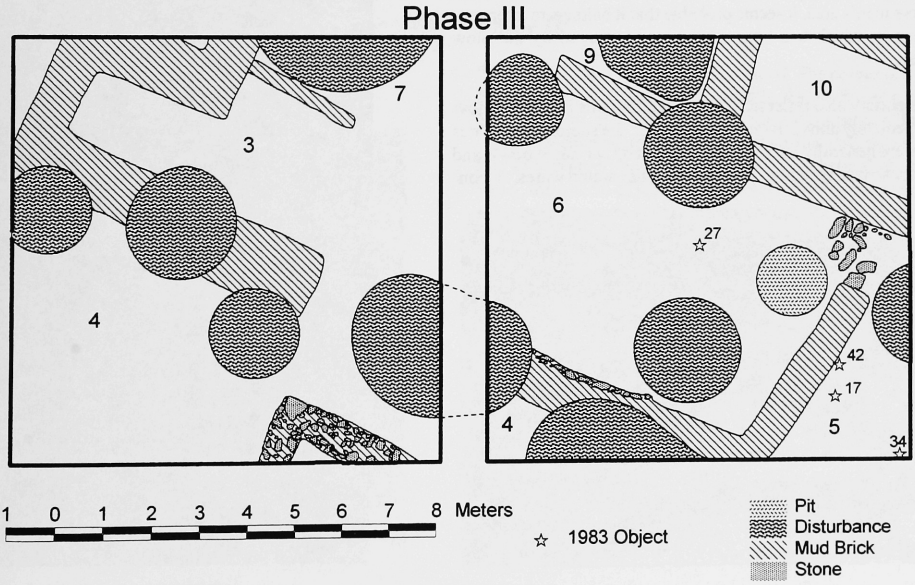


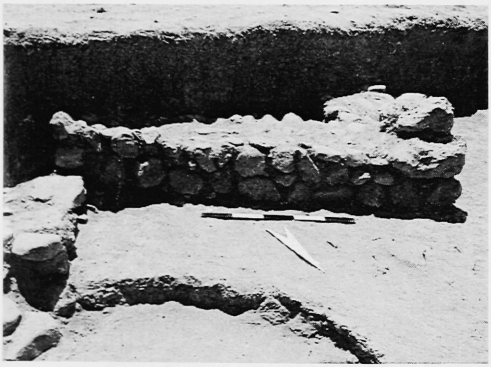
Figure 57: Squares 4 (left) and 5 (right), Phase III. North at top.

Figure 58: Square 5, Phase IV, Locus 14, from east.

floor—especially in some of the higher areas—and in one case the entire profile of a vessel could be reconstructed (see Fig. 75). Near the eastern side of the court was a large pit which contained many sherds and animal bones.

The architectural remains to the north of Locus 14 in Square 5 and in Square 4 suggest that the court was the central feature of a sizable building. However, few features of note have been recovered from loci other than the courtyard itself. The exception is a large stone door socket located in Locus 10 of Square 5 (Fig. 60). Although the socket itself is at the same level as the floors in this area, it seems probable that it belongs to later construction which has long since been destroyed by the plow zone.

The pottery also reflected a division along this line. Like those immediately above in Phase III Locus 2, the sherds from Locus 10 were generally very fine, dominated by carinated bowls and characterized by a high percentage of decorated wares. In contrast, those from Locus 6 tended to be plain wares, with a large number of fragments of pithos jars.



Figrure 59: Square 4, overlapping walls of Phase IV-III in southeast corner of trench.

Phase III

Phase III (Fig. 57) represents the terminal occupation level for the architectural complex that was established in Phase V, still dominated by the large courtyard in Square 5, Locus 6. The north face of the south wall of this court showed signs of erosion and patching—as was the case with the stone reinforcement seen in Phase IV. This was presumably an indication of continued problems with water accumulation resulting from the slope of the floor of the court. The mud-brick superstructure of the north wall was largely destroyed by the plow zone.

The ceramics from the northern portion of Square 5 continued to differ significantly from those in the rest of the excavated area, being much finer, including a higher percentage of decorated types, and dominated by carinated bowls.

In Square 4, the western end of the courtyard (Locus 7) was not as well defined as in Square 5. Instead of a single wall, at least one small chamber, Locus 3, faced into it. The pottery from the more open parts of courtyard had been dominated by the sherds of large storage vessels similar to those found in situ in Phase IV, but in Square 4 Locus 3 it was characterized by cooking pots, red-slipped burnished wares and smaller jars,

Figure 60: Square 5. Massive stone wall and door socket in Phase III.

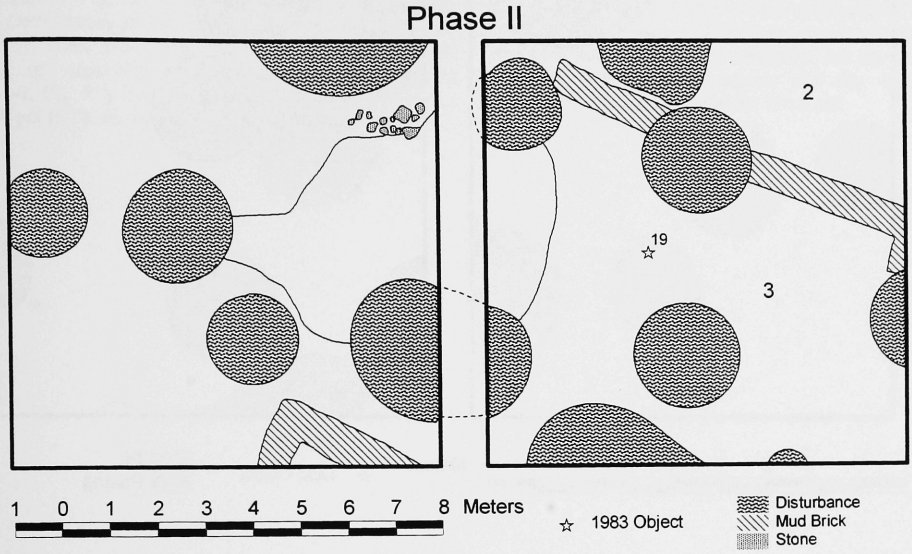


Figure 61: Squares 4 (left) and 5 (right), Phase II. North at top.

bowls and pots. The most notable of the objects were two fragments of a kohl tube (LT83-27, Fig. 88/2), found in Square 5 Locus 6.

Figure 62: Square 5, Phase I. Cobble floor and high wall.

Phase II

Phase II (Fig. 61) is not well understood. The corner of a building, founded in Phase III, survived in the southeast corner of Square 4 (Fig. 59), but apart from these walls most of the area was badly chewed up by modern cultivation. One peculiar feature was an amorphous clay floor which ran between Squares 4 and 5, the matrix of which was packed with flints dating to the sixth millennium B.C.[4] If the small neolithic mound mound to the south of Tell 'Ain Dara (Fig. 7, sectors E'-J'/30-35) was the source of the clay for this floor, the presence of materials of that date here would be explained. Disturbance caused by recent plowing over the rest of the area made the context of most pottery and objects assigned to this phase problematic.

Phase I

Phase I (Fig. 63) includes those features that could be identified within the plow zone and a group of pits which originate in the zone and penetrate to the levels beneath. These are obviously not all of the same date, but for the most part we are unable to further subdivide the chronological sequence. A cobble floor associated with Iron II pottery was discovered near the

4. We would like the express our gratitude to Dr. Andrew Moore of Yale University who very kindly looked at the 'Ain Dara flints and suggested the identifications.

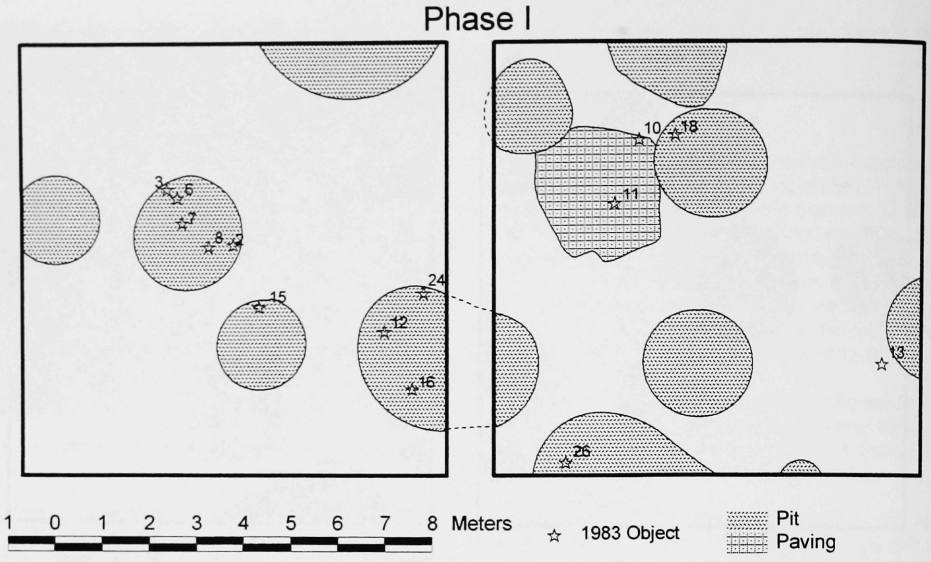


Figure 63: Squares 4 (left) and 5 (right), Phase I. North at top.

bottom of the plow zone in Square 5 (Fig. 62), but it is unclear whether or not this was cut by nearby pits or contemporary with them.

Some of the pits were of considerable depth and all contained Iron II pottery and objects, although they appear to have been created for different reasons. Some were apparently robber pits made to retrieve the stones from earlier wall footings. These contained a certain amount of pottery and animal bone, but other finds were not particularly striking. On the other hand, one pit in the center of Square 4 and one intersected by Square 4's east baulk appear to have been designed for trash disposal, as indicated by the high proportion of animal bones, pot sherds and other objects which they contained. A neatly laid cobble floor lined the base of the former (Fig. 64), which was the richest of the pits in smallfinds.

Figure 64: Square 4, Phase I. Cobble base of Pit B.

The pottery found in these pits included many varieties of red-slipped and burnished wares, strap-handled cooking pots with beveled rims, and other plain-ware jars and bowls. Several pyxis fragments of the type which characterize the end of the Geometric and beginning of the Archaic period on Cyprus were also discovered, one lying directly on the cobblestones at the base of the pit in the center of Square 4. Painted concentric circle decorations in both black on red and reddish-brown on buff were represented. Although we did not perform the trace element analysis necessary to confirm the point, these sherds appear to be imports from Cyprus, where they find quite exact parallels. Their discovery, which was unexpected in the light of the 1982 survey and soundings, has compelled us to recognize that the terminal date of Iron Age occupation of this portion of the lower tell could have been as late as 700 B.C.[5]—more than a century later than was suggested by the survey data. The objects found in Phase I

5. For a discussion of the absolute chronology of this Cypro-geometric/Cypro-archaic transition, see Demetriou (1978:12-25).

contexts generally confirm this date. Bone kohl pins (LT83-3 and LT83-24, Fig. 88/5,6) find parallels with similar objects from Deve Huyuk and the Yunus Cemetery at Carchemish (Moorey, 1980, 394-5, Fig. 15 no. 389; Woolley 1939/40, 11-37, see especially Plate XXI.), while the scaraboid (LT83-2, Fig. 83), ivory knife handle (LT83-15, Fig. 88/1), trefoil pot (LT83-6, Fig. 69) and crudely carved basalt lid or grinding stone (LT83-2, Fig. 87/1) all fall comfortably into this period. The depth of the plow zone prevents us from knowing whether the pits were originally associated with permanent structures or something less substantial, but the richness of some of their contents suggests that this was not an inconsequential occupation of the lower tell.

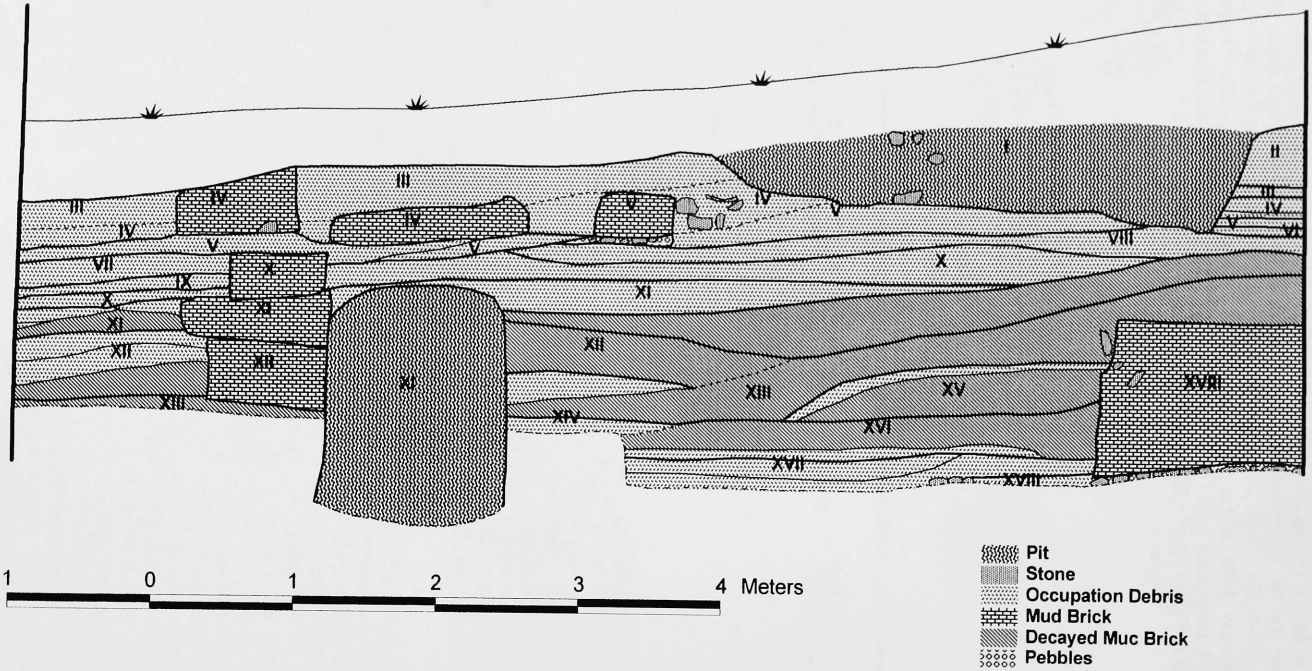


Figure 65: Square 4, north baulk.

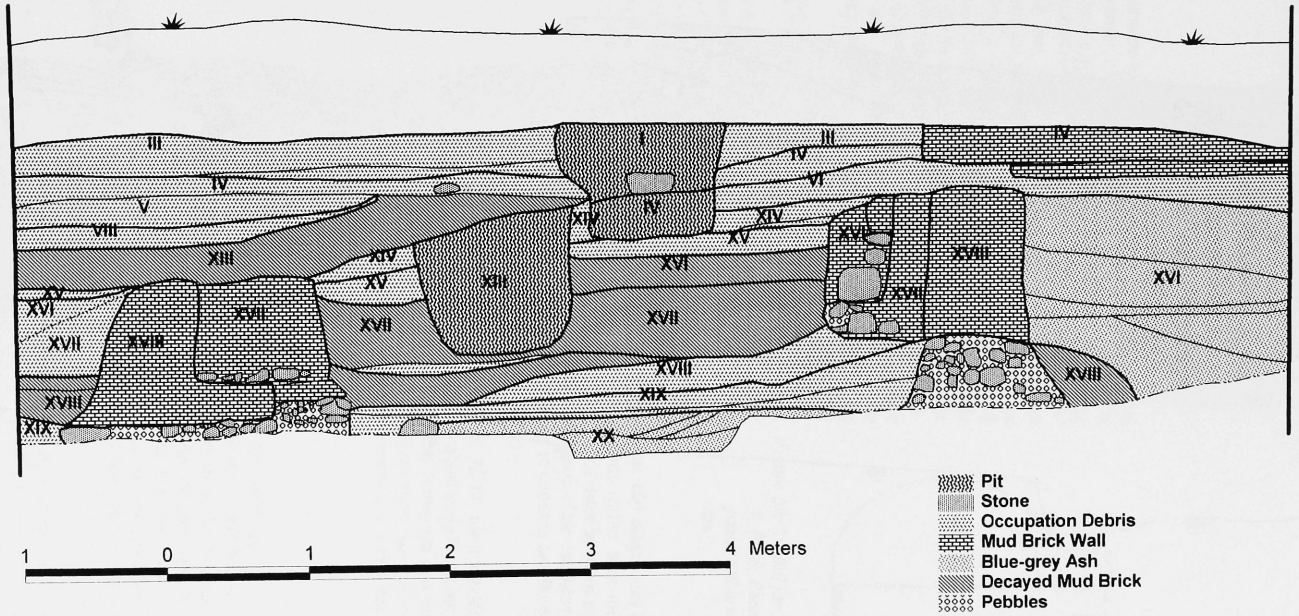


Figure 66: Square 5, north baulk.

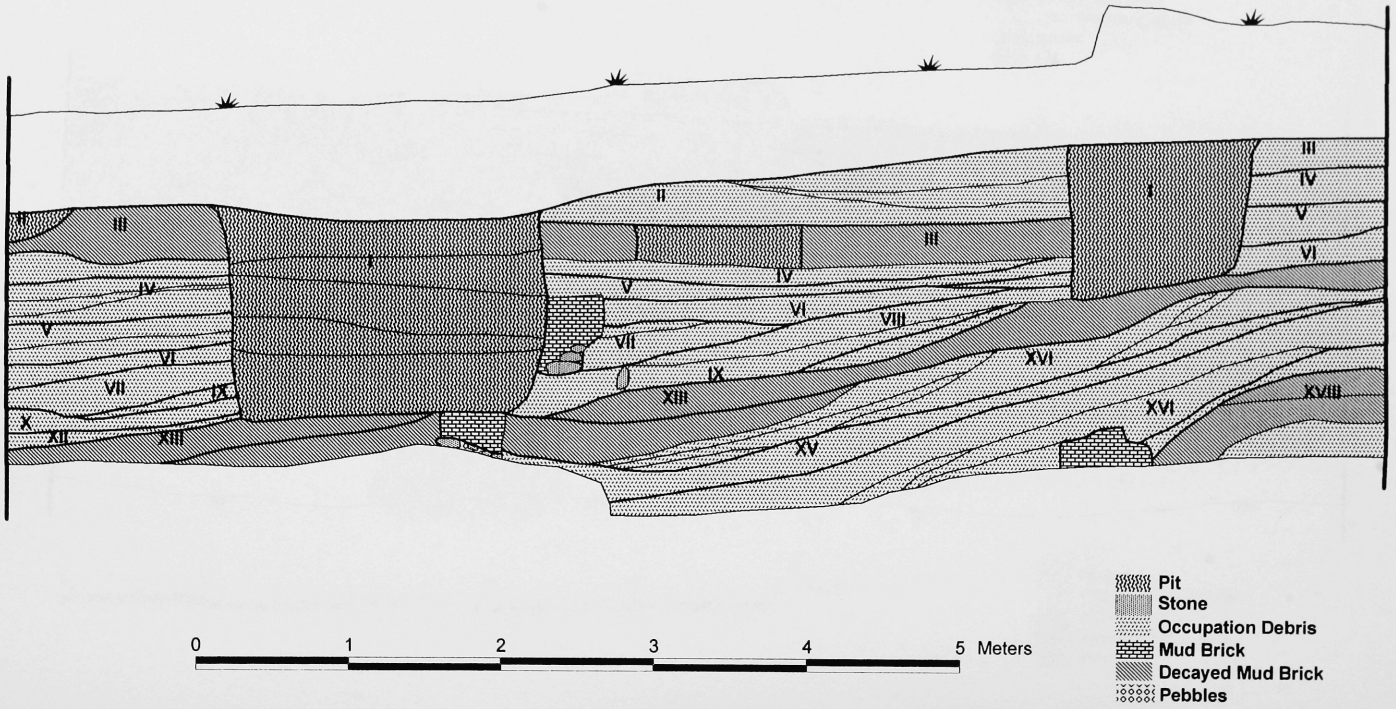


Figure 67: Square 5, west baulk.

Chapter 6

Ceramics

Approximately 129,000 potsherds were found in the course of the 1983 and 1984 excavation seasons, of which 13,724 rims, bases, handles and decorated pieces were regarded as diagnostic. All sherds were washed, sorted and counted. For each diagnostic sherd a form was filled out, upon which it was categorized by type, described, and, in cases where type numbers failed characterize it accurately, drawn. Color photographs were taken of all decorated sherds and those undecorated for which a print might yield useful information. Of the diagnostics, 9,446 came from undisturbed contexts. At present this corpus falls far short of spanning the range of time from the Late Bronze to Early Iron Ages, but nevertheless changes in both decoration and rim types can be detected.

Shape

Figs. 72-74 show distributions (as a percentage of the total number of rims in a given chronological unit) of those rim types which manifested significant frequency variation over time. They include sherds found in the test excavations of the 1982 season—especially Sounding 1—in order to reveal trends over as long a span as possible, but it should be noted both that there may be a hiatus in the sequence between the data derived from the soundings and those from the more extensive excavations, and that the sample sizes from Sounding 1 are much smaller than those from the 1983 and 1984 seasons. Thus, while each phase in our recent excavations yielded at least 200 rim sherds (except Phases XIX and XX) and in many cases over 500, the distributions for the earlier periods are based on samples that rarely had more than 100 diagnostics per chronological grouping. For the periods earlier than roughly 1100 B.C., therefore, the distributions must be taken only as approximations, pending amplification of the data base in future seasons. Examples of the forms in question are illustrated in the typology, Figures 70-71.

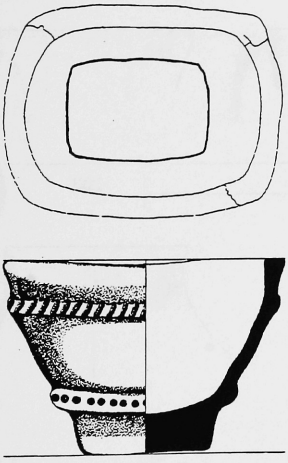


Figure 68: Ceramic tub (LT 83-22), Square 5, Locus 10, Phase IV. Red burnished clay, height 60 cm.

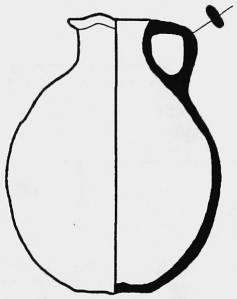


Figure 69: Trefoil jar (LT83-6), Square 4, Pit B, Phase I. Light brown paste, unburnished. Height 29 cm.

As is clear from Figs. 72-74, most specific rim types were common for relatively short periods of time. In the discussion below we group together forms that may be construed as belonging to broad functional types, such as bowls, jars, etc., and compare the statistical variations within them in our search for trends.

Bowls

Since the possibilities for variability in simple bowl forms are limited, it is not surprising to find that the types which were common early in the sequence, the very shallow, straight sided bowl represented by Type 100 and a deep bowl with a rounded profile (Type 116) were also common at the end of the sequence. In between, the simple bowl forms, Types 106 and 108, were deeper than Type 100, but without the rounded profile of Type 116.

As is to be expected, bowls with more elaborate rims show significantly more variability over time. Typical of the early periods are bowls showing only a slight thickening of the rim, such

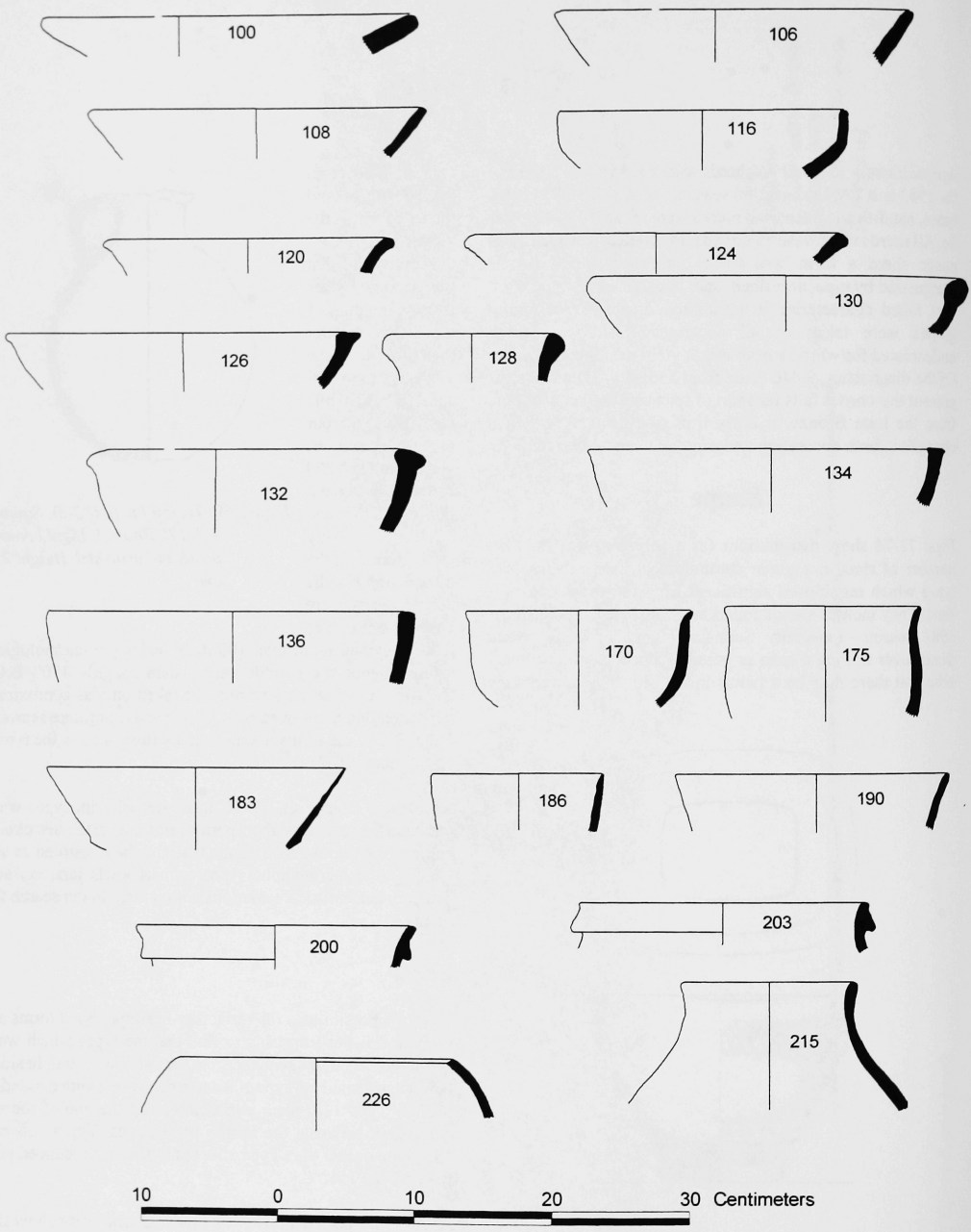


Figure 70: Pottery Typology, part 1.

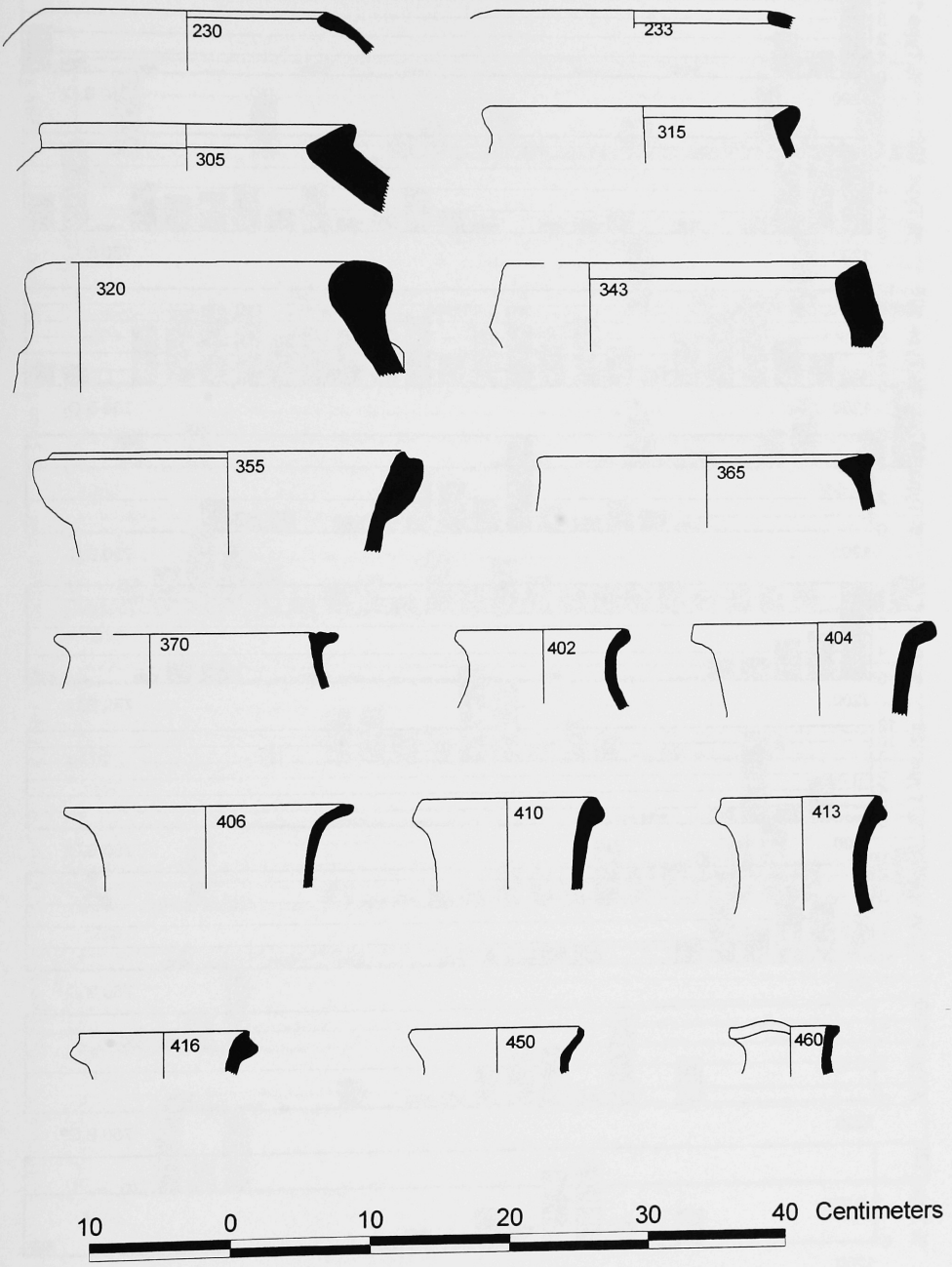


Figure 71: Pottery typology, part 2.

