9. APPENDICES

9.1 Comments on the Urkish Lion Pegs — Oscar W. Muscarella*

In 1948 the Metropolitan Museum of Art purchased a copper (or arsenic bronze) lion peg (48.180) that although published a number of times deserves more comment, both with regard to its cultural attribution and its alleged find spot. Furthermore, some new and important information has been obtained that deserves publication.[1]

Cast in the round is the forepart of a lion, the lower part of which is in the form of a thick, tapering, cylindrical peg with a blunt tip (Illustr. 48-51). The tip is damaged and slightly bent and has an irregularly shaped hole. Extending straight out from its body, the lion's legs and paws hover over a thin concave plaque that has upturned outer edges; a bend at one corner may be modern. The lion's mouth is open in a snarl, bearing his fangs and wrinkling his muzzle; his tongue does not protrude. Mane hair is rendered as thick incised mass divided into tufts that suggest layering, and a raised ruff extends around the head, broken only by the laid back ears. Isolated hair tufts exist at the elbows and below the powerful, muscled shoulders. The whole execution is one of intentional naturalness, an attitude emphasized by the elevated and leftward turn of the head. Examination of the underside of the plaque at the area of the join with the lion's body reveals a slight swelling that seems to be traces of solder, and a slight undercutting may be seen at the outer edges. Moreover, the lion's legs are not physically part of the plaque and do not touch it. It is therefore probable that the plaque was separately made and inserted into a thin slit in the lion's stomach (infra).

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* [The text of this section was submitted in January 1985. — G.B. and M.K-B.]

[1] Height: 11.7 cm., width 7.9 cm. (see below, 9.1.1, for a metal analysis of the piece by Pieter Meyers). The low presence of arsenic makes it difficult to determine whether it was added or was a component of the copper ore. Previous publications: A. C. Bowlin, B.B. Farwell, *Small Sculptures in Bronze* (MMA, 1950), 6: Crawford et al. 1966, 10 f., Fig. 15; J. F. X. McKeon, *The Art of Sumer and Akkad*, Boston Museum of Fine Arts, 1973, n.23; H. Hibbard, *The Metropolitan Museum of Art* (New York 1980), 56, n.111; *Metropolitan Museum of Art Guide* 1983, 53, n.19; *BMMA* 41, 4 (1984) 29, n.35.

The plaque preserves traces of incised cuneiform signs on its upper surface and is perhaps meant to function as a tablet; only a few signs are now legible. Richard Zettler examined the plaque and gave me the following information:

> The plate of MMA 48.180 has a 14-line inscription. Lines 1-12 run from top to bottom along the left side of the plate, that is, between the left leg of the lion and the edge of the plate. Lines 13-14 are cut in the space between the legs of the lion but closer to the left leg. The lines run at a 90 degree angle to lines 1-12. Much of the inscription is effaced due to corrosion and subsequent cleaning. The left edge of lines 1-10 has not been cleaned, so corrosion still obscures that part of the inscription. I examined the inscription briefly in May, 1983, with the aid of a magnifying glass only and could make out lines 1-3. These lines read:
>
> [ ]-[iš?]-[ ]-[tal?]
> [e]n-da-a[n]
> [ke]š-ki
>
> The traces are sufficient to indicate that lines 1-3 probably duplicate the opening lines of the stone tablet Louvre AO 19938 [infra], that is, *Ti-iš-a-tal en-da-an Ur-keš-ki.*

It seems obvious that the lion's function is apotropaic, to protect the plaque and the temple in which it was deposited (infra). It is also obvious that the lion peg is a foundation peg or deposit, an interpretation revealed not only by the peg base itself, but also by the inscription on the stone tablet mentioned by Zettler that is associated with another lion peg, the mate of the Museum's piece, now in the Louvre, AO 19937 (Hallo 1962, 11; Ellis 1968, 57). The Louvre's lion peg was acquired in the very same year (1948) as the Metropolitan Museum's example (Parrot 1948, 85 f., Fig. 1; Parrot and Nougayrol 1948, Figs. 1-3; it is known to me only from the photographs). Formally and stylistically exactly the same as our piece, it nevertheless was made in a separate mould. The Louvre's lion faces frontally in the same plane as the body, and is not turned to one side; its mane hair is not rendered as tufted layers; its legs appear to be more massive, and the shoulders seem to have less indication of muscles. In addition, its bronze plaque is horizontal, not, as appears to be the original position of the Metropolitan Museum's piece, concave. Pierre Amiet has informed me that there is evidence that the Louvre's plaque was separately made and inserted into a slit in the lion's stomach, a conclusion independently reached for the Metropolitan Museum's lion peg. The Louvre plaque is also incised with cuneiform signs (infra; Illustr. 52).

The Louvre lion peg was purchased together with a white stone tablet that is inscribed in the Hurrian language and which seems to fit under the bronze plaque. The text on the tablet is clear and records that "Tishatal, king of Urkish, built the temple of Pirigal [or Nergal?]" and that the temple is placed under the protection of various deities who threaten anyone who attempts to destroy it (Parrot and Nougayrol 1948, 11; Schmökel 1955, 278 f.). The Louvre's lion presumably held and protected the stone tablet as well as the bronze

plaque, and both it and its mate were placed in the foundations of the Pirigal temple, wherever that may have been built (infra), resting, and quietly doing their duty there until torn away by modern plunderers (whose prayers, one trusts, according to the tablet's curse, will not be heeded). Inasmuch as the Metropolitan Museum's lion peg lacks a stone tablet, I wondered whether there was objective verification, aside from the juxtapositon in a dealer's shop, that the Louvre lion peg and stone tablet were in fact an ancient ensemble.[2] Parrot and Nougayrol (1948, 1, n.3) stated that the plaque "a laissé son empreinte sur la tablette de pierre," but the nature of the imprint or stain was not explained. I therefore wrote (January 12, 1983) to Pierre Amiet requesting clarification and further information if any were available. He promptly replied (January 20, 1983) with information that established that the stone tablet was indeed originally associated with the lion peg, that they were placed together in the foundations of the temple.

In the first place with regard to the stain, the stone tablet "porte bien un depôt d'oxyde de cuivre correspondant d'une part à la tablette de cuivre que tient le lion, et d'autre part, sur le côte, au point qui était au contact du clou." Secondly, and "décisif, la tablette de calcaire s'est imprimée au revers de la tablette de cuivre, sur l'oxyde de laquelle on peut reconnaître en partie deux de signes des lignes 18 et 19." (See Illustr. 53).[3] Finally, the copper plaque was cleaned subsequent to the 1948 publication and some of the signs may now be read, especially part of the crucial first and second lines which agree with those on the stone tablet.[4] Collectively, the evidence indicates that there can be no doubt that the Louvre lion peg and stone tablet are an ancient ensemble[5] and that they have the same basic inscription as on the Metropolitan Museums's peg.

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[2] These thoughts occurred to me before I was able to get someone (Zettler, May 1983) to attempt to read the inscription on the Museum's plaque. But, even knowing in advance that the latter mentioned Tishatal, I would still think it important to obtain objective confirmation that the Louvre's peg and tablet were an historical ensemble.

[3] I quote Amiet to give the information exactly as presented. In typical, generous fashion Amiet has also given me permission to publish the photograph of the impression left in the metal oxidation. The clearest photograph published of the Louvre peg is Schmökel 1955, Taf. 47.

[4] Amiet believes that the plaque was cut back in antiquity after suffering damage from the force required to insert it into the lion. "En effet, on peut lire la première ligne: *ti-iš-a*, mais il n'y a pas de place pour *tal*. Dans la 2e ligne, on peut lire *en* (très mal tracé) *da-an*. La suite est très obliterée, on voit du moins que la 4e ligne commence par DUMU et diffère donc de celle de la tablette de calcaire. Le libellé des deux tablettes différait donc quelque pue." Parrot (1948, 86; and Parrot and Nougayrol 1948, 2) ambiguously claimed that the text on the tablet is "sans doute" the same as that "sous l'oxydation de la plaque de cuivre." But this could not be known until the plaque had been cleaned and it seems that Parrot was making an assumption, one that was later proven correct.

[5] This conclusion is obviously neither pedantic nor minor. The reason why the Museum's lion peg lacks a tablet can no longer be known, or even hypothesized: another example of a lost crucial historical documentation, courtesy of the antiquity market and its clients. We cannot answer the questions we ask: Was the lion peg originally deposited without a tablet? Was there a tablet removed by the plunderers but subsequently discarded or lost? Was it indeed recovered but sold independently of the peg, some day to be recovered? Was it missed inadvertently and still remains in the ground?

Neither the Metropolitan Museum's nor the Louvre's lion peg has an archaeological provenience; both derive from the antiquities market and there is an implication that two dealers were originally involved in the two sales. Parrot and Nougayrol (1948, 2), while giving no information about the Louvre piece other than that it was acquired through the auspices of the Société des Amis du Louvre, state that the mate was seen "précédemment chez un antiquaire parisien...," implying that this dealer was not the same one who sold the Louvre its lion peg. The Metropolitan Museum's lion peg was in fact purchased from a New York dealer; how he acquired it and whether it came directly from the aforementioned Paris dealer is unknown. In any event, whatever the modern history of the two lion pegs may have been, their transfer from an ancient site, a Near Eastern mound, to Paris (and dispersal to two separate dealers there) and then the transfer of one to a dealer in New York City, it may be accepted within the framework of a plausible speculation that both lion pegs were plundered from the same site, and from the foundations of a temple at that site.

What was the ancient and the modern name of that site, and where was it located? The answer to each of these questions is the same: we do not know. A number of scholars have assumed that wherever in the Near East the pegs were found, that mound will have been Urkish, the city mentioned in the inscription (e.g. Parrot 1954, 13; Schmökel 1955, 278; Nougayrol 1960, 213; van Liere 1957, 91; Rashid 1957-71, 213; implied by Mellink 1972-75, 515). However, the text on the stone tablet merely states that a king of Urkish built a temple; it does not say that the temple was built at Urkish, although it is possible it was built there. In this sense, the lion pegs may be known as the Urkish lions, not because of where they were necessarily deposited in antiquity, but because they were deposited by a king of Urkish.[6] The city of Urkish appears in a number of texts from Chagar Bazar and Mari, and on the bronze so-called Samarra tablet; it was a major Hurrian political and cultural center (Speiser 1953, 313 f.; Gelb 1956, 380 f.; Mellink 1972-75, 515). All scholars interested in the site locate it in North Mesopotamia, in the Khabur River basin of present-day northeastern Syria and southeastern Turkey.[7] A few of these scholars have singled out one mound in that area, Tell Amouda, as their candidate for the site of Urkish (van Liere 1957; Edzard and Kammenhuber 1972-75, 509; Kessler 1980, 225 f.; Salvini 1983, 27, 33). Only excavation will resolve the issue and until that is accomplished Rashid's (1957-71, 658) statement that Urkish is "nicht sicher lokalisiert" and Parayre's (1977, 126, III) question mark still obtain.

For, as we do not know from internal evidence whether the lion pegs were deposited in a temple at Urkish, likewise, but for different reasons, we do not know the geographical location of the mound from which they were plundered. Van Liere (1957, 91) claimed that "Des informations fortuites que j'ai obtenues récémment indiquent que ces lions ont été excavés [sic] de Tell Amouda." No source, viable or otherwise, was given for this hermetic claim

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[6] Like other Near Eastern kings, Hurrian kings, including those from Urkish, built temples at several cities, as we known from the so-called Samarra tablet (a bronze tablet purchased from a dealer and without provenience, Thureau-Dangin 1912, 1 f.). Note that it is of course possible that the Pirigal temple was built by Tishatal at Urkish, but since the tablet does not give a location we may not make this assumption. [On this and other points raised in the Appendix see also the remarks above, Section 2.2 — G.B. and M. K.-B.]

[7] Except Thureau-Dangin 1912, 3. In addition to Parrot and Nougayrol 1948, 2, 18 f., Speiser 1953, 313 f.; Hrouda 1958, 28; Kessler 1980, 224 ff.; see A. Goetze *JCS* VII, 2, 1953, 62 f.

(see Kessler 1980, 224), but van Liere used information he was reluctant to share to support his identification of Tell Amouda as Urkish. Statements of this kind have no place in archaeological discourse and have no value for those attempting to learn exactly where an object was found, whether the lion pegs or any other object.[8]

The Hurrians, a non-Indo-European and non-Semitic speaking people, appear in cuneiform texts from the Akkadian period, the second half of the 3rd millennium B.C., through the 2nd millennium B.C., and Hurrian names continue to appear in the 1st millennium (Gelb 1944; Speiser 1953; Edzard and Kammenhuber 1972-75). The stone tablet and the inscribed lion pegs are the earliest Hurrian documents known to date and concomitantly the lion pegs are the earlierst works of art associated with the Hurrians, manifestly having been deposited in one of their temples. Most cuneiformists agree that the stone tablet was inscribed some time in the Akkadian period (25th-23rd centuries B.C.) but there is a difference of opinion concerning exactly when within that period it may be dated. Parrot and Nougayrol (1948, 3; also Parrot 1948, 86; *idem* 1961, 282) date it close to the beginning of this period, a position accepted by Speiser (1953, 313). Other scholars date it to the later part of the period (e.g., Gelb 1956, 380 f.; Hrouda 1958, 78; Hallo 1962, 11; Ellis 1968, 57; Mellink 1972-75, 515; Barrelet 1977, 7; Spycket 1981, 181; but see n. 168a).

Aside from its chronological connection to the tablet, a number of scholars also accept the lion pegs as being independently Akkadian in style (e.g., Crawford et al. 1966, 11; Mellink 1972-75, 515; Parayre 1977, 169; it is a position I tentatively share), although it has been noted that the lions could equally fit stylistically into a later period, Ur III or even Isin-Larsa (Parrot and Nougayrol 1948, 2; Parrot 1954, 12; idem 1961, 182). Moreover, Whiting (1976, 175 f.) has suggested that the tablet, and thus the lions, could in fact be dated to either the Akkadian period or to Ur III (23rd-21st centuries B.C.). Indeed, it is the date of the tablet alone that will eventually confirm the exact chronology of the pegs (Ellis 1968, 57, n.81).[9]

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[8] Who else but a dealer could be Van Liere's source for the "informations fortuites"? Nougayrol (1960, 209 ff.) published an Akkadian style cylinder in a dealer's possession inscribed "Daguna the wetnurse, daughter of Tishadimmuzi the attendant." According to the dealer's claim ("spontanément indiquée"), reported enthusiastically as an archaeological reality by Nougayrol, the seal came from the same site "que le lion de bronze acquis par le Musée du Louvre," which had been published by Nougayrol himself twelve years earlier. To Nougayrol this site is the mound "qui recouvre à présent l'antique Urkish." But he did not reveal how he could objectively know whether the seal was in fact found at the same time as the lion pegs or twelve years later, in both cases at the same site; nor did he reveal whether the same dealer was involved in the sale of both finds. Nougayrol also believed that Tishadimmuzi is a Hurrian name, which reinforces to him the Urkish attribution (cf. Edzard and Kammenhuber 1972-75, 509; "Sprache hurr.?" and Barrelet 1977, 16, n.38). Mellink (1972-75, 515) says the seal is "reportedly also from Urkish," but neglects to state that the reporter was a dealer, while Forte (apud Muscarella 1981, 89) correctly puts quotation marks around "come from Urkish"; see also Salvini 1983, 29. The seal, like the lion pegs, may be Akkadian in date and style, and equally must be reported as without provenience. For the record, the seal is now in the possession of the Lands of the Bible Archaeology Foundation (Forte apud Muscarella 1981, n.46). The donor to the Foundation, Elie Borowski, purchased the seal from a dealer in the early 1970's; he was apparently not the same dealer who had it in 1960. [See also above, Section 2.3. — G.B. and M. K.-B.]

[9] It would be significant if Tishatal "the man of Nineveh" mentioned on a tablet excavated at Eshnunna, and dated to the third year of Šu-Sin, king of Ur (III period), is the same person mentioned on the Louvre stone tablet. For, if so, we would be able to date the lion pegs in the 22nd or 21st century B.C. But the Eshnunna Tishatal is not called "the man of Urkish," which one might assume he would be called if he were the king of Urkish. For discussion, see Whiting 1976, 176 ff., who accepts the Eshnunna Tishatal to be the Hurrian king. See also Salvini 1983, 28.

Whatever problems may exist regarding the possible "stylistic range of the lion pegs, or the objective Akkadian or Ur III date of the tablet, and thus of the ensemble, there is no doubt that on the basis of style the lions fit into a late 3rd millennium B.C. Near Eastern, Mesopotamian background. They exhibit no feature that calls attention to itself as distinguished from the art of that general background.[10] And, in this crucial issue, the lion pegs epitomize the essence and the paradox of the problem of "Hurrian art," the problem of recognizing what are the characteristics of Hurrian art and how they may be perceived and defined. For on the single work of art (accepting here the two lions as representing the stylistic work) that may be called *Hurrian* by the objective nature of its juxtaposition to a Hurrian text (on the bronze plaque and on the stone tablet) recording its deposition in a temple built by a Hurrian king, its style exhibits no features that may be called *Hurrian*, as opposed to general *Near Eastern*.

This is not the place to discuss the arguments presented over several decades justifying the decision to label as *Hurrian* individual works of art (for a good summary, see Barrelet 1977).[11] Suffice it to note here that a large number of objects, none, incidentally, associated closely with Hurrian texts,[12] and dating from the 3rd through the early 1st millennium B.C., have been assumed to be Hurrian, i.e., to be artifuacts made by Hurrians, revealing themselves as such by subtle, subjectively perceived features or attributes. Mellink (1972-75, 514 ff.), a scholar who basically accepts the possibility of recognized as Hurrian, nevertheless ultimately concludes that although "the negation of Hurrian art is unfounded....the existence of an original, independent tradition of Hurrian art and architecture is improbable....." This view agrees

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[10] The foundation pegs are of course unique in two respects: no other foundation peg known to date is of the same form; and if Akkadian in date, they stand alone, for foundation pegs are otherwise unattested from that period (Ellis 1968, 57 f., 85, 154 f.; Rashid 1957-71, 157 f.).

[11] And more recently, E. Klengel-Brandt, "Ein Kultefäss aus Assur," *Forschungen und Berichte* 20/21, 1980, 217, and A. Bernard Knapp and Anne Marchant, "Cypro-Minoan and Hurrians," *RDAC* 1982, 15-21, for a rejection of subjective attributions of general Near Eastern objects to the Hurrians. Compare, however, Negahban (1983, 14, n.44) who perceives Hurrian influences in the art of the Mannaeans, Medes, Urartians and Assyrians! See also R. Mayer-Opificius 1983, passim, who casually believes that Hurrian art was a fundamental component of Urartian art, although only broad, non-substantive reasons are given to support the alleged Hurrian-Urartian artistic collective nature. She also (340) adds two more important Near Eastern objects to the growing list of "Hurrian" artistic artifacts, the fragmentary bronze seated figure from Bassetki with an Akkadian inscription (see *Sumer* 32, 1, 1976, 63 ff.), and the bronze "Sargon" head from Nineveh; no documentation is given for these gratuitous assumptions.

[12] H. Güterbock (1965, 197 f., Pl. XIII) published a votive sword with its hilt decorated with two lions, and which bears an Old Assyrian inscription, one with problems of interpretation. Güterbock believes the text refers to a sanctuary of Nergal, known to be a Hurrian deity (but not honored exclusively by Hurrians); and because of "the alleged provenience" given by the dealer as Diyarbakir in southeastern Turkey, he assumes (by ignoring his own word "alleged") that the sanctuary was in the vicinity of that city. Mellink (1972-75, 516) accepts without reservation the revealed Diyarbakir provenience (which is within the Hurrian sphere) and lists the sword as a Hurrian object coming from a Hurrian sanctuary: "The geographical provenance confirms this." But imagined speculation of this kind undermines controlled methodology: the sword was not excavated at or near Diyarbakir, and its "geographical provenance" is a modern European collection. And, not so incidentally, it should be noted that the inscription on the sword is not in Hurrian, nor are any of the names mentioned manifestly Hurrian, nor does the name Nergal appear.

with those expressed by earlier writers (e.g. Speiser 1953, 315 f.: Güterbock 1954-55, 392 f.), although it does not go so far as Frankfort (1955, 141, 143, 250, n.36), who denies the existence of Hurrian art, except for glyptic. More recent writers (Barrelet 1977; Parayre 1977) tend to support Frankfort, at least with regard to the impossibility of identifying any work of art as Hurrian. The lion pegs certainly reinforce in a fundamental way the conclusion that there is "no independent tradition of Hurrian art"; although their ancient label says they are Hurrian, their style says they are Near Eastern.

One final point is worth consideration. Ellis (1968, 75) has pointed out that, although the ensemble, figure with peg, is the same in concept as the southern Mesopotamian foundation pegs, the menacing lion and the stumpy peg (a "difference in spirit") differentiate them. A crouching lion joined to a peg or spike was excavated at Bismaya (Adab) but Ellis (1968, 56) has argued that it was placed in a horizontal, not verical, position and may therefore not be a foundation peg; yet we have in hand two examples of lions associated with a peg, one from a southern Mesopotamian milieu, and it has occurred to me that the menacing lion of the Urkish pegs may not in fact reflect a "difference in spirit" from southern ideas. On the often discussed relief of Puzur-Inshushinak from Susa (Amiet 1966, No. 165; dated there to the Ur III period; see also Schlossman 1976, 13, n.24), one of the two relief representations known that depict a kneeling god with a peg, a snarling lion is placed directly before the kneeling god. Could not the Urkish lions signify the same spiritual/symbolic value as that recorded on the Susa relief, all the more so as both lions are juxtaposed to foundation pegs? If so, then the Urkish lions are even more Near Eastern and less odd ("Hurrian") than hitherto noted.

9.1.1. Metal analysis — Pieter Meyers

Sample: Obtained by drilling from underside, next to existing hole.

Cu	97.2	As	1.29
Zn	0.028	Ag	0.018
Sn	0.038	Bi	0.003
Pb	0.046	Se	0.007
Fe	0.622	Te	0.007
Ni	0.608	In	0.001
Co	0.016	Al	0.004
Sb	0.037		

Total before normalization: 97.8

Approximately twenty-five milligrams of sample was drilled from each piece using a steel twisted drill bit mounted on an electric drill. A twenty-five milligram fraction of each sample was accurately weighed and dissolved in 2.5 cc 6N HCL containing three percent H_2O_2. After dissolution the excess H_2O_2 was removed by gently heating, and the solution was diluted to 5 cc with distilled water. Each sample was then analyzed by induction coupled plasma emission spectrometry (ICP).

The elemental concentrations are listed as fraction by weight expressed as parts per hundred and normalized to 100%, with the total of all elements determined before normalization also given. The reported values are estimated to be accurate within five percent of the reported values for the major components. The uncertainties increase to fifty percent of the reported values for some of the elemental fractions in the range of 0.01-0.05%.

9.2 Computer applications

9.2.1. Introduction — Giorgio Buccellati

One of the methodological presuppositions which underly our work at Mozan is the utilization of electronic data processing, to which I have referred briefly in my section on methodological considerations (2.4 above). We have in fact been committed since the very earliest days of micro-computing to the direct utilization of computers in the field, in the firm belief that immediate feedback from a constantly updated computerized data base would have significant conceptual effects on the research strategy of the excavation. This was already the case with our excavations at Terqa, where we introduced micro-computers as early as 1982. Our emphasis has consistently been on a fuller understanding and analysis of the stratigraphic relationships during the excavation itself.

The graphic dimension is an important component of this approach — not for reasons of aesthetics or ease of operation, but rather on intellectual, archaeological grounds. Daily, as well as archival, plotting of digital data allows the visualization of correlations which are otherwise easily lost when preserved in purely digital form; the speed with which different distributional arrays may be tested allows a much faster turn-around time in the verification of hypotheses; and, very significantly, the precision of the centimetric grid may be retained more easily at the level of the individual area supervisors (and of individual finds of movable objects) rather than just at the level of the architect (and the larger, permanent structures).

While our current field equipment includes several small plotters and the software for dealing with two-dimensional plotting, we are not yet set up for dealing with three-dimensional rendering. We have however been interested in this aspect since the beginning (when Computer Aided Design, or CAD, systems were not yet envisaged for micro-computers) — and this too for intellectual, not just aesthetic, reasons. The obvious conceptual kinship with problems posed within the framework of the discipline of architecture led me to seek both intellectual and technical advice from colleagues in this field at UCLA. My specific point of departure was the observation that as archaeologists we face identical sets of problems as those faced by architects, though in a converse sort of relationship. While architects arrive at an organization of space from a known, intended functional use (the client's requirements), we arrive conversely at a reconstruction of functional use from a known spatial organization (the excavated site). With this in mind, I was fortunate to find William J. Mitchell, Professor of Architecture and Urban Planning at the UCLA Graduate School of Architecture (now at the Harvard School of Design), the most congenial and productive collaborator with a keen sensitivity for archaeological problems. He had been developing an innovative approach to both the technical side of computer graphics and the conceptual dimension of a "grammar of space" (Stiny and Gips 1972; Stiny and Mitchell 1978; 1980). The creation of specific

three-dimensional modules which could be conjoined graphically according to a complex set of syntactical rules gave him an insight into the inner dynamics of a building (whether in existence or in the planning stage) that was hardly possible with traditional means.

An observation made by Mitchell can find, I am sure, a strong echo in archaeology; in creating three-dimensional renderings of classical buildings he realized that the two parallel sets of two-dimensional representations (floor plans and sections) would often fail to match — something which generations of architectural historians had apparently failed to notice in spite of the intense study to which these drawings had been submitted. The conceptual significance of this is that there is a tendency to view space in terms of the *flat* surfaces to which we have (heretofore) reduced it as a result of the limitations inherent in our technical capabilities. Space must be viewed instead volumetrically, and the organization of space (as well as the depositional entities in a stratified site) must be understood as *solids* — not as planes. Therefore such planes as we are used to (floor plans and sections) must be viewed purely as correlated indices of volumes (a concept which I have developed in Buccellati 1981).

It was as a result of these concerns that I asked for Mitchell's assistance in developing three-dimensional renderings of our architectural data from the digital files that we were creating in the field. Beginning with the architectural structures in themselves, we were planning to develop eventually "three-dimensional sections," as it were, of the deposition and of our correlative stratigraphic understanding; this would not be unlike the exploded diagrams found in the rendering of machine assembly charts (which is, upon reflection, a better metaphor for the stratified site than the traditional metaphor of a layer cake). Very graciously, Mitchell agreed to train an archaeology student within the curriculum of the School of Architecture, and Andrea M. Parker agreed in turn to follow through with the study of certain buildings at Terqa and Mozan. Given below is the result of her work, which is illustrated in the computer generated graphic reconstructions of the stone building in Area B (Illustr. 54-56). Her contribution shows vividly how heuristically significant the process can be. Alternative interpretations of the architectural shapes may be preferred to the ones here proposed, but that is precisely the point that is intended: the ease with which very precise, concurrent and diverse reconstructions can be generated does not prejudicially tie our perception to just one or two possible reconstructions. The potential of field applications of the same approach (which are beginning to be within reach as a result of recent developments in micro-computer supported graphic packages) is clear: the three-dimensional rendering of architectural structures and, eventually, of depositional units provides a firmer support for a fuller appreciation of volumes in space than any of the traditional means.

9.2.2 CAD Reconstructions of the building in Area B — Andrea M. Parker

One of the questions that naturally occurs during the excavation of any site is "What was the shape and size of the structure that is being excavated, and what was the purpose it served?" In the case of the building in Area B at Mozan, an attempt was made to answer some of these questions with the aid of a computer-aided architectural design system.

The partially excavated stone foundations at the top of the tell in Area B seem to represent a corner of a monumental building. They can provide some information concerning the general size of the walls which they supported, but by themselves they are not reliable indicators of either the building's architectural style or its function. Other features which

were excavated in association with the foundations are better sources for this kind of information, namely the white floor, the ramp, the hearth and the unbaked brick surface to the north of the building.

Unfortunately, given the early stage of the excavation, the way in which these other features are related to the stone foundations is still not entirely clear, nor is it even established that they are all contemporaneous. Until such questions can be resolved by future excavations, the process of creating hypothetical structures in Area B must take into consideration the effects of all the permutations of these features. The inclusion or omission of any of them in the reconstruction process can result in significantly different buildings.

Therefore, it should be emphasized that the reconstruction task at Mozan is not one of passively generating a few variations of a building based on a well-defined two-dimensional groundplan. This type of process would be perhaps better referred to as 'illustration' rather than 'reconstruction.' Instead, the reconstruction process at Mozan is more akin to the kind of design process performed by architects and engineers and which ultimately motivated the development of computer-aided design (CAD) technology.

While an 'illustration' medium, e.g. pencil and paper, may be well suited to the first kind of reconstruction, namely a one-time 'illustration' of well-defined visual data, it is poorly suited to executing the types of geometric manipulations and repetitive trial and error operations which are required for the second type of reconstruction — where a 'best-fit' configuration must be chosen from among a very wide range of incompletely defined sets of visual data. This latter process requires the three-dimensional versatility and the speed of recomposition afforded by a CAD system. Thus, somewhat ironically, it appears that the same type of visual processing that is applied to modern-day engineering or architectural components is also the method best suited to the examination and reconstruction of a building which dates back to the Bronze Age at Tell Mozan.

The mechanical implementation of the various reconstructions is simple. Three-dimensional models of different Bronze Age architectural modules are stored in a CAD system. The system is then used to select, transform and assemble instances of these modules into hypothetical superstructures which are fitted onto the Mozan foundations to produce different reconstructions of how the Mozan building might have appeared in the third millennium B.C.

The collection of modules which is stored in the computer and which provides the basic shapes used in the CAD reconstructions is referred to as the 'shape library.' The modules in the shape library are organized into two groups, those which represent the Mozan foundations and those which are used for the various reconstructed superstructures. The 'foundation group' comprises the core of the architectural features which were excavated at Mozan. These are shown in Illustr. 54 and consist of the stone foundations, the white floor, the hearth, the ramp and the baked brick floor north of the white floor.

The various architectural modules which are used for reconstructing the superstructures of the building at Mozan are taken from sites in Mesopotamia, Anatolia, and Northern Syria of approximately the same time-frame as Mozan.