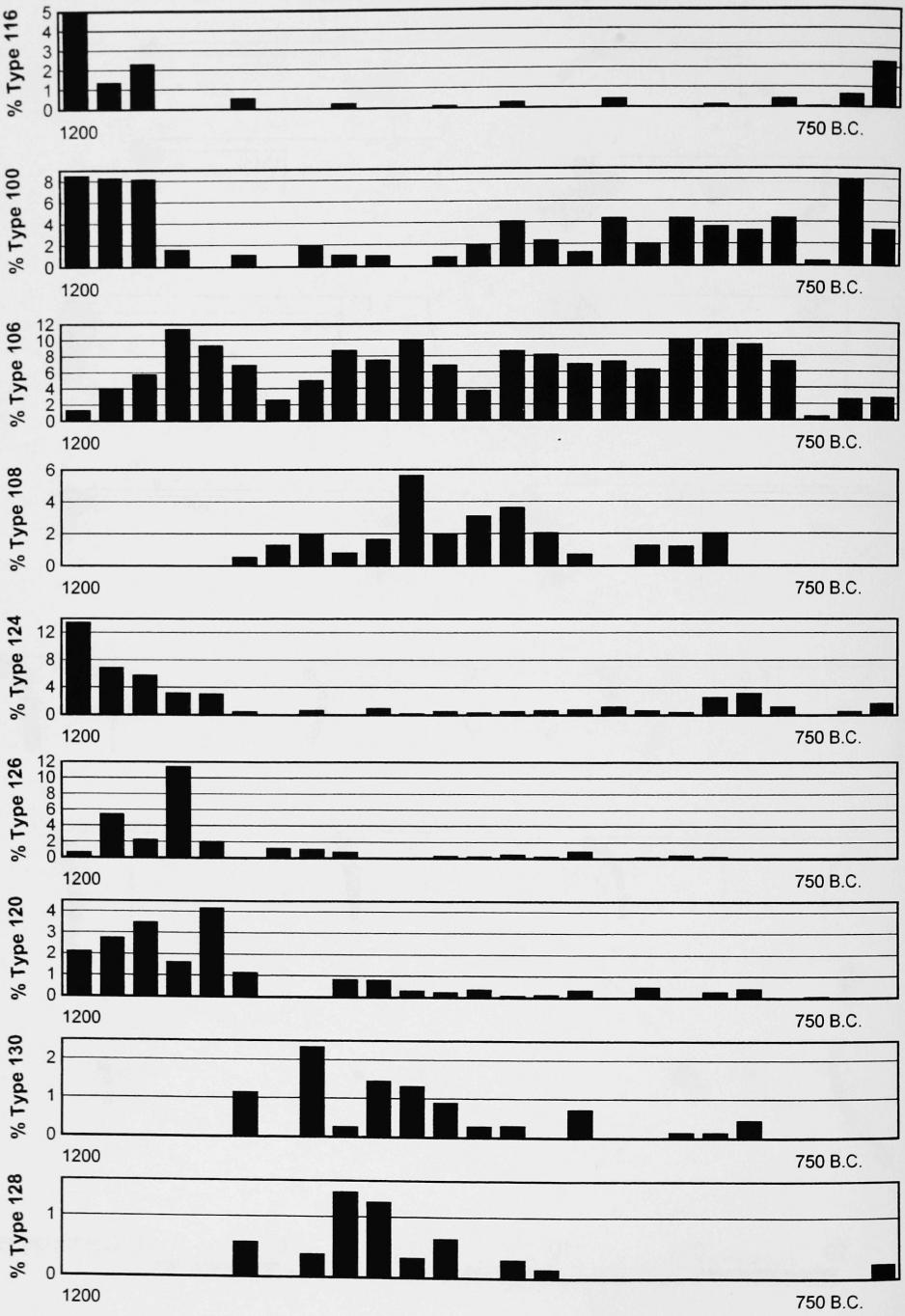


Figure 72: Bowl frequencies over time.

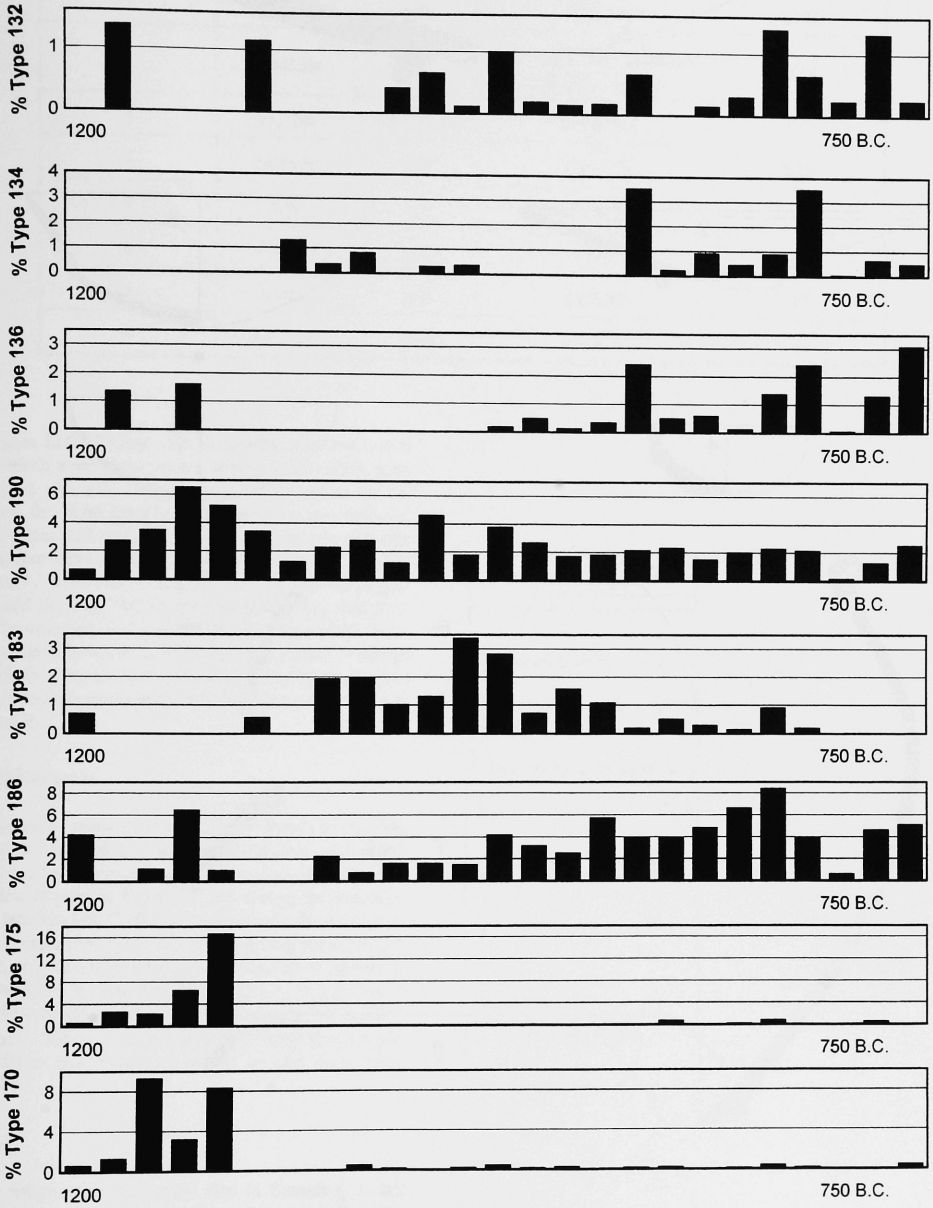


Figure 73: Frequencies of bowls over time (continued).

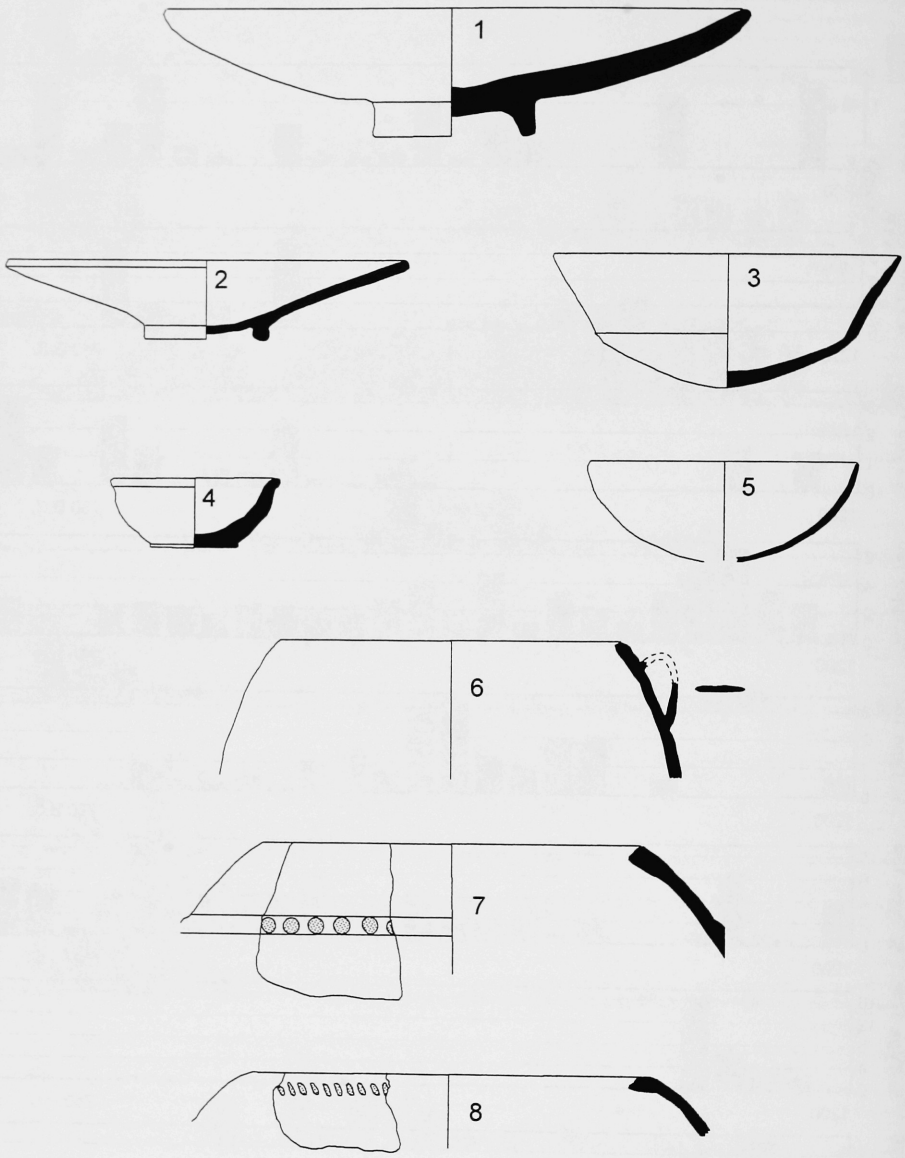


Figure 74: Bowls and cooking pots, scale 1/3. For specifics, see table on opposite page.

Ceramics

No.	Ware	Temper	Paste Color	Phase
1	medium	grit	5YR 7/6	XVIII
2	medium	grit	2.5YR 6/6 with burnished red slip, 10R 4/8	XIII
3	very fine	not visiible	10YR 8/2	XIV
4	medium	grit	5YR 7/6	VIII
5	fine	grit	10YR 7/3	XII
6	medium	grit	7.5YR 5/2	XII
7	coarse	grit	5YR 5/1	VI
8	medium	shell	10YR 5/2	XI

as Types 124, 126 and 120. Somewhat later are bowls with much more pronounced, almost lumpy rims, such as Types 130, 150, 132, whereas by the end of the sequence, the forms have become somewhat less bulbous, as in Types 134 and 136. Finally, the deeper, cup-like bowls also show a trend, from the elegant curved vessels of Iron I (Types 170, 175) to the carinated bowls (Types 190, and 183; Fig. 74/3) to the simple deep cup that characterizes the very end of our sequence (Type 186). Overall, complex bowls were still realtively simple in design in both the early and late ends of our continuum, but had more elaborate forms in the middle, during the early part of Iron II.

Cooking pots

Unlike other types of ceramics, the trends in cooking vessels are very clear. The Iron I assemblage was dominated by shell-tempered cooking vessels with quite open profiles, as seen in Type 203, but during the transition from Iron I to Iron II, this was replaced by the even more open vessel form, Type 200, still retaining the shell temper. As the Iron II progressed, however, shell tempering was replaced by grit tempered wares, and more hole-mouthed vessels of types 233 and especially 230 became common. These pots generally had strap handles and sometimes had decorated bands around them (Fig. 74/6-8).

Pithoi

Large pithoi were extremely rare in Sounding 1, but given the small sample size here, this may reflect the function of the area rather than a complete absence of these kinds of vessels. In Iron II, Type 305, and its smaller cousin Type 315 were common in the earlier

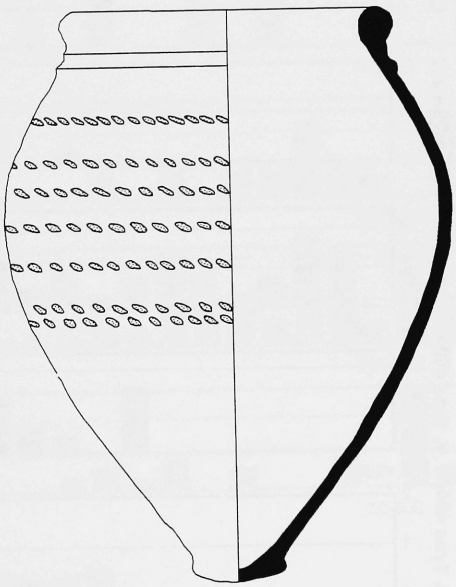


Figure 75: Pithos. Square 5, Locus 6, Phase IV. Height 81 cm.

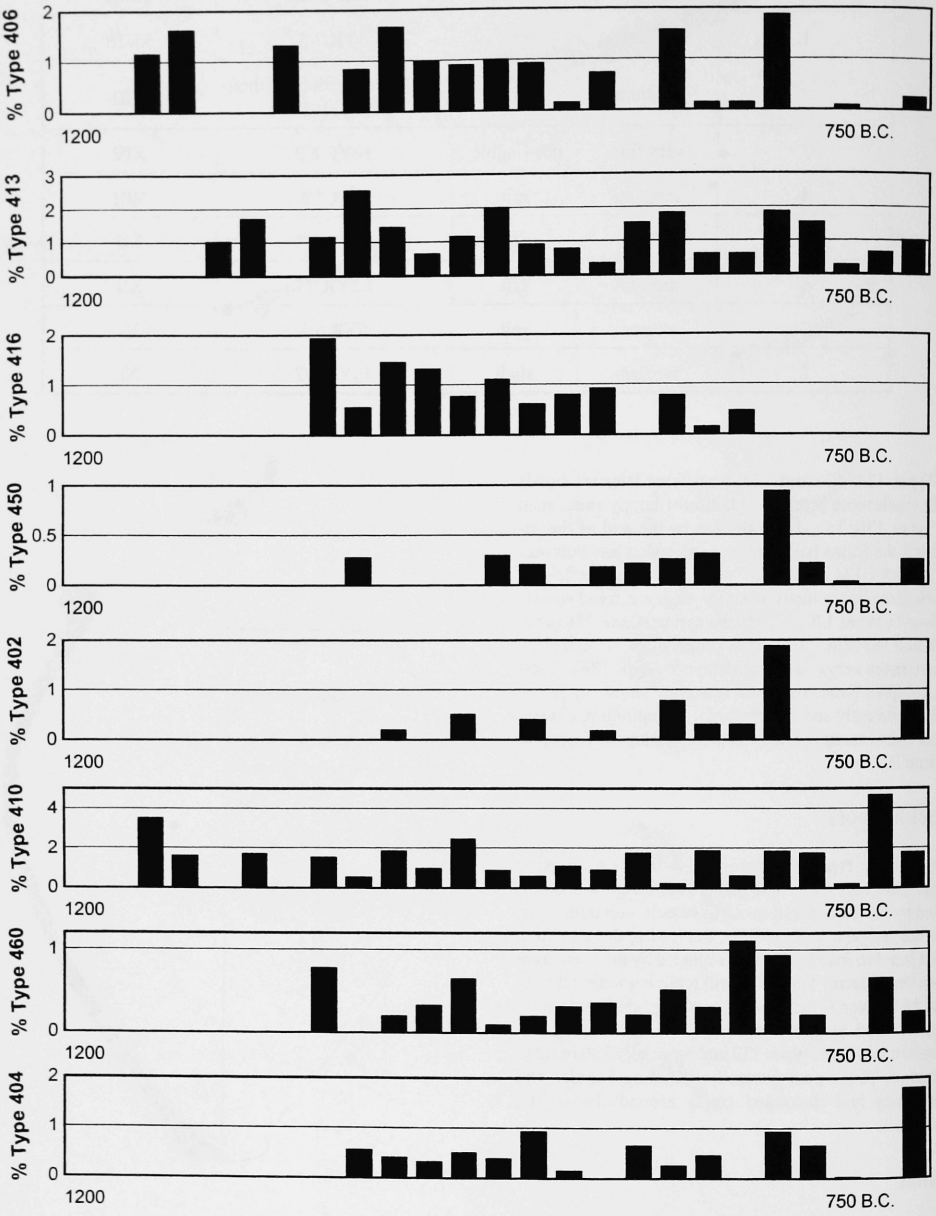


Figure 76: Sequential frequencies of various pot types.

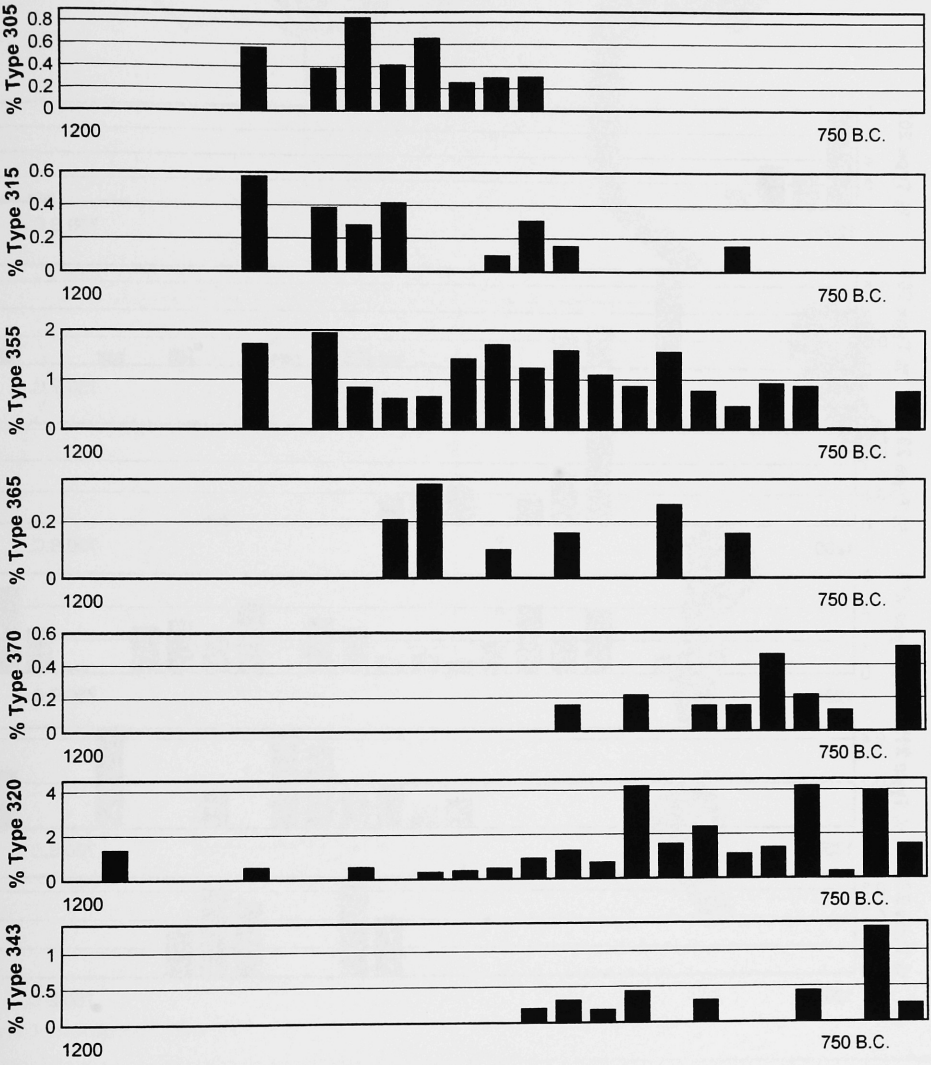


Figure 77: Sequential Frequencies of various pithos types.

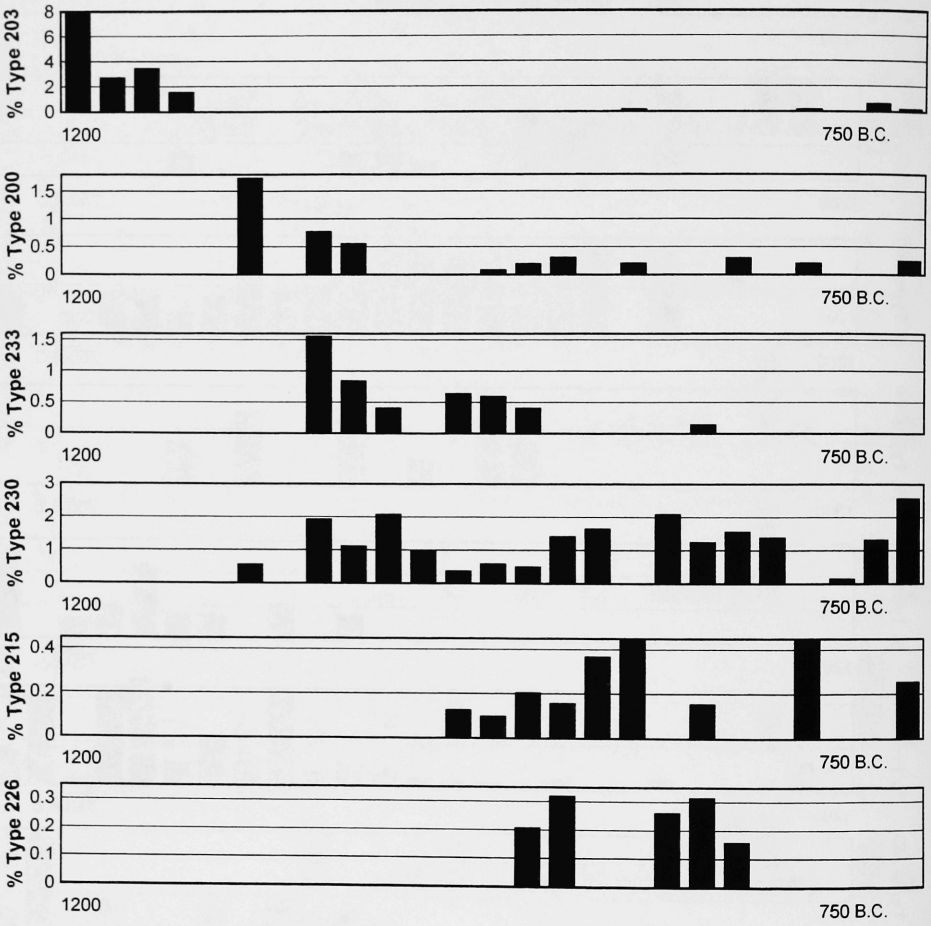


Figure 78: Sequential frequencies of various jar types.

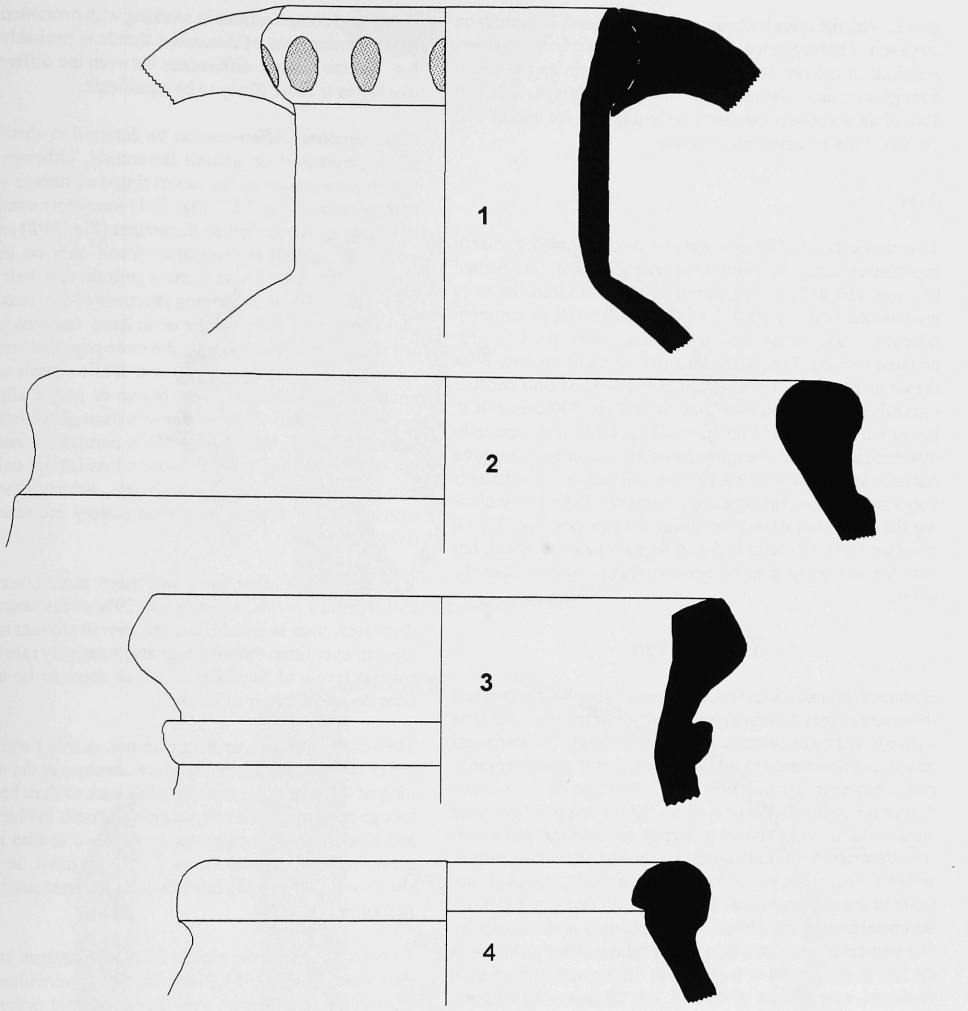


Figure 79: Storage jars, scale 1/3.

No.	Description	Phase
1	Coarse ware, grit temper, paste color 2.5YR 7/2	XX
2	Coarse ware, grit temper, paste color 5YR 6/6	II
3	Coarse ware, grit temper, paste color 10YR 7/3	XI
4	Coarse ware, grit temper, paste color 7.5YR 7/4	XI

phases, with the more bulbous rim types 320 and 343 common at the end of the sequence. Type 355, with its typical finger impressions in the rim is the most common form and is found throughout most of the sequence. The other two types, 365 and 370, while never very common, were found in the middle and the end of the sequence respectively.

Jars

Two distinct types of jar rims were the most common, and each experiences some variability over time. The first, represented by Types 410, 413 and 416, shows a slight trend from the more pronounced rims, Types 413 and especially 416, as common relatively early in the Iron II sequence, with the less pronounced version, Type 410 taking over towards the end. With the simpler jar rims, Types 400, 402 and 404, the rims become increasingly elongated over time, with Type 400 common in the earlier portions of Iron II, and Types 402 and especially 404 dominant in the latter portion of the sequence. Also quite common in the last phases are Types 450 and 435. The latter is very similar to the slightly earlier pithos rim Type 355, including the impressed decoration under the rim (see Fig. 77: 1). Thus the same rim form is found on both jars and pithoi, but with the jars tending to be somewhat later in date than the pithoi.

Decoration

Both the frequency with which decorated sherds appeared and the nature of that decoration varied considerably over the time span covered by our excavations and soundings. The statistical analysis of decoration in sherd assemblages is greatly complicated, however, by the differential coverage of the various decorative styles. In the case of all but red-slipped burnished ware—where the treatment generally covered the entire vessel—decoration was only applied to one portion of the vessel, and as a consequence what was once a single decorated pot appears in the archaeological record as both decorated and undecorated pot sherds. Moreover, any changes in the frequency of a particular decorated type might reflect either a change in the rate of decoration or a change in the amount of the vessel decorated, or a mixture of the two. Fig. 82 shows the frequencies of the most common decorative styles as percentages of total sherds recovered from each period. Like Plates LI to LV, the ceramics from Sounding 1 have been added to extend the sequence into the Iron I period, but the same caveats outlined above as to the exact stratigraphic relationship between the two different samples, and the sample sizes of the ceramics from Sounding 1 apply here. In addition, because of the aforementioned complications in working with decorated wares, the actual percentages of decorated sherds is probably meaningless, but the relative differences between the different decorative styles is more likely to be significant.

Little temporal difference can be detected in sherds with applied, impressed or incised decoration, although finger or thumb impressions on the raised ridges of storage vessels and cooking wares (Fig. 74/7; Fig. 79/1) were more common in the later phases, while slashed decoration (Fig. 74/8) tended to be earlier. Fingernail impressions—found only on large pithos jars (Fig. 75) were found in most periods, and their frequency may reflect more the changing functions of the areas excavated than changes in style. On the other hand, fashions in painting, red slipping and burnishing—the more popular forms of decoration—clearly changed over time. While vessels which were completely covered in a red, brown or purple slip and burnished inside and out were present throughout Iron II, those which received such a slip without burnishing, and those on which the slipping, with or without burnishing, only covered part of the vessel, were generally late, although the total percentage of red slipped burnished pottery increased steadily over time.

Painting, on the other hand, was much more common in the earlier, Iron I levels, when nearly 20% of the sherds were so decorated, than in Iron II, and the overall amount of paint decreased over time. Painting was also relatively rare in the very earliest levels of Sounding I, which seem to be transitional Late Bronze-Early Iron levels.

Monochrome paint was most common in Iron I with paint of a red to brown color distinctly more common at the very beginning of the sequence, and that of a black to dark brown color, though present in all levels, reaching its peak in Phase VII. Red and black bichrome paint was only found in Iron II, and was most common around Phase XVI. The paint on the earlier sherds was quite bright, but it took on an increasingly faded appearance over time

Two variations on the simple bichrome designs known from the 'Amuq (Swift, 1958, Plates 38, 39, 42)were identified, both of which, while always very rare, occurred primarily in the middle of the sequence, between Phases XV and V. One style exhibited complex designs dominated by diagonal zones of cross-hatching and red triangles with black outlines (Fig. 81/8-11). The other is also characterized by the use of a fine brush for the application of the black paint and often has vertical as well as horizontal lines so painted in the design (Fig. 81/2,3). Whether these two styles represent local variations of the more common design remains to be seen.

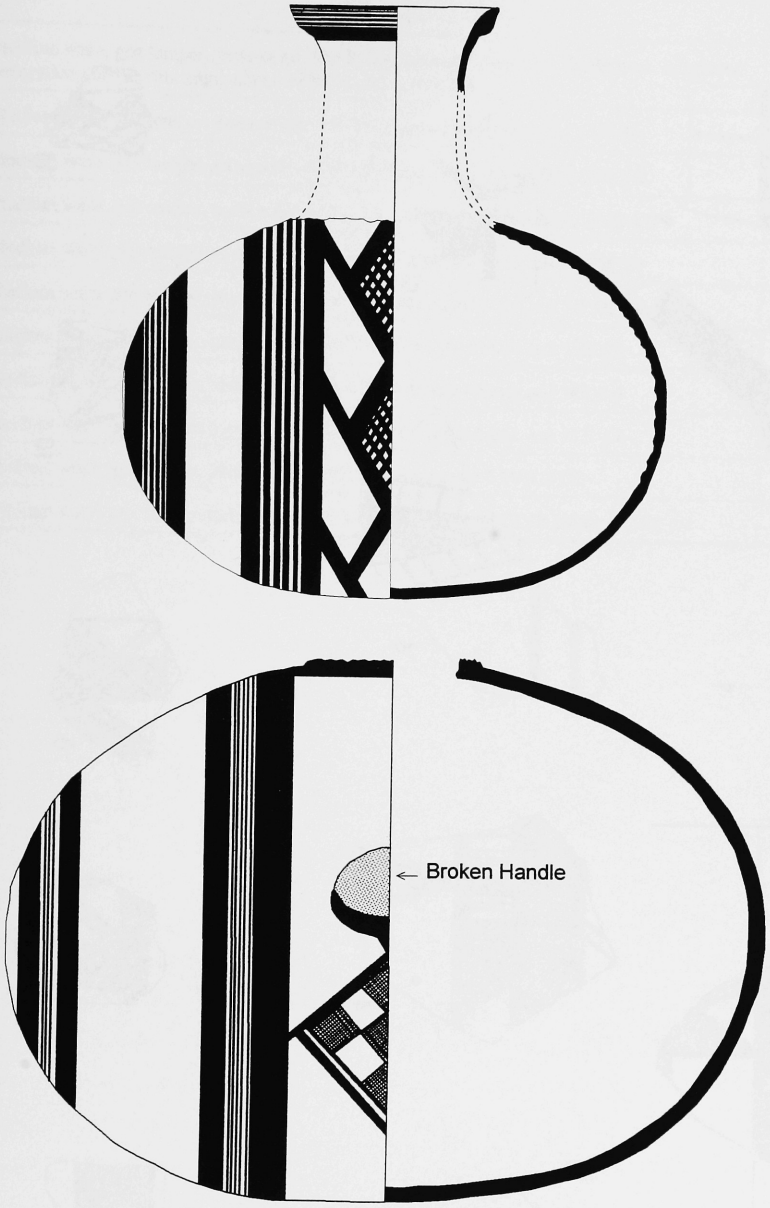


Figure 80: Cyprogeometric barrel jars. Top: medium ware, grit temper, paste colro 10YR 8/4, exterior slip color 2.5Y 8/2, black paint. Bottom: medium ware, grit temper, paste color 7.5YR 8/4, exterior slip color 10Y 8/2, black paint. Both from phase XIII. Scale 1/3.

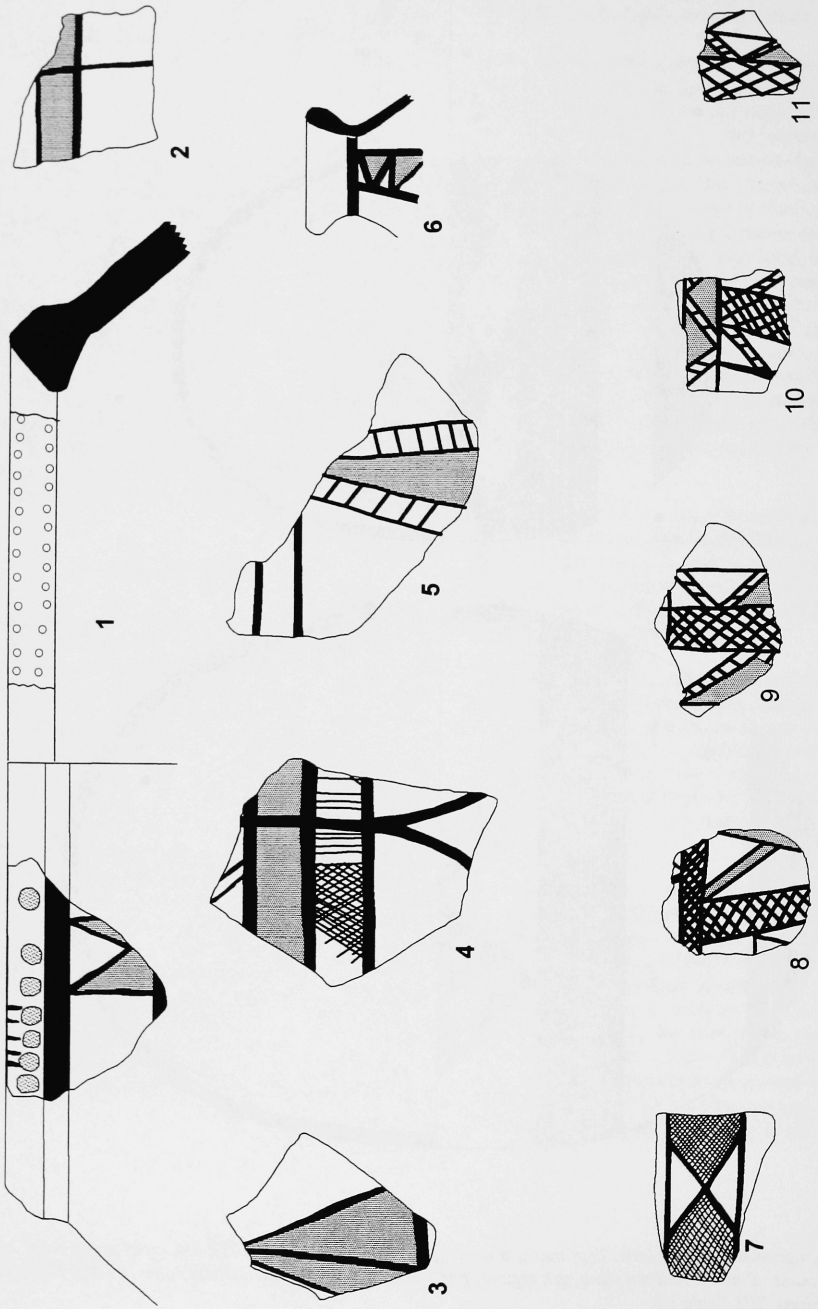


Figure 81: Painted wares, scale 1/2. See descriptions on facing page.

Ceramics

No.	Description	Phase
1	Medium ware, grit temper, paste color 7.5YR 7?4, stamped decoration inside rime, impressed decoration outside rim, paint colors 5YR 5/4 and 2.5YR 5/6	XX
2	Medium ware, grit temper, paste color 5YR 7/3, paint colors black and 2.5YR 6/4	XVI
3	Medium ware, grit temper, paste color 5YR 7/3, paint colors black and 2.5YR 6/4	XIV
4	Medium ware, grit temper, paste color 10YR 7/3, paint colors black and 2.5YR 6/6	XIV
5	Medium ware, grit temper, paste color 5YR 7/4, paint colors black and 2.5YR 6/4	XIV
6	Medium ware, grit temper, paste color 5YR 7/3, paint colors black and 2.5YR 5/6	X-XII
7	Medium ware, grit temper, paste color 5YR 7/6, paint colors black and 10R 5/8	IX
8	Medium ware, grit temper, paste color 5YR 7/2, paint colors black and 10R 5/6	IX
9	Medium ware, grit temper, paste color 5YR 7/3, paint colors black and 5YR 6/6	VIII
10	Medium ware, grit temper, paste color 2.5YR 5/4, paint color 7.5YR 2.5/2	VII
11	Medium ware, grit temper, paste color 2.5YR 6/6, paint colors 2.5YR N6/0 and 10R 6/4	VIII

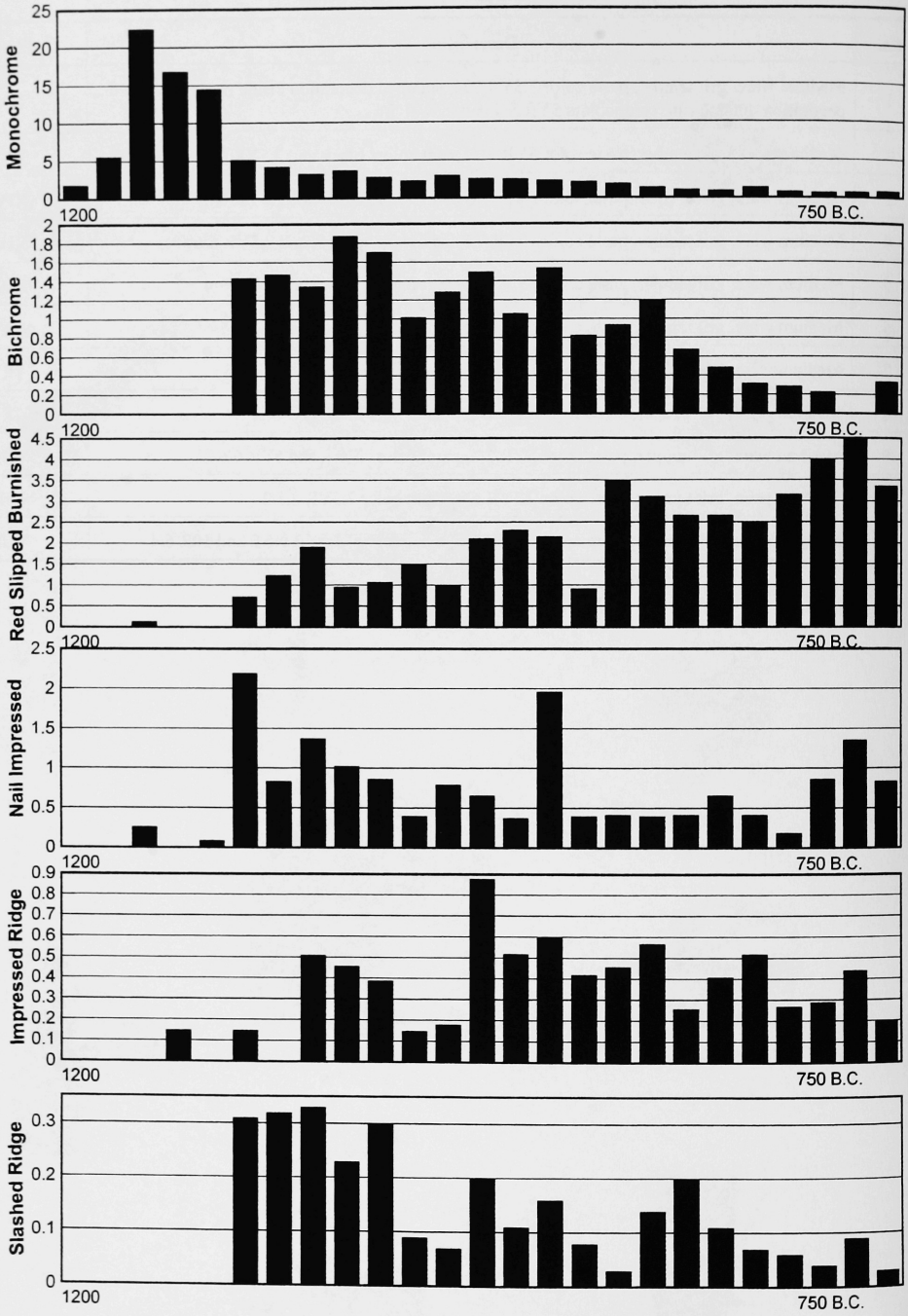


Figure 82: Sequential frequencies of decoration types.

Chapter 7

Smallfinds

Most of the artifacts recovered during the three seasons of work on the lower tell were mundane, but some speak for a relatively sophisticated population and international contacts. The majority in the latter category were discovered in pits that were dug from Phase I and include kohl pins of bone and ivory (LT83-3, 24), an ivory knife handle (LT83-15), a scarab or scaraboid (LT83-7), basalt vessel fragments (LT83-11 and probably LT83-17) and a lid or grinding stone with a handle sculpted into the shape of a lion (LT83-2).

Relatively exotic objects similar to those found in the terminal pits of Phase I appeared sporadically in other levels of the excavations: another, somewhat simpler bone pin from Phase XII (LT84-15), two fragments of a kohl tube from Phase III (LT83-27), and the knob from a stone kohl box from Phase XVIII (LT84-57). Among other objects of note were a fragment of bone inlay from Phase VII (LT84-37) and the top of another scarab from a pit dating to Phase XI (LT84-13).

Parallels to the majority of these objects can be found among materials recovered from other contemporary North Syrian sites—Hama, Carchemish, Tell Afis, Deve Hüyük and the tells of the 'Amuq plain. In particular, a bone kohl tube (LT83-27, Fig. 88/2) is of a type seen at Carchemish and Deve Hüyük (Woolley 1939/40, Plate XXI; Moorey 1980, pp. 397-8 and Fig. 16 no. 398). The kohl box knob (LT84-57, Fig. 87/2) is almost exactly replicated on an unprovenienced object in the Kofler Collection, which in turn is similar to other stone kohl boxes from excavated contexts at Hama, Zincirli, Deve Hüyük, Alalakh, Ebla, Chatal Hüyük, Tell Judeidah, Tell Tayanat and Hasan Osak (Muscarella, 1995). Most of the kohl pins at these sites, while similar in form to our examples (Fig. 88/5,6) are of bronze rather than of bone or ivory, Not dissimilar bone pins were recovered from Sarepta (Pritchard 1988, Fig. 30: 1, 3), however. Our fragment of bone inlay (LT83-37, Fig. 88/8) is similar in decoration to the inlay of a wooden gaming table recovered from Hama (Riis 1990, 240, Fig 114: 958).

The presence of these objects suggests that, despite the seeming poverty attested by the greater part of the architectural and artifactual inventory of the soundings, the ancient population here had access to the types of objects which are typical of elites residing at the other major Early Iron Age sites in North Syria. Given the remains of quite substantial stone foundations visible on the surface near our excavations and the impressive stone door socket found sunk into Phase IV of Square 5, it may be that those objects found in the Phase I pits were associated with some large public building located in this area at the very end of our sequence, the remains of which were hardly touched by our excavation. However, the discovery of similar items—such as the kohl tube from Phase III, the bone inlay from Phase XI, the scarab from Phase XI, and the kohl box knob from Phase XVIII testify that continuity in access to such elite goods began earlier and was of long duration.

Even the more typical and mundane goods among our smallfinds were found both in the lower levels and in the pits which are all that remain of Phase I. The most common of these were related to textile manufacture and include bone spatulae, clay "bobbins" and several types of spindle whorls. Thirteen bone spatualae were found in contexts that spanned the period from

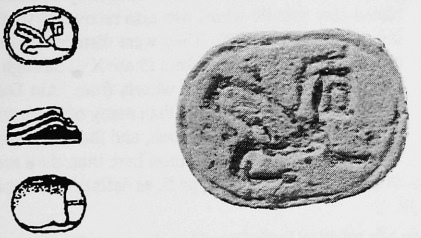


Figure 83: LT83-7, scaraboid with sphinx design on face, stone, from Sq. 4, Loc. 1, Level 1, Feature 3. Phase I. Drawing on left is actual size.

Figure 84: LT84-13, top half of scaraboid, from Sq. 4, Loc. 17, Level 4, Feature 18, Phase XI. Actual size.

Phases XVII to I (Fig.89). Two were decorated: one in a pit dating to Phase I (LT83-13, Fig. 88/3) and another from Phase VIII (LT 84-16, Fig.88/4). One complete example was found stuck into a chink in the wall of the Phase XIV living room in Square 4 (LT84-23, Fig.89/4). None of the findspots or associations shed any light on the question of what these implements were used for, but of the various possibilities listed by Crowfoot, Crowfoot and Kenyon at Samaria—"as styli for writing on wax tablets, or with ink; for netting; in making narrow weaves or braids, as pattern sticks to raise and hold threads as required; or for applying cosmetics" (Crowfoot et al. 1957, 461-462)—the first two seem improbable in the 'Ain Dara context.

Also to be associated with textile production are solid clay cylinders with slightly convex sides (Fig. 92/8-13). So far, eleven of these have been discovered at 'Ain Dara, including two of unfired clay found in association with unfired sherds. There is some diversity in form: an unfired piece and a fired one that survives only as a fragment have a thumb-impressed dimple in the center of each end face; and the degree to which they are cylindrical or swell outward at the extremities when viewed in profile varies considerably. They do not cluster significantly in any particular phase, as the list of findspot phases indicates.

Distribution of clay cylinders by phase

Phase	Number of Examples
XVII	2
XIV	1
XIII	2
VII	2
VI	1
IV	2
I	1

Comparable objects from the same era have been identified as "model bread offerings" at Beth Shan, where four were found in Level VI, which apparently terminates at the beginning of the eleventh century (James 1966, Fig. 105/11 and p. 29 for the objects, p. 150 for the date). The justification for this description is tenuous at best.[1] Other examples, unbaked, have been found at Ashkelon associated with cloth fibers, where they are identified as loom weights and attributed to the Philistines (Stager 1993, 107). Closer to 'Ain Dara, they have been found in Early Iron Age levels at Hama, where they are described as bobbins for thread (Riis, P.J. 1990, Fig. 96: 732).

The suggestion that these objects were used as bobbins or loom weights is certainly appealing, and would be consistent with the wide array of other items we found that can be associated with the cloth industry, from the bone spatulas described above to the many spindle whorls and pierced sherds. The narrower waist of these objects would certainly serve either to keep thread from falling off the ends of bobbins or for ease of attachment to the warp threads, and where dimples on the ends are present these may have helped to hold bobbins in place. However, one of the curious aspects of these cylinders is that most of them show a degree of wear on one of the ends. Here the thickening of at least one end has been worn off, and the flat end has been worn into a more rounded shape. It is not clear whether this characteristic wear was a feature of the cylinders found at other sites, but it should be taken into consideration when assigning a function to them. The issue of whether these objects are to be associated with the introduction of the warp-weighted loom in the area has been treated in detail by Ceccini (1992).

Other artifacts that can be associated with textile production are spindle whorls, which came in two basic types: conical in shape of either steatite or baked clay (Fig. 91), and perforated sherds (Fig. 92). Of the latter, twenty-four were found, and, perhaps fortuitously, they clustered significantly in the middle phases of the stratigraphic sequence; except for an isolated example in Phase XVIII, all came from Phases XV-VII with no phase in that group failing to provide at least one example. Similar objects have been reported from Tell el Far'ah (Chambon 1984, Plate 77:3-5) and Balu' (Worschech 1990, 82, number 62), but given the extremely mundane nature of these objects it is likely that they have found at many other sites and simply not published.

Of the total of nine conical spindle whorls (Fig.91), two were of baked clay and seven of stone, usually of steatite. Another baked clay spindle whorl was also recovered from the soundings excavated in 1982. They were distributed throughout almost the entire sequence, from Phase XVI through Phase IV or even Phase I.[2] The spindle whorls from 'Ain Dara are often somewhat steeper in profile than many of those reported from other Iron Age sites in the area, and the baked clay examples seem somewhat more common here than they are elsewhere. In shape they all fall in Type B, as defined at Sarepta (Pritchard

1. Rowe (1940, 90) identifies an object as a "votive offering in the shape of a spherical loaf of bread" on the basis of its shape and a stamped impression of the Egyptian word "*imeny*, i.e. 'daily'." The cylindrical examples from Beth Shan do not bear this stamp, and hardly resemble any normal form of bread loaf.

2. LT83-5 was found in the plow zone in Square 5 and therefore dates either to Phase I or to a later time. Although still more or less conical in shape, it has steeper sides than the others, is made of alabaster instead of steatite, and has a second hole bored through one side. These atypical features and its ambivalent stratigraphic position make it possible that this object dates to a time subsequent to the Iron Age.

1988, 94, Fig. 22: 39-47), and have clear parallels with similar objects recovered from Hama (Riis 1990, Fig. 97: 754, 755).

This relatively extensive collection of objects that can be related to textile manufacture suggests that weaving and spinning may have been major activity in the area excavated. Yet the comparative data of other Early Iron Age sites does not make this part of 'Ain Dara seem at all unusual in this regard, and it may well be that such artifacts are typical of virtually all domestic contexts in the region during this era.

Other objects found in the course of the excavations were tools and fragments of iron and stone. The stone tools must have arrived in their Iron Age context indirectly, perhaps via the mud bricks that were used to make superstructures of walls, since all diagnostics belong in the sixth millennium. Metal objects accounted for a sizeable percentage of the registered smallfinds. In so small an excavated area, is it obviously inappropriate to put any faith in comparative percentages of metal objects, but the predominance of iron is perceptible. 'Ain Dara was well placed for the exploitation of this metal in that a major workable source of ore was to be found near Radjo, 30 km. away and, presuming that deforestation was no worse at the dawn of the Iron Age than it is today, timber and the means to transport it (the 'Afrin) were even closer. There are no obvious trends in the development of objects over time, at least insofar as it is observable from the preserved shapes of the objects, but again, the actual numbers are small. At least five of them are clearly projectile points—four spear (Figs. 96/1,8,9; 97/7) and one arrowhead (LT 84-70, Fig. 96/5)—a category that is not represented among our copper/bronze pieces. Of the other iron fragments (Figs. 96, 97), while most seemed utilitarian in nature, only a large sickle has a clearly identifiable function (Plate 96/11). By contrast many of the copper/bronze fragments (Fig. 95) were obviously decorative, and included pins, rings, etc. (Fig. 95/5,8).

Except for the spatulae and kohl pins, bone artifacts were relatively uncommon (Fig. 89). A couple of pins were recovered (LT84-15, LT84-53, Fig. 88/5,6), but more interesting is an astragalus of a sheep with its two long sides planed down, presumably for use as a gaming piece (LT 84-28, Fig. 88/7). Objects of this kind are much more common in the Late Bronze Age, but they have been found in Iron Age contexts in the Baqah Valley (McGovern 1986, 271, Fig. 92), Tell Far'ah (Petrie 1930, Pl. 36) and Hama (Riis 1990 Fig. 99: 814, 815).

Shells were routinely recoverd in the course of excavation and generally collected in the same manner as pottery and bones, i.e. grouped in lots by locus and level. According to David Reese of the Field Museum, for whose counsel we are grateful, freshwater bivalves (mainly Unio) and gastropods (Melanopsis) made up the majority of these. There were, however, nine shells that could be identified as marine, and presumably from the Mediterranaean: six Glycymeris, two Murex trunculus, and one Aucularia gibbosula. In a few instances, individual shells were recognized as artifactual at the time of excavation, either because they were perforated for wear or appeared exotic (see Fig. 85). These were treated as individual as objects, with specific findspots recorded, and were not brought to the United States for analysis.

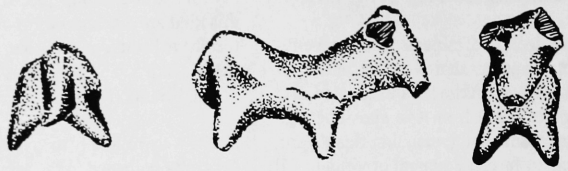
Beads were relatively numerous and completely heterogeneous (Fig. 94). The most interesting individual pieces are an "eye bead" of a type with a long chronological range from the Late Bronze through the Iron Ages (Fig. 94/5) and a small but elegant one with a curvilinear design in blue glass (Fig. 94/12).

Among the miscellaneous smallfinds, the well-polished green stone[3] celt (Fig. 90/4) displays they highest quality of workmanship. It is of relatively common shape, of which there are numerous Iron Age examples (e.g. Andrae 1943 Taf. 1p; Lamon and Shipton 1939, Plate 100, Nos. 1-3), as well as ones from earlier time periods. Its cutting edge shows some wear and the opposite end is badly chipped, so it was something more utilitarian than a "votive axe."

Figure 85: Selected shells. Left: LT84-67, pierced, from Sq. 5, Loc. 25, Level 2. Phase XVIII. Center: LT84-5, apparently of marine origin, from Sq. 5, Loc. 21, Level 1. Phase X. Right: LT84-66, pierced, from Sq. 5, Loc. 29, Level II. Phase XVI. Phase XVI. Actual size.

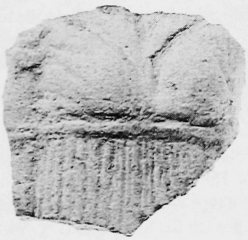
3. We have no informed judgement of the exact type of stone. Similar celts from other sites are described as as serpentine or "nephrite-like."

1



LT83-31, animal figurine, baked clay, from Sq. 4, Loc. 15, Level 1. Phase VII. Actual size.

2

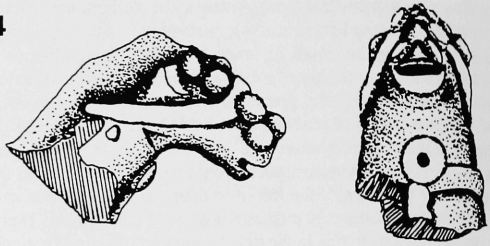


LT83-9, midsection of terracotta plaque, from Sq. 5, Loc.1, Level 1. Phase I. Actual size.

3

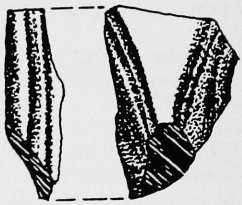
LT83-4, bottom of terracotta plaque from Sq. 5, Loc. 1, Level 1. Phase I. Actual size. May join LT83-9.

4



LT83-23, fragment of horse and rider figurine, baked clay, from Sq. 4, Loc. 12, Level 2. Phase V. Actual size.

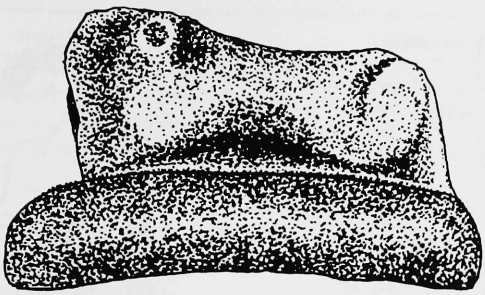
5



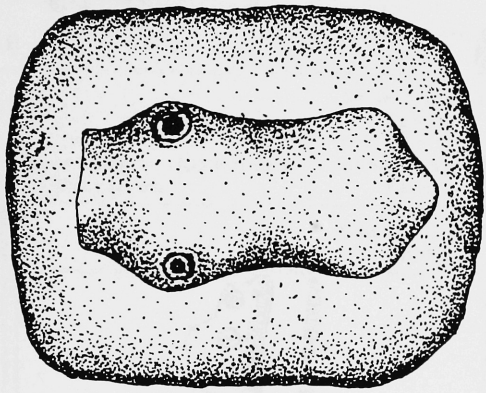
LT84-38, lower part of teracotta plaque, from Sq. 4, Loc. 24, Level 2. Phase XIV. Actual size.

Figure 86: Figurines and plaques from 'Ain Dara.

1



LT83-2, basalt lid or grinding stone with lion-shaped handle , Sq. 4, Loc. 1, Level I. Phase I. Actual size.



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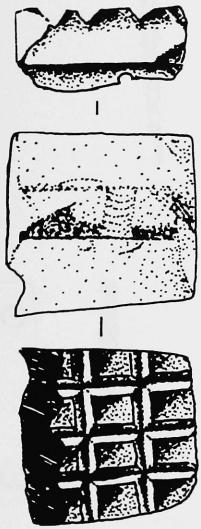


At left, LT84-57, kohl box ornament, from Sq. 4, Loc. 27, Level 4. Phase XVII. Actual size. Below, ex-Kofler collection piece (not to scacle) indicates probable position on box.

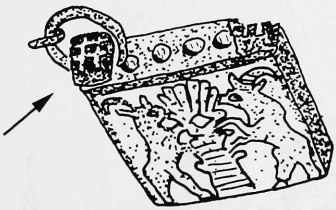


Figure 87: Sculpted and ornamental stone objects.

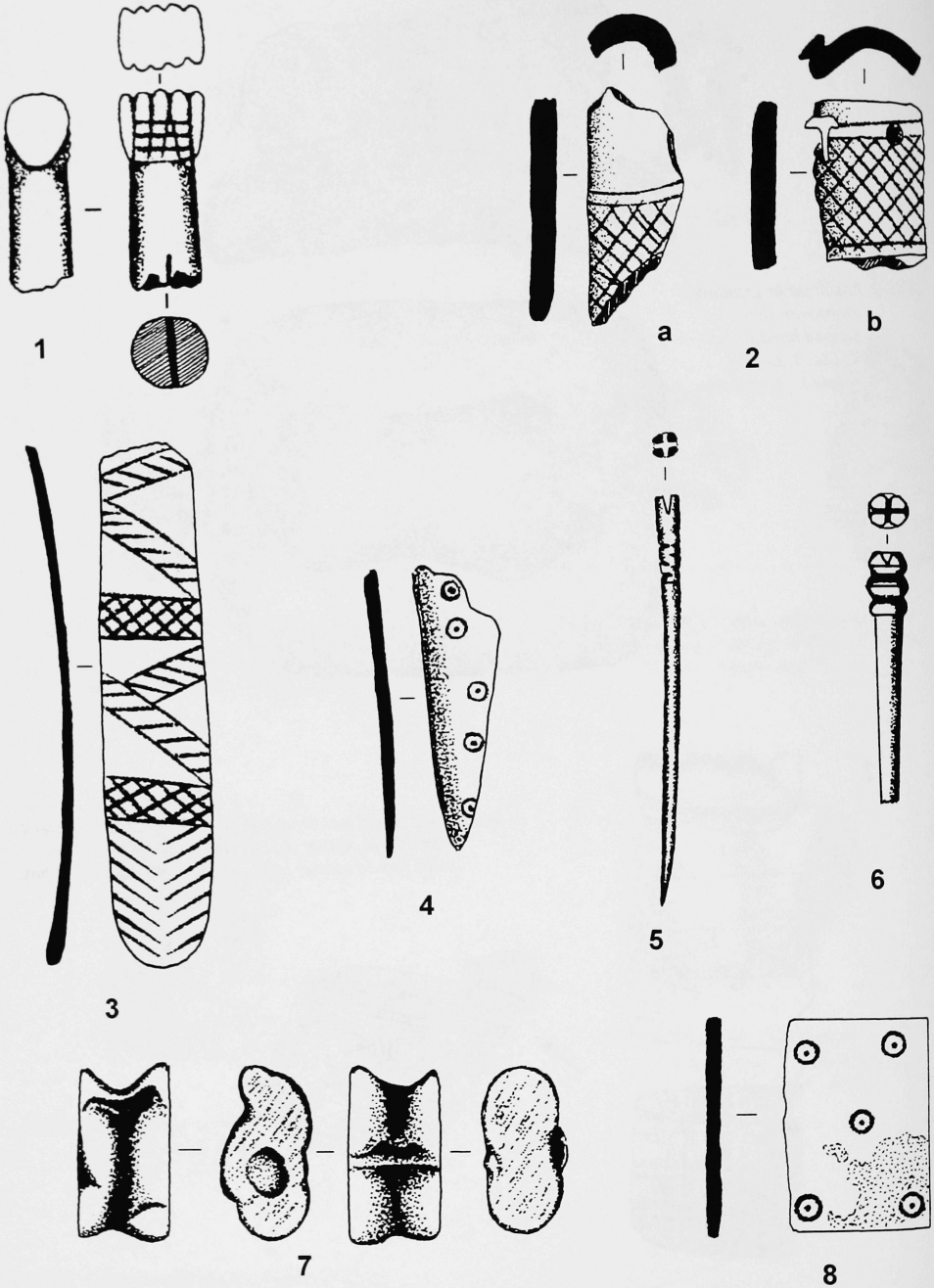


Figure 88: Decorated bone and ivory objects. Actual size.