The Mesopotamian-style modules are extracted from the inventory of elementary Bronze Age shapes compiled by Margueron (1982, Figs. 344-346; 349-352; 361-368). The appropriate mid-third millennium modules are those of the Early Dynastic palaces of Kish A, Kish P, pre-Sargonic Mari and Eridu. Since the functions of these buildings are generally held to be 'unidentified' at this time, there are no particularly religious or secular connotations attached to these modules. Characteristic forms are 'long corridors', 'pivot rooms,' 'coronas and courtyards,' 'entry modules' and 'stairwells.'

The Anatolian module is the megaron, which appears to describe most ceremonial or monumental buildings in Anatolia during this period. Beycesultan (Lloyd and Mellaart, 1962) and Kultepe (Özgüç 1963; 1986) offer two examples of this Anatolian type architecture which are within a few hundred miles of Mozan and demonstrate that the megaron style was in use in the region during the mid-third millennium.

The two northern Syrian sites which yielded the most interesting comparisons with Mozan were Ebla (Matthiae 1980, 65-111, Fig. 11) and Tell Chuera (Moortgat 1962, 10, Plan II). The Palace G at Ebla furnished an example of a monumental staircase. From Tell Chuera, modules for the Mozan superstructure came from the stone-built North Temple and a composite of the different levels of the smaller mud-brick 'Anten'-temples (Moortgat 1965, 11-15, Plans V-VI; Moortgat 1967, 8-38, Figs. 7 and 17, Plans III and IV). Both these temples at Tell Chuera are characterized by protruding front buttresses and are referred to in the following discussion as 'in antis' temples.

The architectural modules from the above sites produced a shape library consisting of approximately thirty entries. All the modules were input into the computer at the same scale and according to their original orientations. The two-dimensional coordinates of the modules were digitized from their respective site plans and input onto a specific layer in the CAD system according to each module's function (for example, all the 'corridors' were input on one layer, all the 'pivot modules' on another, etc.). Then the two-dimensional plans of the modules were extruded into three-dimensional 'solids,' using existing data concerning the third dimension whenever that was available (i.e. depth of stone foundations at Mozan), otherwise positing reasonable dimensions when the data were missing or functionally inappropriate (i.e. height of walls). The advantage of working with three-dimensional 'solid' modules in the CAD environment as opposed to two-dimensional 'surface' ones is felt to outweigh the possible errors which might arise from reconstructing wrong heights in some cases. CAD 'solids' can be joined to each other, or intersected, or subtracted from each other, and in general behave very much like mud-brick, the appropriate medium for the reconstructions at Mozan. In addition, 'solid' models can be 'illustrated,' evaluated, modified and then if necessary 're-illustrated' much faster than surface models, thereby considerably decreasing the time required to generate a large number of reconstructions.

The procedure for generating a reconstruction of a building from modules stored in the shape library can be outlined as follows. For each reconstruction, certain three-dimensional modules in the shape library were selected for their potential suitability as superstructures to the foundations at Mozan. Once selected, they were copied onto a working layer which already contained the three-dimensional representation of the Mozan foundations to which the superstructure would be adapted. On the working layer, the three-dimensional superstructure modules were translated onto the Mozan foundations. The transformation operations which were used by all the reconstructions were: extrusion, copying, union, subtraction, and translation. In some reconstructions where additional transformations seemed legitimate, the superstructure or part of the superstructure was rotated, scaled or otherwise transformed (for example, stretched) to make it adapt to the Mozan foundations. However, such superstructure transformations were not always necessary or even desirable, since the relative degree of 'mis-adaptation' of a superstructure can conceivably provide a significant amount of information in its own right.

The way in which the modules were combined to produce plausible superstructures was not arbitrary, but was based on the functional analysis approach to architectural reconstruction proposed by Margueron. This approach provides the double framework required for the data at Mozan. On the one hand, it offers a means of empirically checking the accuracy of hypothetically reconstructed dimensions and configurations against an exhaustive inventory of existing modules and patterns (concerning Mesopotamian-style architecture, at least); this helps eliminate the erroneous reconstructions which might arise from basing room configurations or dimensions solely on 'patterns' instead of existing examples. On the other hand, the procedure for identifying the functions of various modules within a larger structure is sufficiently abstract to be applicable to other architectural styles besides the Mesopotamian style which Margueron studied; this is particularly useful at a site such as Mozan where the architectural style of the building is still undetermined and may in fact represent a new type (Hurrian?).

Two of the reconstructions that were generated for the Mozan building in Area B are shown in Illustr. 55 and 56.

Illustration 55 shows a Northern Syrian style 'in antis' temple, with the entrance from the East. The reconstruction is based on a composite of the groundplans of Moortgat's 'Anten'-temples and of the larger North Temple at Tell Chuera. The North Temple's basic groundplan in particular is almost identical with the dimensions and orientation of the foundations so far recovered at Mozan. Certain features at Mozan, such as the stone ramp and the brick floor, were incorporated into this reconstruction by envisaging adjacent rooms and/or exits to the exterior of the temple. There was no need either to rotate or scale the Tell Chuera North Temple module to adapt it to Mozan. It fit almost 'as-is.'

Illustration 56 shows a reconstruction of a hypothetical Mesopotamian-style superstructure at Mozan. The module which inspired this reconstruction was the portico at Kish A, building II, because of its access to the exterior. Supposedly, such an exterior access would be a primary consideration at Mozan given the presence of the stone ramp adjacent to the white floor in Area B. This Kish module is one of the larger modules among third millennium Mesopotamian style 'palaces' (excluding 'courtyards'). It was rotated from its original orientation and even stretched to more than twice its width, using a CAD transformation, in order to try to fit it to the Mozan foundations. Despite these rather major design modifications, this supertructure is still too narrow for the foundations and the reconstruction is therefore not very convincing. It does, however, shed light on some specific design factors by which Southern Mesopotamian and Northern Syrian architecture differ.

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REFERENCES

Amiet, Pierre

1957 "Les Intailles Orientales de la Collection Henri de Genouillac," *Cahiers de Byrsa*, pp. 35-73.

1961 *La Glyptique Mesopotamienne Archaique*, Paris.

1980 *Art of the Ancient Near East*, New York.

ANET *Ancient Near Eastern Texts relating to the Old Testament*, edited by J. B. Pritchard (Princeton 1955).

Aynard, M.-J., and J.-M. Durand

1980 "Documents d'Epoque Medio-Assyrienne," *Assur* 3/1, pp. 1-64.

Barrelet, M. J.

1977 "Le 'Cas' hurrite et la pratique archeologique," in *Methodologie et critique, I: problemes concernent les Hurrites*, Paris, pp. 1-20.

1978 "Le 'cas hurrite' et l'archeologie," *RHA* 36, pp. 23-34

BBS L.W. King, *Babylonian Boundary Stones* (London 1912)

Beyer, D.

1985 "Scellements de Portes du Palais de Mari," *MARI* 4, pp. 375-384.

Boehmer, R. M.

1965 *Die Entwicklung der Glyptik wahrend der Akkad-Zeit*, Berlin.

1966 "Die Datierung des Puzur/Kutik-Inshushinak und einige sich daraus ergebende Konsequenzen," *Or* 35, pp. 345-376.

1969 "Zur Glyptik zwischen Mesilim und Akkad Zeit (Early Dynastic III)," *ZA N.F.* 25, pp. 261-292.

Braidwood, R. J., and Linda S. Braidwood
1960 *Excavations in the Plain of Antioch I*, Chicago.

Buccellati, Giorgio
1967 *Cities and Nations of Ancient Syria*, Rome.
1981 "Stratigraphic Sections," in B. Dillon (ed.), *The Student's Guide to Archaeological Illustrating*, Los Angeles, pp. 53-64 (reprinted 1985).

Buccellati, Giorgio, and M. Kelly-Buccellati
1978 *IIMAS Field Encoding Manual (Non-Digital)*, Malibu.
1988 *Mozan: The Soundings of the First Two Seasons, PDS*-1.

Buccellati, Giorgio, and Olivier Rouault
1983 "Terqa Preliminary Reports, No. 12: Digital Plotting of Archaeological Floor Plans," *CARNES* 1/1.

Buchanan, B.
1966 *Catalogue of Ancient Near Eastern Seals in the Ashmolean Museum*, Oxford.
1981 *Early Near Eastern Seals in the Yale Babylonian Collection*, New Haven.

Charpin, Dominique
1986 "Shubat-Enlil and the Land of Apum: New Data from the Mari Archives," paper presented at the 196th meeting of the American Oriental Society, New Haven.

CHS *Corpus der Hurritischen Sprachdenkmäler*, eds. V. Haas, M. Salvini, I. Wegner, G. Wilhelm (Rome 1984-).

Christie, Agatha
1977 *Come, Tell Me How You Live* (New York; first published in 1946).

Crawford, V. E., et al.
1966 *The Metropolitan Museum of Art Guide to the Collections, Ancient Near Eastern Art*, New York.

Davidson, T. E., and H. McKerrell
1976 "Pottery Analysis and Halaf Period Trade in the Khabur Headwaters Region," *Iraq* 38/1, pp. 45-56.

Dilleman, L.
1962 *Haute Mesopotamie orientale et pays adjacent, BAH* 72, Paris.

Dornemann, Rudolph
1979 "Tell Hadidi: A Millennium of Bronze Age City Occupation," *AASOR* 44, pp. 113-151.

Ellis, Richard
1968 *Foundation Deposits in Ancient Mesopotamia*, New Haven.

Edzard, D. O., and A. Kammenhuber
1972-75 "Hurriter, Hurritisch," *RLA* 4, pp. 507-514.

Ferioli, P., E. Fiandra, and S. Tusa
1979 "Stamp Seals and the Functional Analysis of their Sealings at Shar-i-Sokhta II-III (2700-2200 B.C.)," in J. E. Van Lohnizen-DeLeeuw (ed.), *South Asian Archaeology 1975*, Leiden, pp. 7-26.

Fiandra, Enrica
1975 "Ancora a proposito delle cretule di Festos: Connessione tra i sistemi amministrativi centralizzati e l'uso delle cretule nell'età del Bronzo," *Bollettino d'Arte* 1-2, pp. 1-25.

1981 "Attività a Kish di un mercante di Lagash in epoca presargonica," *OrAnt* 3, pp. 165-185.

Fielden, K.
1977 "Tell Brak 1976: The Pottery," *Iraq* 39, pp. 245-255.

Frankfort, Henri
1939 *Cylinder Seals*, London.
1955 *Stratified Cylinder Seals from the Diyala Region, OIP* 72, Chicago.
1970 *The Art and Architecture of the Ancient Orient* Penguin (4th edition).

Gadd, C. J.
1940 "Tablets from Chagar Bazar and Tall Brak, 1937-38," *Iraq* 7, 22 ff.

Gelb, I. J.
1944 *Hurrians and Subarians*, Chicago.
1956 "New Light on Hurrians and Subarians," in *Studi orientalistici in onore di Giorgio Levi della Vida*, Rome, pp. 378-392.

de Genouillac, H.
1911 *La trouvaille de Drehem*, Paris.

Goetze, Albrecht
1953 "An Old Babylonian Itinerary," *JCS* 7, pp. 51-71.

Güterbock, Hans G.
1951-52 "The Song of Ullikummi: Revised Text of the Hittite Version of a Hurrian Myth," *JCS* 5 (1951) pp. 135-161; 6 (1952) pp. 8-42.
1954-55 "The Hurrian Element in the Hittite Empire," *CHM* 2/2, pp. 383-394.
1965 "A Votive Sword with Old Assyrian Inscription," *Assyriological Studies* 16 (Chicago), 197-198.

Hallo, W. W.
1964 "The Road to Emar," *JCS* 18, pp. 57-88
1962 "The Royal Inscriptions of Ur: A Typology," *HUCA* 33, pp. 1-43.
1978 "Simurrum and the Hurrian Frontier," *RHA* 36, pp. 71-83.

Hrouda, B.
1958 "Wassukanni, Urkis, Subat-Enlil," *MDOG* 90, pp. 22-35.
1985 "Zum Problem der Hurriter," *MARI* 4, pp. 595-613.

IRSA E. Sollberger and J.-R. Kupper, *Inscriptions royales sumeriennes et akkadiennes*, Paris 1971.

Jean, Ch.-F.
1938 "Excerpta de la correspondance de Mari," *Revue des études sémitiques*, pp. 128-132.

Kelly-Buccellati, Marilyn
1985 "Archaeological Work at Tell Mozan," Annual Meeting of the American Schools of Oriental Research, November 1985.

Kelly-Buccellati, Marilyn, and L. Mount-Williams
1977 "Terqa Preliminary Reports 3. Object Typology of the Second Season: The Third and Second Millennia," *SMS* 1/5, pp. 143-169.

Kessler, K.
1980 *Untersuchungen zur historischen Topographie Nortmesopotamiens*, Wiesbaden.

Kühne, Hartmut
1976 *Die Keramik vom Tell Chuera*, Berlin.

Langdon, S. H.
1913-23 "Miscellanea Assyriaca V: The Stevenson Collection," Bab 7, pp. 237 ff.

Liverani, Mario
1975 "Communautés de vilage et palais royal dans la Syrie du IIème millénaire," *JESHO* 18, pp. 146-164.

Lloyd, S., and J. Mellaart
1962 *Beycesultan I*, London.

Machinist, Peter
1982 "Provincial Governance in Middle Assyria and Some New Texts from Yale," *Assur* 3/2, pp. 65-102, Pls. IV.

Malamat, A.
1986 "'Doorbells' at Mari. A Textual-Archaeological Correlation," K. R. Veenhof, *Cuneiform Archives and Libraries*, pp. 160-167.

Mallowan, Max E. L.
1937 "The Excavations at Tall Chagar Bazar and an Archaeological Survey of the Khabur Region, Second Campaign, 1936," *Iraq* 4.
1947 "Excavations at Brak and Chagar Bazar," *Iraq* 9, pp. 1-259.
1971 "Early Dynastic Period in Mesopotamia," *CAH* 1/2, pp. 238-314.
1977 *Mallowan's Memoirs*, New York.

Margueron, Jean
1982 *Recherches sur les palais mésopotamiens de l'âge du bronze*, Paris.

Matthiae, Paolo
1980 *Ebla*, London.

Mellink, M.
1972-75 "Hurriter Kunst," *RLA* 4, 514-519.

Moortgat, A.
1932 *Die Bildende Kunst des Alten Orients und die Bergvölker*, Berlin.
1965 *Tell Chuera in Nordost-Syrien: Vorläufiger Bericht über die vierte Grabungskampagne 1963*, Cologne.
1967 *Tell Chuera in Nordost-Syrien: Vorläufiger Bericht über die fünfte Grabungskampagne 1964*, Wiesbaden.

Moortgat, A., and U. Moortgat-Correns
1978 *Tell Chuera in Nordost-Syrien: Vorläufiger Bericht über die Achte Grabungskampagne 1976*, Berlin.

Muscarella, O. White
1977 "Unexcavated Objects and Ancient Near Eastern Art," *BM* 7, pp. 153-208.
1979 "Unexcavated Objects and Ancient Near Eastern Art: Addenda," *OP* 1/1, pp. 1-20.
1981 *Ladders to Heaven* (editor), Toronto.

Nakahara, Yomokuro
1928 *The Sumerian Tablets in the Imperial University of Kyoto*, Kyoto.

Nougayrol, J.
1960 "Documents du Habur," *Syria* 37, 3/4, 205-214.

Oates, Joan
1982 "Some Late Early Dynastic III Pottery from Tell Brak," *Iraq* 44, pp. 205-219.
1985 "Tell Brak and Chronology: The Third Millennium," *MARI* 4, pp. 137-144.

Otten, H.
1950 *Mythen vom Gotte Kumarbi*, Berlin.

Özgüc, T.
1963 "Early Anatolian Archaeology in the Light of Recent Research," *Anatolia* 7, 1-21.
1986 "New Observations on the Relationship of Kultepe with Southeast Anatolia and North Syria during the Third Millennium B.C.," in *Ancient Anatolia: Essays in Honor of Machteld J. Mellink*, Madison, pp. 31-47.

Parayre, D.
1977 "L'Attribution de Sculptures aux Hurrites," in Barrelet 1977, pp. 115-208.

Parrot, A.
1948 "Depot Hurrite de Foundation," *Musees de France* (May), pp. 85-86.
1954 "Acquisitions et inedits du Musee de Louvre," *Syria* 31, 1/2, pp. 1-13.
1961 *Sumer*, New York.

Parrot, A., and J. Nougayrol
1948 "Un Document de Foundation Hurrite," *RA* 42, 1/2, pp. 1-20.

PDS *Photographic Data Sets*, Malibu, see Buccellati and Kelly-Buccellati 1988.

Pecorella, P. E., and M. Salvini
1982 *Tell Barri/Kahat 1*, Rome.

Porada, E.
1948 *Corpus of Ancient Near Eastern Seals in North American Collections I: The Collection of the Pierpont Morgan Library*. The Bollingen Series 14.
1985 "Syrian Seals from the Late Fourth to the Late Second Millennium," in H. Weiss (ed.), *Ebla to Damascus*, Washington, D.C.

Prag, K.
1969 "The 1959 Deep Sounding at Harran in Turkey," *Levant* 1, pp. 63-94.

RAI 24 *Les Hourrites: Actes de la 24me Rencontre Assyriologique Internationale, Paris 1977* = *RHA* 36, 1978

Rashid, S. A.
1957-71 "Grundungsbeigaben," *RLA* 3, pp. 655-661.

Reade, J.
1968 "Tell Taya (1967): Summary Report," *Iraq* 30, pp. 234-264.
1973 "Tell Taya (1972-73): Summary Report," *Iraq* 35, pp. 155-187.
1982 "Tell Taya," in *Fifty Years of Mesopotamian Discovery*, London, pp. 72-78.

RGTC
1 D. O. Edzard, G. Farber and E. Sollberger, *Repertoire geographique des Textes Cuneiformes: Die Orts- und Gewassernames der prasargonischen und argonischen Zeit* (Wiesbaden 1977).
2 D. O. Edzard and G. Farber, *Repertoire geographique des Textes Cuneiformes: Die Orts- und Gewassernames der Zeit der 3. Dynastie von Ur* (Wiesbaden 1974).

Schmökel, H.
1955 *Ur, Assur und Babylon*, Stuttgart.

Speiser, E. A.
1930 *Mesopotamian Origins. The Basic Population of the Near East*, Philadelphia.
1953 "The Hurrian Participation in the Civilization of Mesopotamia, Syria and Palestine" *CHM* 1, 2, pp. 311-327, reprinted in J. J. Finkelstein and M. Greenberg, *Oriental and Biblical Studies: Collected Writings of E. A. Speiser*, Philadelphia 1967, pp. 244-269.

Spycket, A.
1981 *La Statuaire de Proche-Orient ancien*, Leiden.

Stiny, G., and J. Gips
1972 "Shape Grammars and the Generative Specification of Painting and Sculpture," *Information Processing*, 71, pp. 1460-1465.

Stiny, G., and W. J. Mitchell
1978 "The Palladian Grammar," *Environment and Planning*, 5, pp. 5-18.
1980 "The Grammar of Paradise: On the Generation of Mughul Gardens," *Environment and Planning*, 7, pp. 209-226.

Strommenger, E.
1964 *5000 Years of the Art of Mesopotamia*, New York.

Swartz, G. M.
1982 *From Prehistory to History on the Habur Plains: The Operation 1 Ceramic Periodization from Tell Leilan*. Ph. D. dissertation, Yale University.

TCL 2 H. de Genouillac, *Tablettes de Drehem publiees avec inventaire et tables*, Paris 1911.

Thureau-Dangin, F.
1912 "Tablette de Samarra," *RA* 11, pp. 1-14.

Van Liere, W. J.
1957 "Urkiš, centre religieux Hurrite retrouvé dans la haute Jezireh Syrienne," *AAS* 7, pp. 91-94.

Van Liere, W. J., and J. Lauffray
1954-55 "Nouvelle prospection archeologique dans la haute Jezireh Syrienne," *AAS* 4-5, pp. 129-148.

Wegner, I.
1981 *Gestalt und Kult der Ištar-Sawuska in Kleinasien, AOAT* 36, Neukirchen.

Weiss, Harvey
1983 "Excavations at Tell Leilan and the Origins of North Mesopotamian Cities in the Third Millennium B.C.," *Paleorient* 9/2, pp. 39-52.

1985a "Tell Leilan on the Habur Plains of Syria," *BiblArch* 48, pp. 5-35.
1985b "Tell Leilan and Shubat-Enlil," *MARI* 4, pp. 1-19.

Whiting, R.
1976 "Tis-atal of Nineveh and Babati, Uncle of Su-Sin," *JCS* 28, pp. 173-182.
1986 "Two Shamshi-Adad Period Administrative Archives from Tell Lailan," paper presented at the 196th meeting of the American Oriental Society, New Haven.

Wilhelm, G.
1982 *Grundzüge der Geschichte und Kultur der Hurriter*, Darmstadt.

Wirth, E.
1971 *Syrien: Eine geographische Landeskunde*, Darmstadt.

Yener, K. A.
1986 "The Archaeology of the Taurus Mountains: Silver and Tin in Antiquity," paper delivered at the 196th Meeting of the American Oriental Society, New Haven.

Zaccagnini, C.
1979 *The Rural Landscape of the Land of Arraphe*, Rome.

Zarins, J.
1976 *The Domestic Equidae in Third Millennium B.C. Mesopotamia.* Ph.D. dissertation, University of Chicago (forthcoming in *Bibliotheca Mesopotamica*, Malibu).