Smallfinds

No.	Description	Provenience	Phase
1	LT 83-15, ivory knife handle	Square 4, Locus 8, Level 1, Feature 4	I
2	LT83-27, two fragments of incised bone kohl tube, burned black	Square 5, Locus 6, Level 2	III
3	LT83-13, incised bone spatula	Square 5, Locus 1, Level 2	I
4	LT84-16, fragment of incised bone spatula	Square 5, Locus 18, Level 2	VIII
5	LT83-24, ivory pin	Square 4, Locus 11, Level 2	I
6	LT83-3, polished bone pin	Square 4, Locus 1, Level 1	I
7	LT84-28, modified sheep/goat astragalus, opposited sides planed flat with indentation in one of them	Square 4, Locus 21, Level 5	XII
8	LT83-37, incised bone inlay	Square 4, Locus 15, Level 2	VII

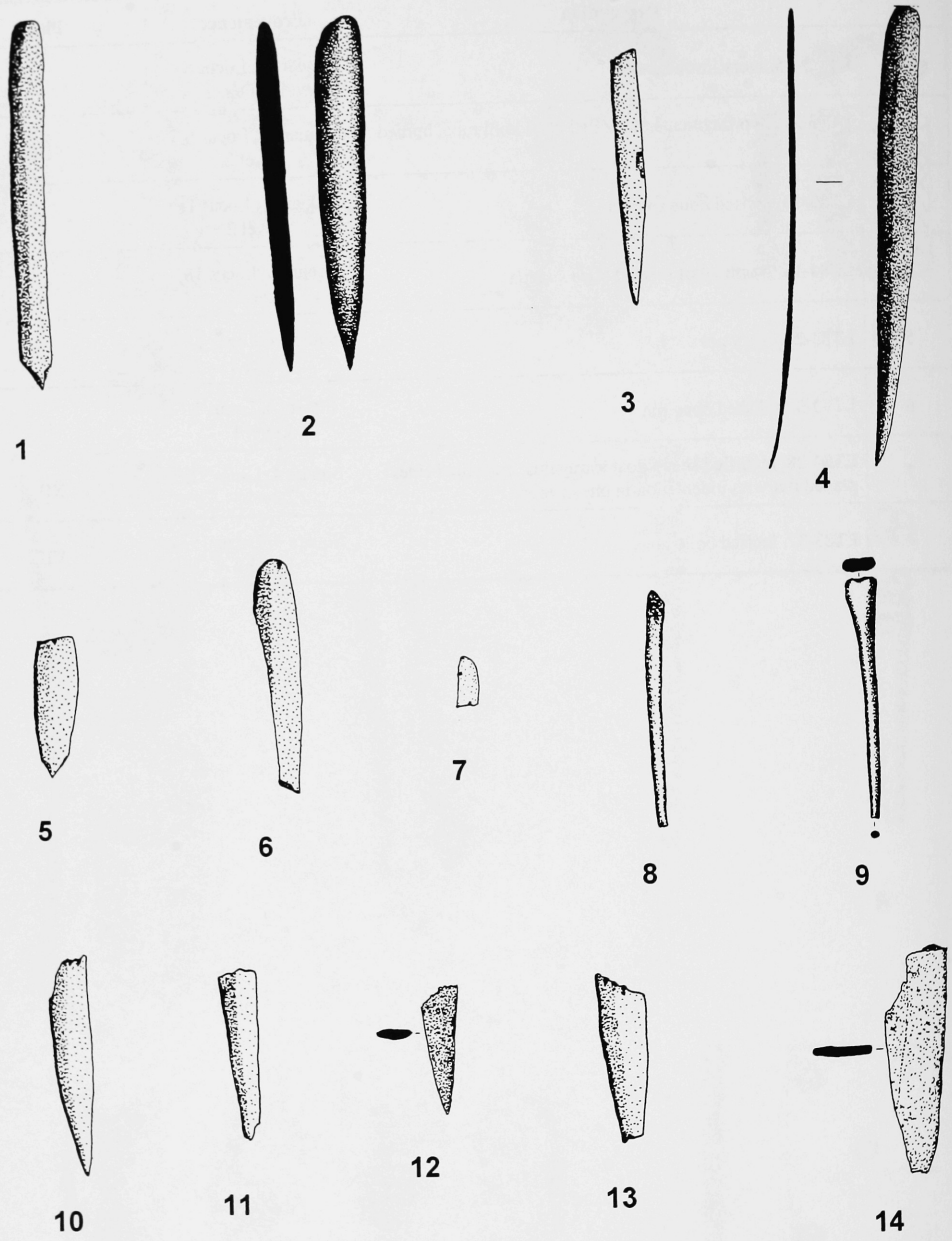


Figure 89: Bone spatulae and pins. ½ scale.

Smallfinds

No.	Description	Provenience	Phase
1	LT84-65, rounded end of long spatula	Square 5, Locus 25, Level 2	XVII
2	LT84-24, bone awl, with worn and broken tip	Square 5, Locus 21, Level 5	XVI
3	LT84-27, pointed half of spatula	Square 4, Locus 28, Level 2	XV
4	LT84-23, complete awl, curving near point	Square 4, Locus 19, Level 8	XIV
5	LT84-51, point with evidence of re-sharpening	Square 5, Locus 25, Level 1	XIII
6	LT84-25, rounded end of spatula	Square 5, Locus 21, Level 5	XIII
7	LT84-30, fragment of rounded end of spatula	Square 5, Locus 17, Level 2	VII
8	LT84-53, crude pin, tip broken off	Square 4, Locus 30, Level 1	XIII
9	LT84-15, pin with squared off head, point broken off	Square 4, Locus 16, Level 6, Feature 22	XII
10	LT84-26, pointed end of spatula or awl	Square 5, Locus 21, Level 2-5	X-XVI
11	LT84-2, flattened bone point, both ends broken	Square 5, Locus 18, Level 1	VI
12	LT83-39, fragment of bone point	unstratified	plow zone
13	LT84-22, spatula fragment, broken both ends	Square 5, Locus 13, Level 1	VI
14	LT83-25, broken bone blade	Square 4, Locus 12, Level 3	VI

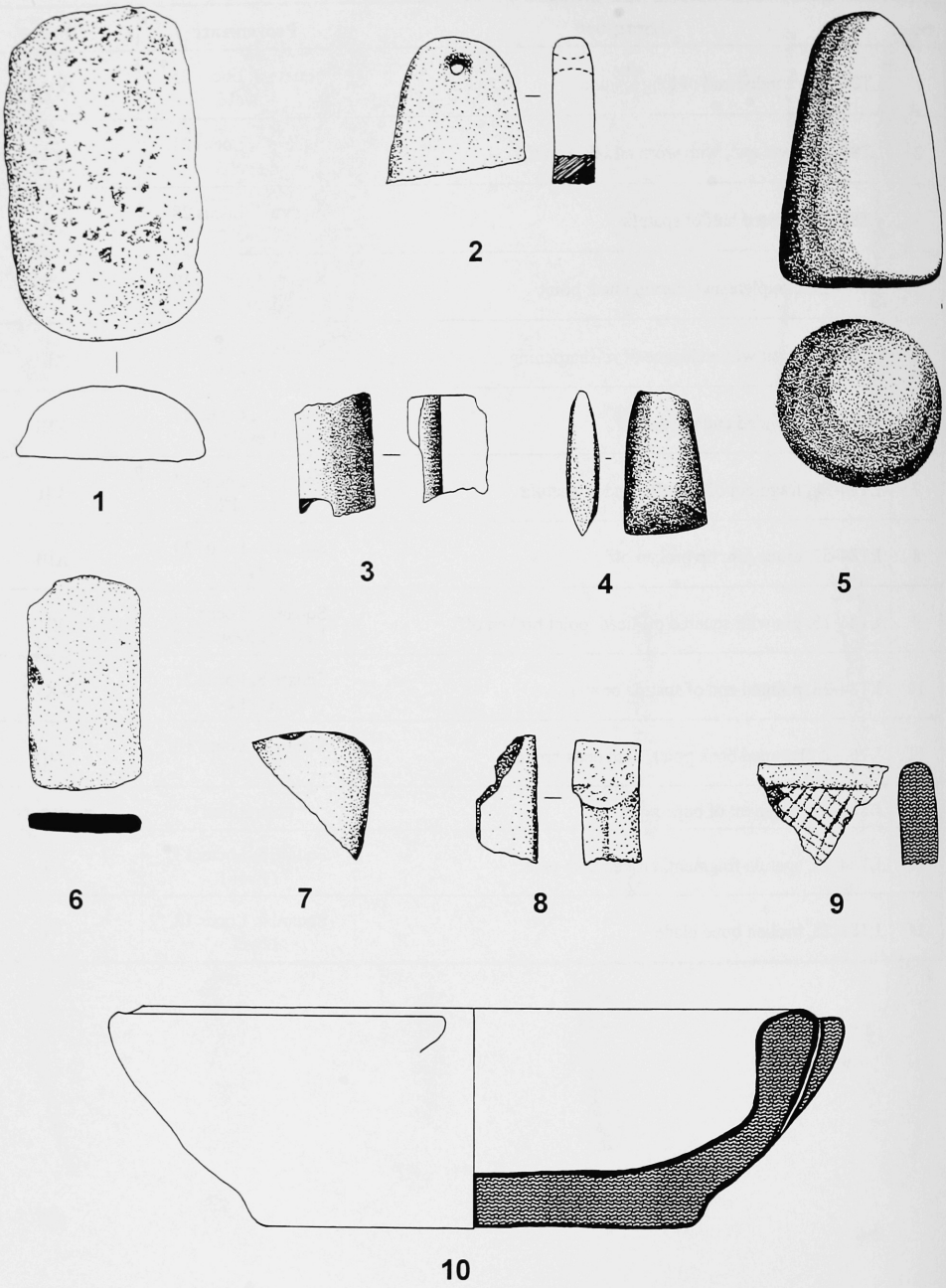


Figure 90: Miscellaneous stone objects. ½ scale.

Smallfinds

No.	Description	Provenience	Phase
1	LT82-17, basalt grinding stone	Square 3, Locus 12 Level 1	Iron II
2	LT82-19, stone weight with drilled suspension hole	Square 3, Locus 12 Level 1	Iron II
3	LT84-4, carved soapstone fragment	Square 4, Locus 24, Level 1	XIII
4	LT84-59, stone celt	Square 4, Locus 32, Level 3	XX
5	LT84-61, pecked basalt pestle	Square 4, Locus 24, Level 2	XVII
6	LT82-23, flat rectangular stone, possibly for grinding	Square 3, Locus 13 Level 1	Iron II
7	LT84-21, basalt macehead (?) fragment	Square 4, Locus 20, Level 4	IX
8	LT84-41, foot of basalt vessel (?)	Square 4, Locus 15, Level 3	VIII
9	LT82-24, flat stone with incised cross-hatching	Surface find, survey square U55	--
10	LT83-11, basalt stone bowl fragment	Square 5, Locus 1, Level 1, Feature 3	I

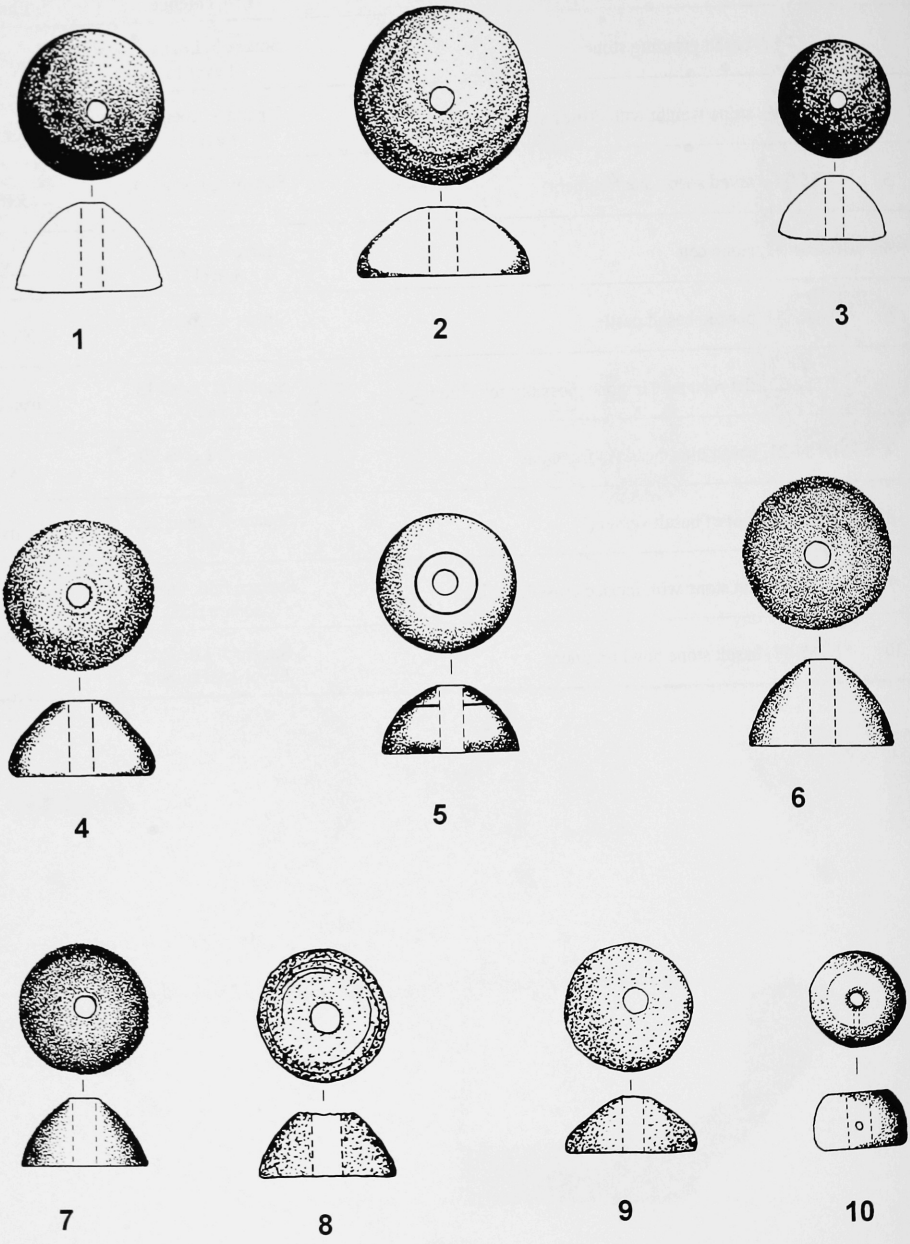


Figure 91: Conical whorls of stone and clay. 2/3 scale.

Smallfinds

No.	Description	Provenience	Phase
1	LT84-55, terracotta, cracked and blackened on outside, chipped base. Fine buff ware, 10YR 8/1)	Square 5, Locus 25, Level 1	XVI
2	LT84-58, soapstone, somewhat chipped on base	Square 5, Locus 25, Level 1	XVI
3	LT84-54, pale pink fine-grained stone	Square 4, Locus 30, Level 1, Feature 18	XIII
4	LT84-7, soapstone, somewhat chipped at top and on base	Square 5, Locus 18, Level 2	IX
5	LT84-39, soapstone	Square 5, Locus 17, Level 2	VII
6	LT83-44, very fine baked clay, color 10YR 7/4	Square 4, Locus 15, Level 2	VII
7	LT83-41, soapstone	Square 4, Locus 15, Level 2	VII
8	LT83-28, soapstone with concentric tooling lines	Square 5, Locus 14, Level 2	IV
9	LT82-15, stone	Trench 2, Locus 8, Level 1	Iron II
10	LT83-5, alabaster with secondary perforation	Square 5, Locus 1, Level 1	surface

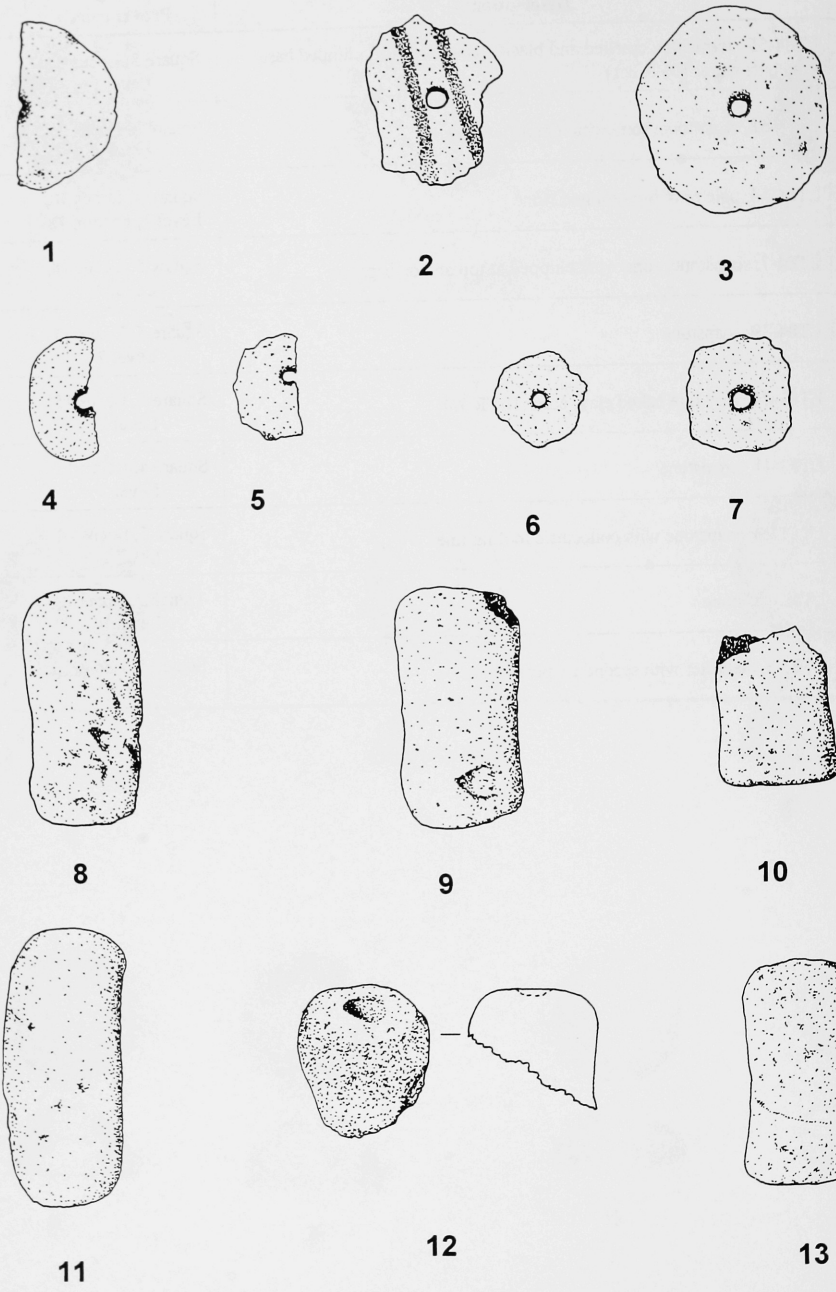
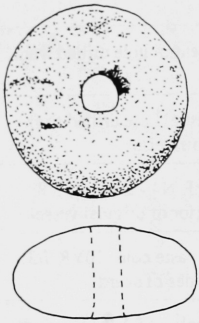


Figure 92: Perforated sherds and clay cylinder "bobbins". ½ scale.

Smallfinds

No.	Description	Phase
1	Medium ware, grit temper, paste color 10YR 7/3, edges chipped, central hole drilled from both sides of sherd	XIV
2	Medium ware, grit temper, paste color 5YR 6/6, edges chipped, central hole drilled from side that was on the interior of the original vessel and chipped from exterior	XIV
3	Medium ware, grit temper, paste color 10YR 8/2, paint colors 2.5YR N4/- and 10R 5/8, edges chipped, central hole drilled from side of sherd that was interior of original vessel	XIV
4	Medium ware, grit temper, exterior paste color 7.5YR 7/4, interior paste color 10YR 7/3, grey core, edges carefully chipped, central hole drilled from both sides of sherd	VIII
5	Medium ware, grit temper, paste color 5YR 8/3, thin exterior slip color 7.5 YR 6/4, edges chipped and ground, central hole drilled from side that was exterior of original vessel	XIV
6	Medium ware, grit temper, paste color 5YR 6/4, exterior roughly burnished, edges carefully chipped, central hole drilled from side that was interior of original vessel, with second hole partially drilled beside it	XIV
7	Medium ware, grit temper, paste color 10YR 8/3, edges chipped, central hole drilled from both sides of sherd	XVIII
8	Medium ware, grit temper, paste color 10YR 8/2, edges worn smooth	XII
9	Unbaked clay with grit temper, color 10YR 8/1	XVII
10	Fine ware, grit temper, paste color 5YR 7/4, core color 5YR 6/1, ends and part of side show wear	XIV
11	Medium to coarse ware, straw and grit temper, paste color 10YR 8/3, core color 7.5YR N3/-, ends show pitting and wear	IV
12	LT83-8, medium brown clay, paste color 7.5YR 5/6 with grey core (7.5YR N/3), deep dimple on preserved end.	I
13	LT83-32, baked clay, 5YR 5/6 with grey core. Ends, particularly the more rounded one, show signs of wear.	VII



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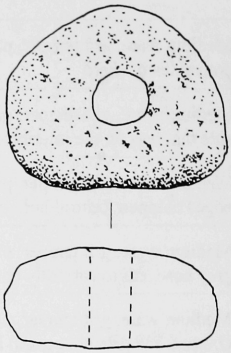

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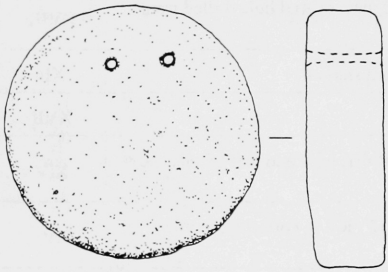

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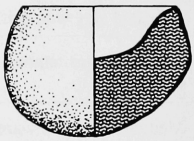

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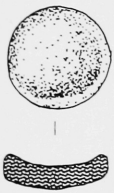

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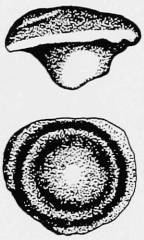

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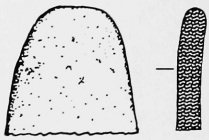

7

Figure 93: Miscellaneous clay objects. ½ scale.

Smallfinds

No.	Description	Provenience	Phase
1	LT83-12, oval baked clay weight pierced in the middle.	Square 4, Locus 6, Level 3	I
2	LT83-16, baked clay weight in an uneven D-shape, pierced in the middle	Square 4, Locus 8, Level 1, Feature 4	I
3	LT82-11, large baked clay disc with two small holes near one edge	Trench 3, surface	-
4	LT84-56, crude lightly baked clay cup or pestle	Square 5, Locus 21, Level 5	XIV
5	LT82-27, baked clay disc, concave on one side, convex on the other; smooth hard accretion on the interior of the convex side	Trench 1, Locus 6, Level 5	Iron I(?)
6	LT84-14, baked clay bottle stopper, somewhat crude	Square 5, Locus 20, Level 1	VIII
7	Worked sherd, with edges smoothed off, medium ware, grit temper, paste color 10YR 8/2		XII

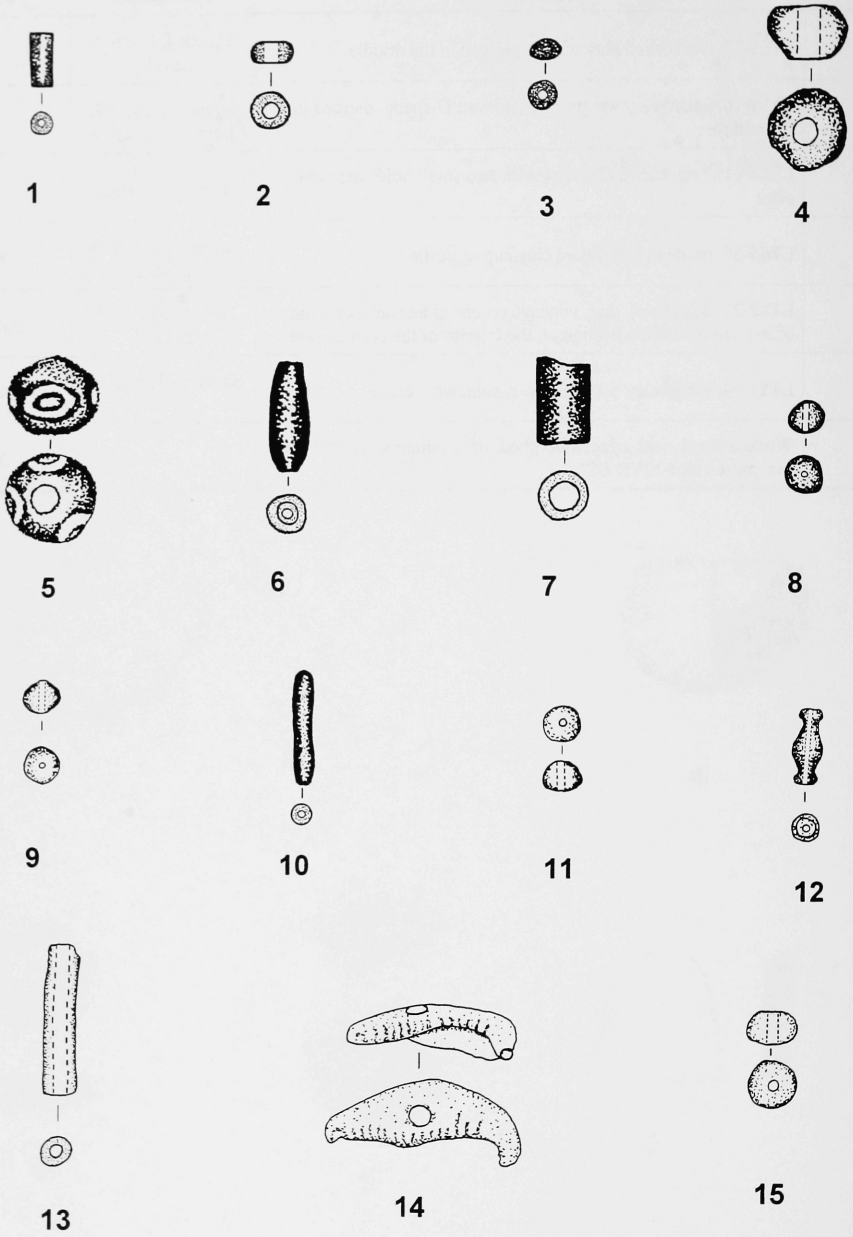

Figure 94: Beads.

Smallfinds

No.	Description	Provenience	Phase
1	LT84-52, light blue elongated frit	Square 4, Locus 24, Level 5	XVI
2	LT84-60, small globular dark blue glass	Square 5, Locus 25, Level 3	XVI
3	LT84-50, small, round, somewhat flattened dark blue glass	Square 5, Locus 21, Level 5	XVI
4	LT84-35, rather worn, globular, white frit	Square 4, Locus 24, Level 3	XVI
5	LT84-18, globular greenish black glass with three circles of yellow glass applied	Square 4, Locus 17, Level 6	XIII
6	LT84-48, light blue paste, elongated shape	Square 5, Locus 21, Level 5	XIII
7	LT84-49, white shell with large hole, broken at one end	Square 5, Locus 25, Level 1	XII
8	LT84-71, small, globular, pale blue frit	Square 5, Locus 25, Level 3	XII
9	LT84-34, small, onion-shaped, blue glass with white flecks	Square 5, Locus 22, Level 1	X
10	LT84-33, elongated, blue glass with white flecks	Square 5, Loucs 22, Level 1	X
11	LT84-19, small, globular, yellow glass with a black mark	Square 5, Locus 21, Level 2	X
12	LT84-20, elongated, dark blue glass	Square 5, Locus 18, Level 2	IX
13	LT83-33, dentalium shell bead	Square 5, Locus 14, Level 1	IV
14	LT83-40, shell, halved lengthwise and pierced, with broken edge polished. The hole was probably drilled from the inside, since the exterior is spalled	Square 5, Locus 14, Level 2, Feature 25	IV
15	LT83-10, small glass bead, now mostly white	Square 5, Locus 1, Level 1 Feature 3	I

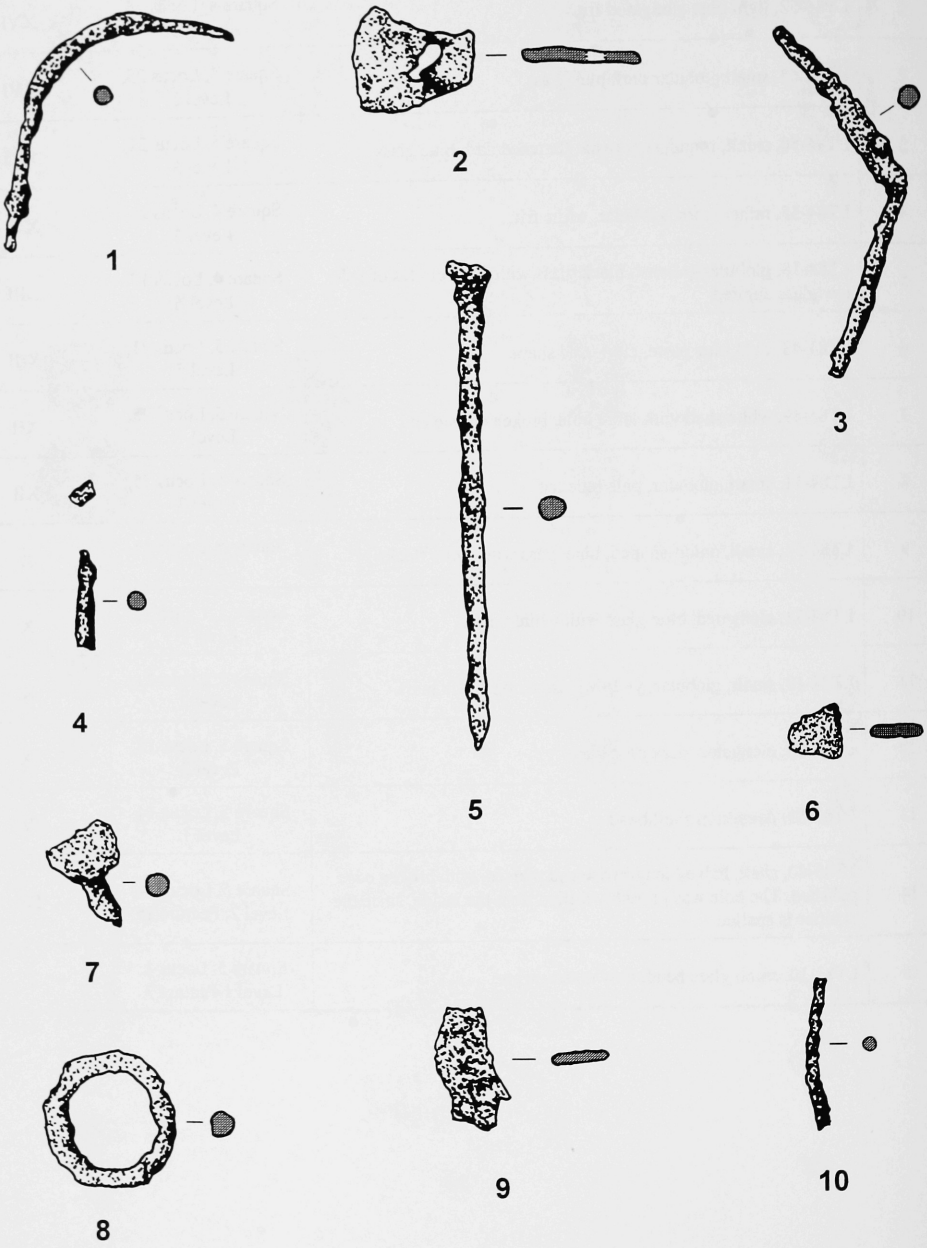

Figure 95: Bronze and copper objects.

Smallfinds

No.	Description	Provenience	Phase
1	LT84-69, hook, pointed on one end	Square 5, Locus 24, Level 1	XVIII
2	LT84-72, bent sheet, pierced	Square 4, Locus 23, Level 5	XVI
3	LT84-37, pin, bent in two places and broken at both ends	Square 4, Locus 23, Level 1	XIV
4	LT84-11, two fragments of a sheet, slightly curved	Square 4, Locus 21, Level 1, Feature 23	XIV
5	LT84-10, pin with decorative end broken off	Square 5, Locus 21, Level 2	XI
6	LT84-40, sheet fragment, somewhat bent	Square 4, Locus 20, Level 3	X
7	LT84-12, head of pin	Square 5, Locus 21, Level 2	X
8	LT84-3, ring	Square 4, Locus 15, Level 4	VIII
9	LT84-8, sheet fragment, somewhat bent	Square 5, Locus 17, Level 1	VI
10	LT84-1, pin fragment, tip and end broken off	Square 5, Locus 17, Level 1	VI

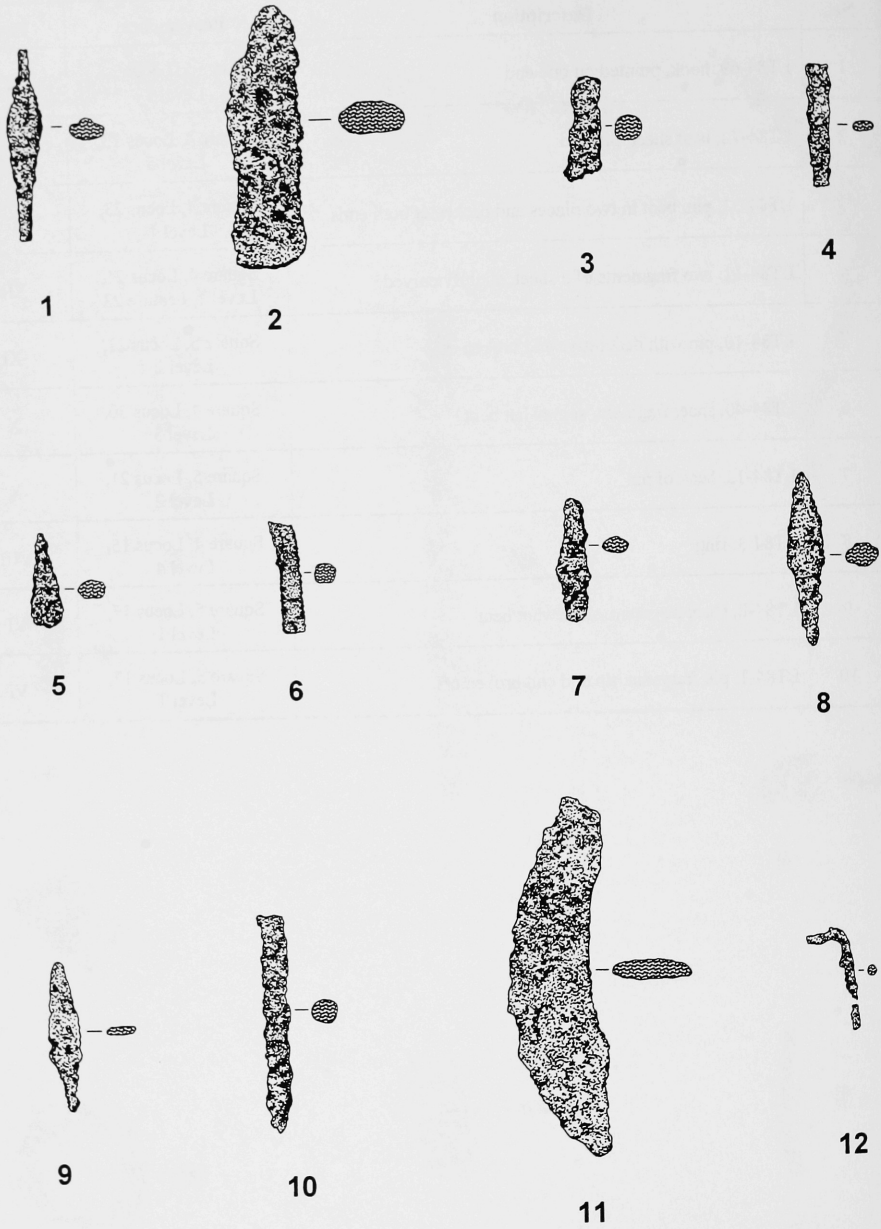

Figure 96: Iron objects from earlier phases. ½ scale.

Smallfinds

No.	Description	Provenience	Phase
1	LT84-43, projectile point, broken at both ends, slight ridge running its length	Square 4, Locus 28, Level 6	XIX
2	LT84-62, end of blade, cutting edge at bottom	Square 4, Locus 24, Level 1	XVIII
3	LT84-46, rod or nail fragment	Square 4, Locus 16, Level 9	XVI
4	LT84-32, part of small strip, one end broken	Square 4, Locus 28, Level 3	XVI
5	LT84-70, corroded point	Square 5, Locus 25, Level 3	XV
6	LT84-45, portion of a rod, broken at both ends	Square 5, Locus 21, Level 5	XIV
7	LT84-64, nail fragment, somewhat flattened	Square 5, Locus 28, Level 1	XIV
8	LT84-42, projectile point, with swelling between point and haft.	Square 5, Locus 21, Level 5	XIV
9	LT84-44, projectile point, tip bent, with swelling between blade and haft	Square 5, Locus 21, Level 5	XIV
10	LT84-31, nail (?) fragment, head end broken off	Square 5, Locus 21, Level 2-5	XIV
11	LT84-17, curved sickle blade, broken at one end	Square 4, Locus 17, Level 6	XIII
12	LT84-6, pin, bent at thickest part, in two pieces	Square 4, Locus 17, Level 5	XII

Figure 97: Iron objects, later phases. ½ scale.

Smallfinds

No.	Description	Provenience	Phase
1	LT84-9, pin, broken at one end	Square 4, Locus 17, Level 4, Feature 18	XI
2	LT84-29, lump, slightly cup-shaped, heavily corroded	Square 5, Locus 21, Level 1	X
3	LT84-63, curved blade	Square 5, Locus 19, Level 2	VIII
4	LT83-43, lump, badly corroded	Square 4, Locus 16, Level 3	VIII
5	LT84-68, flat sheet, pierced	Square 5, Locus 17, Level 2	VII
6	LT83-30, projectile point, leaf-shaped and thickened near the base	Square 4, Locus 15, Level 1	VII
7	LT83-14, projectile point	Square 4, Locus 7, Level 1	V
8	LT83-42, curved pin, tip preserved, other end broken off	Square 5, Locus 5, Level 2	III
9	LT83-19, nail (?) fragment, head and tip missing	Square 5, Locus 6, Level 1	II
10	LT83-18, head of a nail	Square 5, Locus 2, Level 1, Feature 10	I
11	LT83-26, slightly curved cylindrical object, broken at one end	Square 5, Locus 15, Level 1, Feature 13	I
12	LT82-14, fragment of iron pin	Trench 1, Locus 3, Level 3, Feature 6	Hellenistic
13	LT82-8, oblong object	Trench 2, Locus 5, Level 1	Hellenistic

Catalog of Registered Objects

Registration Number	Object Description	Findspot	Size	Phase or Period	Illustration
LT82-1	Pecked stone weight	Trench 1 Locus 1 Level 1	Height: 3.5 cm. Diam: 4.5 cm.	?	
LT 82-2	Decorated Islamic pipe stem of buff clay, bowl broken off.	Trench 2 Locus 1 Level 1	Length: 5.3 cm. Diam: 2.5 cm.	modern	
LT 82-3	Corroded iron nail.	Trench 2 Locus 1 Level 1	Length: 3.3 cm. Width: 0.3 cm. Head: 1.8 cm.	?	
LT 82-4	Rim fragment of a glass vessel.	Trench 1 Locus 1 Level 1	Length: 1.6 cm Width: 1 cm. Thick: 0.4 cm.	?	
LT 82-5	Curved metal fragment, perhaps part of a ring.	Trench 1 Locus 1 Level 1	Length: 1.6 cm. Diam: 0.5 cm.	?	
LT 82-6	Decorated Islamic pipe bowl of baked clay, stem broken off.	Trench 3 Locus 3 Level 1	Height: 3.5 cm. Ext. diam: 2.5 cm. Int. diam: 1.6 cm.	Islamic	
LT 82-7	Decorated ceramic lamp, chipped.	Trench 3 Locus 1 Level 1	Length: 8.5 cm. Diam: 4.8 cm. Height: 3.1 cm.	Hellenistic	19
LT 82-8	Corroded iron bar.	Trench 2 Locus 5 Level 1	Length: 7.0 cm. Width: 1.7 cm. Thick: 1.2 cm.	Hellenistic	97/13
LT 82-9	Copper ring.	Trench 3 Locus 6 Level 2	Ext. diam: 2 cm. Int. diam: 1.3 cm.	Iron II	
LT 82-10	Small ring, one half preserved.	Trench 3 Locus 10 Level 1	Ext. diam: 1 cm. Int. diam: 0.4 cm.	Iron II	
LT 82-11	Perforated disc, two holes pierced on one end.	Trench 3 Surface	Diam: 9 cm. Thick: 2.5 cm. Hole diam: 0.2 cm.	?	93/3
LT 82-12	Corroded fragment of copper/bronze.	Trench 1 Locus 4 Level 1	Length: 3.3 cm. Width: 1.3 cm.	Mixed Iron II & Hellenistic	

Smallfinds

Registration Number	Object Description	Findspot	Size	Phase or Period	Illustration
LT 82-13	Copper/bronze fragment.	Trench 1 Locus 3 Level 3	Length 0.9 cm. Width: 0.5 cm.	Iron I	
LT 82-14	Iron fragment.	Trench 1 Locus 3 Level 3 Feature 6	Length: 4 cm. Width: 0.8 cm.	Hellenistic	97/12
LT 82-15	Stone conical spindle whorl.	Trench 2 Locus 8 Level 1	Diam: 3.4 cm. Height: 1.3 cm. Hole diam: 0.4 cm.	Iron II	91/9
LT 82-16	Glass bracelet fragment.	Trench 3 Locus 11 Level 1	Length: 2.6 cm. Diam: 0.6 cm.	Mixed Iron II & Hellenistic	
LT 82-17	Grinding stone.	Trench 3 Locus 12 Level 1	Length: 23 cm. Width: 13 cm. Height: 5.5 cm.	Iron II	90/1
LT 82-18	Pierced ground stone weight (?)—broken.	Trench 3 Locus 12 Level 1	Length: 4.5 cm. Width: 4.5 cm. Thick: 1.5 cm.	Iron II	
LT 82-19	Broken perforated disc.	Trench 3 Locus 13 Level 1	Diam: 5 cm. Thick: 0.7 cm. Hole diam: 0.6 cm.	Iron II	90/2
LT 82-20	Corroded copper/bronze fragment.	Trench 1 Locus 3 Level 3	Length: 3.2 cm. Width: 3 cm. Thick: 1.5 cm.	Iron I	
LT 82-21	Irregular stone with hemispherical depressions drilled on both sides.	Trench 3 Locus 13 Level 1 Feature 11	Length: 12 cm. Width: 9 cm. Thick: 5 cm.	Iron II	
LT 82-22	Fragment of a glass bracelet.	Trench 3 Locus 11 Level 1	Length: 7 cm. Diam: 0.6 cm.	Mixed Iron II & Hellenistic	
LT 82-23	Flat rectangular grinding stone.	Trench 3 Locus 13 Level 1	Length: 15 cm. Width: 8 cm. Thick: 1.4 .	Iron II	90/6
LT 82-24	Stone object with cross-hatched decoration.	Square U55 Surface	Length: 5 cm. Width: 3.8 cm.	?	

Registration Number	Object Description	Findspot	Size	Phase or Period	Illustration
LT 82-25	Baked clay disc with a raised center.	Trench 1 Locus 6 Level 3	Diam: 2.9 cm. Height: 1.1 cm.	Iron I	
LT 82-26	Baked clay animal figurine, rear half, front legs and horns (?) broken off.	Trench 1 Locus 6 Level 5	Height: 5.3 cm. Width: 3.3 cm. Length: 2.8 cm.	Iron I	30
LT 82-27	Baked clay disc, concave on one side, convex on the other; smooth hard accretion on the interior of the concave side.	Trench 1 Locus 6 Level 5	Diam: 3.8 cm. Thick: 1.1 cm.	Iron I (?)	93/5
LT 83-1	Baked clay Islamic clay pipe mouthpiece with incised decoration, chipped at the end, broken at the stem	Square 4 Locus 1 Level 1 Feature 1	Length: 3 cm. Diam: 2.8 cm. Hole diam: 1 cm.	Islamic	
LT 83-2	Basalt box lid (?) with a handle in the shape of a lion, base slightly concave.	Square 4 Locus 1 Level 1	Base length: 8.2 cm. Base width: 6.5 cm. Base height: 1.8 cm. Height: 3.2 cm. Lion length: 4.3 cm. Lion width: 1.5 cm.	I	87/1
LT 83-3	Bone pin, polished with point broken off. Carved head.	Square 4 Locus 1 Level 1	Length: 4.5 cm. Max diam: 0.6 cm.	I	88/6
LT 83-4	Baked clay Hellenistic plaque fragment showing feet, legs and skirt.	Square 5 Locus 1 Level 1	Width: 3.2 cm. Height: 5.7 cm. Thick: 1.7 cm.	Hellenistic? Same piece as LT83-9	86/3
LT 83-5	Alabaster conical spindle whorl, with a secondary hole on one side.	Square 5 Locus 1 Level 1	Diam: 2.5 cm. Height: 1.5 cm. Hole diam: 0.6 cm. 2nd hole diam: 0.2 cm.	I	91/10
LT 83-6	Nearly complete orangeware trefoil pot with a single handle. Broken in antiquity.	Square 4 Locus 1 Level 1 Feature 3	Rim diam: 8.5 cm. Height: 28 cm. Max diam: 22 cm.	I	69
LT 83-7	Scaraboid of soft, cream-colored stone, showing a sphinx on its base.	Square 4 Locus 1 Level 1 Feature 3	Length: 1.3 cm. Width: 1 cm. Height: 0.9 cm.	I	83

Smallfinds

Registration Number	Object Description	Findspot	Size	Phase or Period	Illustration
LT 83-8	Broken baked clay cylinder with a dimple on the end.	Square 4 Locus 1 Level 1 Feature 3	Max diam: 4.6 cm. Height: 4.4 cm. Dimple diam: 1 cm.	I	92/12
LT 83-9	Upper portion of a baked clay plaque showing a draped female bust. Probably Hellenistic.	Square 5 Locus 1 Level 1	Length: 3.9 cm. Width: 4.3 cm. Thick: 1.4 cm.	Hellenistic Same piece as LT83-4	86/2
LT 83-10	Small globular glass bead, now mostly white in color.	Square 5 Locus 1 Level 1 Feature 3	Diam: 0.9 cm. Height: 0.6 cm. Hold diam: 0.2 cm.	I	94/15
LT 83-11	Rim-to-base fragment of a basalt bowl with shallow base and simple rim with a broad ledge handle.	Square 5 Locus 1 Level 1 Feature 3	Rim diam: 24 cm. Base diam: 15 cm. Height: 7.7 cm. Mean thick: 1.8 cm.	I	90/10
LT 83-12	Oval baked clay weight pierced in the middle.	Square 4 Locus 6 Level 3	Diam: 6.7 cm. Height: 3.2 cm. Hole diam: 1 cm.	I	93/1
LT 83-13	Polished and incised bone spatula, tip broken off.	Square 5 Locus 1 Level 2	Length: 9 cm. Width: 1.6 cm. Thick: 0.3 cm.	I	88/3
LT 83-14	Iron point, but end broken off.	Square 4 Locus 7 Level 1	Length: 6.8 cm. Thick. 0.7 cm. Max. width: 1.4 cm.	V	97/7
LT 83-15	Ivory knife handle, carved, broken off where the first rivet attached the blade.	Square 4 Locus 8 Level 1 Feature 4	Length: 3.8 cm. Width: 1.6 cm. Breadth: 1.4 cm.	I	88/1
LT 83-16	Baked clay weight, in an uneven D-shape, pierced in the middle.	Square 4 Locus 8 Level 1 Feature 4	Length: 8.6 cm. Width: 6.8 cm. Height 3.8 cm. Hole diam: 1.6 cm.	I	93/2
LT 83-17	One third of a basalt stone bowl a large simple vessel with a ring base.	Square 5 Locus 5 Level 1	Rim diam: 32 cm. Base diam: 14 cm. Height: 10.6 cm. Mean thick: 2.4 cm.	III	

Registration Number	Object Description	Findspot	Size	Phase or Period	Illustration
LT 83-18	Head end of an iron nail.	Square 5 Locus 2 Level 1 Feature 10	Length: 5.9 cm. Shaft diam: 1.4 cm. Head diam: 2.3 cm.	I	97/10
LT 83-19	Iron nail (?) fragment, head and tip missing.	Square 5 Locus 6 Level 1	Length: 4.6 cm. Diam: 1.1 cm.	II	97/9
LT 83-20	Unbaked clay vessel—very crude and simple.	Square 4 Locus 12 Level 1	Diam: 3.8 cm. Height: 4 cm. Thick: 0.7 cm.	IV	
LT 83-21	Copper/bronze fragment—perhaps part of jewelry.	Square 5 Locus 10 Level 2 Feature 14	Length: 1.8 cm. Width: 0.9 cm. Thick: 0.2 cm.	VI	
LT 83-22	Red-slipped burnished rectangular vessel with two raised bands of decoration—one around the base with thumb impressions, one below the rim with slashes.	Square 5 Locus 10 Level 2 Feature 14	Length: 81.5 cm. Width: 63 cm. Rim thick: 6.5 cm. Body thick: 4 cm. Base thick: 12 cm.	VI	68
LT 83-23	Baked clay horse's head figurine, with appliquéed eyes and harness. The rest of the body is broken off.	Square 4 Locus 12 Level 2	Height: 4.6 cm. Length: 4.1 cm. Thick: 2.5 cm.	V	86/4
LT 83-24	Ivory pin, complete, with carved end.	Square 4 Locus 11 Level 2	Length: 7.4 cm. Max diam: 0.5 cm.	I	88/5
LT 83-25	Broken bone spatula; tip is broken off, as is all of the but end.	Square 4 Locus 12 Level 3	Length: 7.9 cm. Width: 2.3 cm. Thick: 0.2 cm.	VI	89/14
LT 83-26	Slightly curved iron object, broken at one end.	Square 5 Locus 15 Level 1 Feature 13	Length: 9.3 cm. Max diam: 1.7 cm.	I	97/11
LT 83-27	Two fragments of an incised bone box. The two pieces do not join; one is pierced.	Square 5 Locus 6 Level 2	Length 1: 3.1 cm. Length 2: 4.4 cm. Width 1: 2.5 cm. Width 2: 1.8 cm. Thick 1: 0.5 cm. Thick 2: 0.6 cm.	III	88/2

Smallfinds

Registration Number	Object Description	Findspot	Size	Phase or Period	Illustration
LT 83-28	Conical soapstone spindle whorl with concentric tooling lines.	Square 5 Locus 14 Level 2	Base diam: 3.5 cm. Top diam: 1.7 cm. Height: 1.9 cm. Hole diam: 0.7 cm.	IV	91/8
LT 83-29	Baked clay cylinder, one end rounded and worn, the other more flattened.	Square 4 Locus 15 Level 1	Length: 9.9 cm. Max. diam: 4.0 cm. Min. diam: 3.8 cm.	VII	
LT 83-30	Iron projectile point, leaf-shaped and thickened near the base.	Square 4 Locus 15 Level 1	Length: 6.1 cm. Width: 1.5 cm. Base thick: 0.7 cm. Tip thick: 0.4 cm.	VII	97/6
LT 83-31	Small baked clay animal figurine—probably of a sheep.	Square 4 Locus 15 Level 1	Length: 4.7 cm. Width 1.8 cm. Body height: 1.9 cm. Total height: 2.9 cm.	VII	86/1
LT 83-32	Baked clay cylinder, one end rounded and worn, the other more squared off.	Square 4 Locus 15 Level 1	Length: 7.9 cm. Max. diam: 4.6 cm. Min. diam: 4.2 cm.	VII	92/13
LT 83-33	Dentalium shell bead.	Square 5 Locus 14 Level 1	Length: 2.6 cm. Diam: 0.6 cm. Hole diam: 0.3 cm.	IV	94/13
LT 83-34	Vesicular basalt object, roughly circular with shallow depressions on top and bottom.	Square 5 Locus 15 Level 1	Diam: 10.8 cm. Height: 4.8 cm. Depressions: 3.5 cm.	III	
LT 83-35	Broken iron point, tip and large part of base broken off.	Square 4 Locus 17 Level 2	Length: 2.4 cm. Max. width: 1.4 cm. Thick: 0.8 cm.	VIII	
LT 83-36	Broken worked stone foot to a vessel (?) Of fine grained grey stone. The chisel marks give it a fluted appearance.	Square 5 Locus 12 Foundation	Length: 4.4 cm. Max. diam: 2.0 cm. Min. diam: 1.7 cm.	VI	
LT 83-37	Broken piece of bone inlay decorated with five pierced circles.	Square 4 Locus 15 Level 2	Length: 3.7 cm. Width: 2.6 cm. Thick: 0.2 cm.	VII	88/8
LT 83-38	Baked clay cylinder, thickened at each end, which are flat.	Square 5 Locus 14 Level 2 Feature 25	Length: 8.4 cm. Max. diam: 5 cm. Min. diam: 3.6 cm.	IV	

Registration Number	Object Description	Findspot	Size	Phase or Period	Illustration
LT 83-39	Bone point, polished on the upper surface, only the tip preserved.	Findspot unknown	Length: 4.4 cm. Max. width: 1.3 cm. Thick: 0.2 cm.	unstratified	89/12
LT 83-40	Halved and pierced cowrie shell. Broken edge is polished. Hole drilled from inside.	Square 5 Locus 14 Level 2 Feature 25	Length: 3.3 cm. Width: 1.3 cm. Thick: 0.5 cm.	IV	94/14
LT 83-41	Conical soapstone spindle whorl.	Square 4 Locus 15 Level 2	Max. diam: 3.4 cm. Height: 1.7 cm. Hole diam: 0.5 cm.	VII	91/7
LT 83-42	Curved iron pin, tip preserved, end broken off.	Square 5 Locus 5 Level 2	Length: 4.3 cm. Diam: 0.4 cm.	III	97/8
LT 83-43	Iron lump, badly corroded.	Square 4 Locus 16 Level 3	Length: 3.8 cm. Height: 2.3 cm. Width: 1.9 cm.	VIII	97/4
LT 83-44	Conical baked clay spindle whorl, horizontal smoothing lines visible on upper surface.	Square 4 Locus 15 Level 2	Diam: 4.0 cm. Height: 2.3 cm. Hole diam: 0.6 cm.	VII	91/6
LT 84-1	Copper/bronze pin fragment, both tip and end broken off.	Square 5 Locus 17 Level 1	Length: 2.6 cm. Diam: 0.2 cm	VI	95/10
LT 84-2	Bone point, tip slightly broken, but end broken off.	Square 5 Locus 18 Level 1	Max. width: 1.2 cm. Length: 5.8 cm. Thick: 0.2 cm.	VI	89/11
LT 84-3	Copper/bronze ring.	Square 4 Locus 15 Level 4	Diam: 2.4 cm. Thick: 0.4 cm. Hole diam: 1.7 cm.	VIII	95/8
LT 84-4	Basalt object—perhaps the foot of a vessel—broken at both ends.	Square 4 Locus 15 Level 3	Length: 9 cm. Width: 5.2 cm. Thick: 3.9 cm.	VIII	90/3
LT 84-5	Broken fragment of a marine shell—no identifiable sign of modification.	Square 5 Locus 21 Level 1	Length: 3.7 cm. Width: 2.5 cm. Thick: 0.3 - 0.1 cm.	X	85
LT 84-6	Iron pin—bent at its thickest part, badly corroded.	Square 4 Locus 17 Level 5	Length: 5.3 cm. Diam: 0.2-0.4 cm.	XII	96/12

Smallfinds

Registration Number	Object Description	Findspot	Size	Phase or Period	Illustration
LT 84-7	Conical soapstone spindle whorl, somewhat chipped on top and base, with scratches on the base.	Square 5 Locus 18 Level 2	Diam: 3.9 cm. Height: 2 cm. Hole diam: 0.7 cm.	IX	91/4
LT 84-8	Fragment of a copper/bronze sheet, somewhat bent.	Square 5 Locus 17 Level 1	Length: 2.3 cm. Width: 1.1 cm. Thick: 0.1 cm.	VI	95/9
LT 84-9	Iron pin, broken on the end.	Square 4 Locus 17 Level 4 Feature 18	Length: 4.6 cm. Max. diam: 0.4 cm.	XI	97/1
LT 84-10	Copper/bronze pin; it probably had a circular decorative end which is now broken off.	Square 5 Locus 21 Level 2	Length: 8.5 cm. Max. diam: 0.5 cm.	XI	
LT 84-11	Two fragments of a copper/bronze sheet, slightly curved.	Square 4 Locus 23 Level 1 Feature 23	Length 1: 1.7 cm. Length 2: 0.5 cm. Width 1: 0.3 cm. Width 2: 0.3 cm. Thick 1: 0.1 cm. Thick 2: 0.1 cm.	XIV	95/4
LT 84-12	Head of a copper/bronze pin. Head was originally flat but is now bent, most of rest of the pin is broken off.	Square 5 Locus 21 Level 2	Length: 1.7 cm. Width: 1.2 cm. Thick: 0.6 cm. Pin diam: 0.4 cm.	X	95/7
LT 84-13	Top half of a scaraboid, somewhat chipped and broken along piercing hole.	Square 4 Locus 17 Level 4 Feature 18	Length: 1.6 cm. Width: 1 cm. Hole diam: 0.2 cm.	XI	84
LT 84-14	Baked clay bottle stopper, somewhat crude.	Square 5 Locus 20 Level 1	Height: 2.7 cm. Top diam: 4.6 cm. Stopper diam: 2.4 cm.	VIII	93/6
LT 84-15	Bone pin with a flat and squared off head, point broken off.	Square 4 Locus 16 Level 6 Feature 22	Length: 8.4 cm. Thick: 0.4 cm. Head width: 1.1 cm.	XII	89/9
LT 84-16	Part of a decorated bone spatula, five pierced circles on preserved tip.	Square 5 Locus 18 Level 2	Length: 5.1 cm. Width: 1.3 cm. Thick: 0.2 cm.	VIII	88/4

Registration Number	Object Description	Findspot	Size	Phase or Period	Illustration
LT 84-17	Curved iron sickle blade, broken at one end.	Square 4 Locus 17 Level 6	Length: 12.8 cm. Max. width: 2.9 cm. Thick: 0.8 cm.	XIII	96/11
LT 84-18	Globular greenish-black glass bead with three circles of yellow glass applied.	Square 4 Locus 17 Level 6	Height: 1.2 cm. Diam: 1.5 cm. Hole diam: 0.5 cm.	XIII	94/5
LT 84-19	Small globular yellow glass bead with a black mark on it.	Square 5 Locus 21 Level 2	Height: 0.6 cm. Diam: 0.8 cm. Hole diam: 0.2 cm.	X	94/11
LT 84-20	Elongated dark blue glass bead.	Square 5 Locus 18 Level 2	Length: 1.3 cm. Max. diam: 0.6 cm. Min. diam: 0.4 cm. Hold diam: 0.1 cm.	IX	94/12
LT 84-21	Basalt mace-head (?) fragment. Pecked into shape with a slight dimple on the end.	Square 5 Locus 20 Level 4	Height: 4.7 cm. Width: 5 cm. Max. thick: 3.8 cm.	IX	90/7
LT 84-22	Bone spatula, broken at both ends.	Square 5 Locus 13 Level 1	Length: 5.8 cm. Max. width: 1.7 cm. Thick: 0.2 cm.	VI	89/13
LT 84-23	Complete bone point, curves upward towards the point.	Square 4 Locus 19 Level 8	Length: 15.9 cm. Max. width: 1.4 cm. Thick: 0.15 cm.	XIV	89/4
LT 84-24	Bone awl, with the tip worn and broken.	Square 5 Locus 21 Level 5	Length: 12.2 cm. Max. width: 1.6 cm. Thick: 0.9 cm.	XIII	89/2
LT 84-25	But end of a bone spatula.	Square 5 Locus 21 Level 5	Length: 8.2 cm. Max. width: 1.4 cm. Thick: 0.2 cm.	XIII	89/6
LT 84-26	Tip end of a bone spatula.	Square 5 Locus 21 Levels 2-5	Length: 7.5 cm. Max. width: 1.3 cm. Thick: 0.2 cm.	X-XVI	89/10
LT 84-27	Tip half of a bone spatula.	Square 4 Locus 28 Level 2	Length: 8.7 cm. Max. width: 0.8 cm Thick: 0.2 cm.	XV	89/3
LT 84-28	Modified sheep/goat astragalus. The two sides have been flattened with a depression carved in one of them.	Square 5 Locus 21 Level 5	Length: 3.1 cm. Width: 1.6 cm. Thick: 1.6 cm.	XII	88/7

Smallfinds

Registration Number	Object Description	Findspot	Size	Phase or Period	Illustration
LT 84-29	Iron lump, slightly cup-shaped, heavily corroded.	Square 5 Locus 21 Level 1	Length: 5.9 cm. Width: 5.1 cm. Thick: 1.6 cm.	X	97/2
LT 84-30	Fragment of the but end of a bone spatula.	Square 5 Locus 17 Level 2	Length: 2.3 cm. Width: 1.1 cm. Thick: 0.2 cm.	VII	89/7
LT 84-31	Iron nail (?) fragment, head end broken off.	Square 5 Locus 21 Level 2-5	Length: 7.5 cm. Diam: 1 cm.	XIV	96/10
LT 84-32	Part of a small iron strip, one end broken off.	Square 4 Locus 28 Level 3	Length: 4.6 cm. Width: 1 cm. Thick: 0.4 cm.	XVI	96/4
LT 84-33	Elongated blue glass bead, glass has occasional white flecks.	Square 4 Locus 22 Level 1	Length: 2 cm. Width: 0.35 cm. Hole diam: 0.1 cm.	X	94/10
LT 84-34	Small onion-shaped blue glass bead, glass has occasional white flecks.	Square 5 Locus 22 Level 1	Height: 0.6 cm. Diam: 0.6 cm. Hole diam: 0.1 cm.	X	94/9
LT 84-35	Rather worn, globular white frit bead.	Square 4 Locus 24 Level 3	Height: 0.9 cm. Diam: 1.3 cm. Hole diam: 0.4 cm.	XV	94/4
LT 84-36	Two fragments of blue glass.	Square 5 Locus 21 Level 5	Too small to measure.	XIII	
LT 84-37	Copper/bronze pin, bent in two places with both ends broken.	Square 4 Locus 23 Level 1	Length: 7.1 cm. Diam: 0.3 cm.	XIV	95/3
LT 84-38	The lower portion of a baked clay plaque (?) showing a skirt tapering towards the feet (?).	Square 4 Locus 24 Level 2	Length: 3.4 cm. Max. width: 2.4 cm. Thick: 0.9 cm.	XIV	86/5
LT 84-39	Conical soapstone spindle whorl with concentric tooling lines on the base and top.	Square 5 Locus 17 Level 2	Height: 1.8 cm. Diam: 3.6 cm. Hole diam: 0.6 cm.	VII	91/5
LT 84-40	Copper/bronze sheet fragment, now somewhat bent.	Square 4 Locus 20 Level 3	Length: 1.2 cm. Width: 1.1 cm. Thick: 0.2 cm.	X	95/6