FIGURES

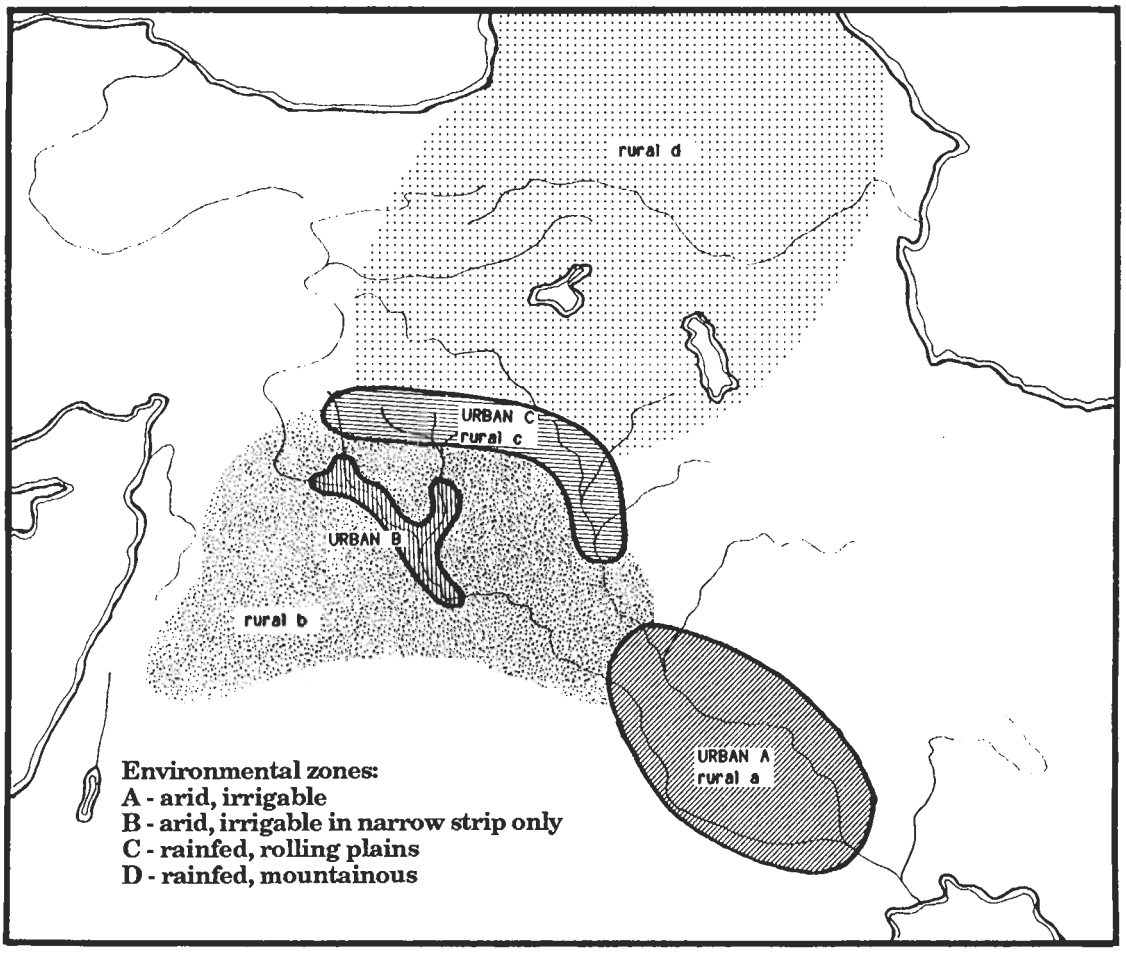


Figure 1. Rural and urban zones in Syro-Mesopotamia during the third millennium

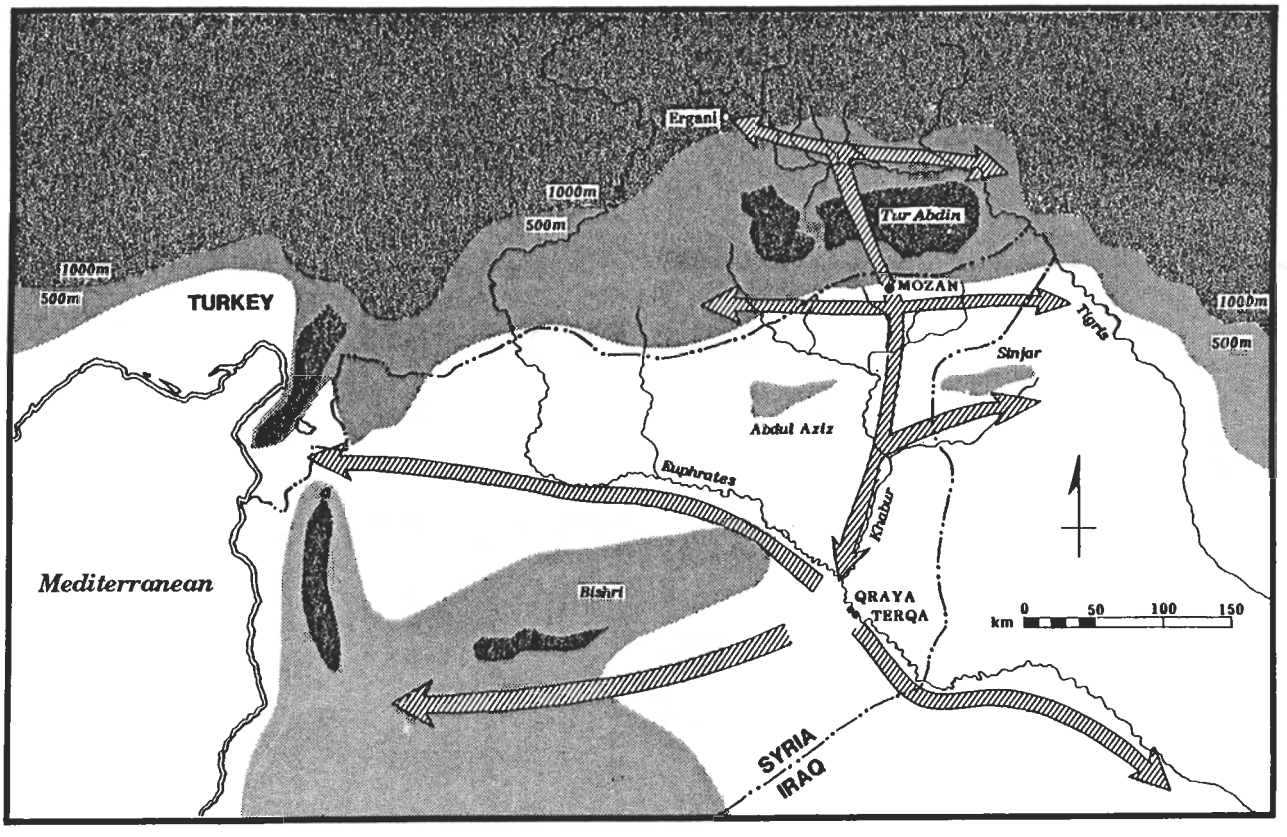


Figure 2. Major trade routes

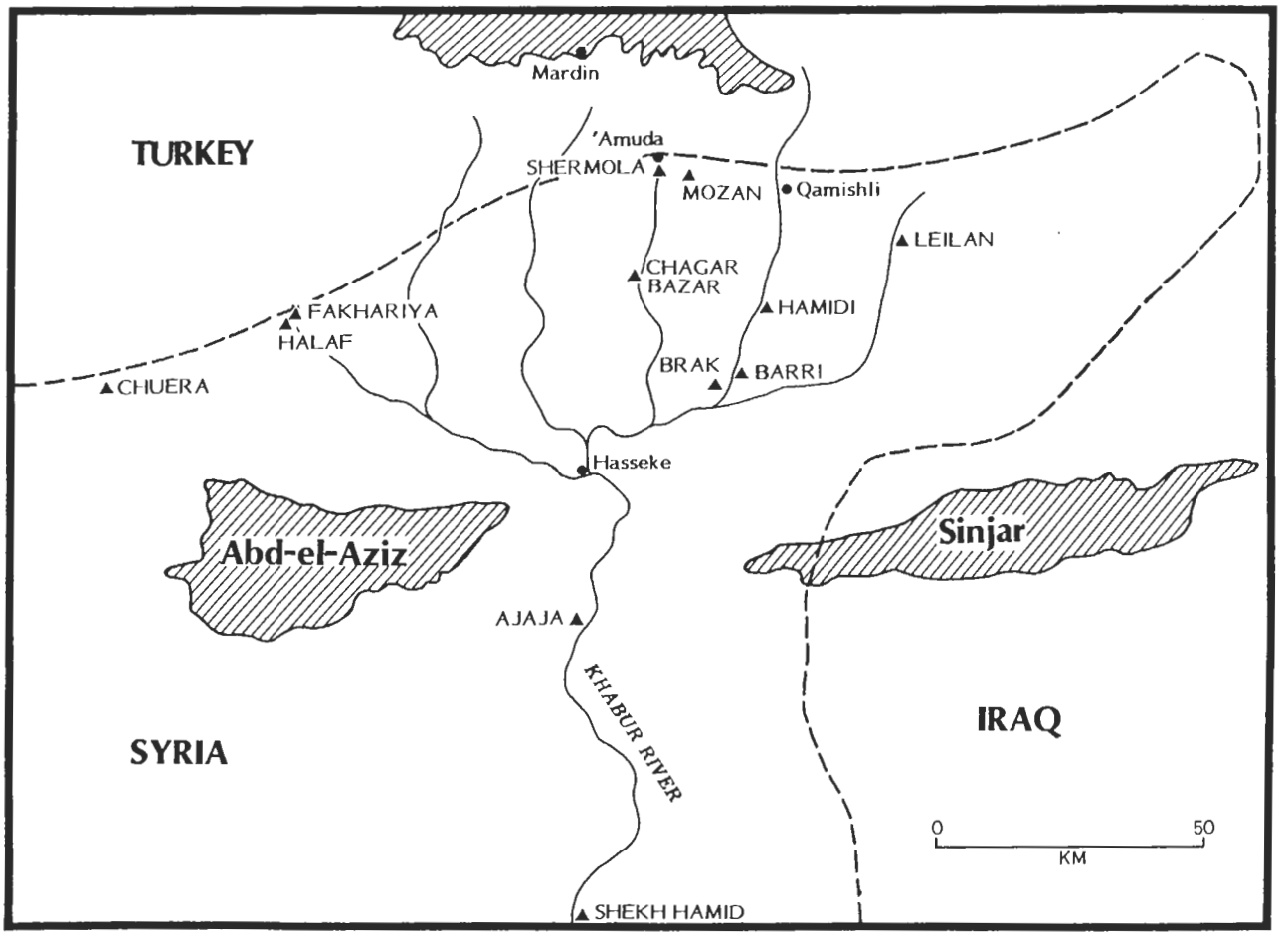
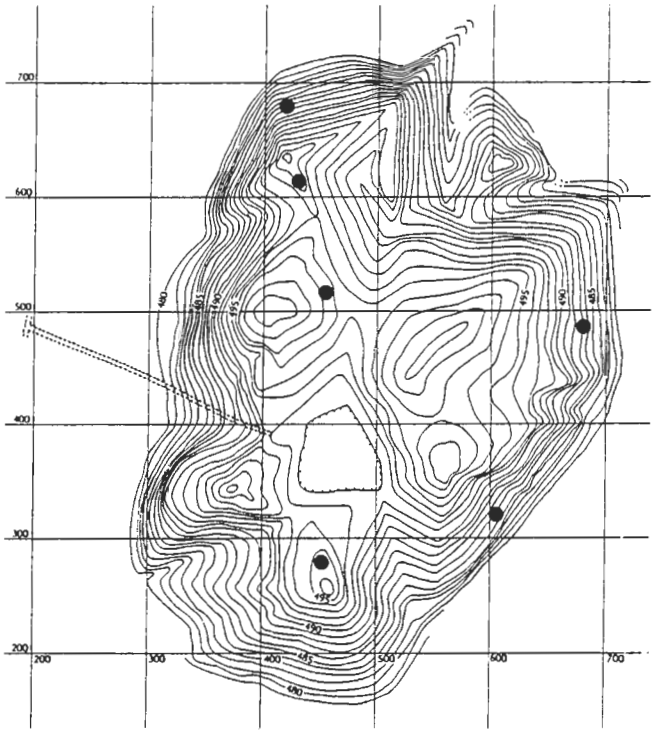
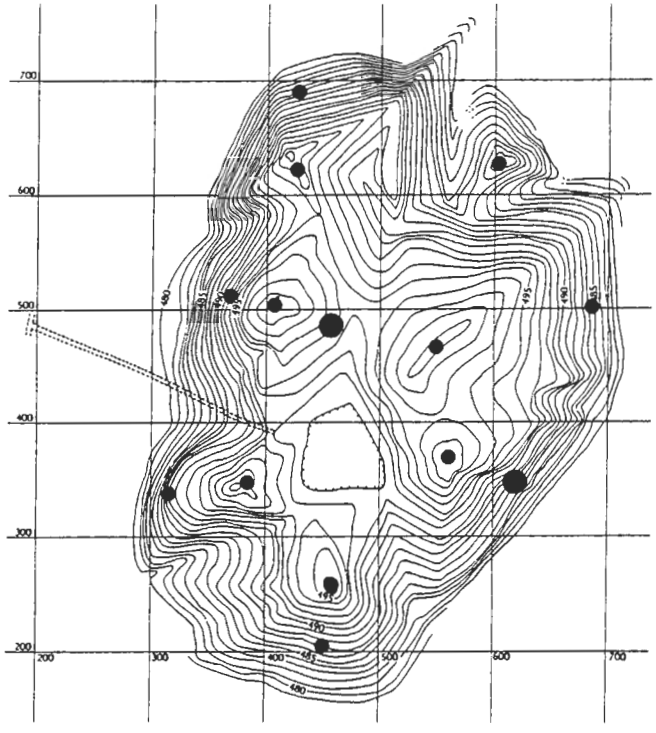


Figure 3. Major sites in the upper Khabur region

EARLY THIRD MILLENNIUM (NINEVITE V)

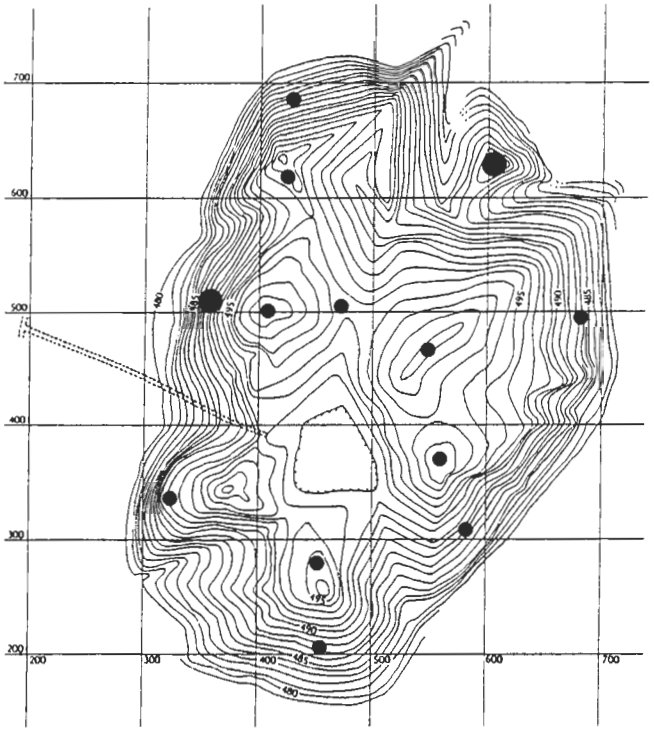
MID THIRD MILLENNIUM





LATE THIRD MILLENNIUM (UR III)

MID EARLY SECOND MILLENNIUM (HABUR)



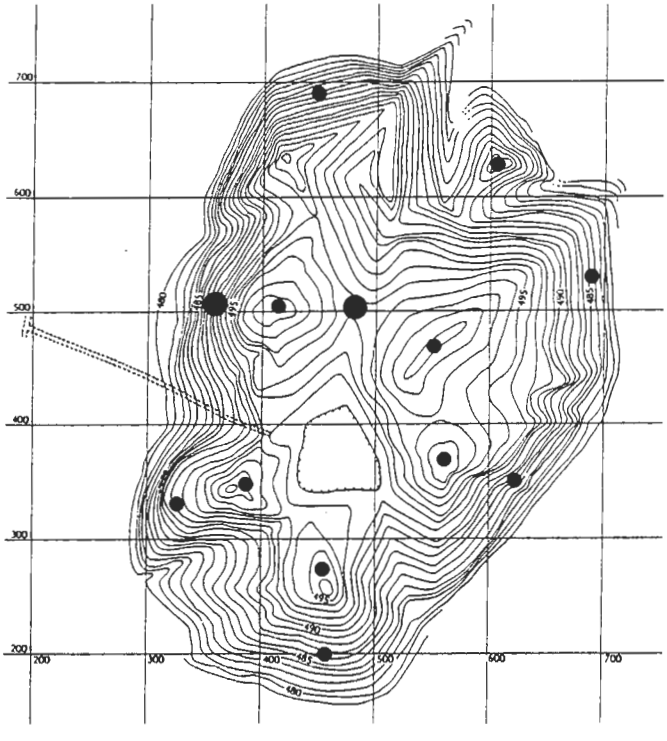


Figure 4. The High Mound: Distribution of ceramic wares by period

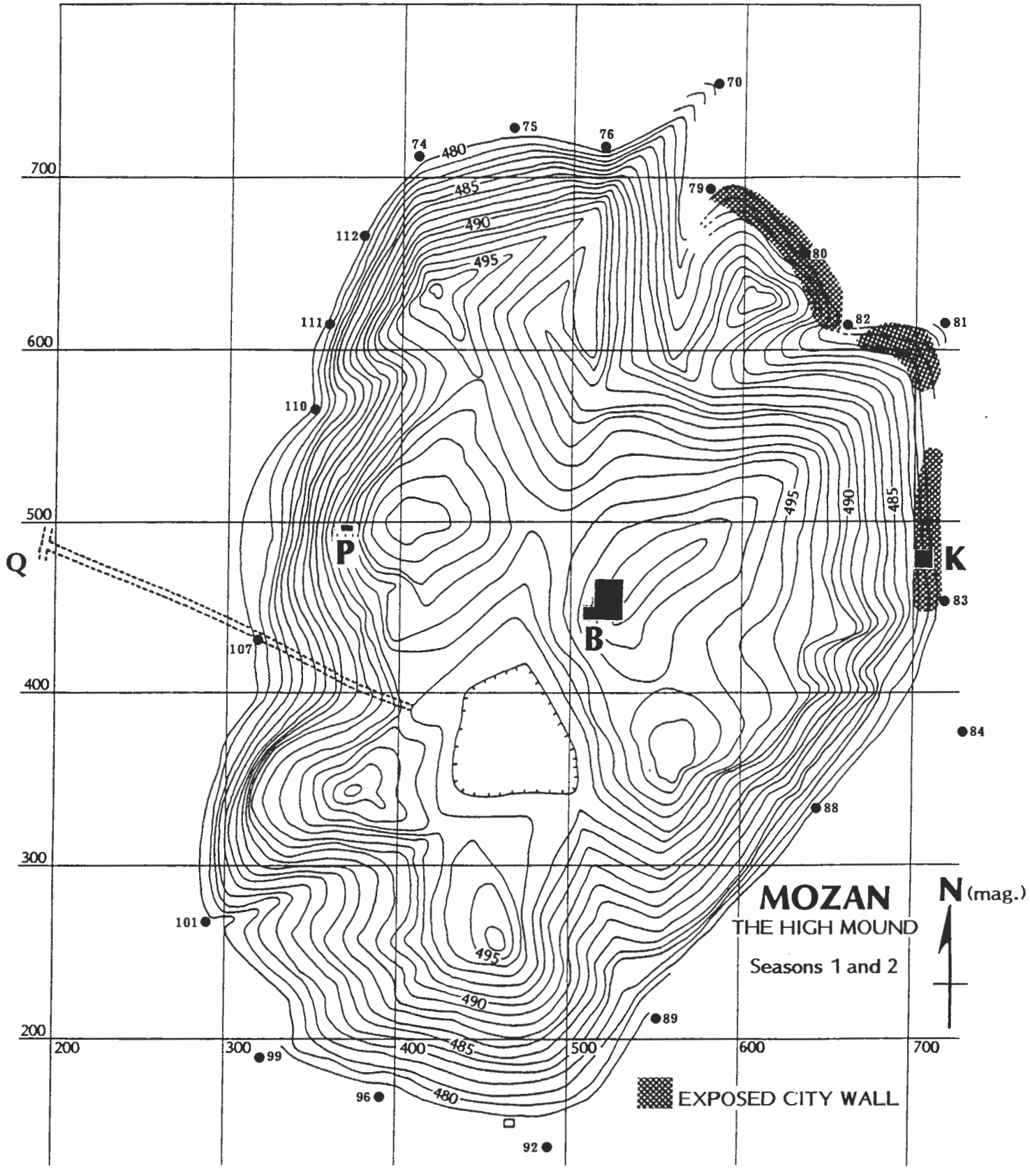


Figure 5. Tell Mozan: Topographic map of the High Mound

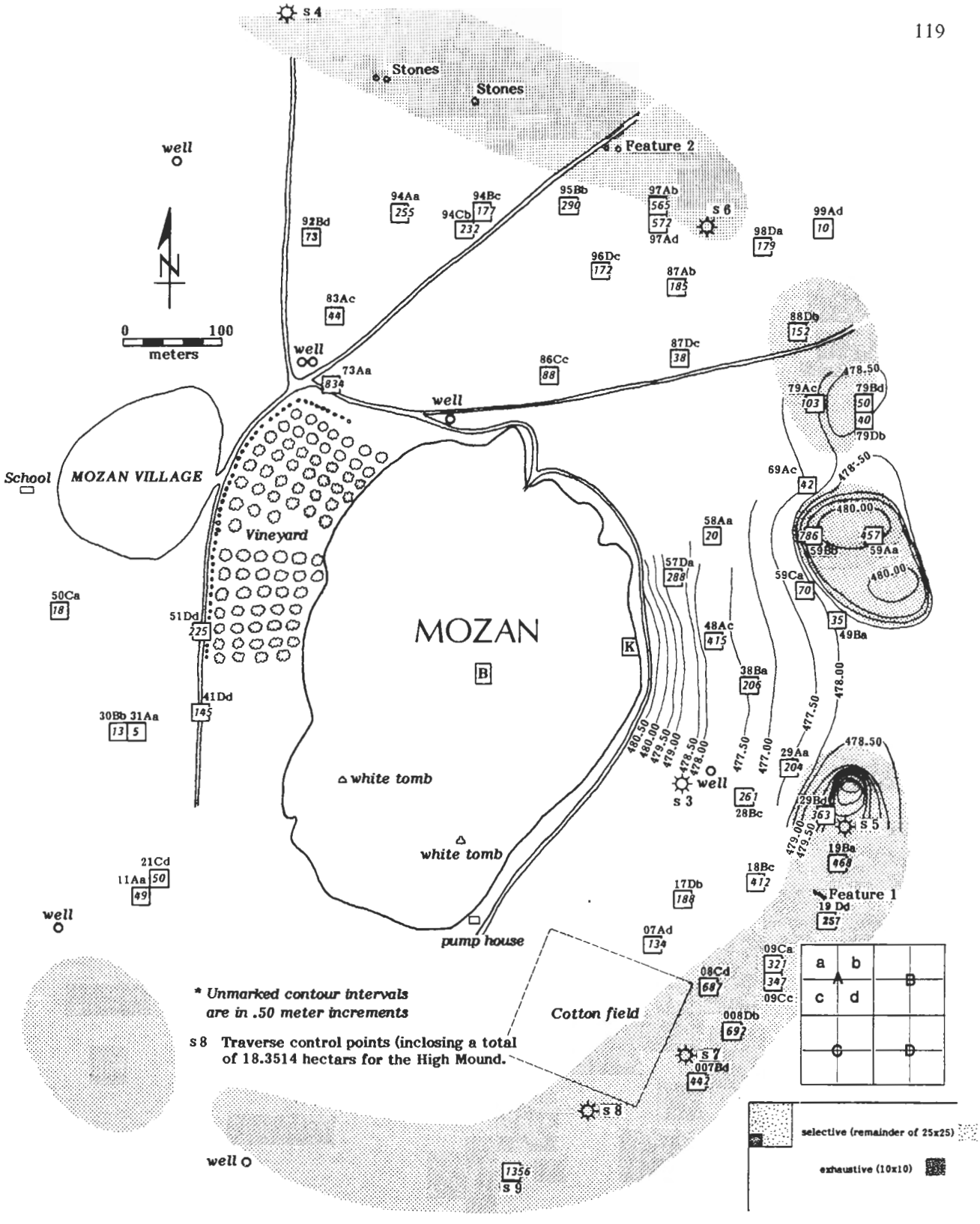


Figure 6. Tell Mozan: Partial topographic map of the Outer City

Note: Small squares represent surface collection areas; the number inside the square corresponds to the total number of items collected; the number outside the square corresponds to the grid designation, as indicated in the inset; the notation of the type s2 corresponds to special areas within the Outer City.