Registration Number	Object Description	Findspot	Size	Phase or Period	Illustration
LT 84-41	Broken piece of carved soapstone. Originally had a somewhat rectangular profile and a hole in it—now broken. Has rectangular indentation and markings on one side.	Square 4 Locus 24 Level 1	Height: 4.3 cm. Length: 5 cm. Width: 3.6 cm. Hole diam: 0.1 cm.	XIII	90/8
LT 84-42	Iron projectile point, swollen between blade and haft.	Square 5 Locus 21 Level 5	Length: 6 cm. Width: 1.3 cm. Max. thick: 0.8 cm.	XIV	96/8
LT 84-43	Iron projectile point, slightly broken at both ends with slight ridge in the middle.	Square 4 Locus 28 Level 6	Length: 7 cm. Width: 1.3 cm. Thick: 0.8 cm.	XIX	96/1
LT 84-44	Iron projectile point, tip bent, swollen between blade and haft.	Square 5 Locus 21 Level 5	Length: 5.2 cm. Width: 1.2 cm. Thick: 0.5 cm	XIV	96/9
LT 84-45	A portion of an iron rod, broken at both ends.	Square 5 Locus 21 Level 5	Length: 4.2 cm. Diam: 0.8 cm.	XIV	96/6
LT 84-46	Iron fragment—broken and corroded—probably part of a rod or nail.	Square 4 Locus 16 Level 9	Length: 3.6 cm. Diam: 1.1 cm.	XVI	96/3
LT 84-47	Copper-bronze pin—badly corroded and somewhat curved.	Square 5 Locus 21 Level 5	Length: 7.3 cm. Diam: 0.2 cm.	XIV	
LT 84-48	Light blue paste bead—elongated in shape.	Square 5 Locus 21 Level 5	Length: 1.9 cm. Diam: 0.7 cm. Hole diam: 0.2 cm.	XIII	94/6
LT 84-49	White shell bead with large hole—broken at one end.	Square 5 Locus 25 Level 1	Length: 1.4 cm. Diam: 0.8 cm. Hole diam: 0.4 cm.	XII	94/7
LT 84-50	Small, round, somewhat flattened dark blue glass bead.	Square 5 Locus 21 Level 5	Diam: 0.5 cm. Height: 0.2 cm. Hole diam: 0.2 cm.	XV	94/3
LT 84-51	Tip end of a bone point, shows signs of resharpening.	Square 5 Locus 25 Level 1	Length: 4.9 cm. Width: 1.5 cm. Thick: 0.2 cm.	XVI	89/5
LT 84-52	Light blue elongated frit bead.	Square 4 Locus 24 Level 5	Length: 0.9 cm. Diam: 0.4 cm. Hole diam: 0.1 cm.	XVI	94/1

Smallfinds

Registration Number	Object Description	Findspot	Size	Phase or Period	Illustration
LT 84-53	Crude bone pin, tip broken off.	Square 4 Locus 30 Level 1	Length: 8.3 cm. Width: 0.7 cm. Thick: 0.4 cm.	XIII	89/8
LT 84-54	Conical spindle whorl of pink limestone.	Square 4 Locus 30 Level 1 Feature 18	Height: 1.6 cm. Diam: 2.9 cm. Hole diam: 0.5 cm.	XIII	91/3
LT 84-55	Conical baked clay spindle whorl, cracked and blackened on the outside, chipped on the base.	Square 5 Locus 25 Level 1	Height: 2.3 cm. Diam: 3.9 cm. Hole diam: 0.5 cm.	XVI	91/1
LT 84-56	Crude lightly baked clay cup or pestle.	Square 5 Locus 21 Level 5	Height: 4.5 cm. Width: 6 cm. Hole diam: 4.3 cm. Hole depth: 1.7 cm.	XIV	93/4
LT 84-57	Corner of baked clay kohl box, cross-hatched design.	Square 4 Locus 27 Level 4	Length: 3 cm. Width: 2.9 cm. Height: 1.2 cm.	XVIII	87/2
LT 84-58	Conical soapstone spindle whorl, low and flat, somewhat chipped on the base.	Square 5 Locus 25 Level 1	Diam: 4.5 cm. Height: 1.9 cm. Hole diam: 0.7 cm.	XVI	91/2
LT 84-59	Small greenstone celt, slightly chipped on the sharp end.	Square 4 Locus 32 Level 3	Length: 4.9 cm. Max. width: 2.9 cm. Min. width: 2 cm. Thick: 1.3 cm.	XX	90/4
LT 84-60	Small globular dark blue glass bead.	Square 5 Locus 25 Level 3	Diam: 0.6 cm. Height: 0.5 cm. Hole diam: 0.2 cm.	XVI	94/2
LT 84-61	Pecked basalt pestle, roughly cone-shaped. Base shows some signs of wear.	Square 5 Locus 24 Level 2	Diam: 6.3 cm. Height: 9.7 cm.	XVIII	90/5
LT 84-62	End of an iron blade.	Square 4 Locus 24 Level 1	Length: 8.4 cm. Width: 2.5 cm. Thick: 1.2 cm.	XVIII	96/2
LT 84-63	Curved iron blade.	Square 5 Locus 19 Level 2	Length: 5.5 cm. Width: 2.8 cm. Thick: 0.5 cm.	VIII	97/3

Registration Number	Object Description	Findspot	Size	Phase or Period	Illustration
LT 84-64	Iron nail fragment, somewhat flattened.	Square 5 Locus 28 Level 1	Length: 4.2 cm. Width: 1.1 cm. Thick: 0.6 cm.	XIV	96/7
LT 84-65	But end of a long bone spatula.	Square 5 Locus 25 Level 2	Length: 12.5 cm. Width: 1.1 cm. Thick: 0.2 cm.	XVII	89/1
LT 84-66	Shell pierced near the hinge.	Square 5 Locus 29 Level 3	Length: 2.6 cm. Width: 2.5 cm. Thick: 0.9 cm. Hole diam: 0.3 cm.	XVI	85
LT 84-67	Pierced marine shell.	Square 5 Locus 25 Level 2	Length: 1.5 cm. Width: 1.1 cm. Height: 0.8 cm. Hole diam: 0.2 cm.	XVIII	85
LT 84-68	Flat piece of iron, pierced.	Square 5 Locus 17 Level 2	Length: 2.3 cm. Width: 1.7 cm. Hole diam: 0.2 cm.	VII	97/5
LT 84-69	Copper-bronze hook, pointed on one end.	Square 5 Locus 24 Level 1	Length: 6.8 cm. Diam: 0.4 cm	XVIII	95/1
LT 84-70	Small corroded iron point.	Square 5 Locus 25 Level 3	Length: 3.3 cm. Width: 1.1 cm. Thick: 0.7 cm.	XV	96/5
LT 84-71	Small globular pale blue frit bead.	Square 4 Locus 16 Level 6	Diam: 0.6 cm. Height: 0.6 cm. Hole diam: 0.1 cm.	XII	94/8
LT 84-72	Bent copper/bronze sheet, pierced.	Square 4 Locus 23 Level 5	Length: 2.3 cm Width: 1.7 cm. Thick: 0.1 cm.	XVI	95/2

Chapter 8

Botanical Remains

by Patricia L. Crawford

The carbonized and mineralized plant remains from the Iron Age site of 'Ain Dara in Syria were recovered during the 1983 and 1984 seasons of excavation from domestic proveniences ranging in age from 1100 B.C. to 750 B.C. Seeds and plant parts are present from both cultivated and wild plants. The study of such plant remains can potentially provide information on diet and economy, land use, environment, and other aspects of cultural behavior. Plants are introduced into a site by human and animal activity as well as by natural processes and preservation of their remains is provided by special circumstances that lead to carbonization and mineralization.

There is modern cultivation all around the the ancient settlement mound of 'Ain Dara, which lies on the bank of the 'Afrin River. Approximately one kilometer to the east, the sides of the valley rise upward toward a large limestone plateau, from which a number of springs are fed. Locally, the most substantial of these is located at a small village near the modern highway and gives its name to both village and site. In 1982 this spring filled a large, year-round pool, and drained towards the 'Afrin in a small stream which flowed to the south of the mound. There was also a much smaller spring to be found at the base of the north side of the citadel mound of the tell itself (Fig. 7, unit K60). Some five kilometers downstream is a still more powerful spring at Basuta. By 1984, however, all but the spring at Basuta were largely dry due to extensive deep water pumping for irrigation, a phenomenon that would not have affected the area in antiquity.

The slopes of the hills surrounding 'Ain Dara, and especially those immediately across the river to the west, were devoted to the production of olives and grapes, but the alluvium surrounding the site was used for annual crops, grown in rotation. At the time when the soundings in the lower settlement were undertaken, wheat, sugar beets and sunflowers were all produced in the area. These annual crops dominated the alluvium between 'Afrin to the north and southward as far as Basuta, where the river becomes a gorge with no appreciable arable land. But between 'Ain Dara and Basuta and along the banks of the 'Afrin, the land is given over to orchards, mostly growing pomegranates, and vegetable gardens. Although much of the water that flowed through these gardens derived from diesel pumps, some came from the Basuta spring.

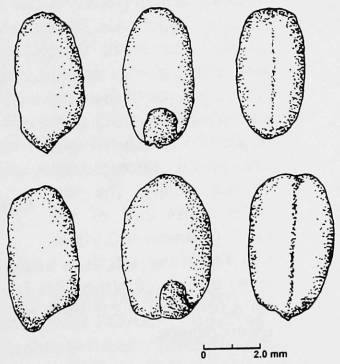

Figure 98: Triticum aestivum/durum

Method

Soil samples were taken from various contexts in Phases I to XX. Features include floors, pits, ash deposits, and a tanour. The samples from 1983 were processed using a manual system of flotation, while those from 1984 were processed with a mechanical system. The smallest sieve mesh size was less than 1 mm. The float from both the light and heavy fractions was dried and packaged in the field. Thirty-five samples were sorted in the laboratory using a binocular dissecting microscope with magnification 10x to 40x. Both carbonized and mineralized seeds and plant parts were separated from the float fractions. Seed types were identified using comparative material, seed manuals, and descriptions of archaeobotanical remains. In the following descriptions, where three dimensions are given, they are in the order of length, width (breadth), and thickness.

Cultivated Food Plant Remains

Several types of food plants were recovered. Barley and wheat are the two types of cereal present. Lentils are present in a few proveniences but are concentrated in a single sample. Other leguminous plants, vetch and pea, are most likely wild forms but may have been cultivated as fodder for animals.

Bread or Hard Wheat - *Triticum aestivum/durum*

The wheat found at 'Ain Dara is a free threshing type. Because it is not always possible to differentiate between bread and hard wheat, both are indicated (van Zeist and Bakker-Heeres 1982).The caryopses (cereal grains) have a rounded rather than tapered apex. The absence of rachis

fragments or nodes/internodes makes identification of the specific type difficult. Dimensions range from 3.7 mm x 2.1 mm x 2.0 mm to 4.7 mm x 3.1 mm x 2.0 mm. Wheat is the most common cereal present and therefore apparently the most important food crop at 'Ain Dara from the earliest to the latest levels. A few wheat internodes occur in the earliest sampled strata, Phase XX, indicating the presence of crop processing debris. The general lack of processing debris on the site overall, however, indicates that the crop was cleaned elsewhere and stored before use.

Six-Row Barley - *Hordeum vulgare*

Spindle-shaped caryopses of naked barley occur frequently in Phases III to XX. Measurements average 5.7 mm x 3.2 mm x 2.3 mm. Rachis fragments occur in only two samples (956-4 and 375-4), one of which has no cereals present. Barley is an important cereal consumed by both humans and animals. Although barley occurs in fewer proveniences than wheat, it occurs in greater numbers, possibly because it was present in dung used as fuel. Barley tolerates less than ideal, even saline, soil conditions and is a crop especially suitable for dry farming.

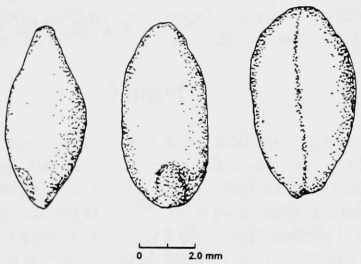

Figure 99: Hordeum vulgare.

Grape - *Vitis vinifera*

The seeds, skins, and stems of this fruit occur throughout Phases III to XX. Although many of the seeds are full size (width 4.5 mm to 5.0 mm), seeds from both mature and immature fruits are mixed in many contexts. Both carbonized and mineralized forms also occur together suggesting a variety of preservation processes operating in one archaeological context. Fruit collected as food for humans or wine production is generally harvested in the mature state and would be represented by full-sized pips as well as skin and stem debris. Fruits used as animal fodder need not be uniformly ripe and may explain the presence of mixed stages of seed maturity in carbonized dung. The high frequency of grape in the 'Ain Dara samples may be attributed to several modes of preservation, pips expectorated by humans into fires/hearths, refuse from wine production, and as remains in animal dung that was collected and burned as fuel.

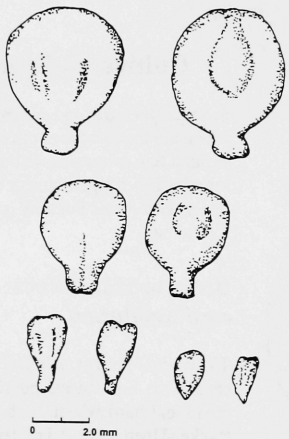

Figure 100: Vitis vinifera

Lentil - *Lens culinaris*

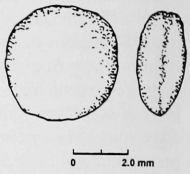

Figure 101: Lens culinaris.

Seeds of the small seeded variety (average diameter = 4.0 mm) of this legume (var. *microsperma*) are not common at 'Ain Dara but occur in quantity (n = 45) in one context in Phase XV. Lentils grow well in light, sandy, low-moisture soils and do not require irrigation. Since this pulse is a major food plant and a good source of vegetable protein, it is surprising that it is not better represented.

Non-Cultivated Food Plants

Wild as well as cultivated species of plants also have food uses for both humans and animals. Fruit bearing wild trees or shrubs are the most commonly exploited, but weedy species such as legumes are also utilized, especially as fodder.

Vetch/Wild Pea - *Vicia* sp./*Pisum* sp.

The seeds of these legumes found at 'Ain Dara are generally damaged with the hilum feature missing. Classification is based on morphology—vetch is angular, and pea more rounded. Vetch may be cultivated as a fodder or found as a weed of cereal crops. Its presence in the 'Ain Dara samples may result from the cleaning of cereal grains. Because of its use as an animal fodder vetch may be also be introduced into the record through the burning of dung. The generally small size of the seeds (diameter = 2.0 mm to 3.5 mm) suggests these vetches are a wild contaminant of crops or foraged plants. Pea is also represented by a small form (diameter < 2.0 mm), most likely the wild field pea, *Pisum humile*.

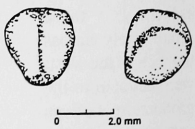

Figure 102: Vicia/Pisum

Fig - *Ficus carica* or *Ficus sycomorus*

The small, comma-shaped seeds of fig are not common and occur primarily in a mineralized state. The small size may indicate that a wild species, such as *Ficus sycomorus* is present, possibly as animal food taken in an immature state. Fig trees thrive in dry, rocky soils, but have an extensive root system that seeks out moisture or ground water.

Pomegranate - *Punica granatum*

A fragment of one seed of this fruit occurs at 'Ain Dara. Although pomegranates might be considered cultivated, they occur naturally in the site environment. The presence of only one specimen might indicate low frequency of use or unfavorable conditions for preservation. Pomegranate seeds are consumed whole along with the fruit and might not easily find their way into the archaeological record. Pomegranate seeds have been found in quantity in a Bronze Age context at Deir Alla (van Zeist and Heeres 1973), however. Pomegranates are widely cultivated in the area of 'Ain Dara today.

Weed Plants

Weed species can provide information regarding the environment within the site catchment, soil conditions, agricultural practices, and other dimensions of land-use. At 'Ain Dara a wide range of weed types are present. In most instances, however, seeds of weed species occur in low densities, in some cases being represented by only a single specimen. This low density implies these plants were of little or no economic importance. In most cases weed species are introduced incidentally as discard from cleaning crop plants, as brush fuel, or as components of dung fuel (Miller 1984; Miller and Smart 1984).The presence of certain weed types can provide clues to the nature of the plant community in the landscape around the settlement.

Arnebia

The siliceous nutlets of this plant of the borage family turn grey or white when burned making them appear modern (van Zeist and Bakker-Heeres 1982:211-2). The seed is pyriform with a triangular base surrounded by a collar or lip and measures 2.8 mm x 2.0 mm x 1.5 mm. *Arnebia* is a plant of arid soils often found where dry farming is practiced, as indicated at Mureybit (van Zeist and Bakker-Heeres 1984b).Their predominance in Phase III may indicate that they are intrusive into the upper soil layers.

Asphodelus

This edible plant of the lily family has tuberous roots. The three-sided wedge-shaped seed has a vertical ridge on the ventral face and a wrinkled surface (4.0 mm x 2.0 mm). Only one seed of this plant was found at 'Ain Dara. Asphodel is found in dry, stony , uncultivated soils and disturbed habitats, and can be an indicator of overgrazing (van Zeist and Bakker-Heeres 1984a: 160).

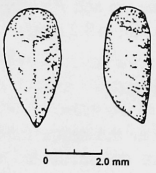

Figure 103: Asphodelus

Astragalus

This leguminous plant has a flat rectangular seed with a deep hilar notch on its long side. It occurs as a field weed or as a component of steppe vegetation in dry stony soils. *Astragalus* has been suggested as an example of a woody perennial used as fuel (van Zeist and Waterbolk-van Rooijen 1985: 139-146).

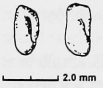

Figure 104: Astragalus

Caryophyllaceae

The seeds of the pink family are generally small, comma- or kidney-shaped with concentric rows of papillae, or protuberances. Some species are weeds found in cereal crops or in dry soils.

Chenopodiaceae

Seeds of the goose-foot family are disc-shaped or comma-shaped. The coiled embryo is apparent in some forms. Plants of this family are generally found in disturbed areas or waste places. Some species tolerate saline soils, but none of these types are indicated at 'Ain Dara. Many species are foraged by animals. The leaves are edible and may be used as salad greens, and the seeds of some are ground into a flour-like paste.

Compositae

Some Compositae have cone- or tubular-shaped achenes, sometimes flat on top with a slight ridge or collar. The specimens found at 'Ain Dara have tapered or blunt apices. Some achenes have longitudinal striations or ridges. Such Composites are aster or thistle-like plants that inhabit dry, disturbed soils, or are found at the edges of agricultural or fallow fields. They would be incorporated in the archaeological record either as crop contaminants or dung components.

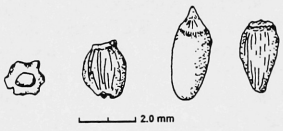

Figure 105: Compositae

Coronilla

The elongated spindle-shaped seeds of this leguminous plant occur throughout the 'Ain Dara levels, generally in association

with other crop weeds such as *Medicago* and *Phalaris*. *Coronilla* seeds vary in length from 2.6 mm to 3.2 mm.

Figure 106: Coronilla

Cyperaceae

Seeds from the sedge family at 'Ain Dara are small and three-sided, or flat and two-sided. They are round or heart-shaped, with a length of 2.0 mm or less. Most species indicate moist ground such as river banks or marshes, but some occur as weeds of disturbed areas.

Fimbrystylis

This small heart-shaped sedge seed with vertical ribbing is from a weed of wetlands, possibly indicating stream or river-banks within the grazing areas of the settlement. It does not occur in great numbers nor in high frequency, but is distributed in diverse levels.(i.e., Phases VI, XI, XX). It probably came to the site as a component of animal dung that was used as fuel.

Galium

This spherical to hemispherical seed (diameter = 1.8 mm to 2.3 mm) has a large hole or depression on the flat side. *Galium*, or bedstraw, is a weed found among cereal and lentil crops and may indicate that lentils were a more common food plant at 'Ain Dara than the sparseness of lentil remains otherwise suggests.

Figure 107: Galium

Leguminosae

Various undetermined members of the legume family are indicated by the remains of hilum scars on the seeds. Many small-seeded types invade disturbed or cultivated land from steppe habitats and are foraged by animals within the catchment of the site.

Lithospermum

Seeds of this genus are found evenly distributed in various levels. Like the seeds of *Arnebia* they usually occur in mineralized form, white or gray, as a result of exposure to fire. At least two types are represented at 'Ain Dara, *L. arvensis* and *L. tenuifolium*. The length and breadth of *Lithospermum* seeds range from 2.5 mm x 1.7 mm to 3.1 mm x 1.9 mm. These plants inhabit fields and waste places.

Lolium

A mix of *L. perenne* and *L. temulentum* is present throughout the levels of 'Ain Dara. The lengths of the seeds range from 3.2 mm to 3.8 mm in the one sample in which they were all measured (Table 1, number 3). These grasses are weeds of cereal crops and commonly occur as debris produced in the final stages of the grain cleaning process. Lolium has toxic properties and is not favored as a forage plant in its mature stage, but may be eaten as a young plant.

Malva

The wedge -like, comma-shaped seeds of this plant of the mallow family range in length/diameter from 1.5 mm to 2.0 mm. *Malva* seeds occur throughout 'Ain Dara levels with dense concentrations in Phases XV and XX. Plants of this genus are present in a wide range of habitats, from waste places and roadsides to fallow fields and weedy places. The leaves and fruit of many *Malva* species are edible making them preferred forage plants.

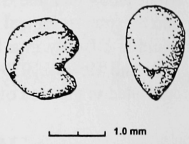

Figure 108: Malva

Medicago

The flat, reniform seeds of this legume are found from Phase III to XX at 'Ain Dara. Length ranges from 1.7 mm to 3.0 mm. A large number are located in Phase XX which represents a burned dung deposit. This concentration suggests that *Medicago* may have been concentrated in and cleaned from a cereal crop or specifically gathered as fodder. Some species are cultivated as fodder. *Medicago* is common in fallow fields, waste places, and stony soils.

Papaveracae

Figure 109: Medicago

The tiny seeds (< 1.0 mm) of the poppy family are kidney or comma-shaped with waffle or reticulated patterning. They are generally plants of fields and roadsides and are probably incorporated as forage excreted in dung.

Phalaris

The flat seeds of this field weed range in length from 1.2 mm to 2.6 mm. They are found throughout the levels of 'Ain Dara probably as a grass contaminant of cereal crops. Since it is also favored as a forage plant, it may have been introduced as a component of dung fuel.

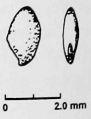

Figure 110: Phalaris

Plantago

Figure 111: Plantago

Cf. *Plantago ovata* (van Zeist and Bakker-Heeres 1982:253). This flat, ovate, boat-shaped seed is rounded on the dorsal surface and indented or furrowed on the ventral surface. Measurements range from 1.8 mm x 1.0 mm x 0.6 mm to 2.8 mm x 1.1 mm x 1.0 mm. This plant is a weed of fallow fields and disturbed habitats.

Polygonaceae

Figure 112: Polygonaceae

Seeds of the knotweed family are either flat and heart-shaped or three-sided. They are weeds of disturbed land or waste places.

Prosopis

Single seeds of this legume occur in Phases IV and XX., and an entire pod or fruit occurs in Phase IV. *Prosopis* is a weed of disturbed land or fallow fields and is eaten by sheep and goats. A concentration of *Prosopis* has been interpreted by Helbaek (1966:613-620) as food remains.

Figure 113: Prosopis

Rumex

Figure 114: Rumex

These small (1.0 mm x 1.3 mm) three-sided seeds are sparse at 'Ain Dara. Some may be also included under the general Polygonaceae heading. Rumex is a weed of waste places and disturbed areas, most likely incorporated in dung as a foraged plant.

Scorpiurus

This crescent-shaped reniform legume (2.5 mm x 1.3 mm) has its hilum located on the convex dorsal surface. Only two specimens are present. *Scorpiurus* is a field weed and may hasve been included in the archaeological record as a crop contaminant.

Figure 115: Scorpiurus

Silene

These tiny reniform seeds (< 1.0 mm) of the Caryophyllaceae family have flat sides and are rounded dorsally. Parallel rows of bumps, or *papillae*, follow the contour of seed. Silene, or catchfly, is a weed of cultivated fields.

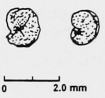

Figure 116: Silene

Trifolium

Figure 117: Trifolium

Species of these leguminous plants are grown as animal fodder. The scant presence and small size (<1.0 mm) of these spherical seeds suggest a field weed rather than a cultivated form.

Teucrium

The seed of this member of the mint family is domed on the dorsal side with a waffled or reticulate surface pattern (2.2 mm x 1.5 mm x 1.2 mm). It is a plant found in dry, rocky soils. Many types have medicinal properties.

Figure 118: Teucrium

Trigonella

This flat, rectangular legume is found on disturbed or cultivated land.

Figure 119: Trigonella

The weeds incorporated in the botanical remains of 'Ain Dara are common to many other sites in the Middle East, and specifically Syria (van Zeist and Bakker-Heeres 1982; 1984a,b; 1985; van Zeist and Heeres 1973). They are for the most part either species found as crop contaminants or species of disturbed land or waste areas. *Lolium*, *Phalaris*, and various unidentified grasses are consistently found in crops. *Astragalus* and *Trigonella* are small-seeded legumes naturally of steppe vegetation that have invaded disturbed or cultivated land. The weed species were introduced into the archaeological record as discarded food, as debris from crop cleaning, as fuel, or as components of dung used as fuel (Miller 1984, Miller and Smart 1984). As components of dung, they reflect an environment within the foraging range characterized for the most part by dry, sandy, or stony soils and disturbed habitats resulting from land use that included cultivation (probably dry farming), habitation, and possibly overgrazing.

Conclusions

The uniformity of the distribution of the botanical remains from Phases I- XX suggests that the exploitation of plants at 'Ain Dara followed much the same pattern over time. The main cereal crops were free threshing wheat and six-row barley, the former possibly for human consumption and the latter for animal use as well. Grapes also play an important role as a food, perhaps for both humans and animals. A mixture of mature with immature seeds in the deposits suggests that grapes were harvested for food or fodder/forage and perhaps with wine production in mind. Although lentils are present in the lower levels, no other food pulses occur aside from the wild forms of vetch and field pea. Other wild plants that could be used for food or fodder include fig and pomegranate, but neither are plentiful.

Minimal use of irrigation for cultivation is indicated by the lack of halophytic (salt-loving) or hydrophytic (water-loving) plants in the archaeological record. The widespread presence of barley in the samples would lead support to the idea that a regime of dry farming predominated in this area. Since no other cultivated form of a fodder crop is evident, barley may have been grown as feed for the large population of livestock during times when forage was minimal. The general lack of chaff—cereal stems, rachis, and internode fragments (debris from the initial stages of processing)—indicates that grain was threshed and winnowed away from the site and stored in a relatively clean state prior to distribution and use. The cereal crop contaminants that are present were not effectively removed in the pre-storage processing phase but would have been sieved or picked out at the time of use. It seems unusual that in cases where animal dung was used as fuel, it does not appear that the chaff was used as fodder. The weed flora seem to indicate, however, that animals foraged fallow fields, possibly damp areas, and disturbed land in the vicinity of the settlement. The land may have, in fact, been overgrazed, an hypothesis supported by the presence of asphodel in several samples.

The absence of other economic plants commonly found in other Near Eastern sites such as date, olive, chickpea, flax, and pistachio is remarkable. It is likely that the inhabitants of 'Ain Dara utilized such items as date and olive during 500 years of occupation. This absence may merely be an artifact of selective preservation, inadequate sampling, or lack of excavation. On the other hand, it is possible that environmental conditions and/or farming conditions may not have supported the growth of some of these plants.

The inhabitants of 'Ain Dara may have focused on their animal population as an economic strategy. They produced both wheat and barley crops, possibly barley as fodder since there is no evidence of animals being fed chaff. Animals provided a source of fuel in a situation where wood fuel may have been scarce or allocated for other "industrial" endeavors. Animals also provided meat, wool, and milk, and were therefore an important economic investment. The high incidence of leguminous plants which are preferred forage (*Astragalus*, *Coronilla*, *Medicago*, *Prosopis*, *Scorpiurus*, *Trifolium*, and *Trigonella*) would have helped sustain a large animal population. The survival of these plants as weeds may have even been encouraged—note the concentrations of medicago in a few samples. Thus the emphasis of 'Ain Dara plant economy may well have been primarily on its animal economy and only secondarily on plant food resources.

Sample No.	Field No.	Findspot	Phase	Context Notes
1	83-648	Sq. 4, Loc. 6, Lev. 1	I	
2	83-267	Sq. 1, Loc. 11, Lev. 1, Feat. 19	III	contents of a storage jar
3	83-7	Sq. 5, Loc. 14, Lev. 2	IV	floor of courtyard
4	83-292	Sq. 5, Loc. 14, Lev. 2, Feat. 25	IV	pit contents
5	83-664	Sq. 4, Loc. 3, Lev. 1	IV	floor
6	84-523	Sq. 5, Loc. 17, Lev. 1, Feat. 27	VI	small ash pit
7	84-531	Sq. 5, Loc. 19, Lev. 1, Feat. 32	VI	ash
8	84-557	Sq. 5, Loc. 20, Lev. 1, Feat. 29	VI	small pit
9	83-755	Sq. 4, Loc. 15. Lev. 1	VII	
10	83-756	Sq. 4, Loc. 15. Lev. 1	VII	
11	84-275	Sq. 5, Loc. 18, Lev. 2	IX	
12	84-562	Sq. 5, Loc. 20, Lev. 3	IX	
13	84-298	Sq. 5, Loc. 21, Lev. 2	X	
14	84-768	Sq. 4, Loc. 17, Lev. 4, Feat. 18	X	pit
15	83-800	Sq. 4, Loc. 18, Lev. 3	X	from room with tanours
16	84-803	Sq. 4, Loc. 19, Lev. 2	X	
17	84-824	Sq. 4, Loc. 19, Lev. 3	X	
18	84-860	Sq. 4, Loc. 20, Lev. 3	X	
19	84-800	Sq. 4, Loc. 17. Lev. 5	XII	
20	84-818	Sq. 4, Loc. 16, Lev. 6, Feat. 22	XII	storage pit
21	84-12	Sq. 4, Loc. 23. Lev. 1	XIV	
22	84-915	Sq. 4, Loc. 23, Lev. 1	XIV	floor
23	84-946	Sq. 4, Loc. 30, Lev. 4	XIV	burned debris
24	84-881	Sq. 4, Loc. 27, Lev. 1	XV	
25	84-917	Sq. 4, Loc. 19, Lev. 9	XV	
26	84-956	Sq. 4, Loc. 23. Lev. 4	XV	
27	84-924	Sq. 4, Loc. 24, Lev. 5	XVI	
28	84-965	Sq. 4, Loc. 23, Lev. 5	XVI	
29	84-329	Sq. 5, Loc. 21, Lev. 6, Feat. 5	XVII	
30	84-934	Sq. 4, Loc. 28. Lev. 5, Feat. 27	XVIII	tanour
31	84-977	Sq. 4, Loc. 23, Lev. 7, Feat. 30	XIX	
32	84-364	Sq. 5, Loc. 24, Lev. 2	XIX	
33	84-375	Sq. 5, Loc. 24, Lev. 4	XX	
34	83-743	Sq. 4, Loc. 11, Feat 8		
35	84-240	Incorrect lot number		context information unavailable

Table 1: Flotation samples analyzed.