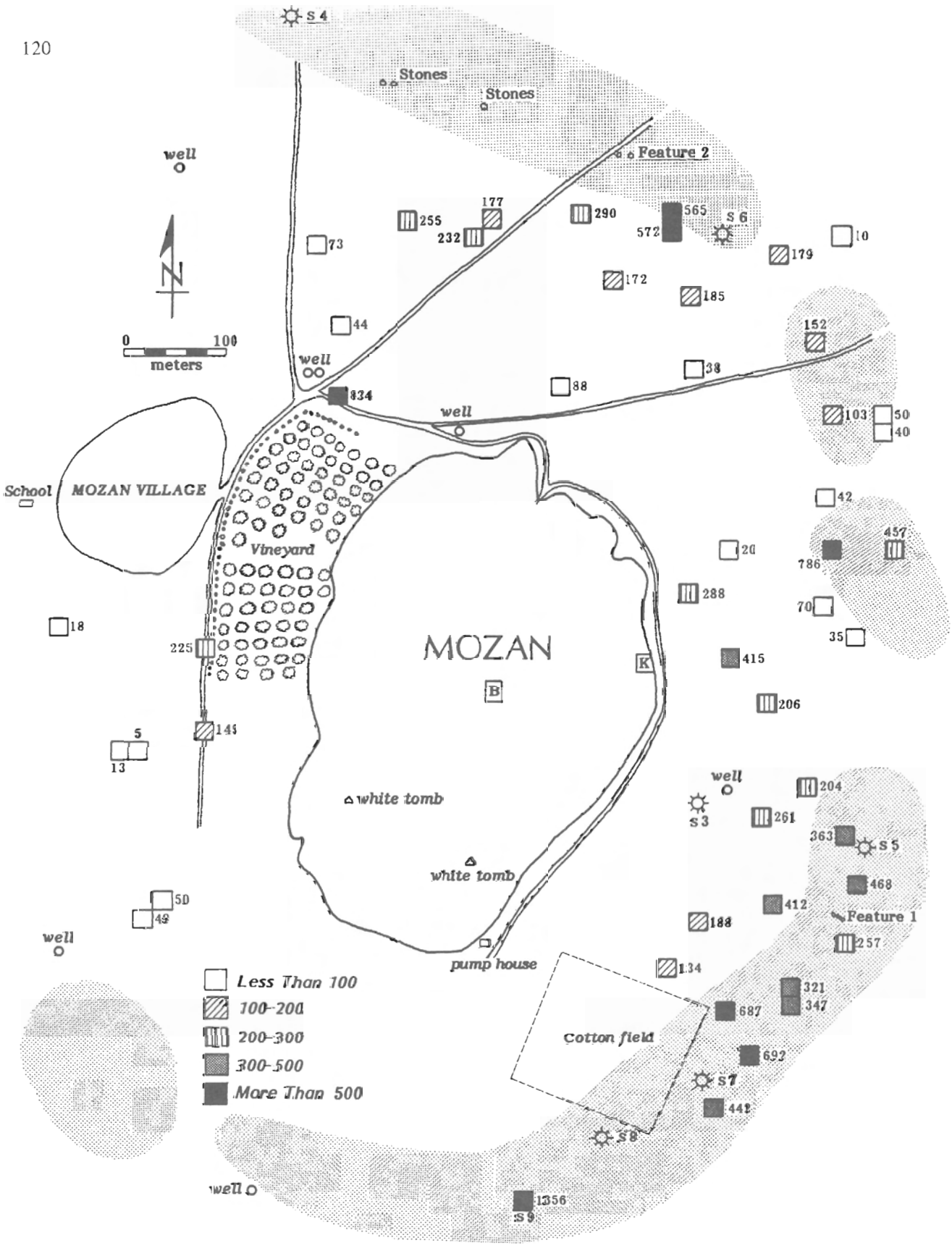


Figure 7. The Outer City: Distribution of ceramic wares by total number

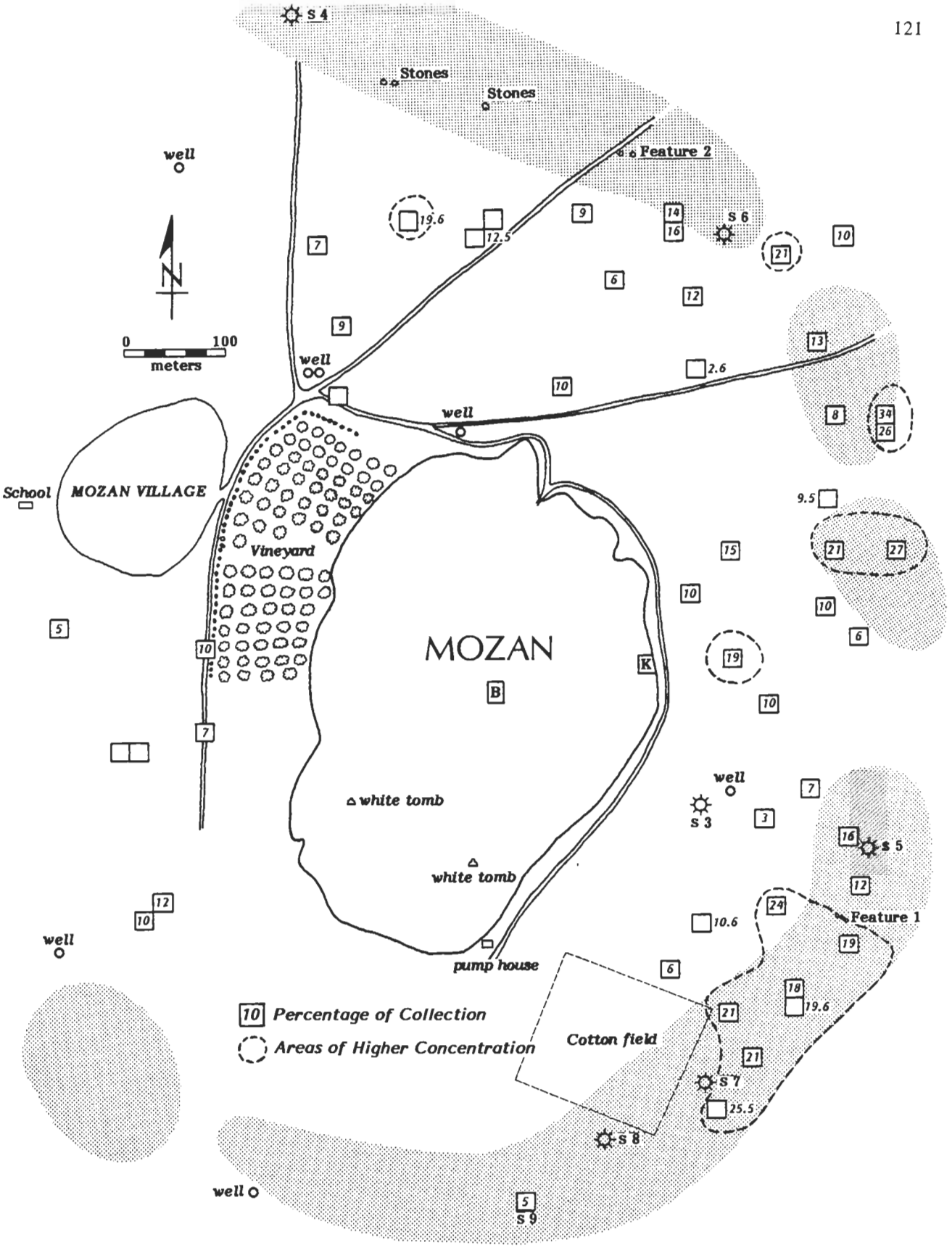


Figure 8. The Outer City: Distribution of Simple ware

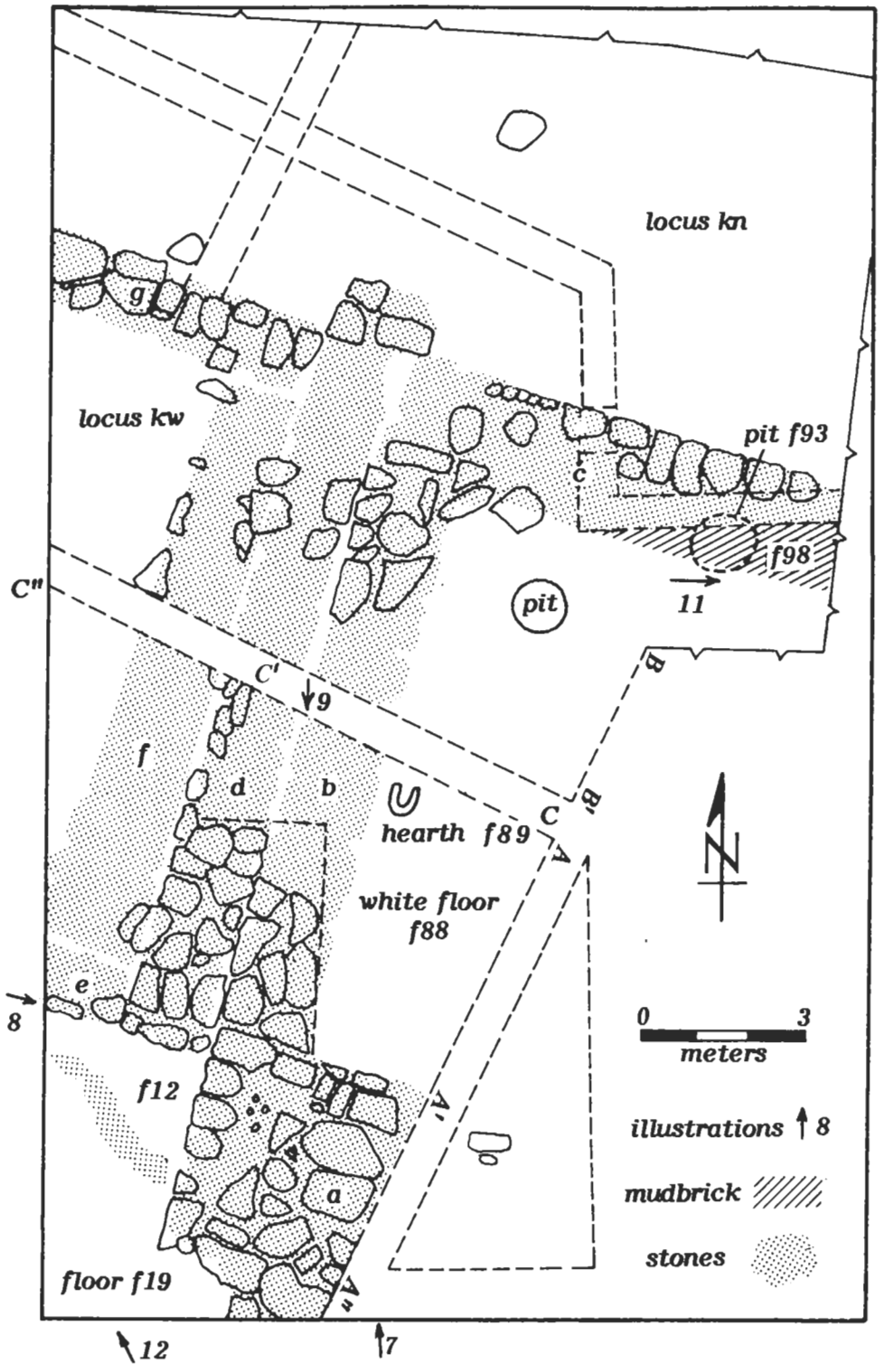


Figure 9. The stone building in Area B: sketch floor plan

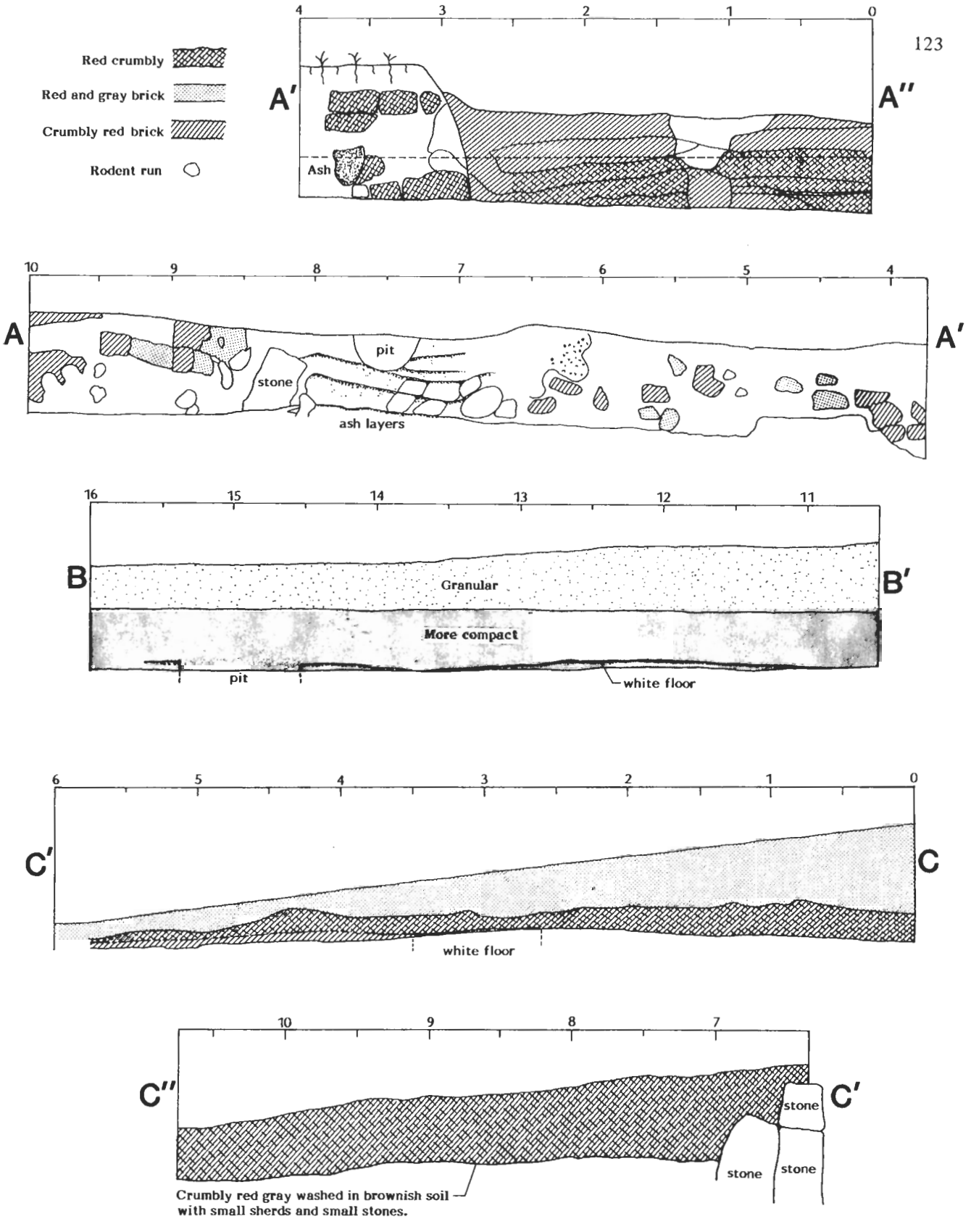


Figure 10. The stone building in Area B: sections

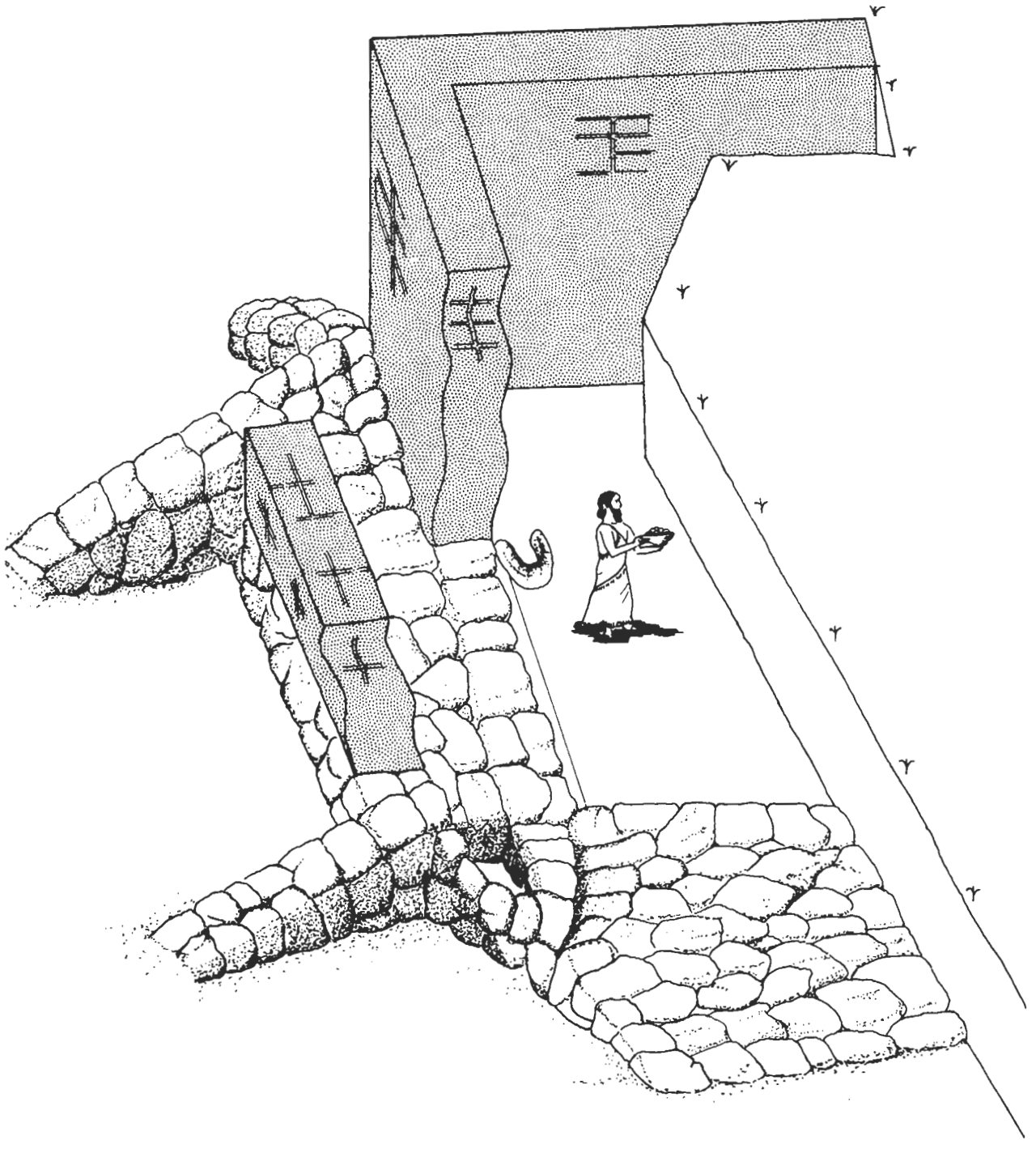


Figure 11. The stone building in Area B: reconstruction

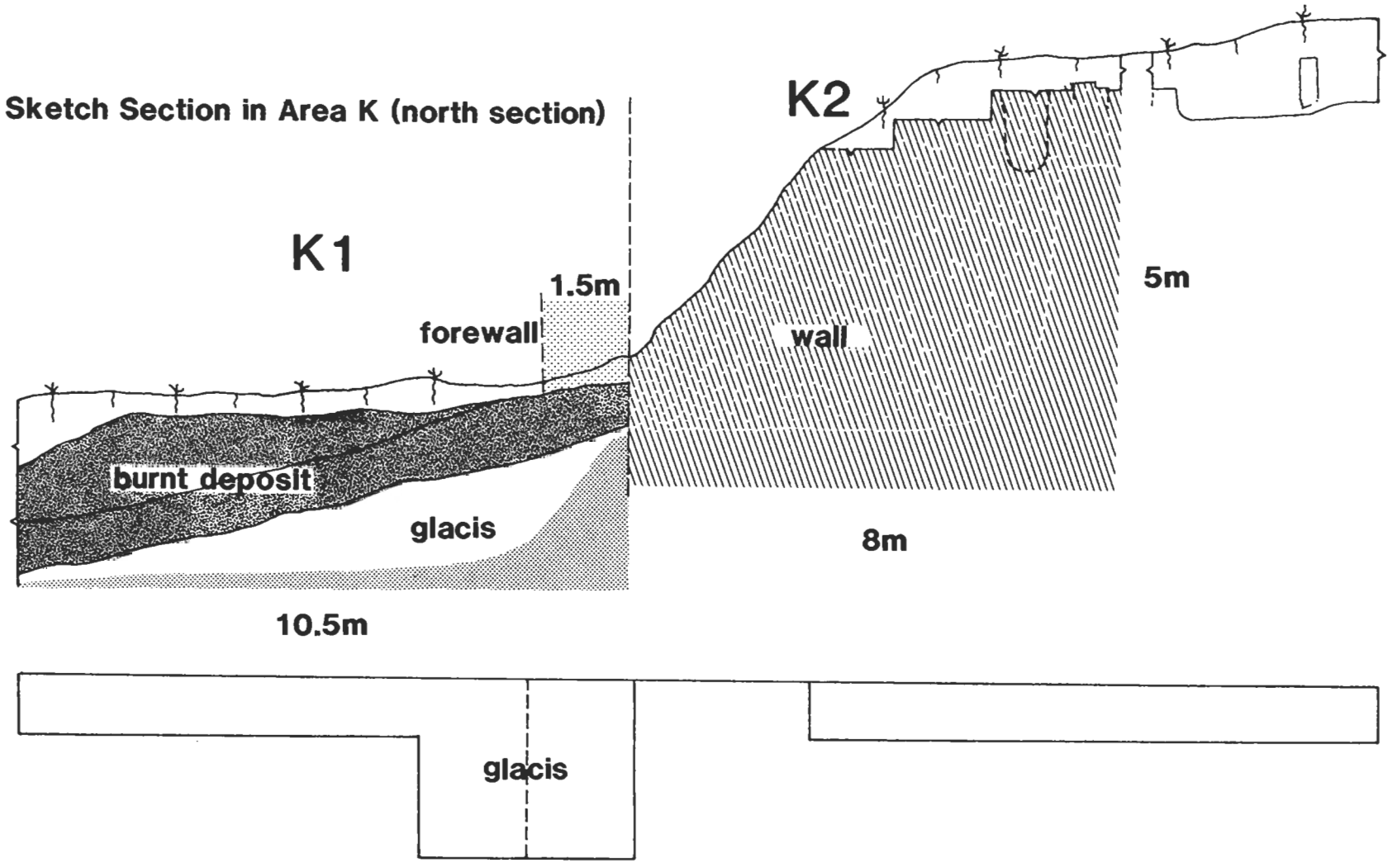


Figure 12. The city wall in Area K: sketch section

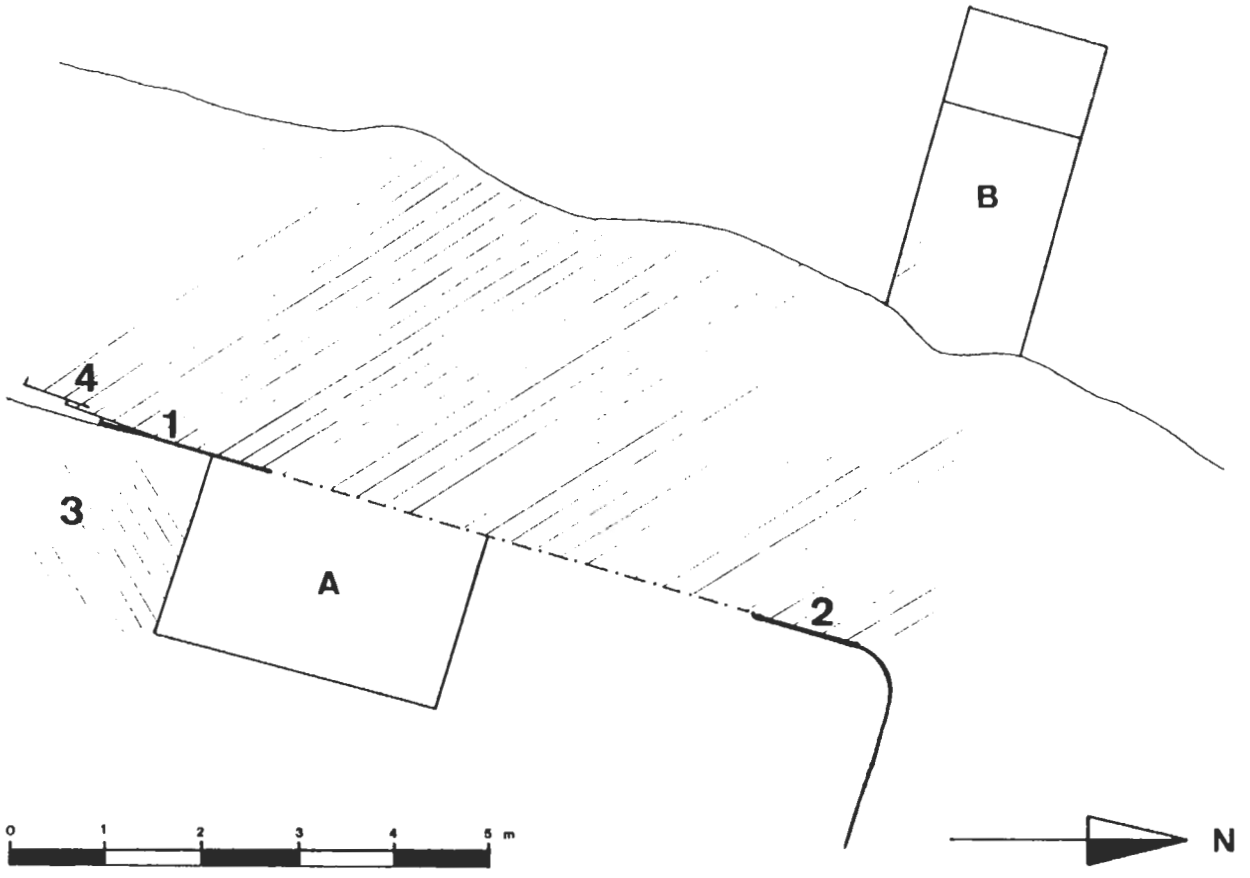


Figure 13. The city wall in Area K: floor plan (1984 season)

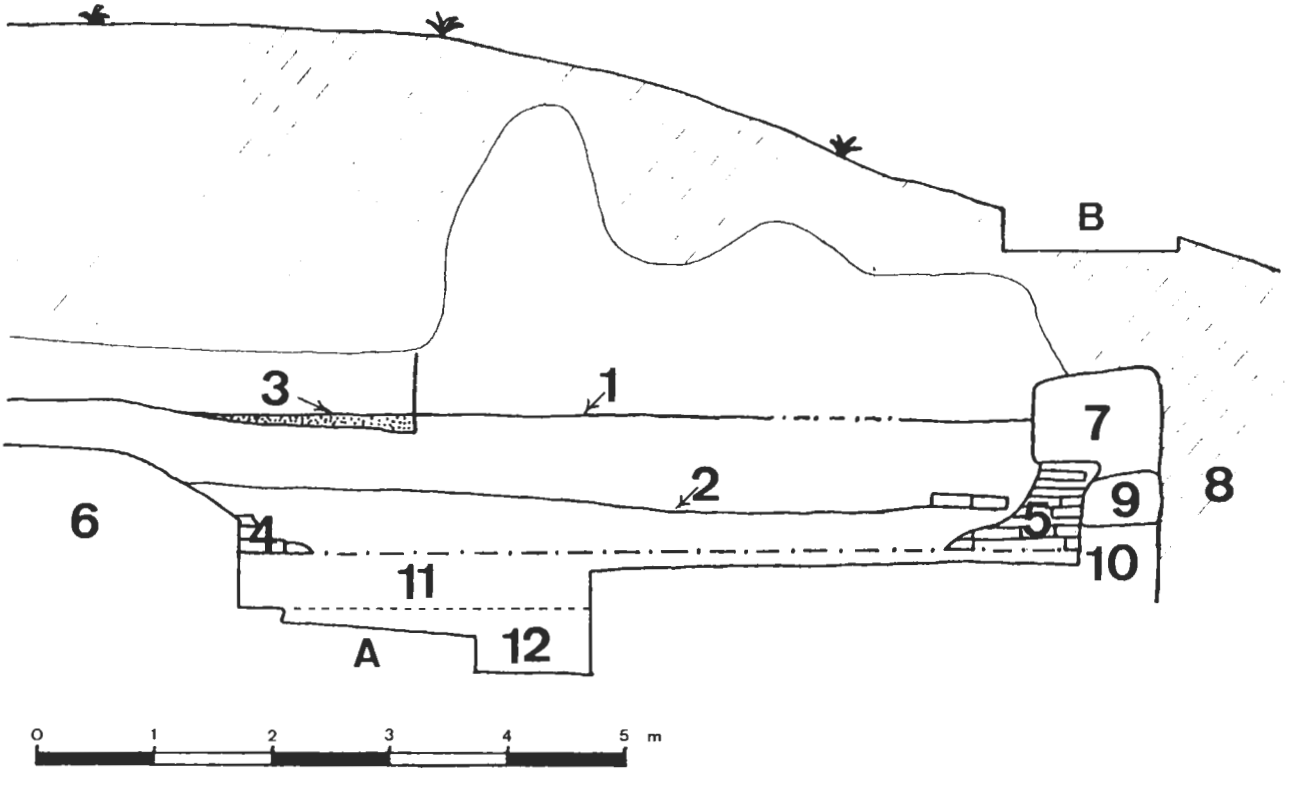


Figure 14. The city wall in Area K: frontal view (1984 season)

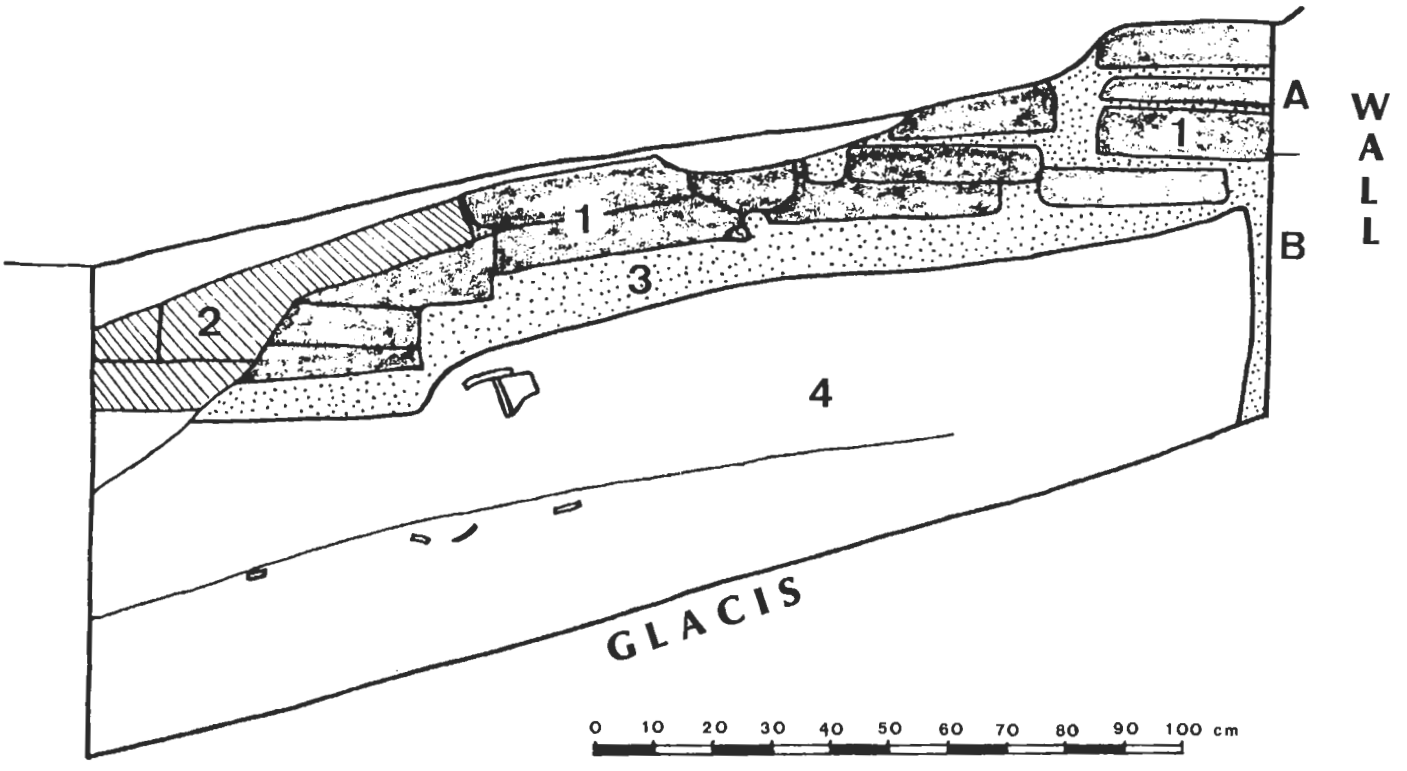


Figure 15. The city wall in Area K: North section of Locus A

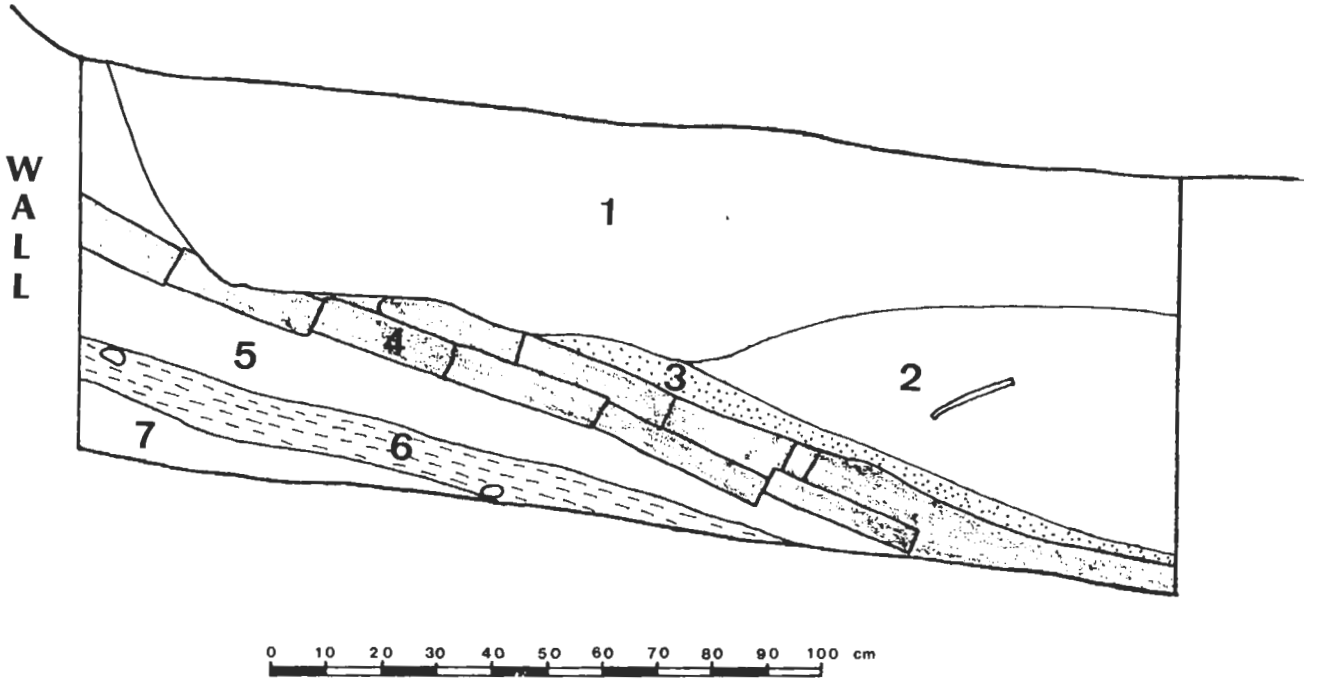


Figure 16. The city wall in Area K: South section of Locus A

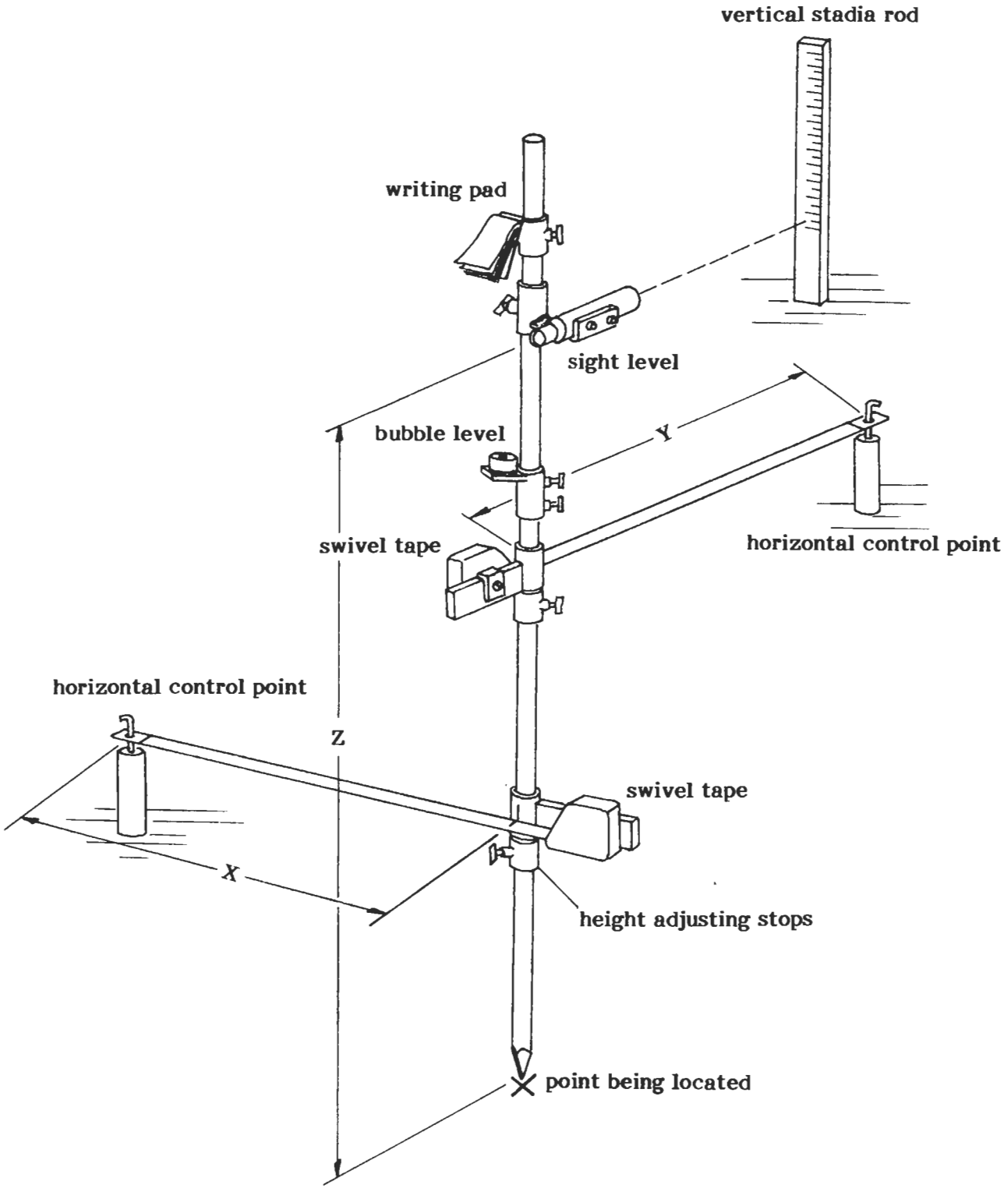
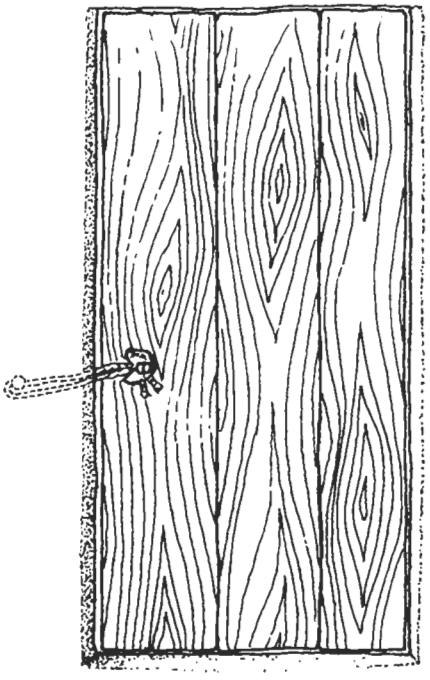


Figure 17. Sketch of triangulation rod



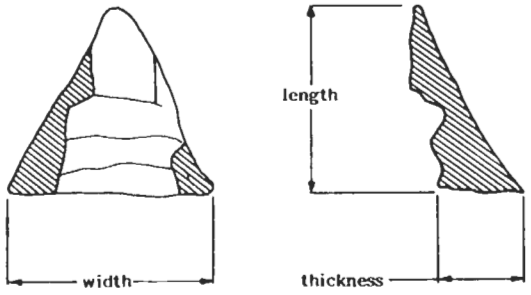


Figure 19. Parameters for measurements of door sealings

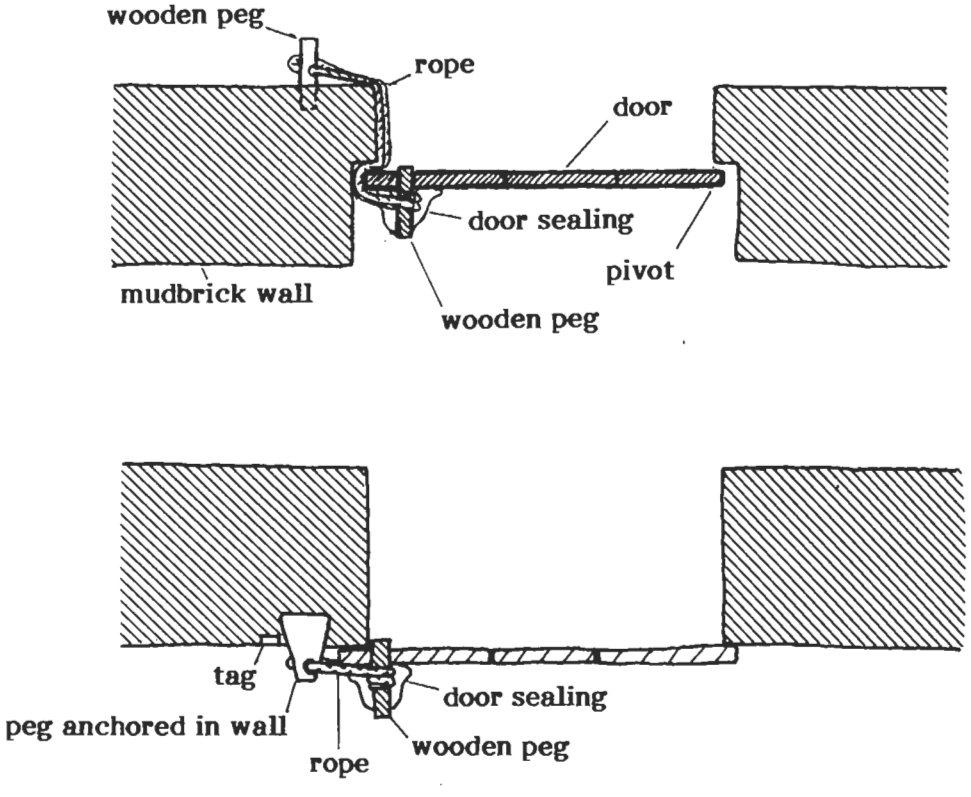


Figure 18. Suggested reconstructions of the use of door sealings

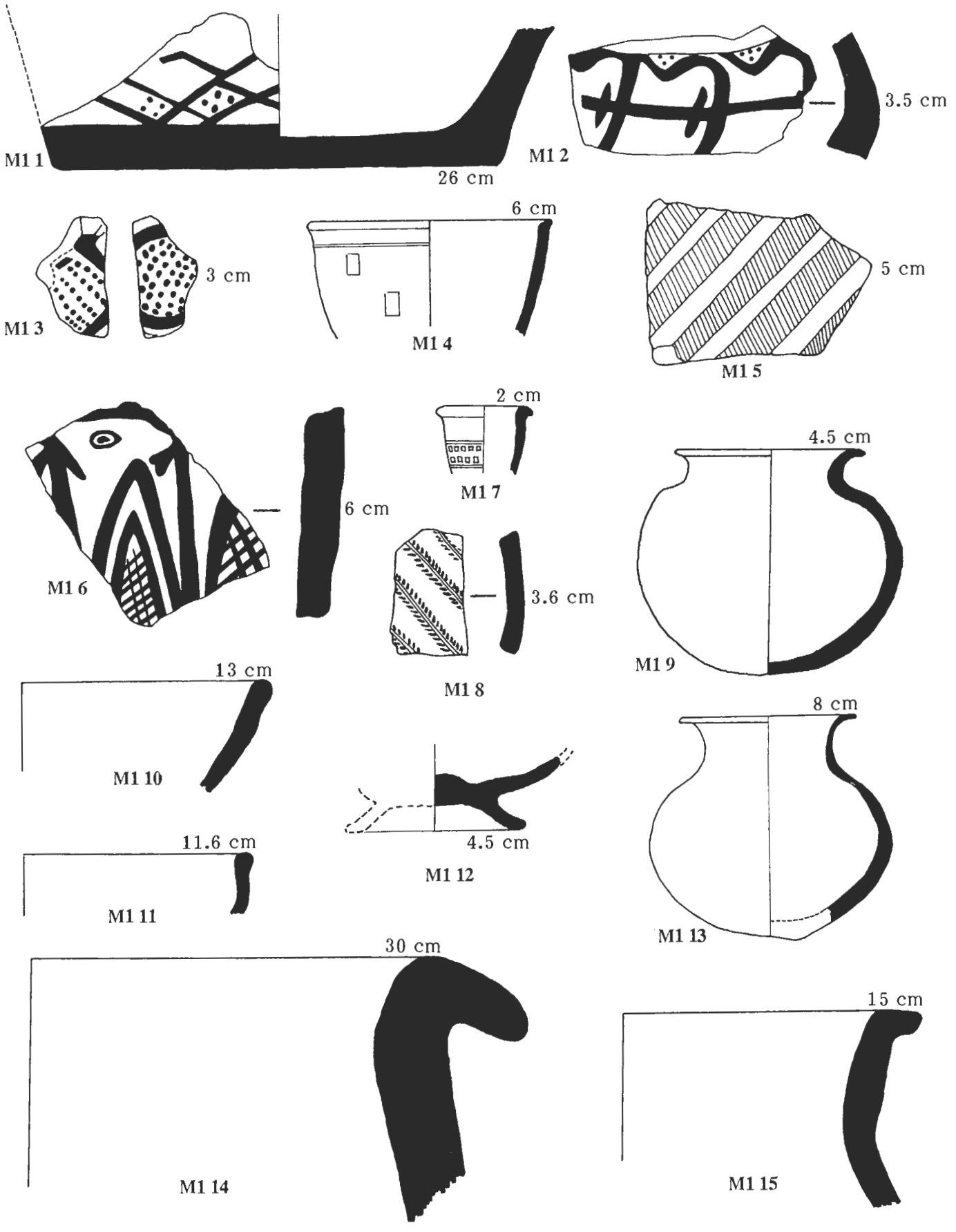


Figure 20. Ceramic types from the surface of the High Mound
Halaf (M1 1-3), Incised Ninevite V (M1 4-5, 7-8), Painted Ninevite V (M1 6), Metallic ware (M1 9-15)

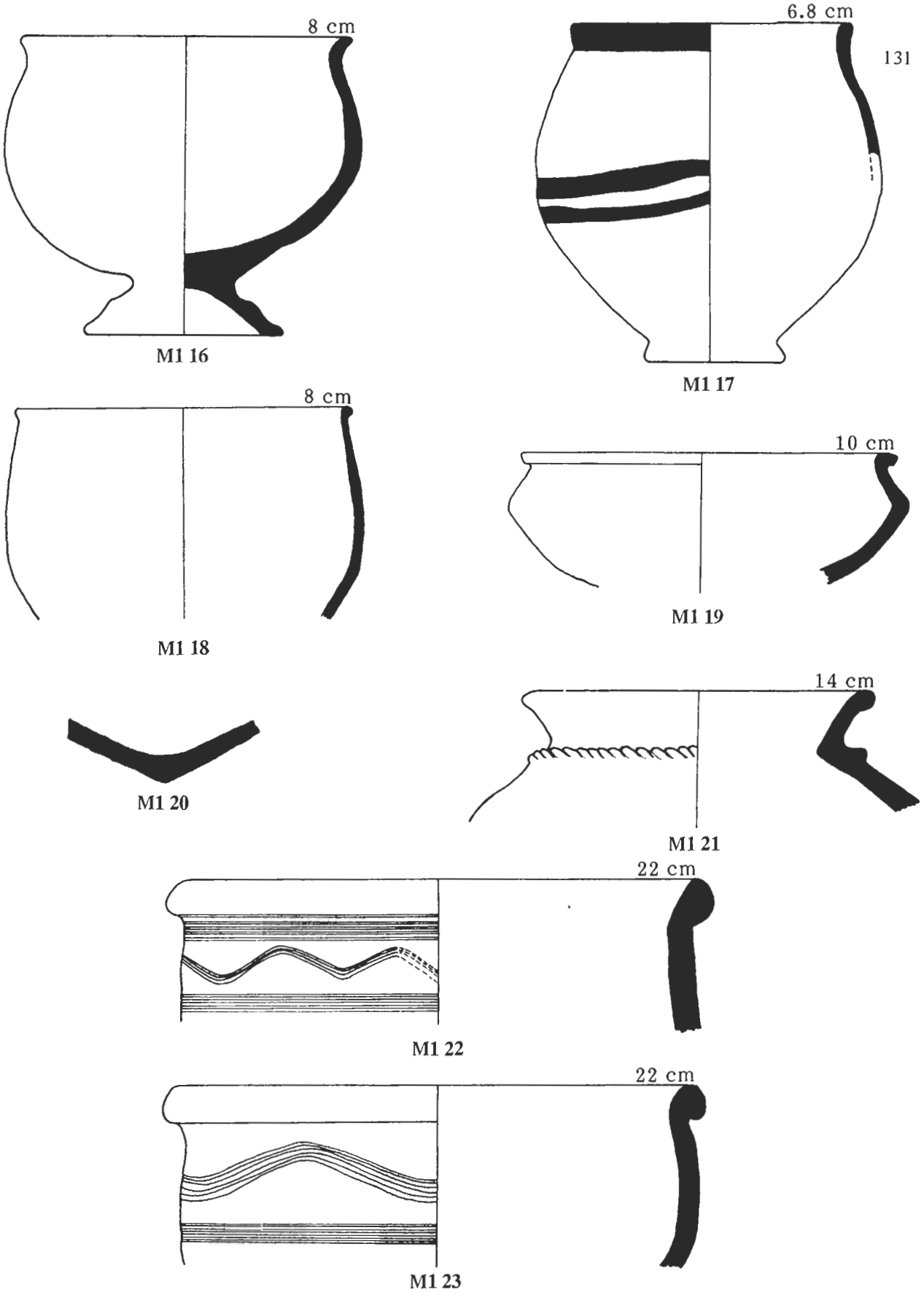


Figure 21. Ceramic types from the surface of the High Mound
Simple ware (M1 16, 18-19), Painted Simple ware (M1 17), late third mill. or "Ur III" (M1 21-23)

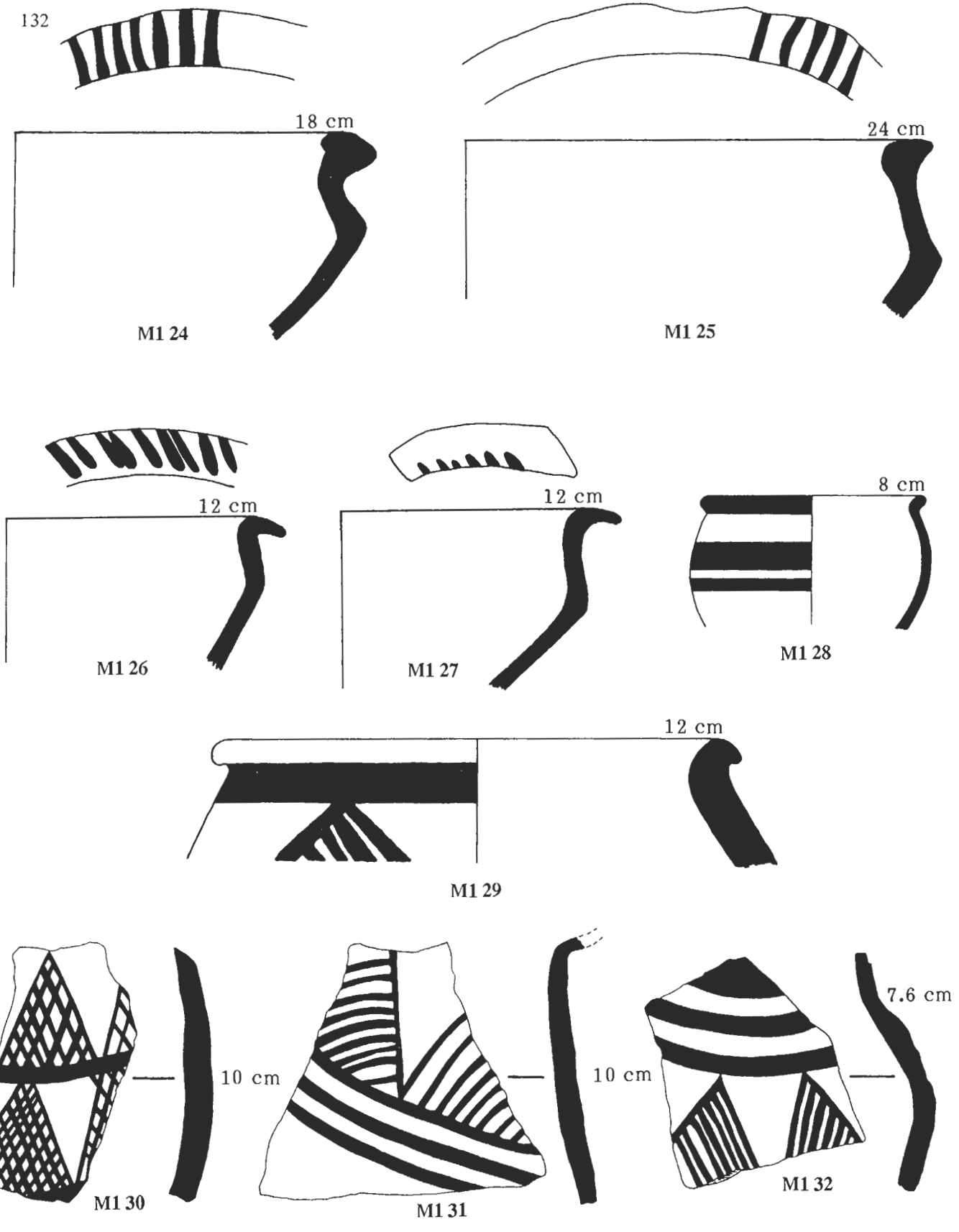


Figure 22. Ceramic types from the surface of the High Mound: Khabur ware

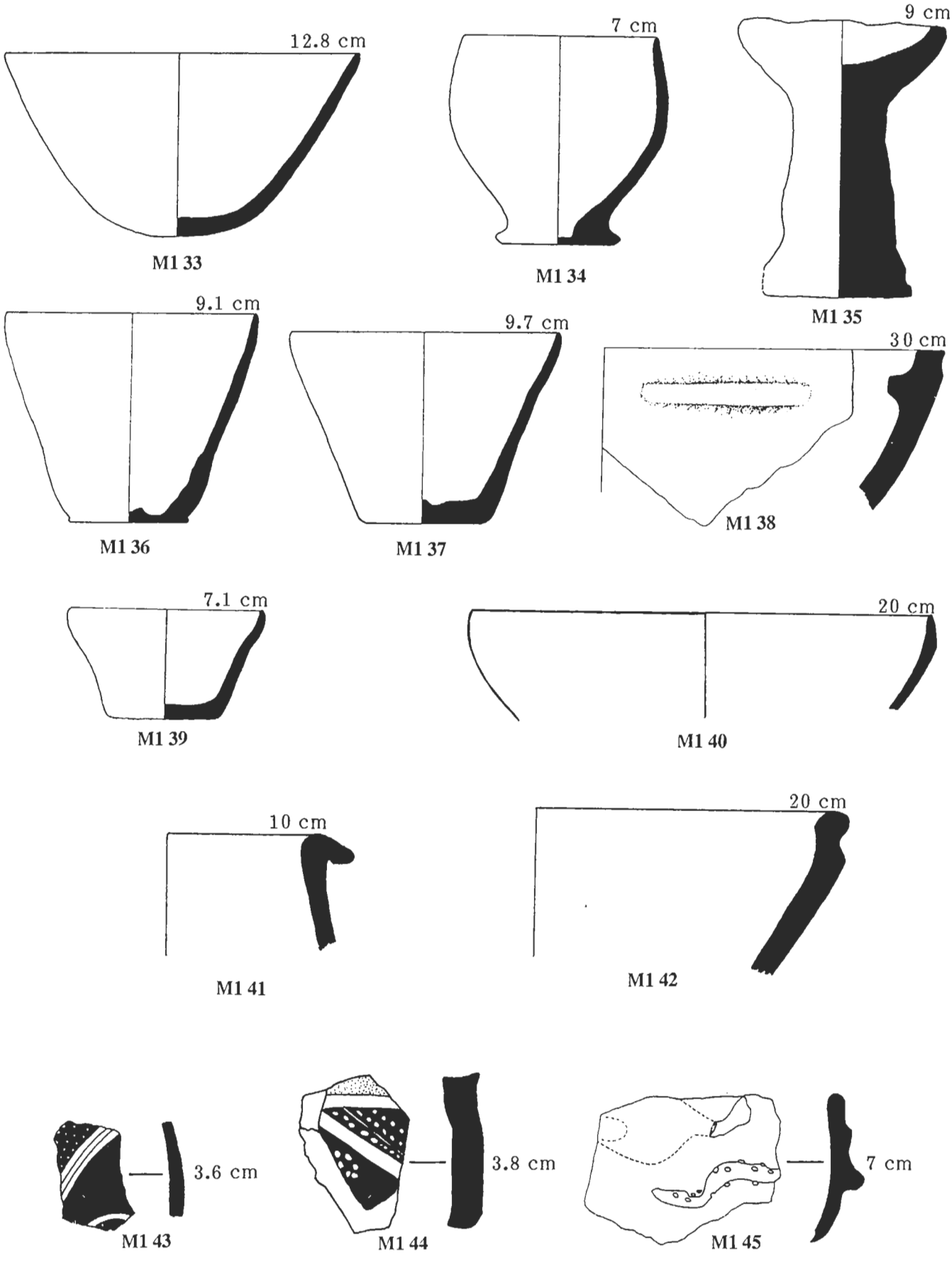


Figure 23. Ceramic types from the soundings and surface of the High Mound
Miscellaneous types (M1 33-39 are from the soundings, M1 40-45 from the surface)

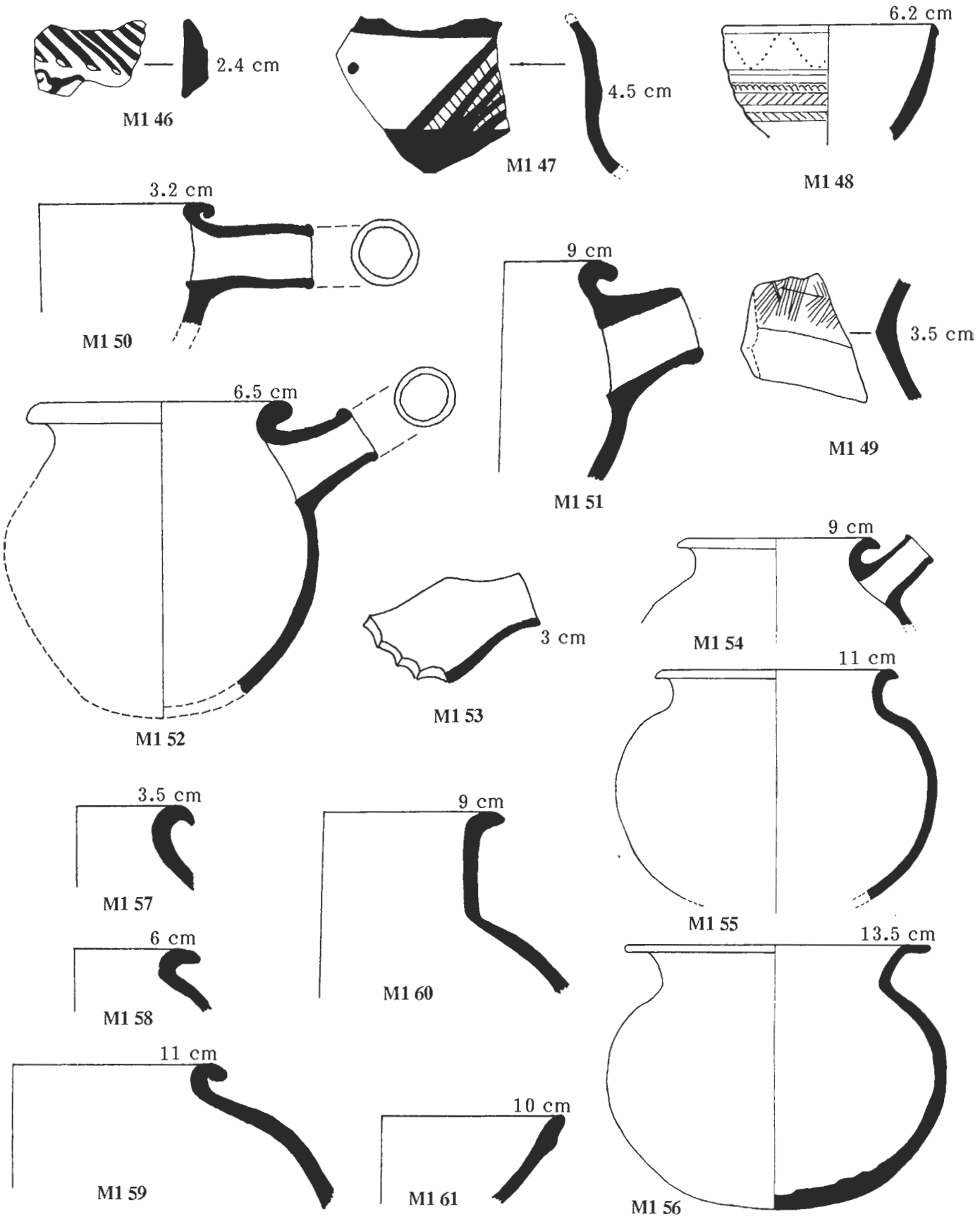


Figure 24. Ceramic types from the soundings

Halaf (M1 46-47), Incised Ninevite V (M1 48-49), Simple ware (M1 50-59), Metallic ware (M1 60-61)

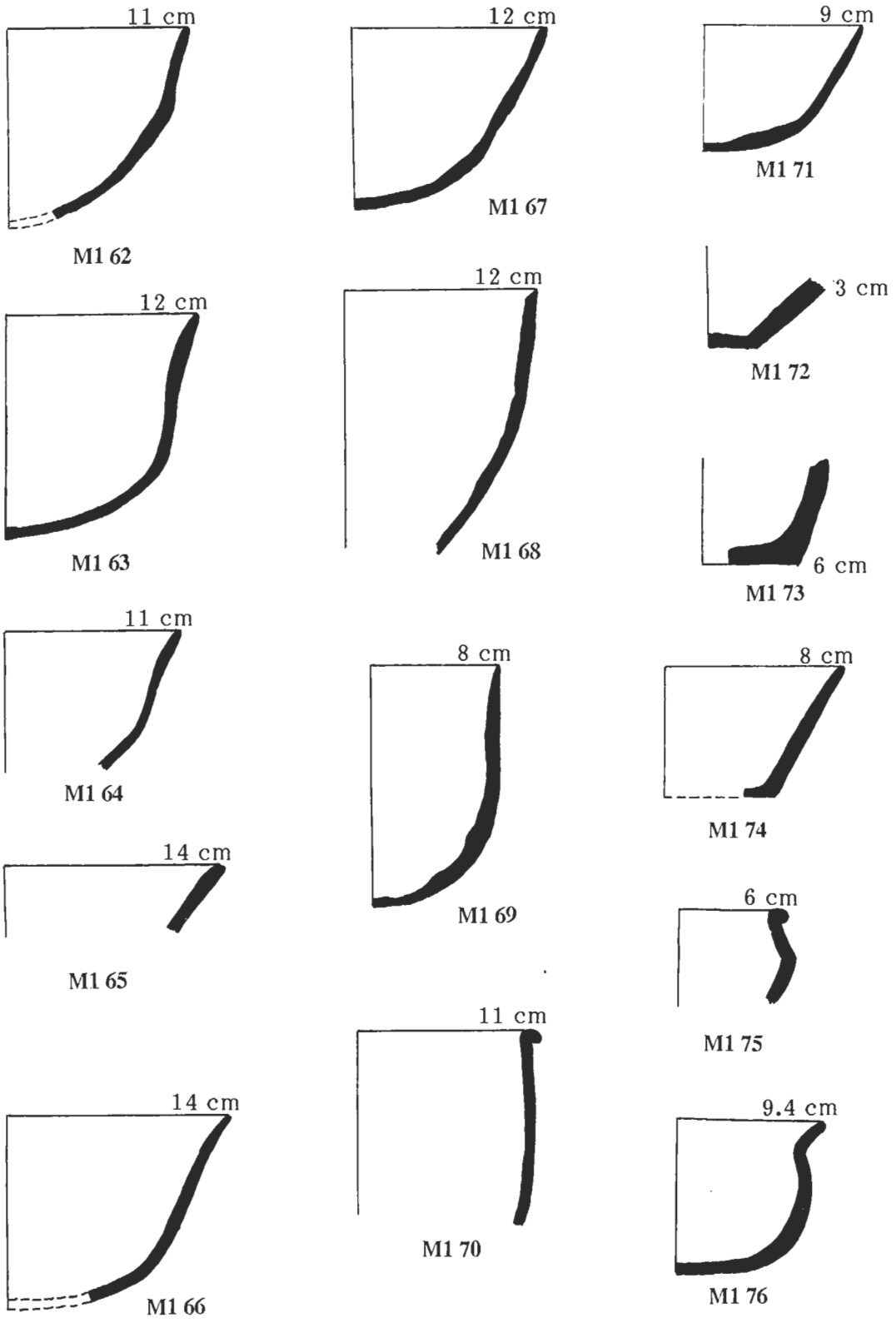


Figure 25. Ceramic types from the soundings
Simple ware (M1 65, 72-73, 75-76 are from Area B1, the rest from area K1)

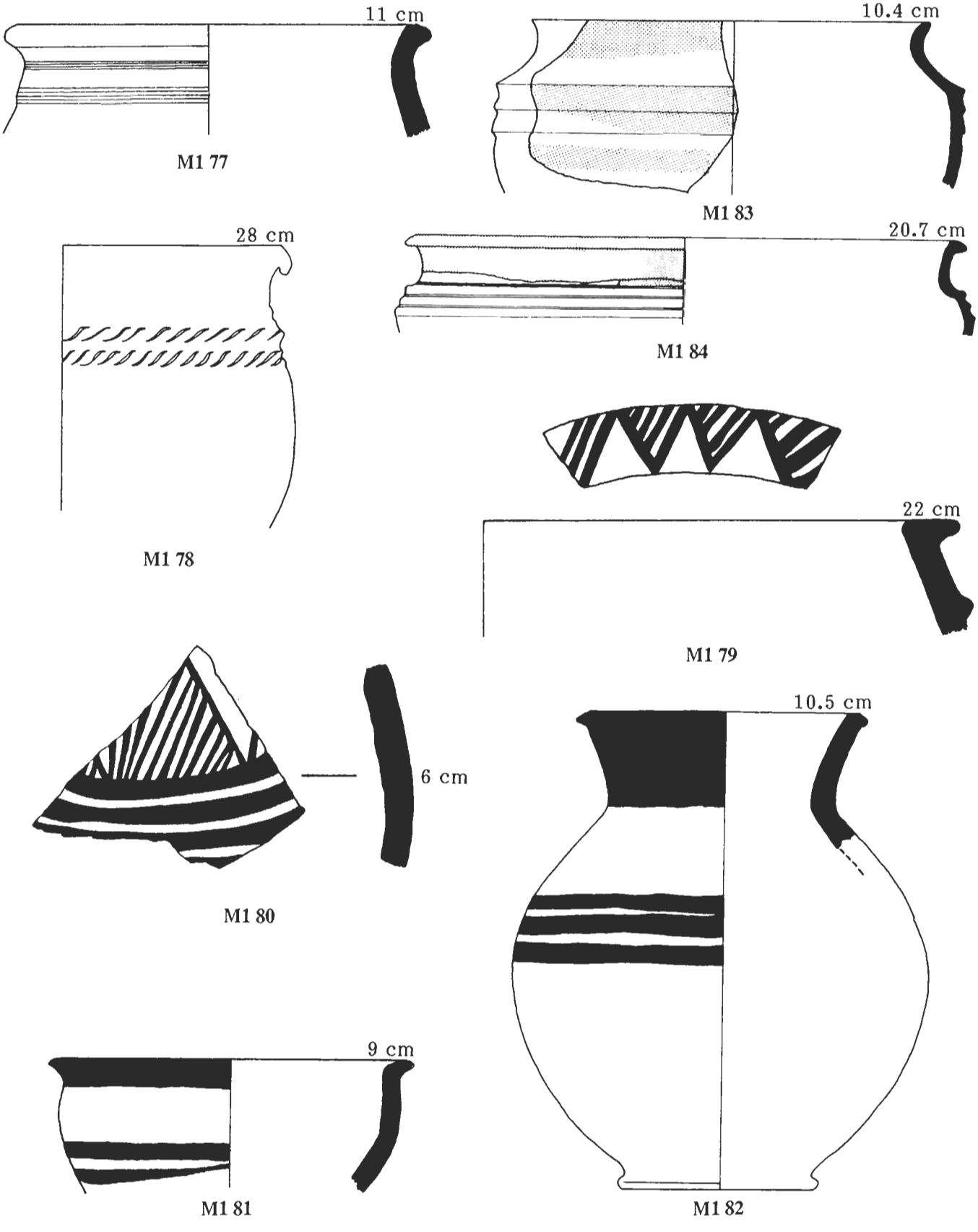


Figure 26. Ceramic types from the soundings
Late third mill. or "Ur III" (M1 77-78), Transitional (M1 83-84), Khabur ware (M1 79-82)