Sample #	Domesticates										Wild							
	Triticum aestivum/durum	Hordeum vulgare	Cereal fragments	Rachis fragments/nodes	Vitis vinifera	Lens culinaris	Vicia/Pisum	Ficus	Punica granatum	Indentified	Amebia	Asphodelus	Astragalus	Caryophyl-laceae	Chenopodi-aceae	Compositae	Coronilla	Cyperaceae
1																		
2	9	37			1		1			6	10							1
3	6	53			22		1				1			1			3	
4	7	4	5		1			5		5						1		
5		3			2		1										1	
6		1			1		6	1		1								
7					1													
8	8	15			4		1			8								
9					5													
10		2					1											
11	10	8	12				6	1		7			1			1	3	2
12	3	4			1			1		3							1	
13	7	9			5	3	5						2				1	1
14	3	4	10		1		1			5					1		1	
15	1																	
16	1	1	1															
17	1	4			2		1	4		2								
18							1			2						1		
19	1	2				1												
20	1	8			29		2											
21	2				1					3					1			
22					10					1								
23	1	6			26		2	6		6					2			
24	26	6			16	45			1			1			7		3	
25	6	6	6		6			2		8								
26				2	1					2								
27	3		2		8													
28	4				6					1								
29	9		4		1										1			
30	6	5	31		1	1											7	
31	1			1	2			2		2				1				
32	16	39			4		1				1							
33	9	18	25	1	1		2			18				1	3	8		
34		4																
35	3	2	18		2		2	2		3								1
Total	144	241	144	4	160	50	34	24	1	83	12	1	3	3	15	11	20	5
%	7.6%	12.7%	6.0%	0.2%	8.4%	2.6%	1.8%	1.3%	0.1%	4.4%	0.6%	0.1%	0.2%	0.2%	0.8%	0.6%	1.1%	0.3%

Table 2: Seed counts by sample

Botanical Remains

Sample #	Wild																		Total
	Fimbristylis	Galium	Leguminosae	Lithospermum	Lolium	Malva	Medicago	Papaveracea	Phalaris	Plantago	Polygonaceae	Prosopis	Rumex	Scorpiurus	Silene	Teucrium	Trifolium	Trigonella	
1					2				1										3
2				2			2										3		72
3		8	9	10	91	5			1	1									212
4					3		1												32
5		1		2	10		3					1							24
6									1								19		30
7																			1
8	2		1	2		2		1	1						1				46
9																			5
10																			3
11		1		1	19		1	7	7			1							88
12				1							2							1	17
13				4	3				3	1	1						2		47
14				3			1							1					31
15				6	3														10
16																			3
17				3	4		1	1											23
18				2		1													7
19				2	1				1						1	1			10
20	1	3		1		3		6					2		2				58
21		1		2			3												13
22																			11
23		2	11	2		1	8	3					1		1				78
24		4		5	17	16	2		7						1				157
25			5	1				2											42
26				2		1													8
27				2															15
28									1										12
29		2			2				2						2		1		24
30				14		2	2			1									70
31									2						1				12
32						1	1	1		1									65
33	22	1			23	56	319	1	9		1	1	1	1			32		553
34				5	5														14
35				5		4							2		6		5		100
Total	25	23	26	77	183	92	344	22	36	4	4	3	6	2	15	1	107	1	1896
%	1.3%	1.2%	1.4%	4.1%	9.7%	4.9%	18.1%	1.2%	1.9%	0.2%	0.2%	0.2%	0.3%	0.1%	0.8%	0.1%	5.6%	0.1%	100.0%

Table 2 (continued): Seed counts by sample.

Chapter 9

Mammal Remains

by Carol J. Frey and Curtis W. Marean

Issues of resource exploitation and channels of redistribution are central to the larger problems of the Bronze Age-Iron Age transition that the excavation sought to explore and faunal analysis has much to contribute to their investigation. The animal remains from 'Ain Dara provide an opportunity to gain insight into transformations of household economies over time and to evaluate how the general population experienced the broader social and economic changes that took place in the early Iron Age. This report presents data on species and skeletal element abundance in the sampled portion of the site as well as an assessment of the culling strategy suggested by discarded caprid remains.

Previous studies and observations indicate that the 'Afrin Valley and its hinterlands would have included a number of wild ungulates and their predators, including wild goats (*Capra aegagrus*) (Harrison 1968:336-39), ibex (*Capra ibex*) (ibid., 330-336), the Syrian brown bear (*Ursus arctos*) (ibid., 220-224), and Asiatic jackal (*Canis aureus*) (Russell 1794:183) in the mountains, as well as the more widely ranging striped hyena (*Hyena hyena*) (Harrison 1968: 274-78; Russell 1794: 186-87)) and red fox (*Vulpes vulpes*) (Harrison 1968:206-212). Several species of gazelle inhabit (or recently inhabited) various steppe and desert regions, including *Gazella gazella*, *Gazella dorcas* and *Gazella subgutturosa* (Harrison 1968: 349, 356, 359-364). The Syrian onager, *Equus hemionus*, also inhabited these regions (Uerpmann 1987:19). Wild pig, *Sus scrofa*, may still have been extant in limited desert territories (Harrison 1968:372-75). Domestic camels (*Camelus dromedarius*) would have been present this far north in the early Iron Age, but probably were not common in the area (Uerpmann 1987:48-52). Domestic sheep and goats today range over the entire area, as they have for millennia.

Archaeological documentation of the various species listed above is patchy. For a comprehensive review of archaeological faunas and sites in the Middle East, see Uerpmann (1987). *Capreolus capreolus* is documented from Bronze Age levels at Tell Hadidi (Clason and Buitenhuis 1978a,b; Buitenhuis 1979) and Tell Sweyhat (Buitenhuis cited in Uerpmann 1987), as well as from Late Neolithic levels at Hagoshrim (Ducos 1968). Species-level identification of deer can be problematic. *Cervus elaphus* is commonly found in this area; documented occurrences include Tell Labweh (Bokonyi 1978), Bronze Age Tell Hadidi (Clason and Buitenhuis 1978a,b; Buitenhuis 1979), Shams ed-Din Tannira (Uerpmann 1982), Neolithic 'Amuq (Stampfli 1983) and Bronze and Iron Age levels at Tell Afis (Wilkens 1992). *Dama mesopotamica* seems to be present at Hagoshrim (Ducos 1968), Tell Labweh (Bokonyi 1978), Shams ed-Din Tannira (Uerpmann 1982), and Bronze Age Tell Sweyhat (Buitenhuis cited in Uerpmann 1987). Remains uncertainly attributed to *Dama mesopotamica* were found at Bronze Age Tell Hadidi (Clason and Buitenhuis 1978a,b; Buitenhuis 1979), Neolithic Beisamoun (Davis 1978) and Neolithic 'Amuq (Stampfli 1983 cf. Uerpmann 1987:58-63). Gazelle species, even more difficult to separate than deer, are generally reported as *Gazella* sp., but are present at every site listed above. Uerpmann (1982) ascribed gazelle remains from Late Neolithic Shams ed-Din Tannira to *G. subgutturosa*. Evidence for the ancient bio-geography of equids and camels is incomplete. *Equus hemionus* is documented at Shams ed-Din Tannira (Uerpmann 1982). Bronze Age and Iron Age levels at Tell Afis (Wilkens 1992) contained *E. hemionus, E. asinus* and *E. caballus*. A small equid at Tell Apamee may be *E. asinus* or *E. hemionus* (Gautier 1977 but see Uerpmann 1982). *Sus scrofa* is extremely common in this broad region, present at all the sites listed above, with the two exceptions of Tell Hadidi (Clason and Buitenhuis 1978a,b; Buitenhuis 1979), and Tell Sweyhat (Buitenhuis cited in Uerpmann 1987). Bronze and Iron Age levels at Tell Afis (Wilkens 1992) contained remains of *Sus scrofa domesticus*.

Methodology

Stratigraphy and Analytic Units for Analysis

The faunal materials treated here were analyzed in the Zooarchaeology Laboratory of the State University of New York at Stony Brook more than a decade after they were excavated.[1] Comparative collections belonging to Marean and the American Museum of Natural History Mammology Department were used to make the identifications. This analysis includes only bones from lots determined by the excavators to be unmixed and in good context.

A comprehensive taphonomic and zooarchaeological study appeared to be the best means of providing a full analysis of

1. Jennifer MacCormack conducted the initial processing of the bones under the supervision of Curtis Marean as an undergraduate project prior to her graduation in 1993. Frey continued and completed the specimen identification, computer entry, and analysis.

Stratigraphic Phase	Analytic Unit
I	4
II-V	3
VI-XII	2
XIII-XX	1

Table 3: Correspondence of stratigraphic phases with groups used in faunal analysis.

how the inhabitants of Iron Age 'Ain Dara procured and used large mammals. Analysis of the fauna in each of the excavators' twenty phases individually would have reduced sample sizes to the point where it would have been impossible to gain any statistically useful information. The phases were therefore grouped into four broader analytic groups (Analytic Groups 1-4) on the basis of the most substantial architectural changes. The length of occupation represented by each of these units varies significantly, but our intent was to study the faunal remains in culturally meaningful groups rather than arbitrary temporal units. Table 3 shows which of the Phases defined by Stone and Zimansky belong to each Analytic Group.

Analytic Group 1 contains the stratigraphic Phases XIII through XX. These phases date to the Iron I/II transition. They are dominated by the courtyard of a large building. Also included are large areas of blue-tinged ash which probably represents some type of manufacturing activity. In phases XV and XIV, the quality of the architecture is much lower, and Phase XIII is devoid of architecture. Phases VI through XII comprise Analytic Group 2. These levels are dominated by an Iron II domestic building. Exposed rooms include two kitchens, living rooms and courtyard areas. Phases II through V, also dating to Iron II, include another well-constructed domestic building, with the large courtyard dominating the excavated area. Finally, Analytic Group 4 corresponds to the first stratigraphic phase. This phase dates to the Late Iron II, and is comprised of pits dug from within the modern plow zone.

An attempt was made to identify the element and species of every specimen, including all shaft fragments. As in most assemblages, shaft fragments are the most abundant specimens. Mid-shaft fragments, by definition, however, do not contain any traces of end or near end morphology (Blumenschine 1988:488) and it is generally impossible to determine the precise species to which they belong. To ameliorate this problem, all specimens were assigned to body size categories as defined by Brain (1981:275): animals weighing between approximately 4 and 20 kilograms fall into Class 1; between 20 and 100 kilograms, Class 2; between 100 and 300 kilograms, Class 3; and anything over 300 kilograms falls into Class 4. The inclusion of mid-shaft material classified at least by body size ensures that the sample remains large enough to examine skeletal element abundance, even when more specific taxonomic information is unknown. Adult sheep and goat are Class 2 animals; juvenile sheep and goat are typically Class 1. Whenever possible, ungulate species identifications were verified by measurements taken on proximal and distal epiphyses. Reference measurements came from von den Driesch (1976), Peters (1986) and Walker (1985). Distinction between sheep and goat was made for postcrania on the basis of criteria set forth by Boessneck (1971) and unpublished morphological criteria defined and generously made available by Melinda Zeder, for which we are extremely grateful. We also used Payne's dental criteria as an alternative method of distinguishing sheep from goat (Payne 1985).

Teeth are an important component of skeletal element profiles, but their size does not change with growth of the animal. Some permanent teeth of juvenile caprids will have come into wear before they reach twenty kilograms. Maxillary and mandibular specimens containing both deciduous and permanent dentition were assigned to size categories in the following manner: a specimen with a fourth deciduous premolar (dP4) and an erupted first molar (M1) was classified as Class 2, unless the M1 was not yet in wear, in which case the specimen was recorded as Class 1. Isolated M1's were only recorded as Class 2 if they were in a very late stage of wear. These classifications were based on body weight growth rates of Masai goats (Wilson et al. 1981) and Near Eastern goats (Hirsch 1933; Asker and El-Khalisi 1965) compared to eruption sequences of Angora goats (Deniz and Payne 1982).

Although all four size categories were recorded separately, the presence of juvenile animals and inherent characteristics of domesticates often made discrimination between the two categories extremely difficult. Bones of wild mammals generally separate out into discrete size categories because each species inhabits a different econiche, but domestic animals are much more plastic and display a wide range of sizes for each species, blurring the distinction between size categories. Additionally, juvenile animals that will grow into Class 2 adults may be any size between tiny neonate and nearly full-grown adult. An assemblage with a significant frequency of juvenile specimens will then be even more difficult to separate with any degree of confidence. Therefore, although smaller ungulates were recorded as Class 1 and Class 2, we were not entirely confident of these distinctions and in some cases treated the two categories together in our analysis.

As noted above, mid-shaft fragments of long bones are the most difficult and time consuming specimens to identify. They do, however, have particular shapes and morphologies such as muscle attachment sites, which are element-specific e.g. indicative of whether a bone is a tibia or a radius. Many fragments without end or near end morphology can be identified to element on the basis of these 'landmarks '. Specimens without landmarks, or with landmarks too obscured for classification to anatomical element, were considered non-identifiable. Although non-identifiable specimens are not without value in faunal analysis, they are not relevant to the analyses carried out in this report. Therefore such fragments are not further considered here.

Mammal Remains

As participants in a focused, food-producing economy of a complex society, it appears that most inhabitants of 'Ain Dara had regular contact only with regional breeds of established domesticates, whether for food, traction or other purposes. The economic insignificance of hunting activities is suggested by remains of fewer species of comestible wild mammals than at paleolithic or early agricultural sites. The options for classification are therefore circumscribed and even if one cannot make a species identification it is often possible to assign shafts at least to genera for equids, carnivores and suids. Additionally, all of these are morphologically distinct from bovidae (including both cattle and ovi-caprids), the dominant faunal group at 'Ain Dara. Teeth are nearly always identifiable to species, except for isolated bovid molar fragments and incisors, and the distinction between sheep and goat.

Measures of Taxon and Skeletal Element Abundance

The measures of skeletal element abundance used here are not traditional for zooarchaeological analyses of sites belonging to complex societies. There has been much debate in scientific literature on faunal analysis as to the most appropriate units for measuring skeletal element abundance.[2] Many researchers measure relative abundance according to the number of identifiable fragments, or NISP (Klein and Cruz-Uribe 1984:24-25). NISP is a straight count of all identified specimens, which can then be grouped according to whether the researcher is quantifying skeletal elements or complete animals.[3] The strength of this measure is that it is a raw, rather than derived, frequency, and therefore varies little between researchers (Grayson 1984:16-26). However, this count is extremely sensitive to differences in the degree to which bones fragment, especially since NISP counts are usually based on the less dense bones and long bone end portions alone (Grayson 1984:16-26). It is possible that in the aggregate, variations in recovery rates might be so flexible as to even out the chances of each type of bone surviving and make the number representative of animals, but there is no compelling reason to assume that ancient peoples would have processed different animals or elements in identical ways, or that post-depositional destruction would be uniform between spatial units.

Another index of abundance is the minimum number of individual animals (MNI) represented by all of the bones in a given analytical unit. For instance, one right and one left humerus could belong to the same animal; two lefts must derive from two different ones, and thus the counts would be one and two, respectively. Because MNI's represent whole animals, they are calculated as whole numbers. The final MNI count is particularly sensitive to how the researcher divides the site into spatial and temporal units. It is also subjective in that judgments have to be made as to how much variation (sex, size, age distinction) can be distinguished in an individual animal (Grayson 1984:27-34). When one is interested in counts of whole animals, MNI is a useful measure of abundance, but if people consume portions of animals, not whole ones, MNI becomes a misleading indicator of diet (Binford 1981:81-86).

The system employed here, which was created by Marean, seeks to address some of the drawbacks of these methodologies by counting neither individual bone specimens nor whole animals. It involves observation and recording of specific anatomical landmarks of the type noted above as criteria for identification of each bone. For example, there are fifteen landmarks on a humerus, one of which is the deltoid tuberosity. The database is set up with each row containing the record for a single specimen and each column recording the percentage of the landmark present. If approximately one third of the deltoid tuberosity were preserved, "0.3" would be entered in the appropriate column of the database, and so on for the percentage of each of the other landmarks on the specimen. Most anatomical elements have around ten landmarks, sixteen being the maximum, and they sample all regions of the bone. When the landmark percentages, as decimals, are summed for the assemblage being analyzed, the most frequent landmark from each element constitutes the minimum number of bones of that particular type that can account for all the fragments pertaining to that element, an index designated minimum number of elements, or MNE (Binford 1981:81-86, 256-270). This method systematizes the identification criteria and keeps all elements equally identifiable because every bone has a number of landmarks unique to its type.

Additionally, the landmarks sample areas of varying density on each bone (Lyman 1984), including the dense middle shaft which is most likely to survive in the archaeological record. This enables one to get more reliable counts than if one depends upon epiphyses, which are less likely to survive in the archaeological record (Brain 1981; Marean and Spencer 1991; Marean et al. 1992; Marean and Frey 1997).

The MNE for each element can be divided by the number of times it occurs in the skeleton to derive another measure of abundance used in other contexts, minimum animal units, or MAU (Binford 1978:452-498, 1984:50-51). MAU differs from the MNI in that MAU quantifies units of animal mass, rather than the number of individual animals represented at a site. The specified units may be elements, limbs or entire animals, according to the goals of the research.

MNE's and MAU's are additive because they are fractional values. Therefore, the frequencies are not affected by how the analyst divides up the site spatially or stratigraphically, as MNI's are, and they are less sensitive to variations in the intensity of fragmentation than NISP's.[4] MNE and its derivative, MAU, are more useful measures whenever the researcher is

2. See especially Grayson 1984 and Lyman 1994.

3. See discussion in Lyman 1994:97-102.

4. See discussion in Binford 1978:71.

Taxon	Whole Site		Unit 1		Unit 2		Unit 3		Unit 4	
	NISP	MNI	NISP	MNI	NISP	MNI	NISP	MNI	NISP	MNI
Bos taurus	208	7	60	3	70	2	24	3	25	2
domestic cattle	16.7%	8.2%	19.2%	8.8%	14.1%	6.1%	16.2%	15.0%	24.0%	13.30%
Ovis aries	109	9	27	8	54	4	9	3	6	5
domestic sheep	8.8%	10.6%	8.7%	8.8%	10.9%	12.1%	6.1%	15.0%	5.8%	13.3%
Capra hircus	89	6	25	3	28	3	7	1	15	3
domestic goat	7.1%	7.1%	8.5%	8.8%	5.4%	9.1%	4.7%	5.0%	14.4%	20.0%
Capra/Ovis	413	27	87	8	191	14	46	4	20	2
domestic sheep or goat	33.2%	31.8%	27.9%	23.5%	38.6%	42.4%	31.1%	20.0%	19.2%	13.3%
Sus scrofa	329	24	75	10	127	6	46	4	32	3
domestic pig	26.4%	28.2%	24.0%	29.4%	25.7%	18.2%	31.1%	20.0%	30.8%	20.0%
Canis sp. indet.	23	5	14	4	2	1	5	3	0	0
cf. domestic dog	1.8%	5.9%	4.5%	11.8%	0.4%	3.0%	3.4%	15.0%	0.0%	0.0%
Carnivore sp. indet.	12	2	3	1	5	2	1	1	1	1
small carnivore	1.0%	2.4%	1.0%	2.9%	1.0%	6.1%	0.7%	5.0%	1.0%	6.7%
Equus sp. indet.	61	4	21	2	18	2	10	1	4	1
horse, ass	4.9%	4.7%	6.7%	5.9%	3.6%	6.1%	6.8%	5.0%	3.8%	6.7%
cf. Camelus dromedarius	1	1	0	0	0	0	0	0	1	1
domestic camel	0.1%	1.2%	0.0%	0%	0.0%	0.0%	0.0%	0.0%	1.0%	6.7%
Total	1245	85	312	34	495	33	148	20	104	15

Table 4: NISP and MNI for the whole site and each Analytic Unit. The whole site sample includes specimens not assigned to any Analytic Unit.

	Bos taurus		*Capra hircus*		*Ovis aries*		*Caprine*		*Equid*		*Suid*	
	NISP	MNE	NISP	MNE	NISP	MNE	NISP	MNE	NISP	MNE	NISP	MNE
Horn Cores	1	0.2	0	0	3	0.5	44	4	0	0	0	0
Cranial Bones	5	1	0	0	3	1.5	7	1.5	1	1	61	3
Cranial Teeth	39	7.9	13	12	7	5.9	122	41.6	18	4	52	13.6
Mandibular Bones	4	0.7	1	1	4	1.1	9	1.4	1	0	60	13.8
Mandibular Teeth	37	9.6	14	8.6	13	10.4	214	72.4	12	2.3	96	26
Atlas	0	0	0	0	0	0	1	1	1	0.5	2	1.9
Axis	0	0	0	0	0	0	0	0	1	1	1	1
Cervical	0	0	0	0	0	0	0	0	0	0	0	0
Thoracic	0	0	0	0	0	0	0	0	0	0	2	1.6
Lumbar	0	0	0	0	0	0	0	0	0	0	1	0.9
Sacral	0	0	0	0	0	0	0	0	0	0	0	0
Caudal	0	0	0	0	0	0	0	0	0	0	0	0
Sternebra	0	0	0	0	0	0	0	0	0	0	0	0
Scapula	1	1	2	0.5	9	6.4	0	0	1	0.5	10	5
Rib	0	0	0	0	0	0	0	0	0	0	0	0
Humerus	4	2.7	10	8.6	15	14	0	0	1	0.8	20	13.5
Radius	5	2	10	8.8	10	7.8	0	0	3	2.5	13	7.6
Ulna	3	3	6	4.2	6	6	1	1	1	1	10	8.3
Carpals	4	1.9	0	0	0	0	0	0	1	1	0	0
Metacarpal	3.5	3	2	2	1	1	0	0	3	2.5	17	16
Pelvis	0	0	0	0	0	0	0	0	0	0	2	1.9
Femur	3	1.9	5	3.7	0	0	2	1.9	3	2	2	2
Patella	0	0	0	0	0	0	0	0	0	0	0	0
Tibia	12	5.7	8	8	14	13	15	10.9	4	4	12	10.5
Fibula	0	0	0	0	0	0	0	0	0	0	0	0
Astragalus	5	4.5	7	6.5	15	13.4	0	0	2	1.9	6	5.1
Calcaneum	9	8.5	2	2	5	5	4	3.6	1	1	6	5.8
Metatarsal	8.5	4.25	2	2	2	2	0	0	2	1.5	13	12.2
Small Tarsals	1	1	0	0	0	0	0	0	0	0	0	0
Phalanges	65	36.2	7	6	6	4	0	0	3	3	3	2
Sesamoids	0	0	0	0	0	0	0	0	0	0	0	0

Table 5: NISP and MNE for specifically and generically identifiable fragments in all Analytic Units, plus specimens not assigned to any specific Unit. Note: Specimens that include teeth set in bone are included in both teeth and bone categories for cranial and mandibular specimens. Metapodials were split evenly between metacarpal and metatarsal, thus NISP may equal 0.5.

measuring the relative abundance of specific elements or sets of elements.

Species Abundance at 'Ain Dara

The faunal assemblage from 'Ain Dara is mainly comprised of sheep (*Ovis aries*), goat (*Capra hircus*), and caprine specimens that cannot be separated between sheep or goat (Tables 4 and 5). Among the separable specimens, postcranial sheep remains outnumber goat in Analytic Groups 2 and 3. However, MNI's based on mandibular specimens are higher for goat than for sheep in Groups 1 and 3. Overall, the MNI's are similar for both species. The domestic pig, *Sus scrofa*, also comprises a significant component of the assemblage. Large animals such as *Bos taurus* and equid species are rare in the sampled portion of the site. While the equids have not been securely identified to species, they are almost certainly domestic. Domestic horses were not uncommon in the region and the steppe zones wild horses might inhabit are not nearby (Uerpmann 1982:13-17). A proximal metapodial in Analytic Group 4 probably represents the only trace of domestic camel, *Camelus dromedarius*, at the site. It is important to note that canid specimens, probably domestic dogs, are present at 'Ain Dara, represented in all Analyitc Groups but the last. Several minimally identifiable carnivore specimens are also present in the first, second and fourth units. No wild animals are evident in the assemblage, and although they may be present as minimally identifiable fragments, they certainly did not fill a significant part of the diet of these particular inhabitants of 'Ain Dara. In general, the relative representation of species did not change significantly through time. The mode of acquisition and socio-economic status of a group will affect what animals and what parts of animals to which that group has access.

Redding (1981) predicted herd management decisions based on various priorities such as herd growth and security and energy maximization. Zeder (1991) used Redding's models to predict how different forms of redistribution should affect herd management priorities. These decisions affect the composition of zooarchaeological assemblages with respect to species and body part selection, as well as age and sex-based culling strategies (Zeder 1991:25-44). To paraphrase their arguments, when redistribution is managed indirectly, through a centralized administrative body or other intervening agent, animal selection decisions will be dictated by concerns of efficiency and energy maximization. Thus, meat yield is a prime consideration in species selection (Redding 1981:234-310). Cattle should be favored over the smaller bovids (Flannery and Cornwall 1969), with sheep favored over goat (Redding 1981:137-165). Pigs, which provide excellent energy return, are not efficiently raised in large herds (Zeder 1991:30-1). They are more likely to be reared as supplementary meat within individual households (Zeder 1991:37-40). The end result of efficiency concerns is low diversity of species, of age and sex of animals received (Zeder 1991:37-41). There is more likely to be preferential selection of body parts, with different cuts going to the various constituent groups.

In contrast, when occupants raise their own stock or obtain animals directly from herders, the prime considerations according to the models of Redding (1981) and Zeder (1991), are herd security and growth. Goats, as the hardiest herd animals, should be favored over sheep (Redding 1981:79-80) which should, in turn be favored over cattle (Zeder 1991:37). Culling decisions will vary with herd demographics. This will result in high diversity of ages and sexes procured (Zeder 1991:40-41). Occupants are more likely to receive whole animals rather than selected parts, providing an even body part distribution (Zeder 1991:41-43). Wild animals may supplement the diet under either regime (Zeder 1991:38). As noted above, sheep and goats are by far the most abundantly represented species in the excavated materials. Goats are hardier animals than sheep, able to feed off poorer quality browse and tending to reproduce more quickly, but sheep provide wool in addition to milk and meat. Although Zeder (1991:37-40) made predictions about the effects of the mode of distribution on species selection (see above), they are not applicable to the 'Ain Dara data set. Because only two residences were sampled, the assemblage reflects what resources the inhabitants had access to, rather than reflecting ungulate management throughout the urban system.

Mortality

The implications of various kill-off patterns has been extensively discussed in the literature of faunal analysis (e.g. Payne 1973; Redding 1981:310-364; Zeder 1991:25-44). The relative value attributed to different caprid products (meat, wool, milk) and varying environmental conditions will influence the culling strategy practiced by a herder. The ratios of sheep to goats, males to females, and juveniles to adults are all significant variables. A meat-based strategy requires culling of most male caprids and a proportion of females by twenty-four to thirty-six months, as the animals reach their maximum weight gain by the age of three years at the latest (Payne 1973:281-282). Although the value of meat fluctuates with the age of the animal, and seasonal and environmental conditions might affect culling strategies, only those animals necessary to maintain herd security would generally be kept alive longer. Changes in the value of meat will affect culling strategies. A milk-based strategy results in culling of a large proportion of infants before they reach twelve months of age, assuring herd security without draining milk resources more than necessary. In a wool-based strategy, the majority of the caprid herd will be left alive for several years, as long as they are producing quality wool. Redding and Zeder predict indirect management of redistribution to result in highly focused culling patterns, with males between twenty-four and thirty-six months of age most commonly represented. Direct procurement should result in a more even age distribution, but males between six and twenty-four months should dominate the assemblage. Suids are typically culled much earlier, since they provide a very high meat yield but no by-products. A young age at death is especially likely when animals are raised within the household, as expected with pigs. Remains of pigs raised as a supplementary meat source should then provide a more even age distribution, with a majority of younger specimens.

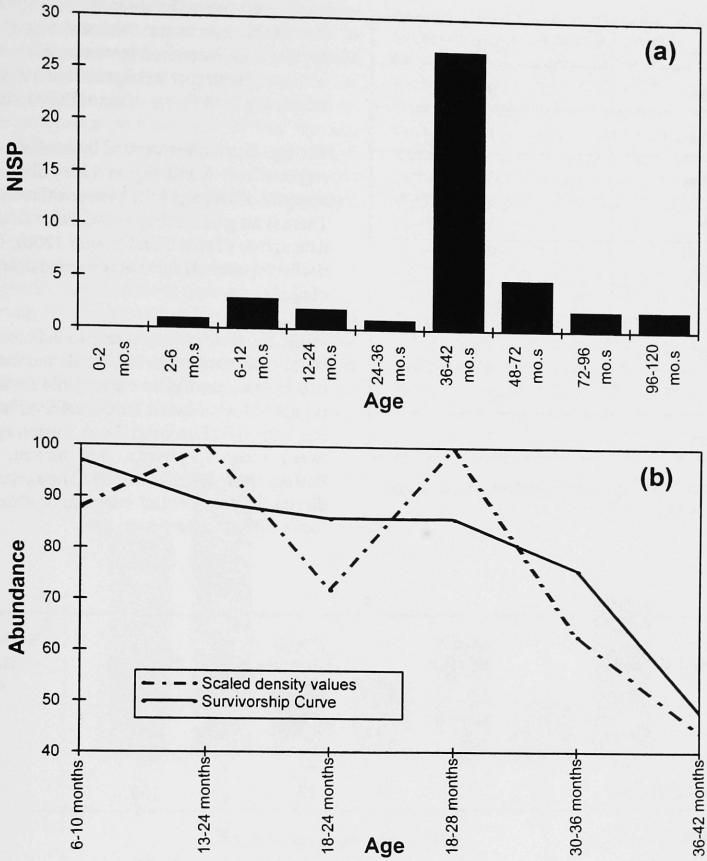

Figure 120: (A) illustrates intensity of kill-off as measured with mandibular wear stages (Payne 1973). (B) illustrates the survivorship curve for ovi-caprids computed on the basis of long-bone fusion frequencies (taken from Silver 1970). The broken line indicates the average density for epiphyses used as indicators of each age group.