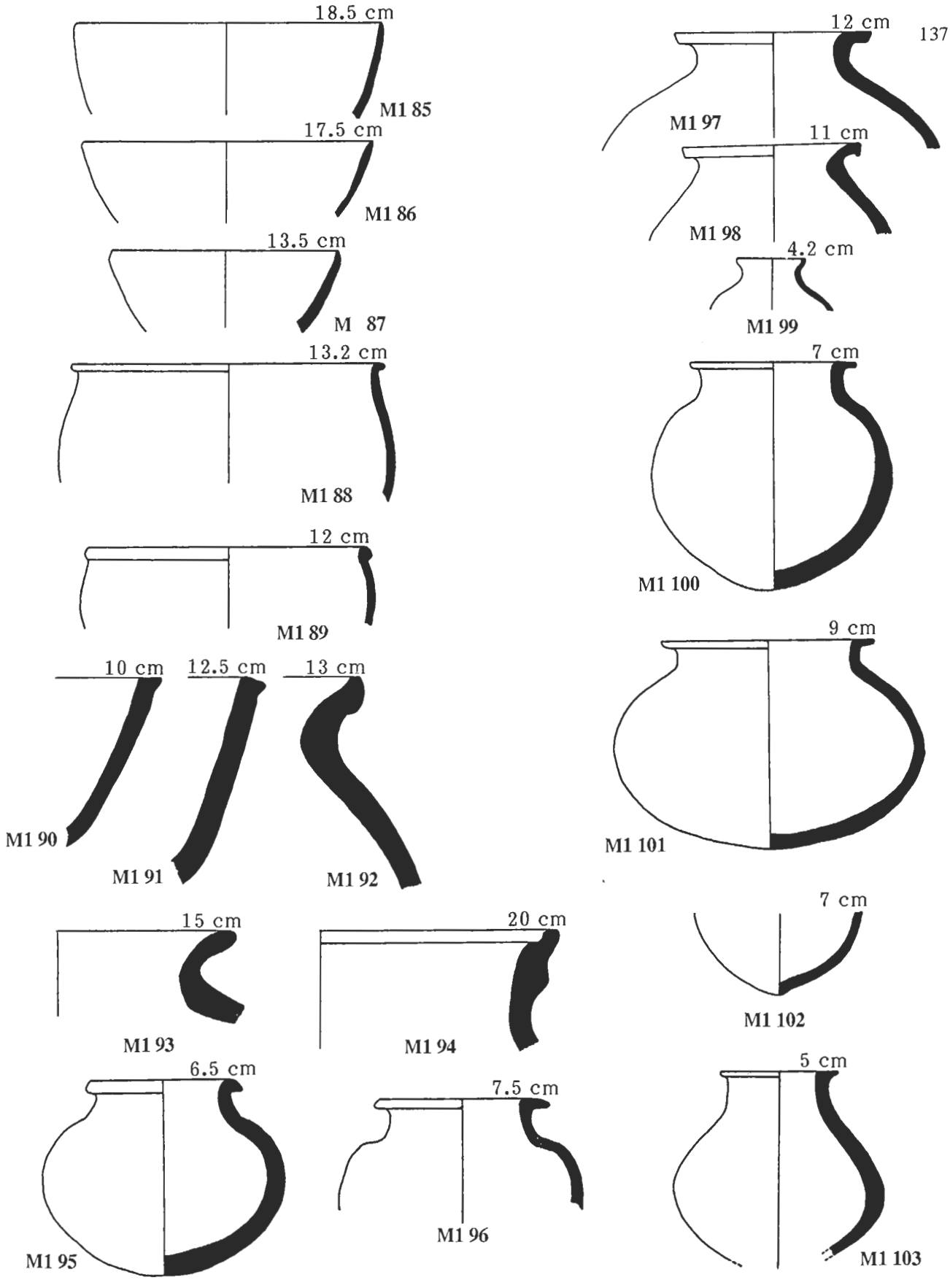


Figure 27. Ceramic types from the surface of the Outer City: Location Os4

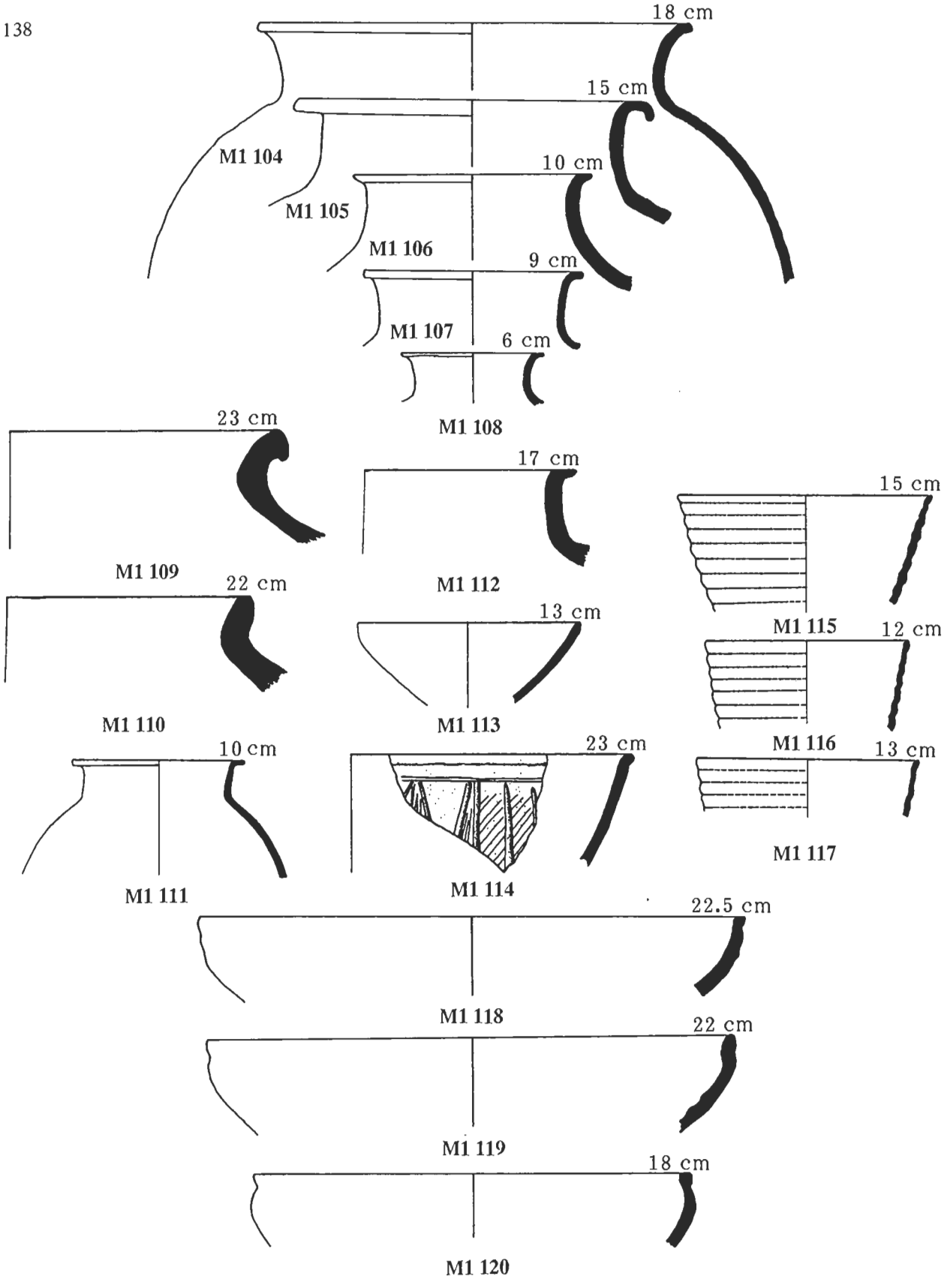


Figure 28. Ceramic types from the surface of the Outer City: Location Os6

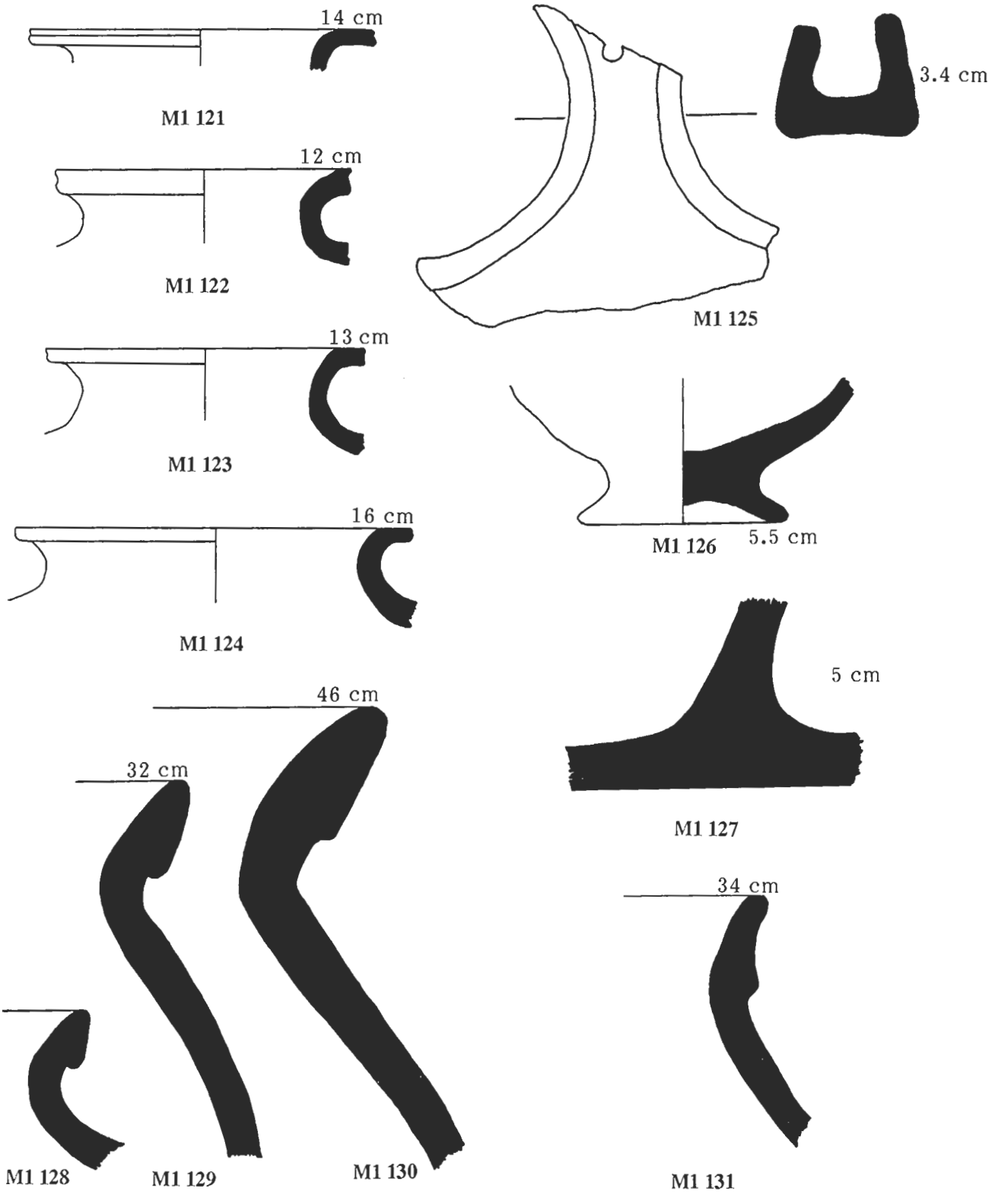


Figure 29. Ceramic types from the surface of the Outer City: Locations Os7 and Os9

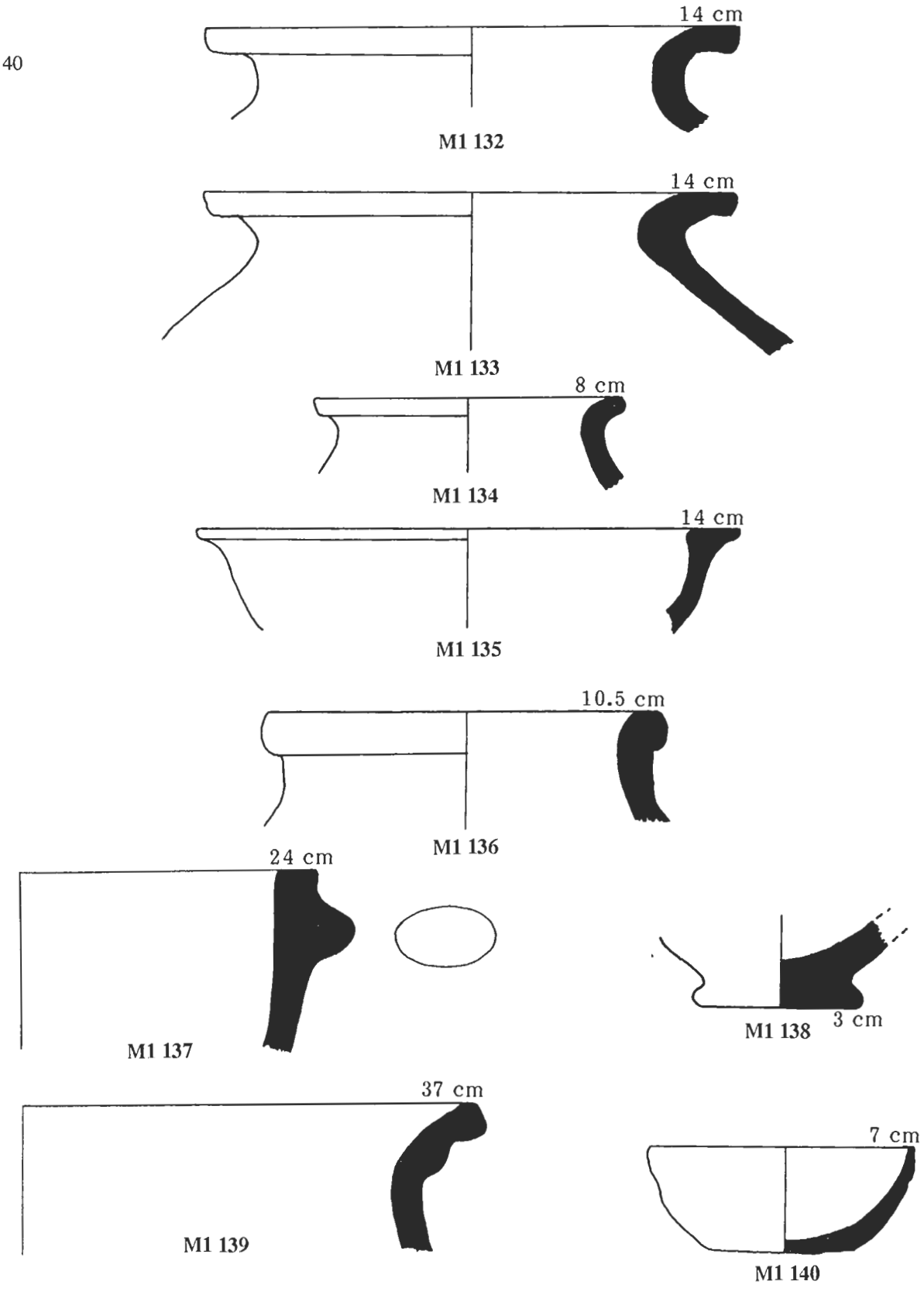


Figure 30. Ceramic types from the surface of the Outer City: Metallic and Simple ware types from various locations

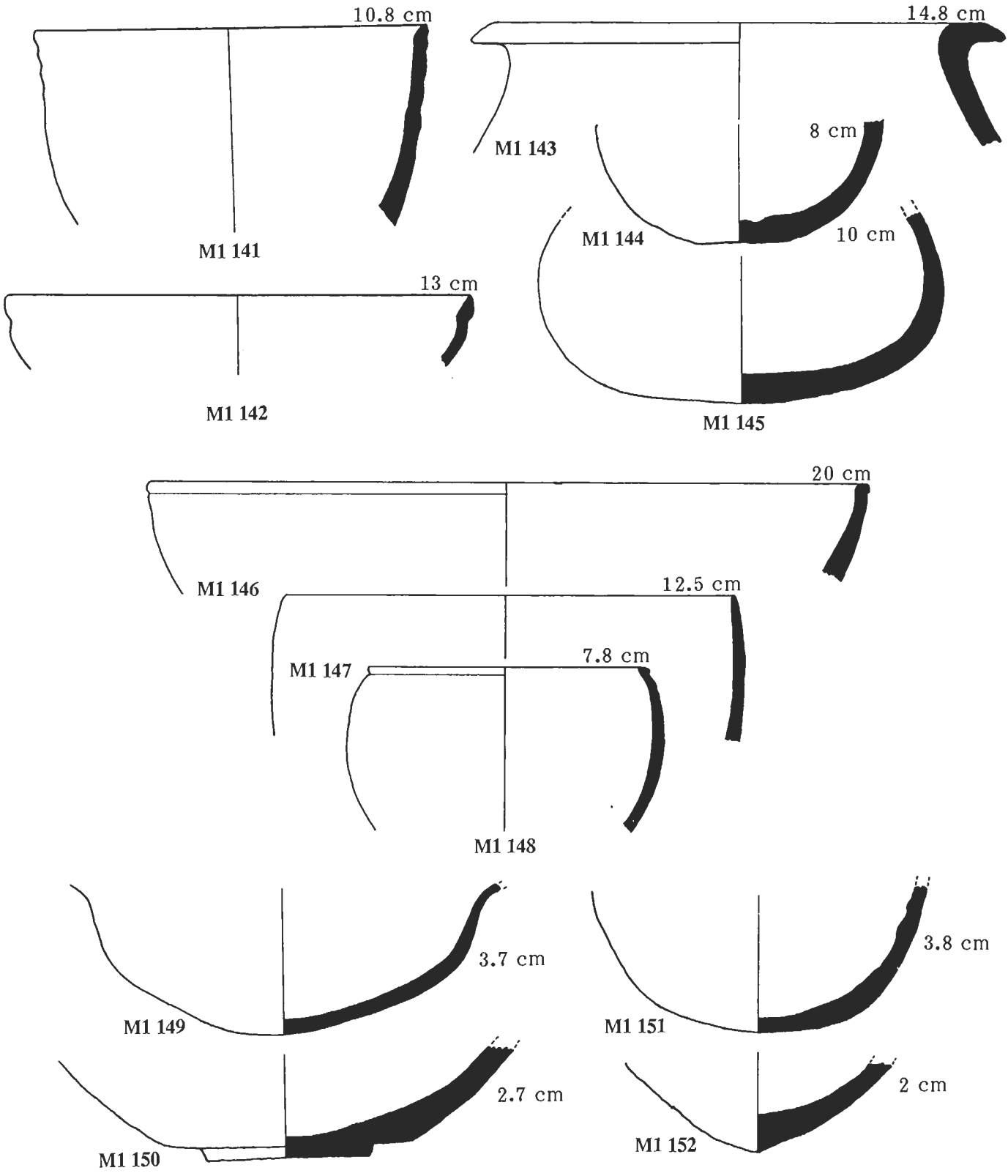


Figure 31. Ceramic types from the surface of the Outer City: Miscellaneous types

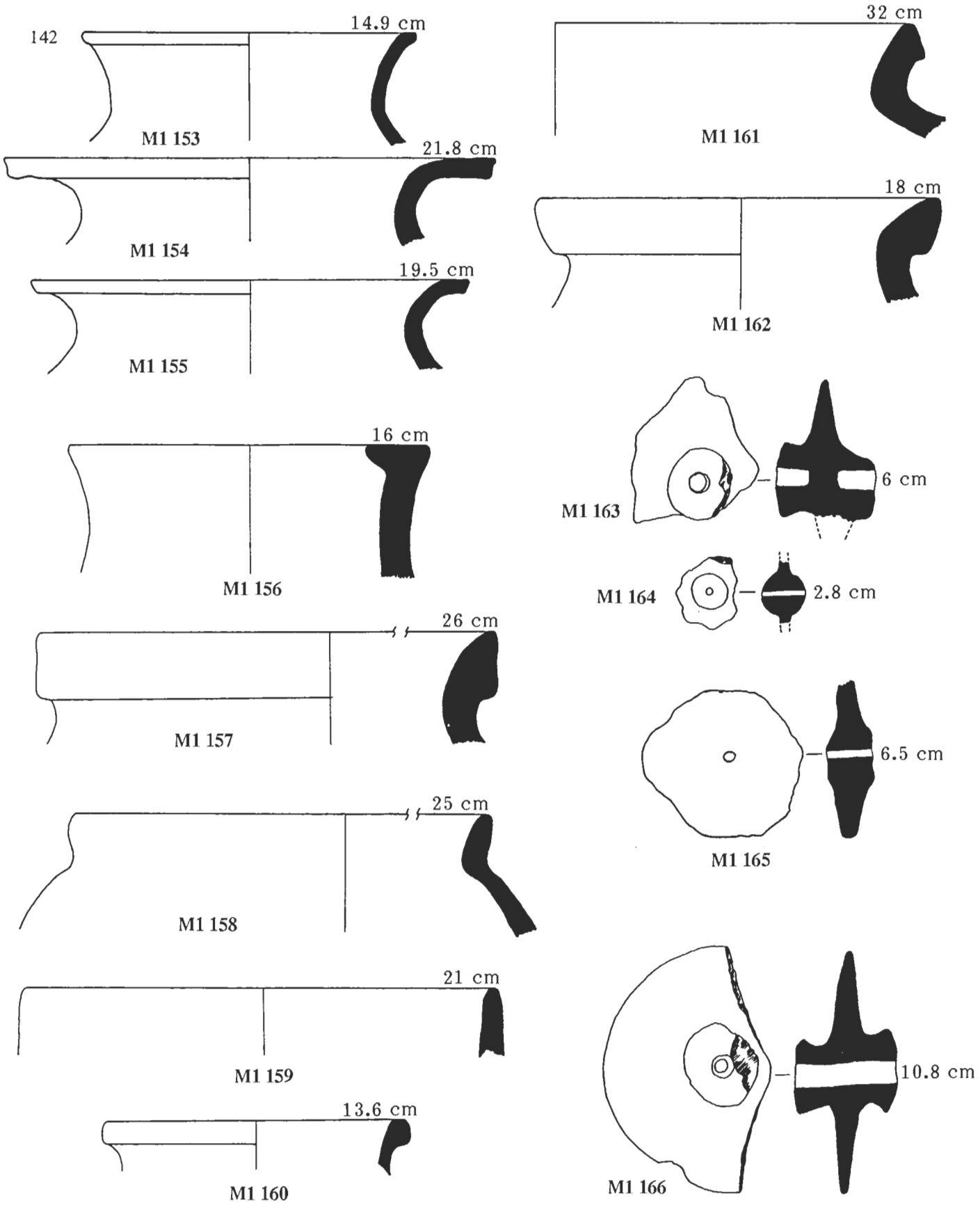
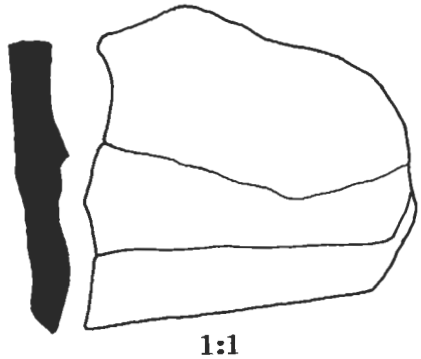
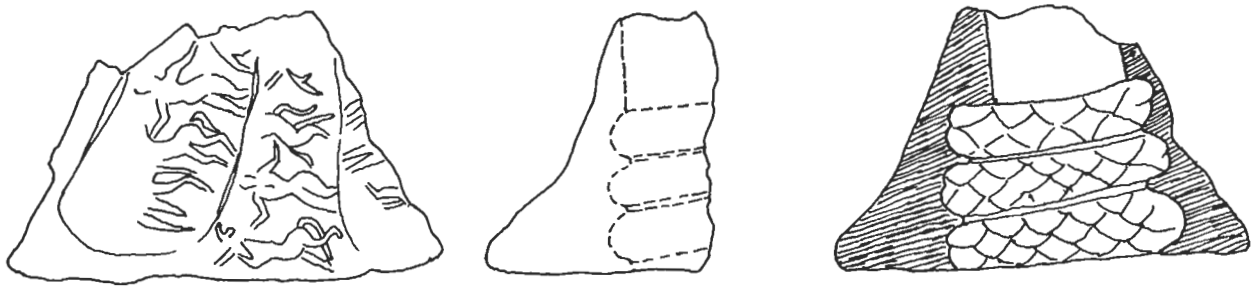


Figure 32. Ceramic types and wheels from the surface of the Outer City

M1 167

M1 168





M1 169

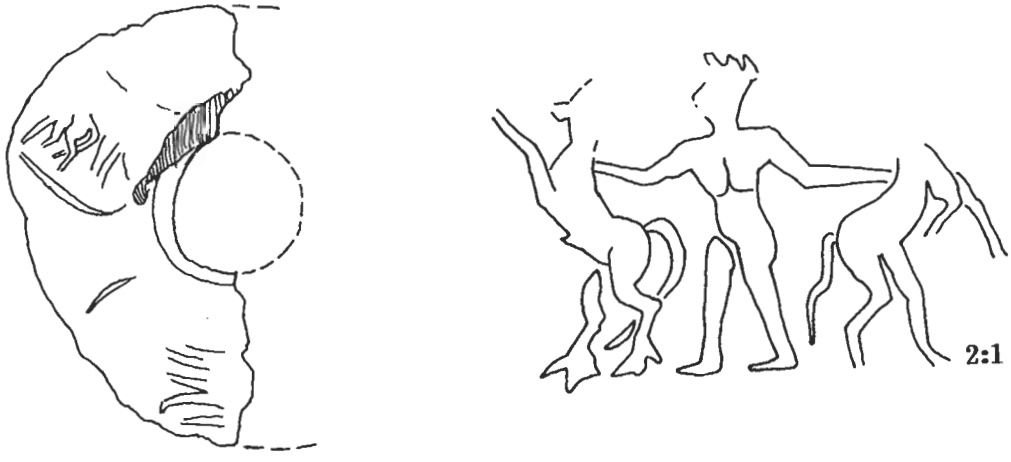


Figure 33. Seal impressions from the glacis in Area K

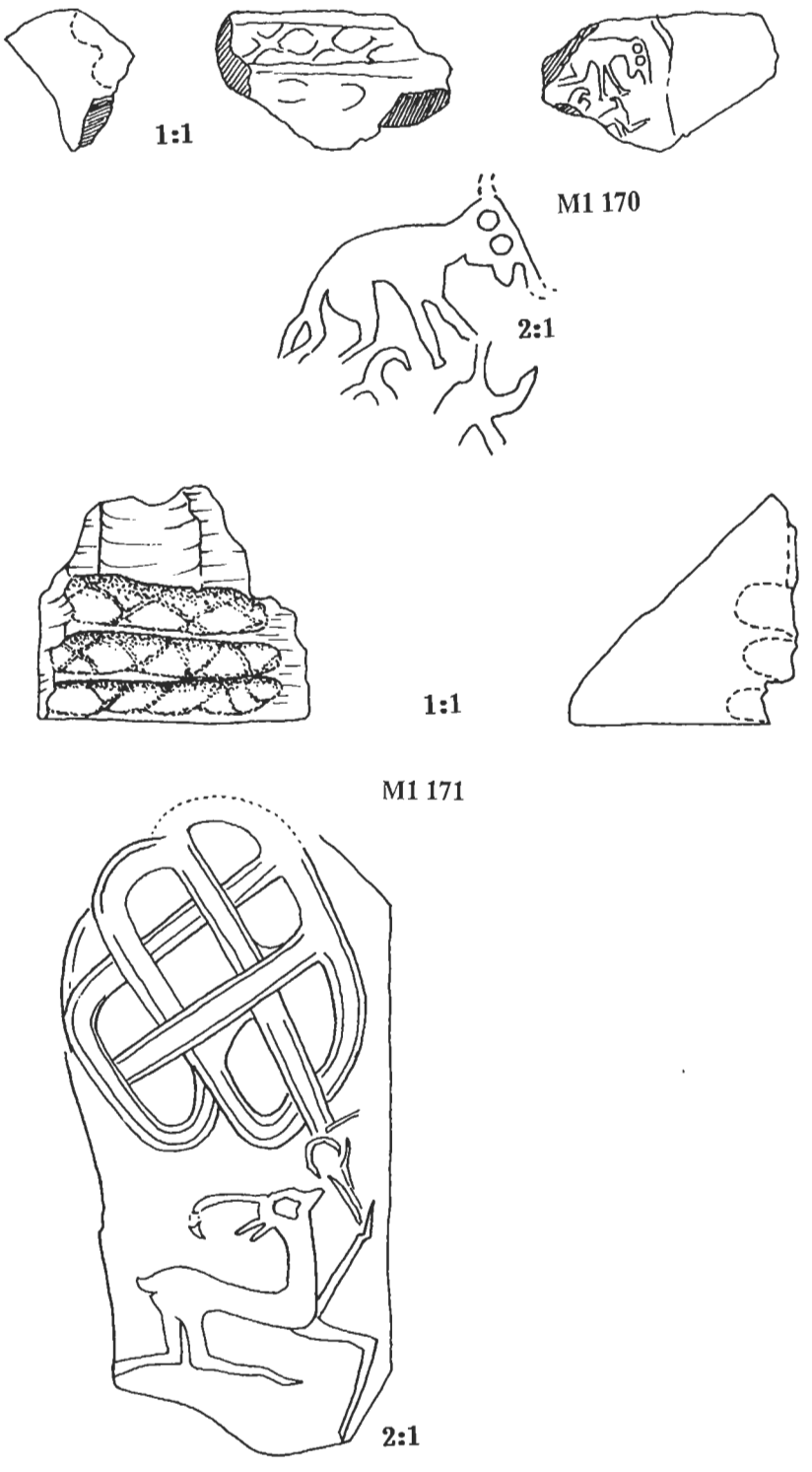
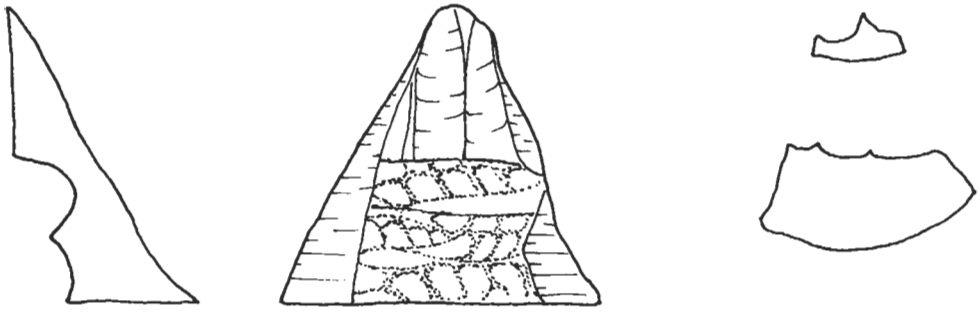
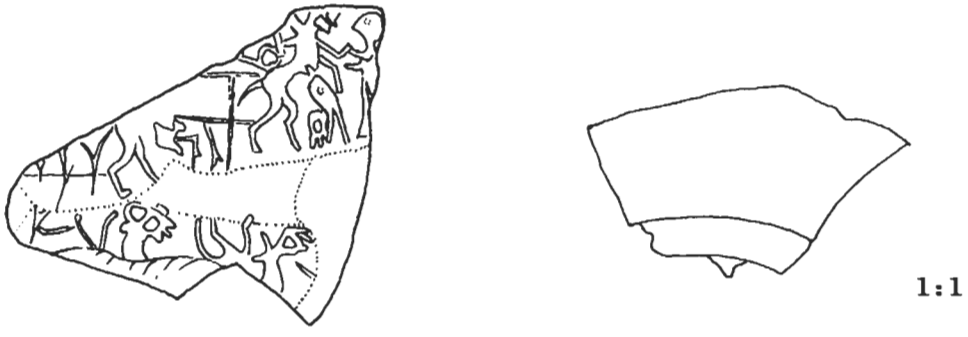


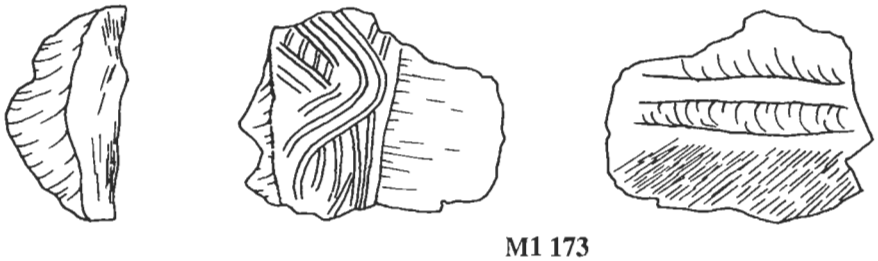
Figure 34. Seal impressions from the glacis in Area K



M1 172



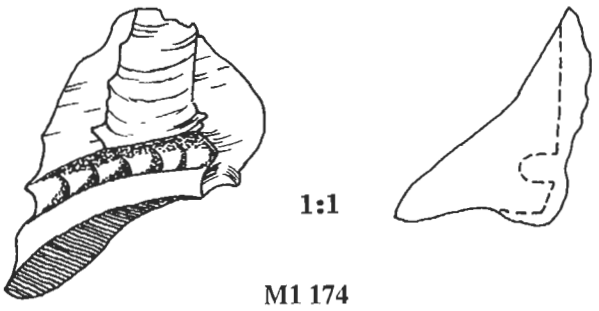
1:1



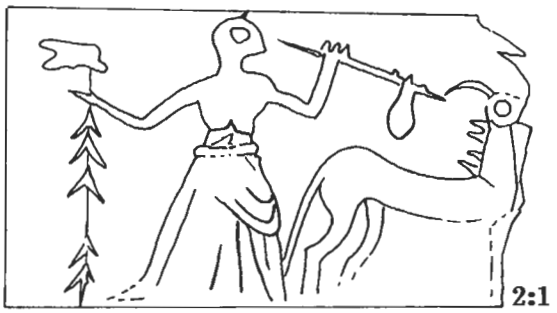
M1 173

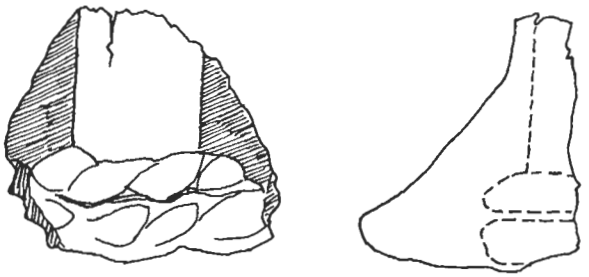
1:1

Figure 35. Seal impressions from the glacis in Area K



M1 174

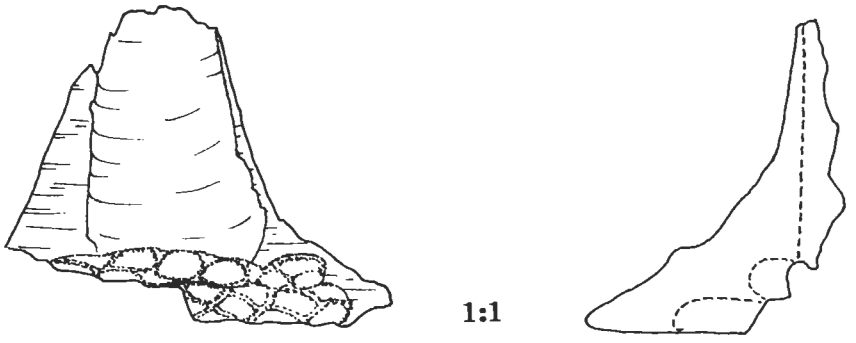




M1 175

M1 176

Figure 36. Seal impressions from the glacis in Area K



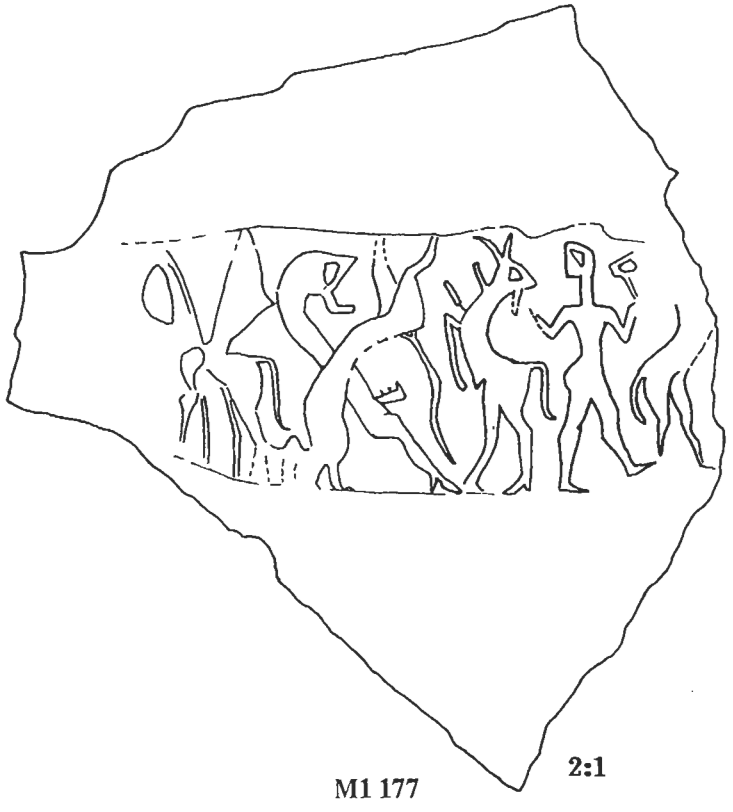
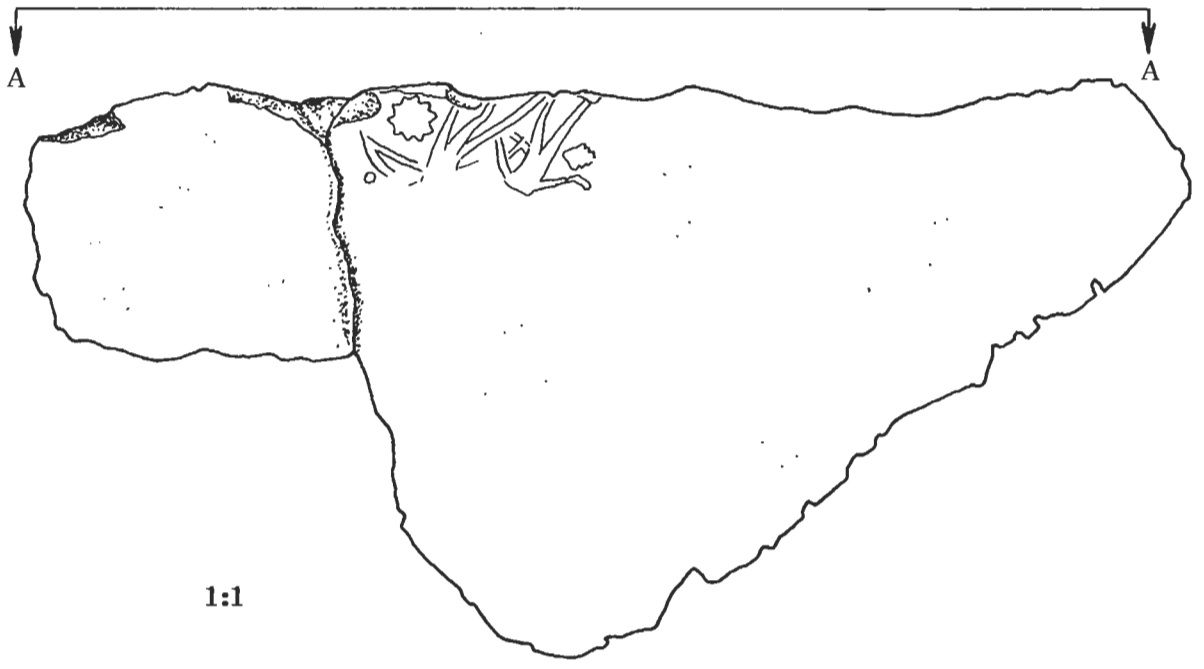
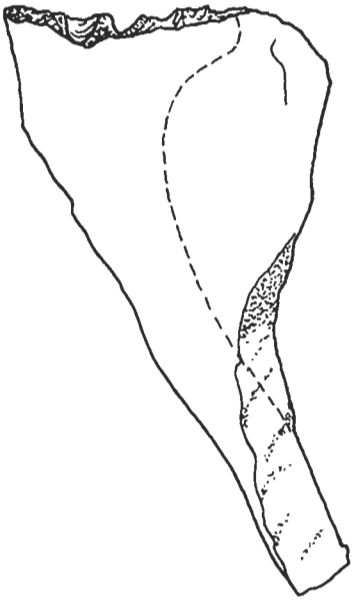
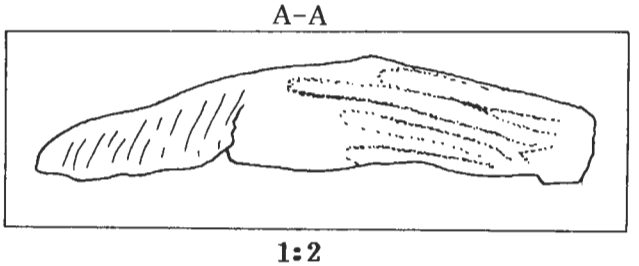


Figure 37. Seal impressions from the glacis in Area K



M1 178





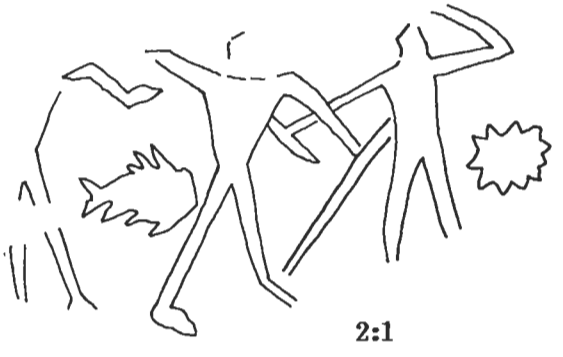
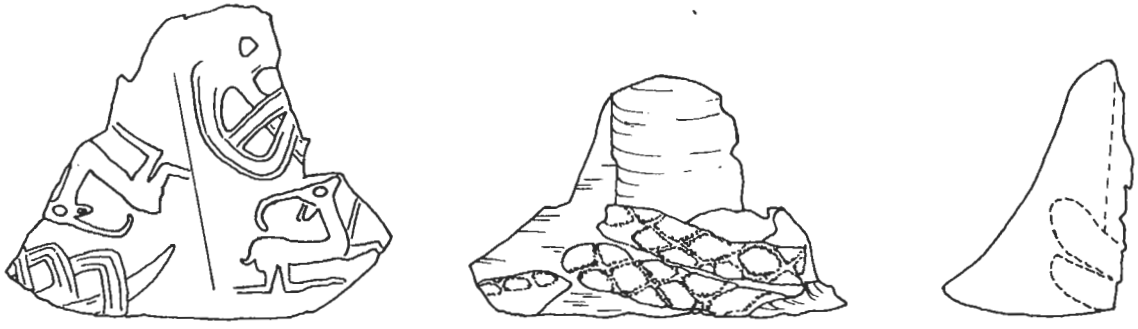
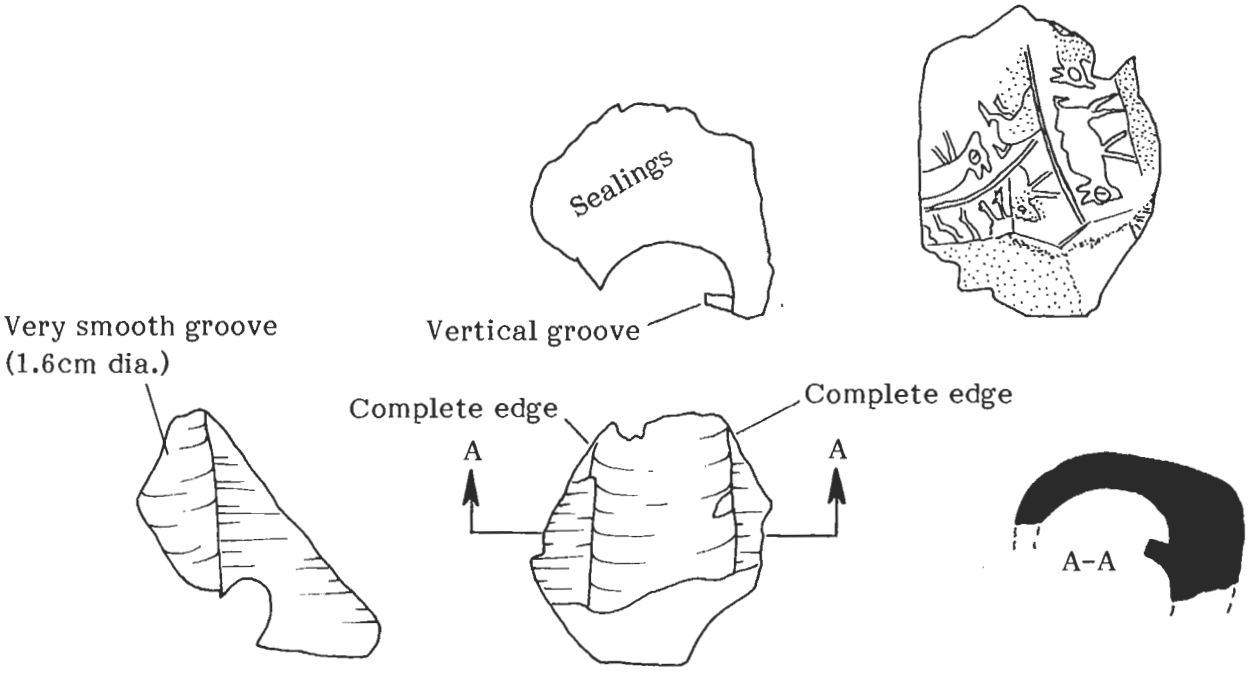


Figure 38. Seal impressions from the glacis in Area K



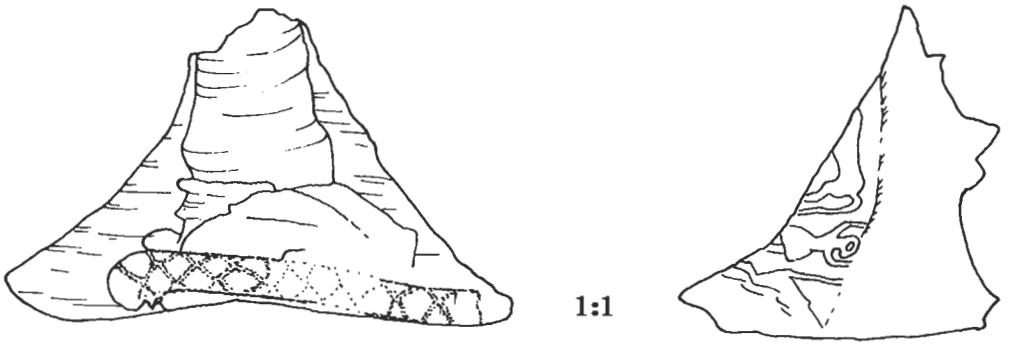
M1 179



M1 180

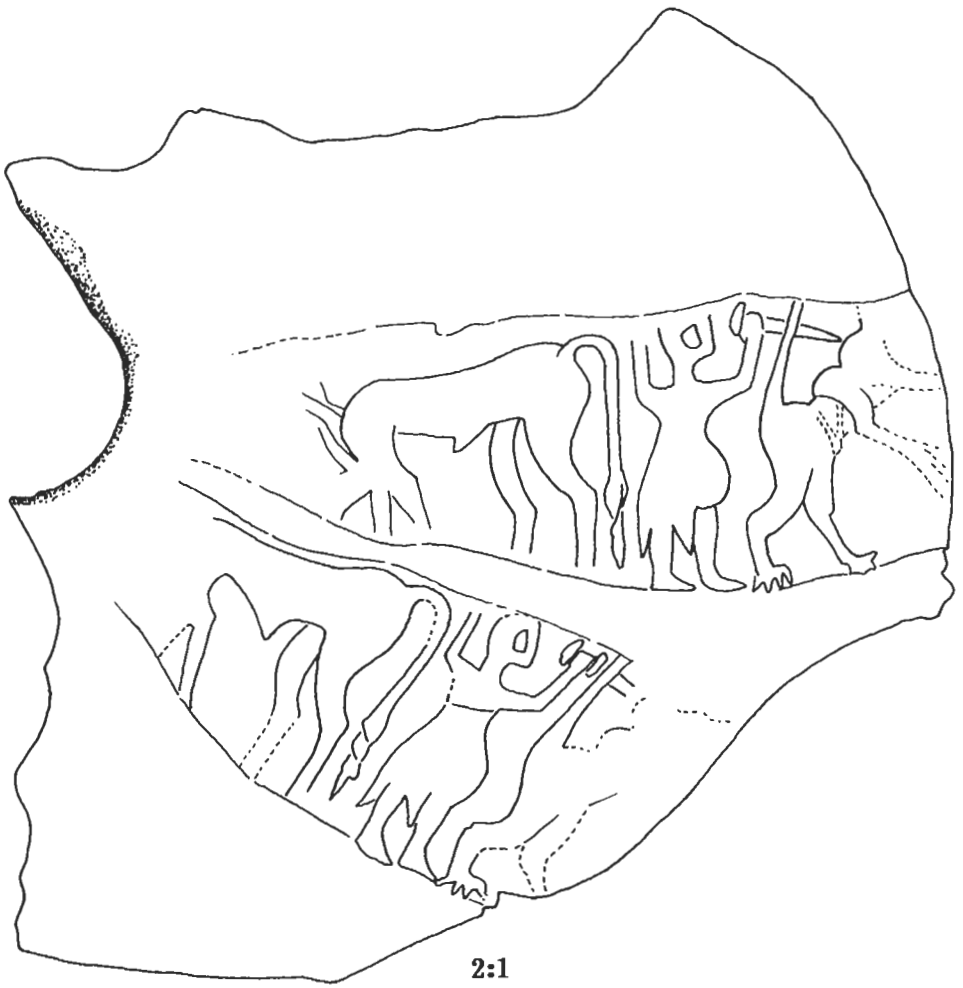
1:1

Figure 39. Seal impressions from the glacis in Area K



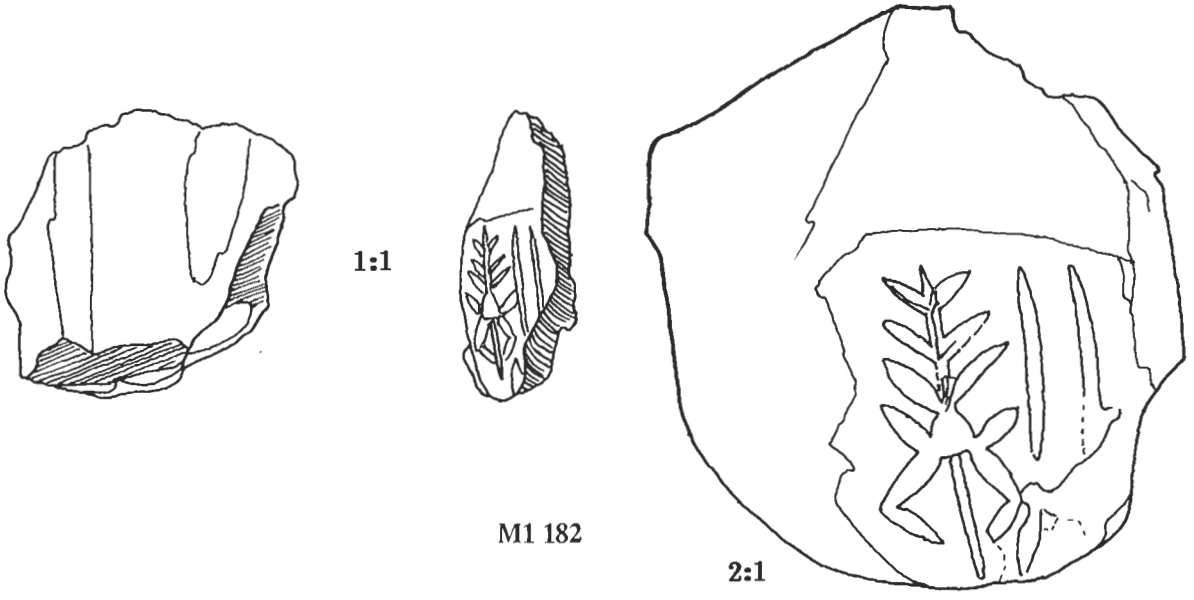
1:1

M1 181



2:1

Figure 40. Seal impressions from the glacis in Area K



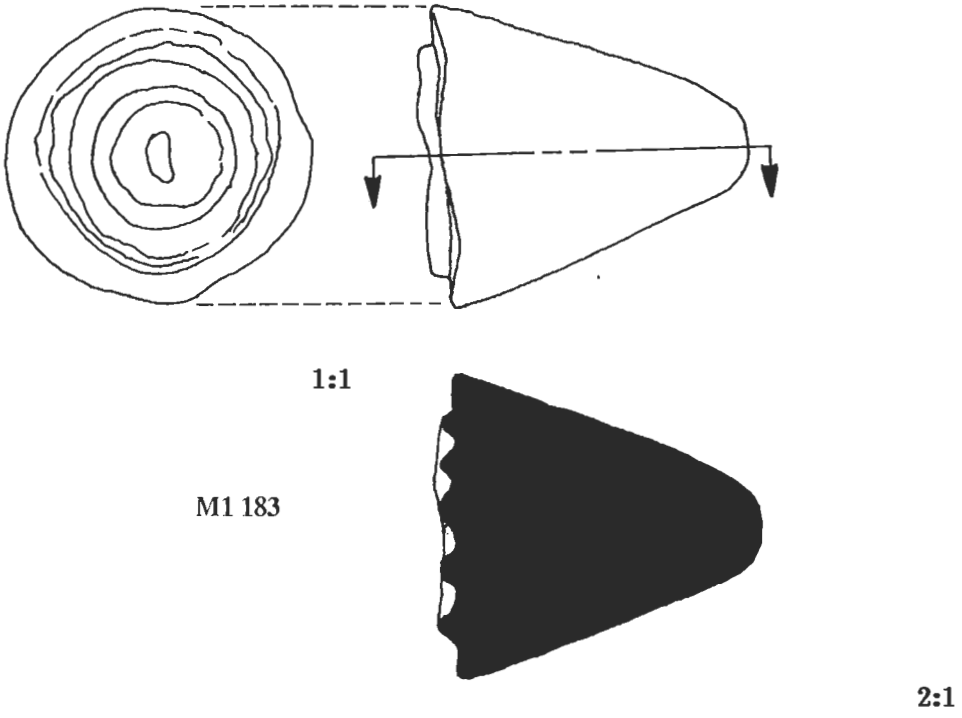


Figure 41. Seal impression and stamp seal from the surface

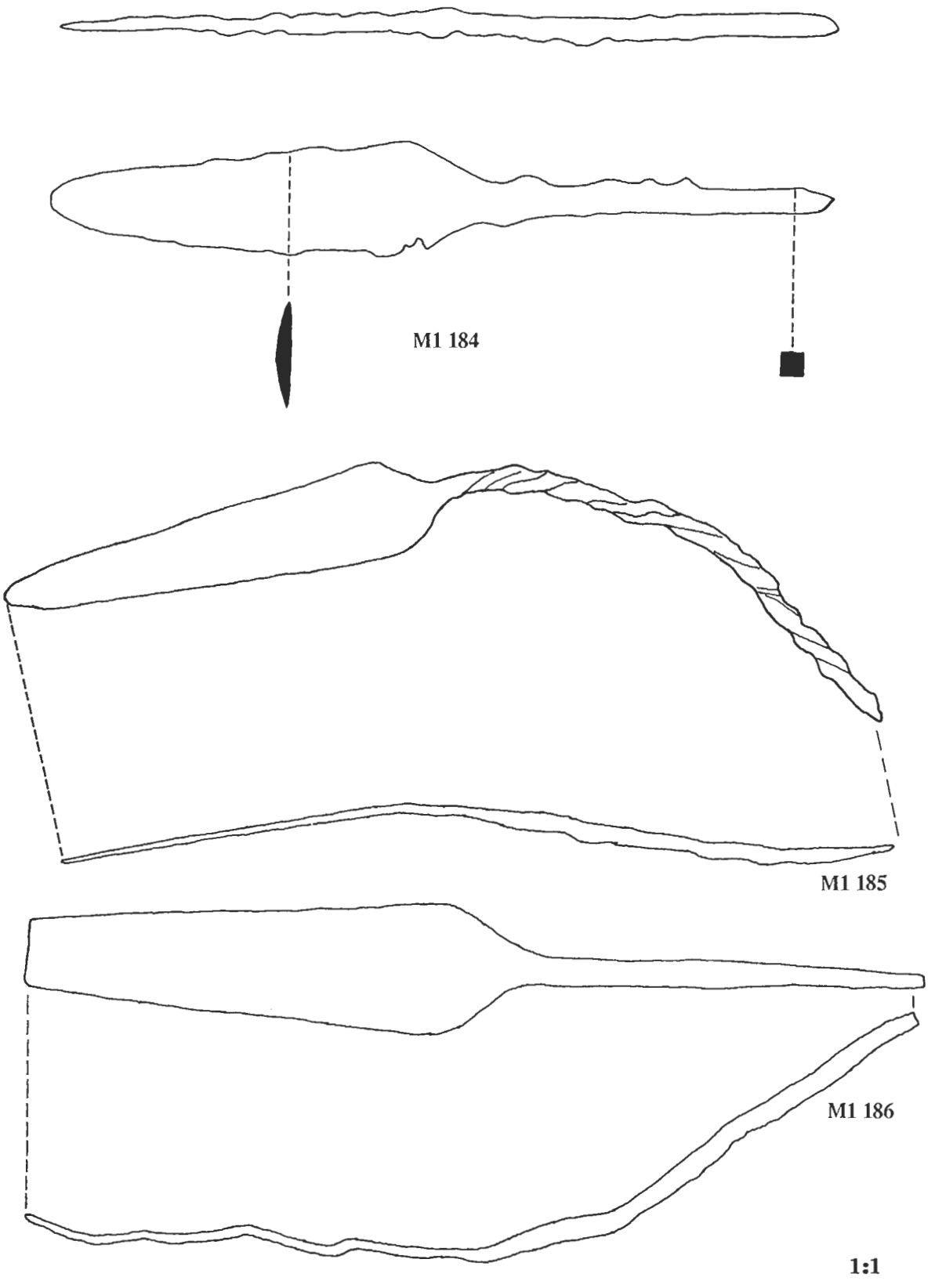
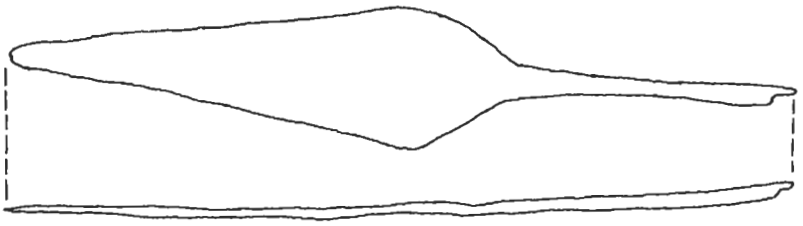
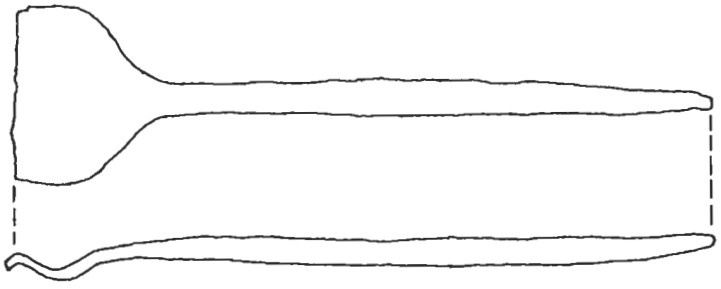