Kill-off patterns at 'Ain Dara were examined using two data sets: long bone fusion frequency (caprid: Silver 1970; suid: Bull and Payne 1982) and dental wear stages (caprid: Payne 1973; suid: Bull and Payne 1982). Zeder (1991:92-94) and Redding (1981:317-319) have discussed the relative advantages and disadvantages of both aging schemes. While dental wear distributions utilize all mandibles from the study assemblage, fusion distributions are limited to the subset of elements pertaining to each stage of growth (Zeder 1991:92-94). Long bone fusion also ends at forty-two months, limiting the span of years which can be examined. However, fusion distributions are based on several elements, enlarging the study sample and limiting any effects of cultural selection for any type of bone. Ecological conditions and short-term climatic fluctuations will also affect the rate of tooth wear. Therefore, both data sets are examined separately, with fusion represented by a survivorship curve and dental wear stage frequency illustrating intensity of kill-off within each age class. NISPs are based on maximum NISP per cohort within unfused epiphyses and unfused shafts. The sample of elements (both bony and dental) separable into *Capra hircus* or *Ovis aries* was too small to warrant separate analysis, thus, all caprid remains were grouped. This compromise is less than ideal. Sheep and goats may well be herded separately and be subject to different culling strategies. Providing a single, composite mortality profile makes it impossible to detect these differences and could even led to a profile which is not representative of either species. In addition, sheep and goats may be fed off different quality browse (Redding 1981:44) and this may manifest in different tooth wear rates. Unfortunately, there is no satisfactory solution to

Age Class	NISP
0-2 months	0
2-6 months	1
6-12 months	3
1-2 years	1
2-3 years	1
3-4 years	27
4-6 years	4
6-8 years	2
8-10 years	2

Table 6: Caprine attrition data based on dental wear stages in Payne 1973.

these problems in the absence of a large corpus of specifically identifiable specimens. Potential bias in wear stage data will hopefully be countered by fusion data. The averaging affects of treating both species together should be borne in mind when examining both forms of mortality profile.

The age distribution created by analysis of caprid dental wear stages (Table 6 and Figure 120a) displays an overwhelming majority of late age kills between three and four years of age. There is no gradual drop off to either side of this range. Fusion data agrees (Table 7 and Figure 120b), showing a significant decline in animals surviving beyond thirty to thirty-six months of age.

While the fusion study seems to indicate caprids being culled at a slightly earlier age than the dental wear evidence, there are two factors that may be responsible for the discrepancy. First, the age at fusion data is based on Silver's (1970) study of modern, semi-wild European sheep. Fusion ages may well vary between these specimens and ancient, domesticated, Near Eastern sheep or goats. Second, the skeletal element profile indicates that differential selection of elements is likely to be a factor affecting the fusion data.

Age and Criteria	NISP	Number Fused	% Fused	Survivorship within Age Class
6-10 months				
Distal Humerus	24	23	96	0.97
Proximal Radius	17	17	100	
13-34 months				
First Phalanx	10	9	90	0.92
Second Phalanx	3	3	100	
18-24 months				
Distal Tibia	32	31	97	0.97
18-28 months				
Distal Metacarpal	3	3	100	1.00
30-36 months				
Proximal Femur	4	3	75	0.88
Distal Radius (36 months)	4	4	100	
36-42 months				
Proximal Humerus	1	0	0	0.63
Distal Femur	2	0	0	
Proximal Tibia	5	5	100	

Table 7: Long-bone fusion frequencies of caprines at 'Ain Dara (size classes 1 and 2 combined). Fusion stages taken from Silver, 1970.

It is not likely that the herders at 'Ain Dara practiced a single-focus strategy, where demand for one product (meat, milk or wool) determines culling strategies. The relatively advanced age of most specimens indicates that wool was probably an important caprid product for the inhabitants of this part of the site, but milk and meat production probably also affected the culling strategy, especially considering the dearth of cattle which would have provided both meat and milk in larger caloric packages. This pattern is similar to the caprid culling pattern from nearby Tell Afis (Wilkens 1992:206-7).

Zeder (1991:25-44) predicts greater uniformity in the age of animals when redistribution is indirect than when it is direct. The dental wear study thus suggests that sheep and goat in this part of 'Ain Dara may not have been consumed by the people who herded them. However, it should be noted that mortality data are likely to be subject to the same taphonomic concerns as skeletal element profiles. There are a few unfused bones in each age cohort. This suggests that there may have been more unfused bones in each cohort, and these may have been deleted by destructive processes as is clear in the MNE graph of bone portions (Figure 124). Brain (1981:19-21) found that unfused bones were destroyed by dogs at much higher rates than fused bones and that earlier fusing elements are more dense than those which fuse later in life. This can be seen in Figure 120b, where density values are scaled and compared to age of fusion. Density values here are from Lyman (1984). In general, it seems that the earlier an element fuses, the more dense it is and the more likely to survive in the archaeological record (Brain 1981:19-21). This could have the effect of skewing populations to look older at death than they were. Wapnish and Hesse (1991:23) mentioned the possibility that taphonomic processes affected some of their mortality data from the Tell Dan fauna. If deciduous teeth are equal in density to permanent teeth, then dental wear stage data should provide a good check against this contingency. Unfortunately, there are, as yet, no data on differ-

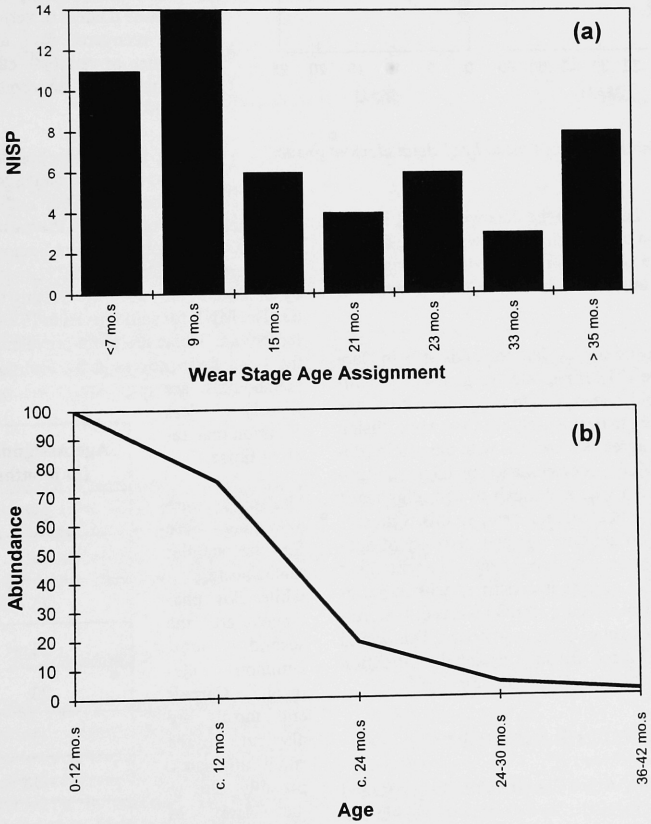

Figure 121: Suid mortality based on dental wear stages (a) and long-bone fusion (b). Fusion ages and wear stage data from Bull and Payne 1982.

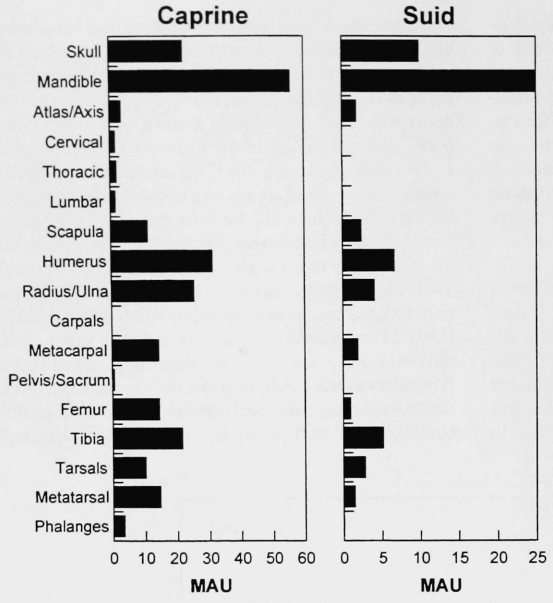

Figure 122: Caprine and suid MAU's listed by skeletal element groups.

ing densities between teeth. With the data we have, it is only possible to observe that the fusion data and wear stage data do seem to agree on a late age of death and focused culling strategy, but note that this interpretation must be viewed with caution.

A different mortality pattern is evident for suids at 'Ain Dara (Tables 8, 9 and Figure 121). If pigs are being raised by families within the household, one expects to see a much earlier age of death. That does seem to be precisely the case. Here, fusion and dental data do not agree as closely as with the caprid profiles, but there is a definite predominance of immature animals, especially around a year and a half of age. Pigs reach maximum live weight gain at about a year, so this is no surprise. The dental data do indicate a greater diversity of ages than was seen in the caprine data. The general younger culling age and greater diversity of ages is consistent with expectations for an animal which is being reared in-house. Unfortunately, no density values yet exist for suid bones. This would clarify how much influence density mediated destruction might have on the construction of mortality profiles.

Skeletal Element Abundance

Figure 122 illustrates the MAU of Class 1 and 2 sheep/goat and suids for all periods aggregated. The data are provided in Tables 5 and 10. This graph establishes an overall pattern against which deviations can be measured. Lower teeth comprise the most abundant skeletal portion throughout the site. This is not surprising, considering that teeth are the most durable skeletal elements and generally survive well in the archaeological record (Klein and Cruz-Uribe 1984:71). Although there is no reason why lower teeth should preserve better than upper teeth, it is noteworthy that maxillary dentition is slightly less common than mandibular, and also less common than humeri. In other words, the residents of these houses discarded (and probably received) the upper parts of heads less often than mandibles. Note that bovid and cervid mandibles have a medullary cavity, which may be broken for marrow. Note also that the cranium contains the brain, and sheep brains are prized in the Near East today. Perhaps crania were deliberately separated for consumption by a different set of the population.

Axis vertebrae are the most common vertebral bones, but vertebrae are very rare at 'Ain Dara in general. This is probably due to the low density and high grease content of vertebral elements, which are seldom recovered from archaeological sites. The abundance of vertebrae can rarely be compared to the frequency of long bones usefully (Marean and Frey 1997).

Among the various bones of the limbs, there are some conspicuous and significant variations in element abundance. For both species, humeri are the most abundant long-bones in the entire site, with radii and tibiae only slightly less common. Femora, on the other hand, are very scarce. For Class 1 and 2 bovids, femora are represented by an MNE of only 29.4, contrasting with the humeral MNE of 63. The MNE for suid humeri is 13.5, with only 2 MNE based on femora. Tibiae are more prevalent, appearing with almost the same frequency as radii. For both fore and hind limbs, metapodials are slightly less common than radii or tibiae.

Phalanges are extremely rare for the smaller domesticates, while *Bos* phalanges are the second most common element. Carpals and tarsals are also rare in the small ungulates, possibly due to the lack of screening. It has been demonstrated that non-

Age Assignment (in months)	NISP
< 7	11
9	14
15	6
21	4
23	6
33	3
> 35	8

Table 8: Suid attrition data based on wear stages in Bull and Payne 1982

Age and Criteria	NISP	Number Fused	% Fused	Survivorship within Age Class
Approximately 1 year				
Pelvis, Acetabulum	3	2	66.7	
Scapula	7	7	100	
Proximal Radius	5	5	100	0.75
Proximal Second Phalanx	2	1	50	
Distal Humerus	11	6	54.5	
Approximately 2 years				
Proximal First Phalanx	2	1	50	0.25
Distal Tibia	11	3	27.3	
Distal Metapoldials	27	6	22.2	
2-2.5 years				
Distal Fibula	0	0	-	0.25
Tuber Calcanei	4	1	25	
3-3.5 years				
Proximal Humerus	3	0	0	
Proximal and Distal Ulna	6	1	16.7	
Distal Radius	4	1	25	0.35
Proximal and Distal Femur	3	1	33.3	
Proximal Tibia	4	4	100	
Proximal Fibula	0	0	-	

Table 9: Long-bone fusion frequencies of suids at 'Ain Dara (size classes 1 and 2 combined). Fusion stages taken from Bull and Payne 1982.

long bones generally are not likely to be recovered in numbers that reflect the frequency with which they were discarded (Marean *et al.* 1992; Marean and Frey 1997) with any accuracy. Scavenging by dogs, trampling by people and animals, and soil compaction all subtract less dense elements from the archaeological record.[5]

Taphonomy

Brain (1981) was perhaps the first to systematically record and quantify how taphonomic processes affect zooarchaeological assemblages. He observed that bones with lower specific gravity were less commonly recovered in archaeological assemblages (Brain 1981:19-21). In addition, he noticed that long-bone epiphyseal ends, which are lower in specific gravity than the middle shaft portions, are less commonly recovered than mid-shaft specimens. Epiphyses are rich in grease and are often destroyed by carnivore gnawing, whether by hyenas (Marean and Spencer 1991) or by domestic dogs (Binford 1981: 36-37; Haynes 1983). Even epiphyses which are intact at the time of burial are likely to be destroyed by soil compaction.

The effects of the phenomena on ovi-caprid intra-bone survival at 'Ain Dara are illustrated in Figure 123. Middle shaft portions are more abundant than ends and near ends for every meat bearing long bone at 'Ain Dara. Proximal metapodials are better represented because the proximal end is not an epiphysis and is therefore more dense. The affects of density mediated destruction on different portions is clearly a factor at 'Ain Dara. Taphonomic attrition between different bones is documented for the 'Ain Dara assemblage elsewhere (Marean

5. For a summary discussion see Lyman 1994.

and Frey 1997) and is only partially reproduced here. Lyman (1984) and Lam et al. (1998) used techniques more sophisticated than those available to Brain to provide inter- and intra-bone density values for several mammal species. Logged relative density values of Lam et al. (1998) were plotted against relative abundance of ovi-caprid long-bone portions in Figure 124. There are no published density values for suid bones, so this analysis could not be repeated for that sample. Non-long bones are not included, since we demonstrated the low survival of these elements in Marean and Frey (1997; also see Marean et al. 1992). Ends and midshafts were plotted separately in order to show that long bone survival is also determined by density unless middle shaft portions are included in the analysis ($r=.58$; $df=1$; $P=.05$). When middle shaft portions are added to the sample, the correlation with density disappears. In other words, only by including long bone middle shafts is it possible to gain some indication of how different units of meat were discarded. In fact, the meat bearing limb-bones, humerus, ra-

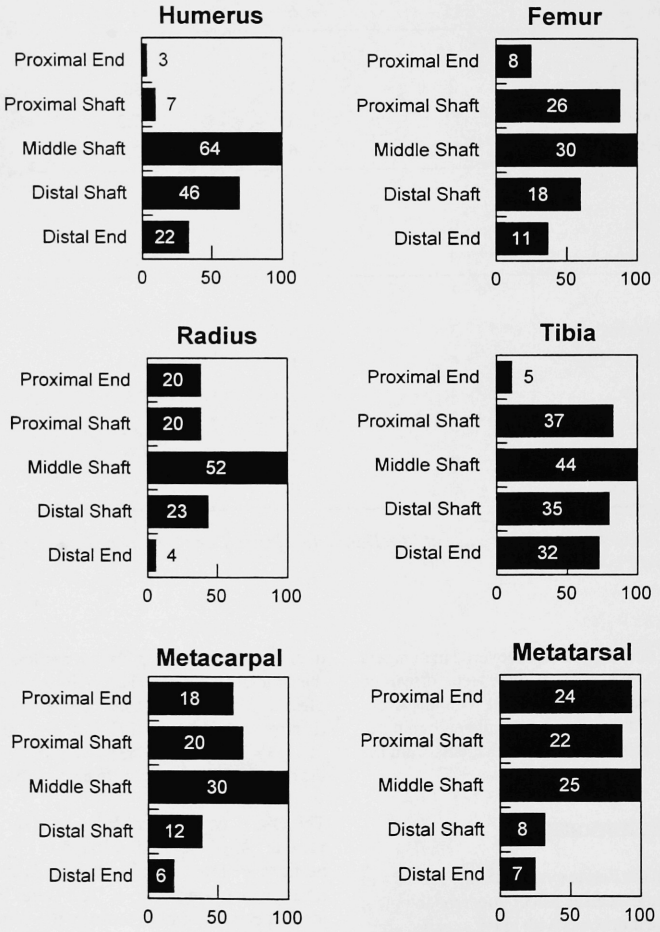

Figure 123: Intra-bone survivorship for all bovids. The numbers within each bar indicate raw MNE values.

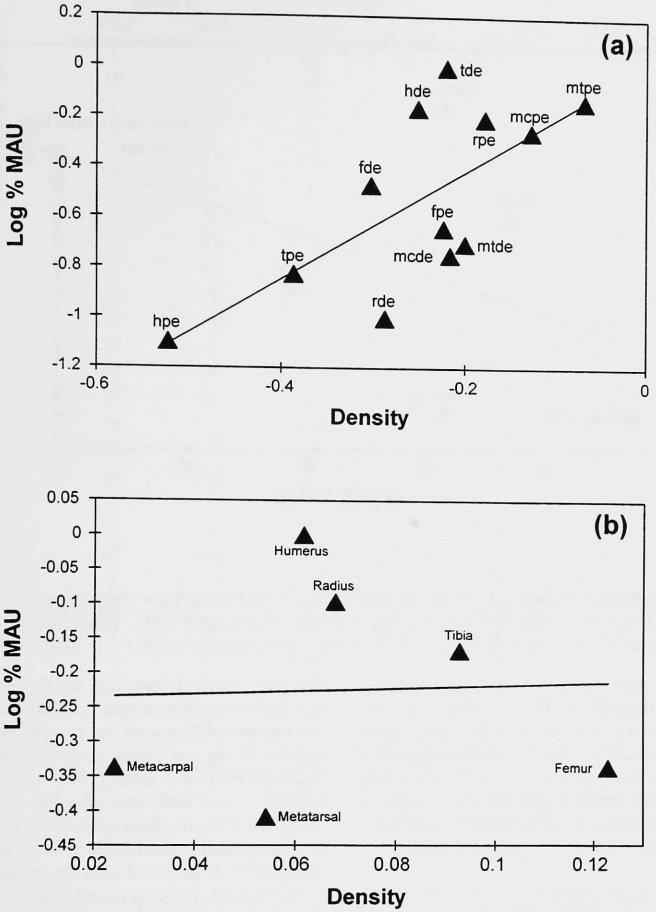

Figure 124: Relationship between log density and log abundance of long-bone portions at 'Ain Dara. For (a): r =58; df = 1; P = 0.05. For (b) r = 0.2; df = 1; P = 0.97. Abbreviations indicate elements and proximal or distal end (e.g. : tpe = tibia, proximal end).

dius, tibia and femur, actually are negatively correlated with density.

This negative correlation suggests deliberate selection of some elements, a proposition supported by the relationship between abundance and utility. Studies quantifying the amount of meat, grease and marrow associated with different bony elements have been used to construct indices of the relative caloric value. Metcalfe and Jones (1988) created a simplified version of the original utility indices developed by Binford (1978). In general, density and utility are inversely correlated; less dense elements are higher in food utility (Grayson 1989; Lyman 1992). In Figure 125, the log %MAU of ovi-caprid long-bones is plotted against standardized Food Utility Index values taken from Metcalfe and Jones (1988). For most ungulates, the upper hind limb is the highest utility element, mostly due to the amount of muscle attached to this bone.

In general, limb bones are higher utility than axial or cranial elements. The most distal limb bones, including metapodials, carpals and tarsals and phalanges, are also very low utility. Figure 126 shows there is a weak positive correlation, so that the better quality elements are slightly more common, but femora again fall far out of the pattern. Without these upper hind limb bones, the positive correlation becomes much stronger. Note that the femur is the highest utility long bone and has thus far consistently been removed from the general trend of the rest of the elements. The best cut of meat is very

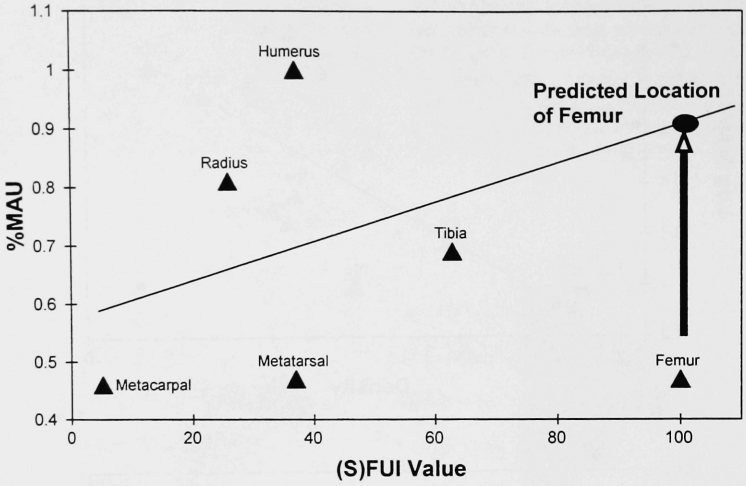

Figure 125: Relationship between relative abundance of Size 1 and 2 bovid elements and the utility of each element. Standardized Food Utility Index [(S)FUI] values taken from Metcalf and Jones 1994. When femora are not included in the regression analysis, r = 0.18; df = 1; P = 0.74. When femora are included, r = 0.30; df = 1; P = 0.63.

poorly represented and this can not simply be explained through caloric value or through the effects of mechanical destruction. The second best cut of meat, the humerus or upper fore limb, is very well represented. The only explanation is that these inhabitants of 'Ain Dara were not regularly discarding sheep or goat shanks in this area and probably didn't have access to them. They did regularly procure shoulder cuts, however, as well as less valuable lower limb and head parts.

Thus, among smaller domestic bovids at 'Ain Dara, it appears that both lower limb bones—tibiae and radii—occur with similar frequency, while in the upper limb region, femora are far less common than humeri. The residents of this sector may not have had access to the best cuts of meat from caprids or suids. It is difficult to judge whether there is a significant absence of hind limbs for suids. The sample is small, but Figure #3 shows that even in this sample, femora are the least common long bones.[6]

Discussion

The 'Ain Dara faunal assemblage was examined in order to shed light on the economic organization of Iron Age 'Ain Dara. The assemblage is dominated by sheep and goat. Sheep may be slightly more common, but the difficulty of separating *Ovis* from *Capra* makes this suggestion tentative. Domestic pigs (*Sus scrofa domesticus*) are far less common than ovicaprids, but comprise a significant minority of the assemblage. *Bos taurus* and *Equus* sp. are present, but rare. Trace species include camels and *Canis familiarus*. Models constructed by Redding (1981) and Zeder (1991) were used to examine age distribution and body part selection for suids and caprids at 'Ain Dara. If the residents of the excavated area were members of a centralized redistributive system, we predicted a low diversity of body parts and ages for animals raised by the agent of distribution. Animals raised within the household, as pigs probably were, should be represented within the assemblage by a higher diversity of ages, especially greater number of young animals. A more even body part distribution is also expected. The caprids mortality curve is more focused, with animals between three and four years of age dominating the kill-off. This pattern is taken to indicate a milk/meat/wool strategy, where a relatively large portion of the female herd survives beyond the age when maximum live weight is reached. There is some concern that taphonomic attrition may be skewing mortality data towards older animals. We have also demonstrated a dearth of caprid upper hind limbs. This lack could not be explained by taphonomic attrition. Taken together, a focused, old-dominated profile and systematic absence of the best cut of meat indicate sheep and goat were being managed and distributed by a secondary agent. It appears that the inhabitants did not regularly receive the best cuts of meat.

6. The sample of *Bos* and *Equus* is clearly too small to provide useful skeletal element profiles.

	Class 1		Class 2		Class 3		Class 4	
	NISP	MNE	NISP	MNE	NISP	MNE	NISP	MNE
Horn Cores	1	1	47	4.1	0	0	1	0.2
Cranial Bones	19	3	197	11.7	8	1	16	3
Cranial Teeth	2	1.3	131	41.6	0	0	39	7.9
Mandibular Bones	5	3	107	15.1	5	2.6	12	2.7
Mandibular Teeth	17	8.5	218	79.4	0	0	36	9.6
Atlas	0	0	1	1	0	0	0	0
Axis	0	0	5	3.7	0	0	0	0
Cervical	5	2.6	10	6.5	6	2.7	6	2.5
Thoracic	9	8.1	29	21.7	7	3.7	3	1.9
Lumbar	4	3	11	7.5	5	3	1	0.6
Sacral	2	1.9	2	2	0	0	0	0
Caudal	0	0	1	1	0	0	1	1
Sternebra	0	0	0	0	0	0	0	0
Scapula	17	7.3	58	15.8	6	2.5	6	2.5
Rib	54	21.5	156	42.3	53	8.7	3	0
Humerus	44	23	105	40	21	6	27	8
Radius	45	20.3	97	31	8	1.2	11	2.2
Ulna	3	3	25	9.2	1	1	3	3
Carpals	0	0	0	0	2	1.9	2	0.9
Metacarpal	15	6.25	62	23	7.5	1.3	9	4.65
Pelvis	3	1.2	26	13.1	1	0.8	0	0
Femur	22	10.7	74	18.7	18	4.4	9	2.9
Patella	0	0	1	0.8	0	0	0	0
Tibia	18	8.5	130	35	7	3	28	5.7
Fibula	0	0	0	0	0	0	0	0
Astragalus	0	0	24	20.7	2	0.8	4	3.7
Calcaneum	2	2	10	9.4	0	0	8	7.7
Metatarsal	18	8.25	56	21.35	9.5	2.5	18	7.65
Small Tarsals	0	0	0	0	1	0.9	2	1.4
Phalanges	1	1	35	28	13	7	60	31.3
Sesamoids	0	0	0	0	0	0	0	0

Table 10: NISP and MNE for bovids in each Size Class in all Analytic Units combined, plus specimens not assigned to any specific unit. Note: Specimens that include teeth set in bone are included in both teeth and bone categories for cranial and mandibular specimens.

The same taphonomic concerns cannot be ignored for suid mortality data, although suids show a less focused pattern, with a far more even age distribution, especially greater numbers of very young animals. The skeletal element profile suggests upper hind limbs may also be missing from pigs. Animals raised within households and animals distributed by a central agent should be represented by different body part profiles within consumer households (Zeder 1991). A larger sample would certainly help to clear up this ambiguity, but without more excavation, we suggest the faunal data support existence of a centralized administration during the early Iron Age at 'Ain Dara.

Conclusion

Detailed analysis of the remains from 'Ain Dara demonstrates that assemblages from complex society sites undergo heavy attrition by the same processes that impact material culture from earlier sites. Only by employing taphonomically informed methodology will we begin transcending the distortion caused by pre- and post-nutritive destruction. The occupants of the sampled residences did not regularly procure the best cuts of meat and did not have regular access to large animals. In contrast to most early Iron Age communities, central administration at 'Ain Dara may have continued through the Bronze Age- Iron Age transition or may have been established very early after the transitional hiatus.

Chapter 10

Conclusions

Today 'Ain Dara holds a respectable place among the numerous archaeological attractions of northern Syria, its temple regularly visited by tourist busses from Aleppo on a circuit through the Dead Cities, Qalat Siman and Cyrrhus. Since our work in the lower town came to a halt in 1984, soundings have been made in the prehistoric mound to the south of the main tell and several trenches on the citadel were expanded. Excavations have now been suspended for several years, and an ambitious conservation program to mitigate damage that exposure to the elements brought to the temple has just been completed. A new residence for a guard has been built on the lower tell beside the old expedition headquarters and many of the primary finds from the citadel are on display in the National Museum in Aleppo. There has been no further work on lower town itself, however, and the backfilled soundings of our work from 1982 to 1984 are barely visible from the temple as small scars on the expanse of settlement area.

Although we were unable to achieve the primary objective of the research we had planned—a detailed sequence of cultural and environmental changes through the Bronze Age Early Iron Age transition—our work did establish beyond question that the remains of the settlement at 'Ain Dara constitute a significant cultural resource for future study of the this problem. 'Ain Dara was clearly a substantial population center in the centuries that saw the collapse of the Hittite Empire, the floruit of Syro-Hittite civilization, and the emergence of the Arameans as the dominant population group in Syria. The temple did not stand in isolation, but was erected in a substantial population center and overlooked a large and thriving community for several centuries in the Iron Age.

Our trenches and soundings also demonstrate that this community is readily accessible to modern archaeological exploration. The ceramic evidence reviewed by McClellan shows 'Ain Dara's post Iron-Age occupation followed the pattern seen at many other north Syrian sites: nothing identifiable for the Achaemenid period, abundant materials for the last three centuries B.C., little or no evidence for the first centuries of Roman control, and then a revival in the Late Roman/Byzantine period. It does not appear that much of the architecture of these periods survives, however, and there was no substantial occupation of the lower tell after ca. 600, A.D. In short, the Iron Age levels began very near the modern surface, and ran several meters deep in the areas that we excavated.

The various types of evidence we unearthed present a consistent picture of the character of 'Ain Dara's settlement, particularly for the Iron II, for which we had the most material. After potsherds, the best represented artifacts were items having to do with domestic textile production: whorls of various types, loom weights, bobbins, bone needles, and "spatulae." It may not be coincidental that ovicaprid bones indicate a strategy of animal husbandry that favored wool production over meat.

Manifestations of Anatolian influence in the lower town analogues to match such clear manifestations from the citadel as Luwian hieroglyphs and sculptures of mountain gods with lower bodies made of boulders appeared to be lacking. If anything, one might argue that Egyptian and Cypriote inspiration was more in evidence, but it would be difficult to make a case that 'Ain Dara was special among north Syrian Iron Age sites in this regard. What strikes one most of all is how ordinary the place was. Its ceramics, with the exception of what we have described as fine line bichrome wares, are identical to ceramic inventories at neighboring sites like Hama, Tel 'Afis, and those in the 'Amuq, suggesting that professional potters were responsible for ceramic production in the area. Much the same can be said for the rest of the artifactual inventory. There are some objects that one might class as luxury goods, such as pieces of kohl pins, tubes, boxes, scaraboids and glass beads, but comparative materials would suggest these were quite widely distributed within the social matrix of the time, at least within urban contexts. It is noteworthy that differences in the artifactual inventories of the residential districts of places like 'Ain Dara and the citadel mounds of sites like Hama differ not in the types of luxury goods but in their quantity.

This rather uniform assemblage of the north Syrian Iron Age conveys an important message in itself. In the years since we left 'Ain Dara, we have refined our methods of investigating urban environments, and have become increasingly sensitive to the issue of how political and economic centralization is reflected in the archaeological record. Bruce Trigger (1993) defined a dichotomy in early state-organized societies between those that were "territorial" and those based on city state organization. In the former wealth was more concentrated, cities were essentially enclaves of the elite, and the rural population was primarily involved in agriculture. In the city states, there was less segregation of elites from their clients, wealth differentials were less pronounced and urban populations included a high proportion of farmers. We have been seeking archaeological correlations to this theoretical divide by looking at the two ends of what we suspect may be more of a continuum than a polarity, investigating two very different cities, each of which was occupied for only a short period of time: Old Babylonian Mashkan-shapir, in southern Mesopotamia—a typical city state—and the settlement area around the citadel at

Ayan_s, Turkey, one of the fortresses typical of the territorial state of Urartu. In those single-period sites we were able to gain a much better idea of the urban layout through surface survey and remote sensing techniques than we ever could in a multi-period site like 'Ain Dara through limited excavations. Nevertheless, a comparison between the access of 'Ain Dara's non-elite residents to products of urban craftsmen and luxury goods places them closer to the pattern that we associate with city state societies than that of territorial states. That we are not dealing with elites in the areas excavated is made clear both by the poverty of much of the architecture, and by the inhabitants' lack of access to the best cuts of meat. The citizens of the ancient Pattina/Unqi, while probably lacking the opportunities for social mobility and entrepreneurial activity typical of southern Mesopotamia, nevertheless had more economic opportunities than their counterparts in the contemporary kingdom of Urartu.

The transformations that accompanied the shift from the Bronze Age to the Iron Age in the Levant are inadequately explored, particularly in the north, and much remains to be done in the way of understanding the workings of the lower levels of society during this period. 'Ain Dara's potential contribution to this inquiry is only partially indicated by the modest inventory of empirical data presented in this monograph.

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