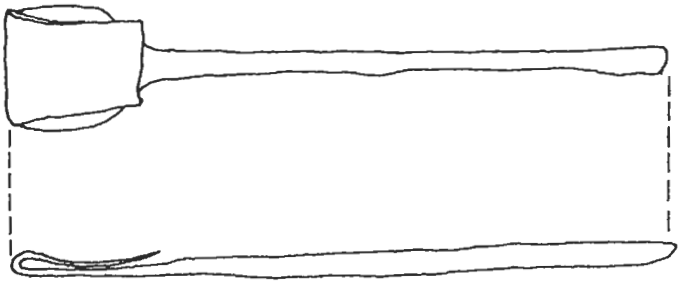
Figure 42. Metal spearheads



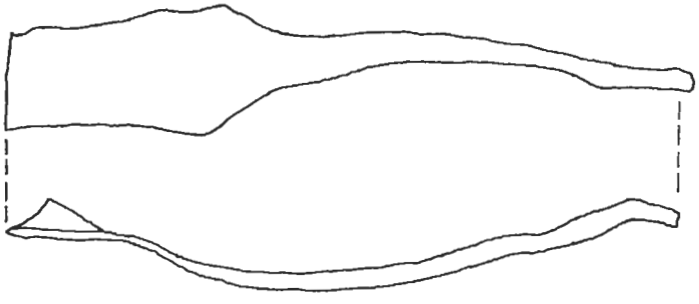
M1 187



M1 188



M1 189



M1 190

1:1

Figure 43. Metal spearheads

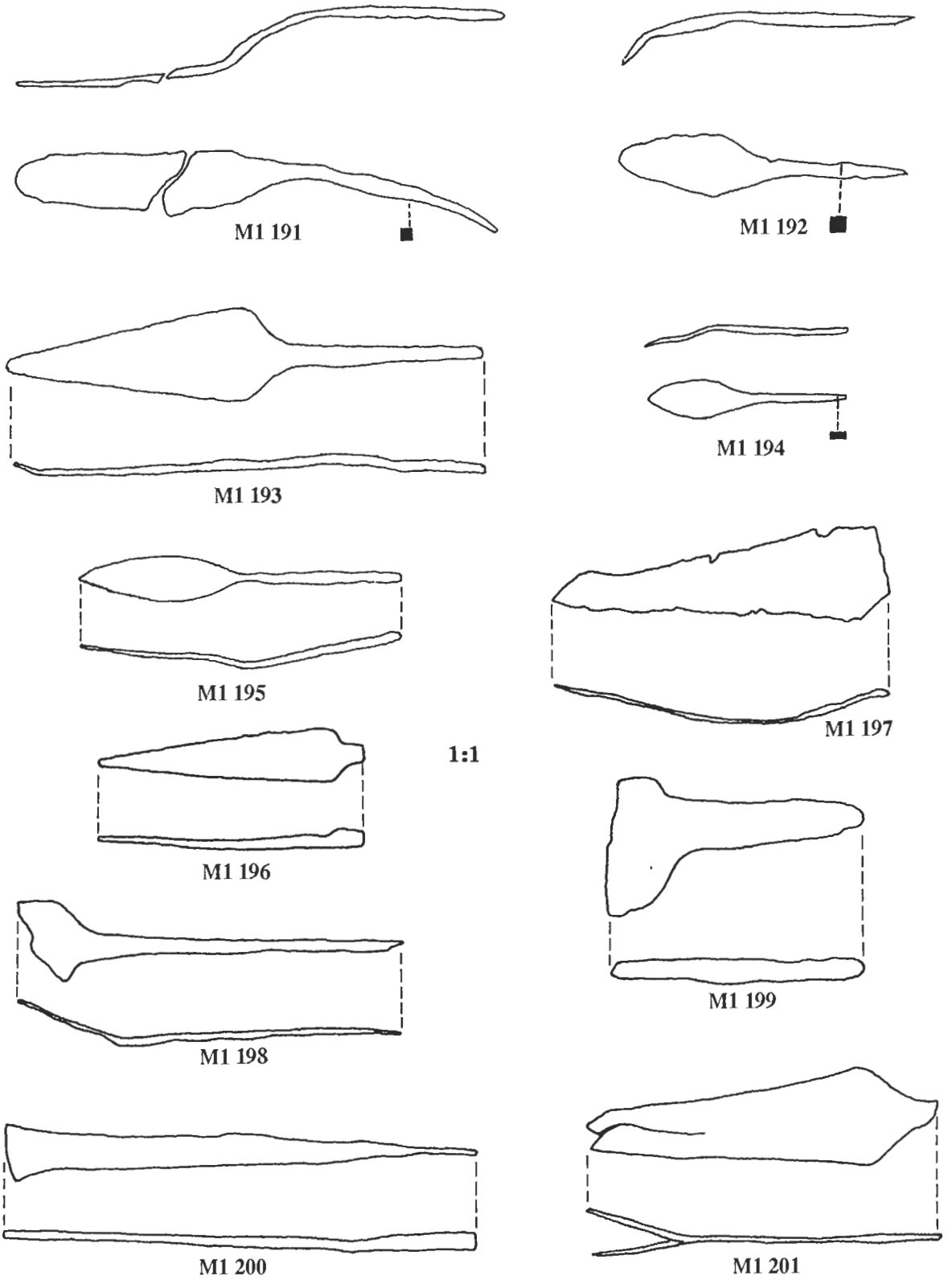
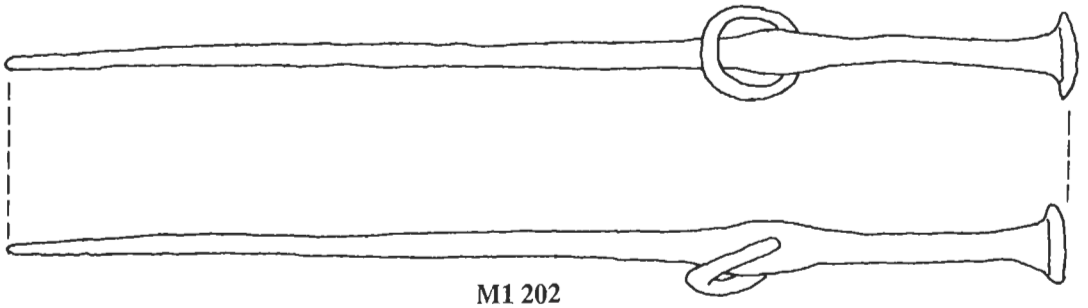
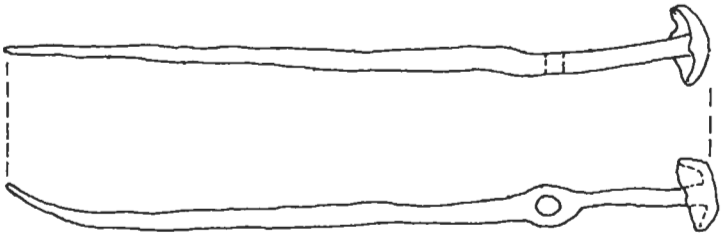


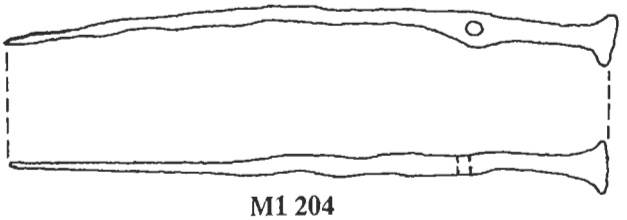
Figure 44. Metal points, spoons and scalpel



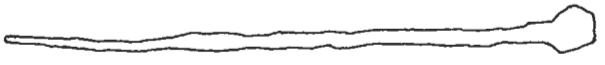
M1 202



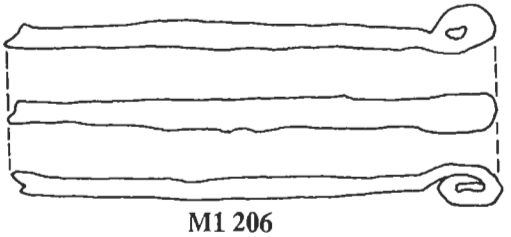
M1 203



M1 204



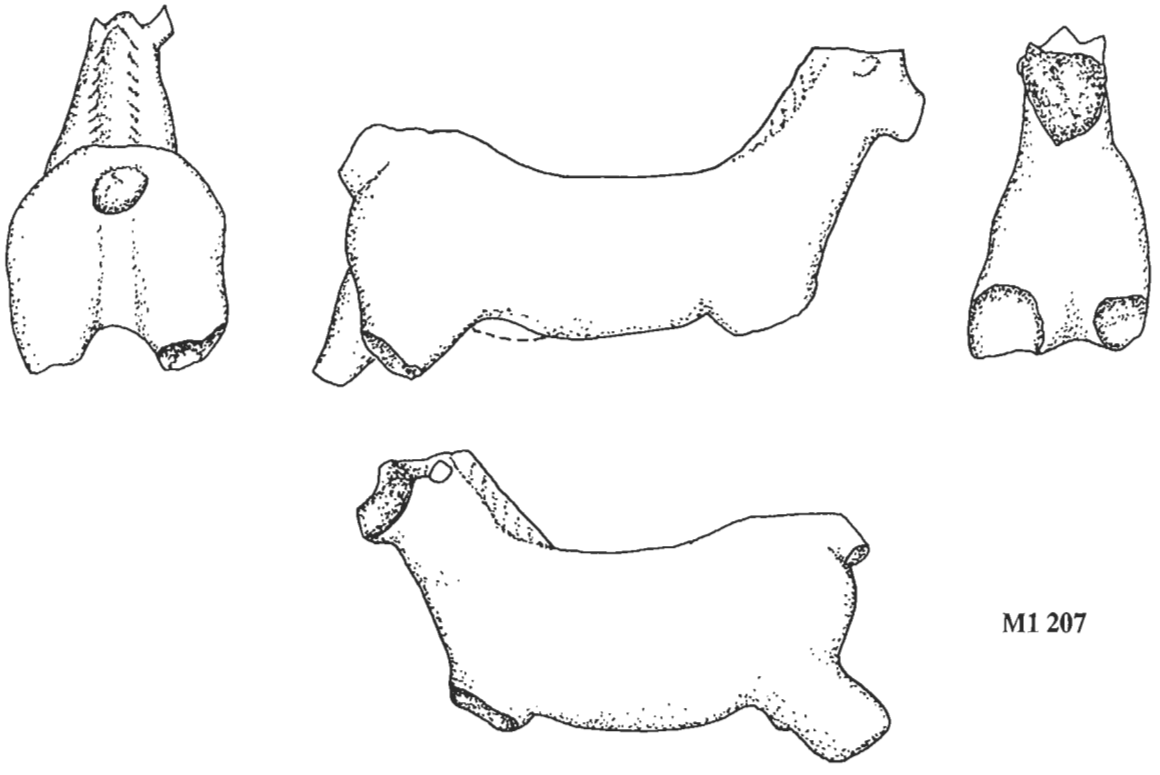
M1 205



M1 206

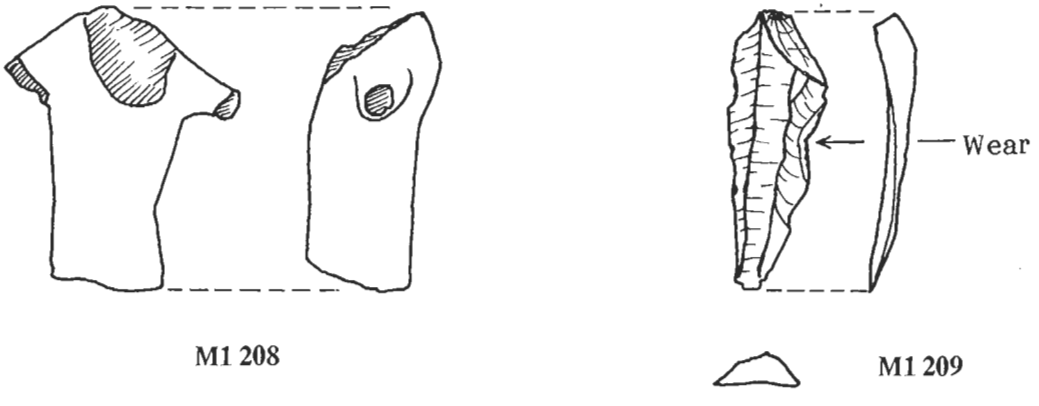
1:1

Figure 45. Metal pins



M1 207

1:1



M1 208

M1 209

Figure 46. Lithic blade and figurines

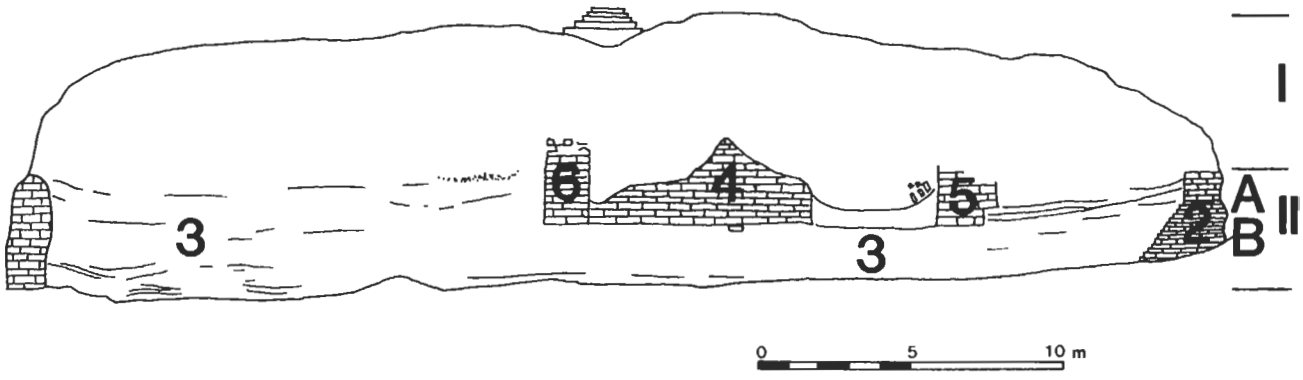


Figure 47. Tell Shermola: Sketch section of northern side of central mound

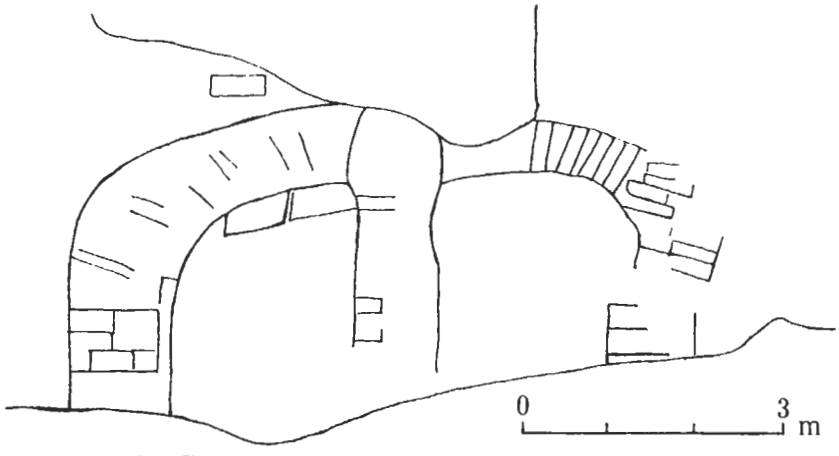


Figure 48. Tell Shermola: Sketch section of arched structure on southern side of mound

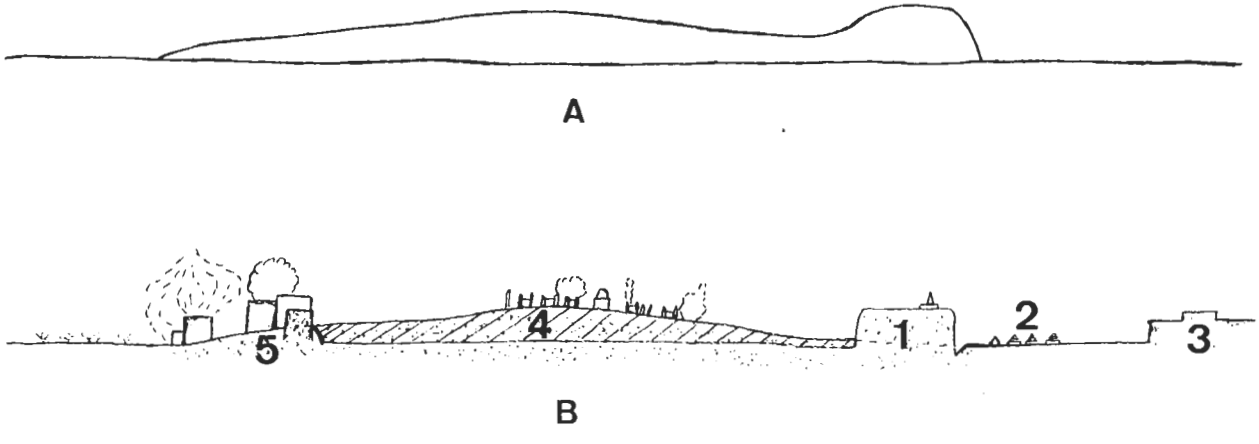


Figure 49. Tell Shermola: Sketch section of entire tell, looking west, with proposed reconstruction of ancient outline

1 Tell Shermola (main mound)
2 Cemetery
3 Southern edge of the town of Amuda
4 Cemetery hill
5 Southern mound

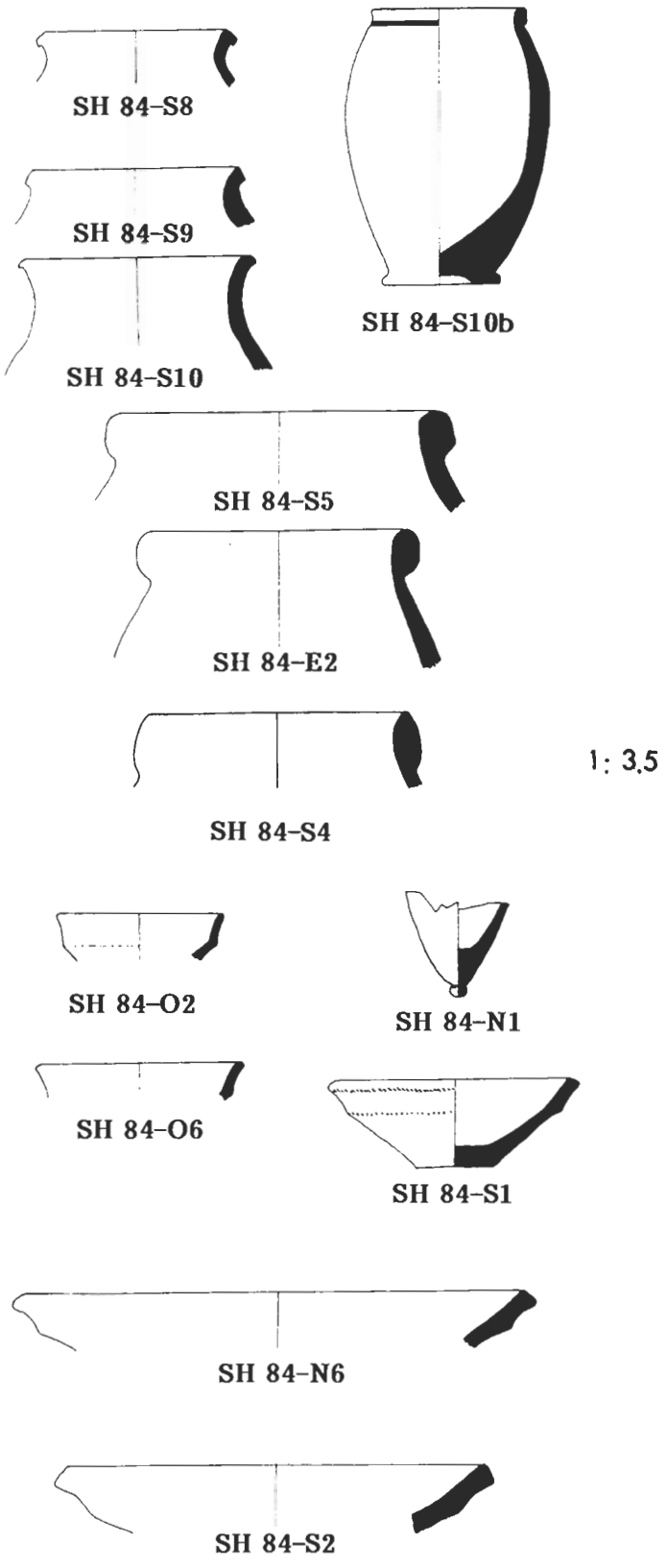


Figure 50. Tell Shermola: Ceramic types from the surface of the main mound

PLATES

Illustration 1. Miniature head of a horse

M1 209 (K1.12). Burnt clay; from the destruction layer in K1 feature 16 (mid third millennium).

Illustration 2. Aerial view of Tell Mozan with Outer City (far shot, looking southwest).

A faint discoloration (and in some cases a change in the pattern of field layout) marks the low rise which encircles the Outer City. The distance between the southern and northern points (S and N in the photograph) is about one mile.

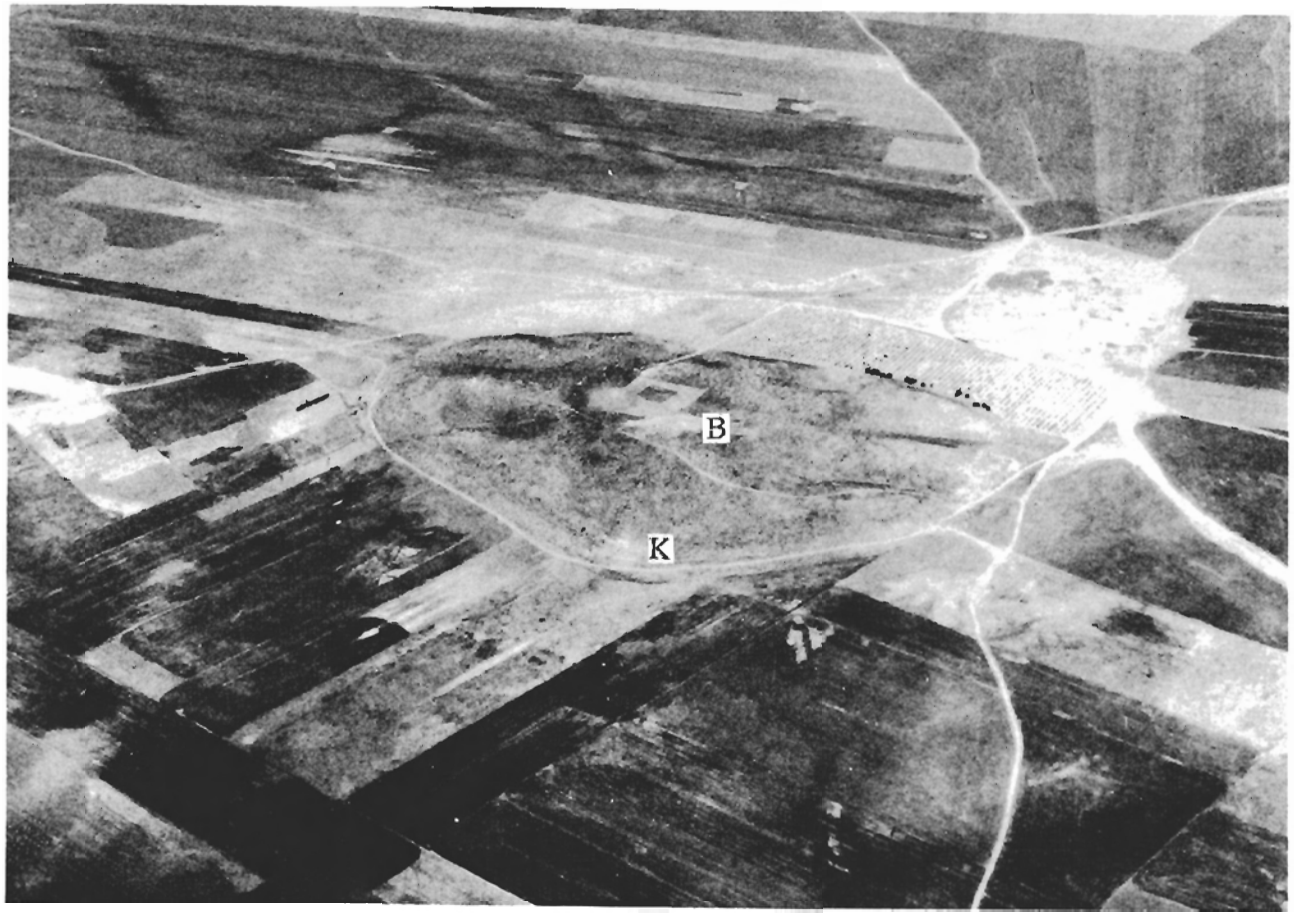


Illustration 3. Aerial view of Tell Mozan with Outer City (medium shot, looking west).

B and K are the two main soundings of the first two seasons.

Illustration 4. Aerial view of Tell Mozan (narrow shot, looking south).

The village of Mozan is visible on the right; it is located within the area of the ancient Outer City. The vineyard between the village and the mound is on a gentle slope which may correspond to part of the ancient High Mound. The low rise encircling the Outer City is partly visible in the upper right. The distance between the eastern and western points (E and W in the photograph) is about one kilometer.

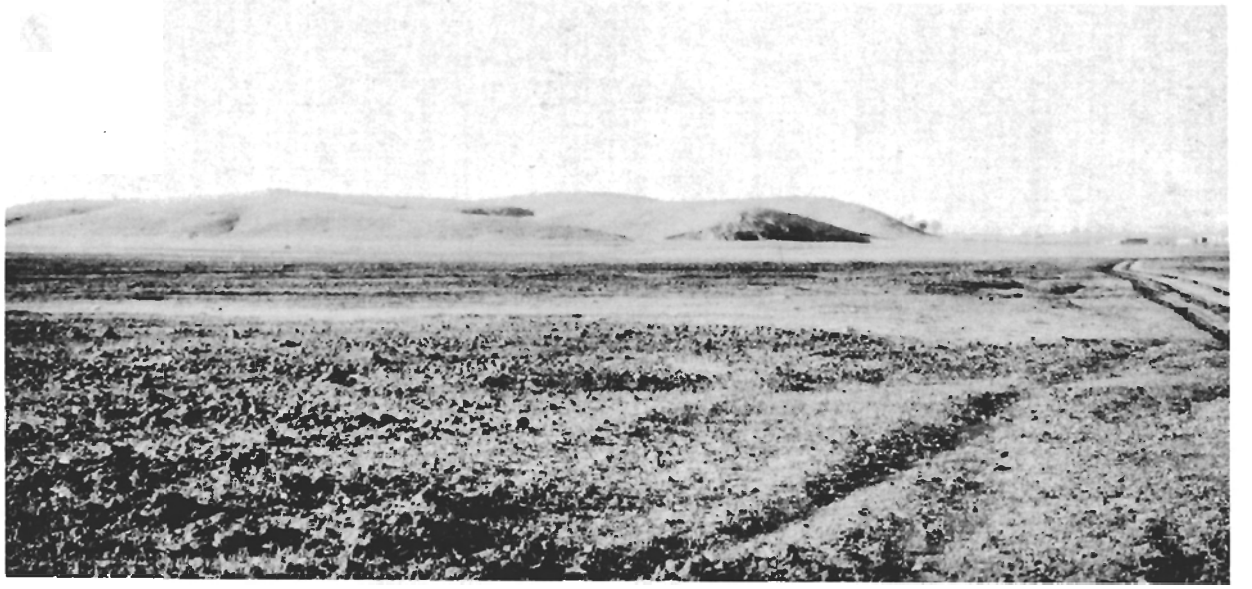


Illustration 5. Profile of Tell Mozan (looking south).

The village of Mozan is visible on the right. The trees on the slope delimit the higher border of the vineyard.

PLATE VI

Illustration 6. Stone building, Area B1 (direct overhead).

Stone ramp partly exposed, semi-circular feature, and southwest corner of outer stone wall. (The photograph was taken toward the beginning of the second season, and the exposure is correspondingly more limited than shown on the floor plan, Figure 8.)

Illustration 7. Stone building, Area B1 (oblique overhead, looking north).

The ramp and semi-circular structure are visible on the lower left, and beyond them the three parallel stone walls on the west. In the background is the continuation of this building with its stone foundations and the lower courses of mud brick walls.

Illustration 8. Stone building, Area B1: southwestern corner (oblique overhead, looking east).

Closer view of ramp, semi-circular structure, and southwestern portion of room.

Illustration 9. Stone building, Area B1: southwestern corner (looking south).

Visible in the center is the clear alignment of the stones marking the outer face of the western side of the building.

PLATE VIII

Illustration 10. Stone building, Area B1: northwestern corner with plastered floor (looking north).

White floor is preserved up to the edge of the wall. The mudbrick is preserved in the lower right (same corner as in Illustr. 11); elsewhere only the stone substructure is preserved.

Illustration 11. Stone building, Area B1: detail of brick wall on stone foundation and white floor.

On the lower right corner the white plastered floor rides up to, and curls up against, the lower course of bricks of the wall. The thickness of the plaster shows in the section of the shallow round depression in the lower center of the photograph.

Illustration 12. Stone building, Area B1: broken storage vessel on outside floor in southwestern corner, of Pebble Tempered ware.

Illustration 13. Stone building, Area B1: reconstructed storage vessels on outside floor in southwestern corner.

Restored Pebble Tempered storage vessel on lower left and restored rope decorated jar on upper left; both were found on floor B1f19.

PLATE X

Illustration 14. City wall, Area K1: direct overhead.

The long narrow trench has exposed the base of the glacis (lower portion) and the inside of the city wall (K2): the slope of the tell reveals the brickwork of the eroded core of the city wall. Larger sounding at the base of the city wall is Locus A (see Figure 13).

Illustration 16. City wall, Area K1: detail of north section in Locus A (see Figure 13). The plastered exterior face of the city wall shows on the right, the bricks are lying horizontally on top of the burnt deposit (K1f16). The top of the glacis shows clearly, still partly covered by a portion of the burnt deposit.

Illustration 17. City wall, Area K1: frontal view, after scraping of vertical face (looking west). Preserved height of city wall, from the surface of the glacis to the top of the brickwork, is about 5 m. The top portion represents later deposit resting on top of the brickwork (part of which is removed in the continuation of the trench visible in Illustration 19).

Illustration 18. City wall, Area K1: general view of Locus A (looking north). Eroded core of wall, with articulated brickwork, shows on the right, with top surface of glacis riding up to its base. Talus of High Mound shows in background.

Illustration 19. City wall, Area K1: general view of glacis with burnt deposit and face of city wall (looking west). Trench cut perpendicular to the city wall shows the steep slope of the glacis; in the background the base of the wall and above it the trench cut at the top of the mound to expose the inner face of the city wall. Clearly visible are both the even surface of the glacis and the thickness of the burnt deposit.

Illustration 15. City wall, Area K1: front view, before excavations.

The cut in the side of the tell results from local farmers using this area to gather soil for mud bricks.

Illustration 16.

Illustration 17.

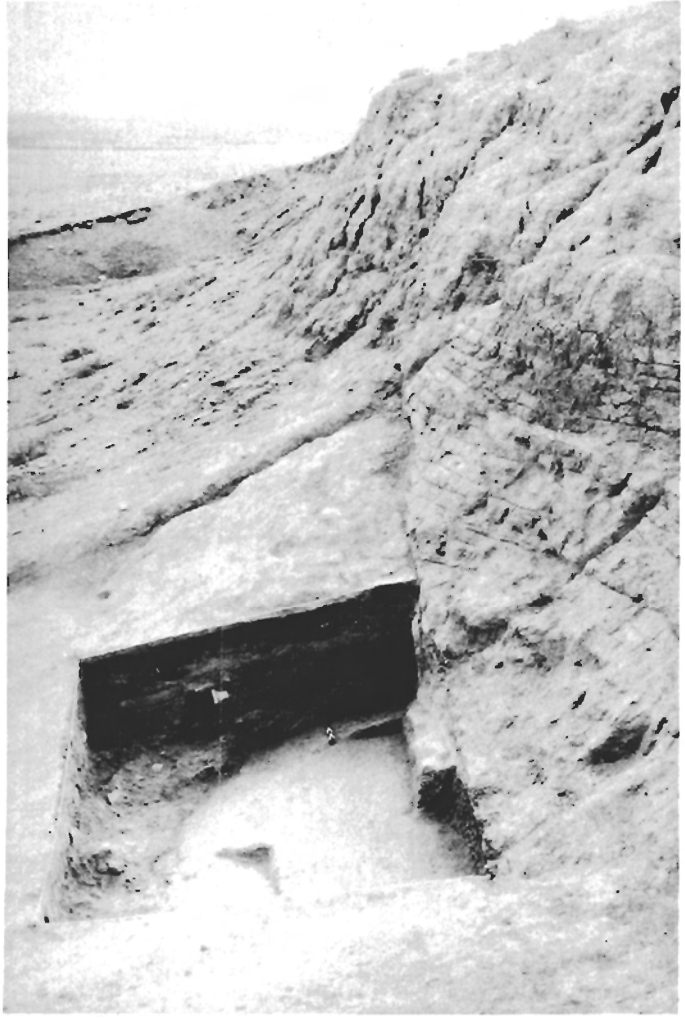


Illustration 18.

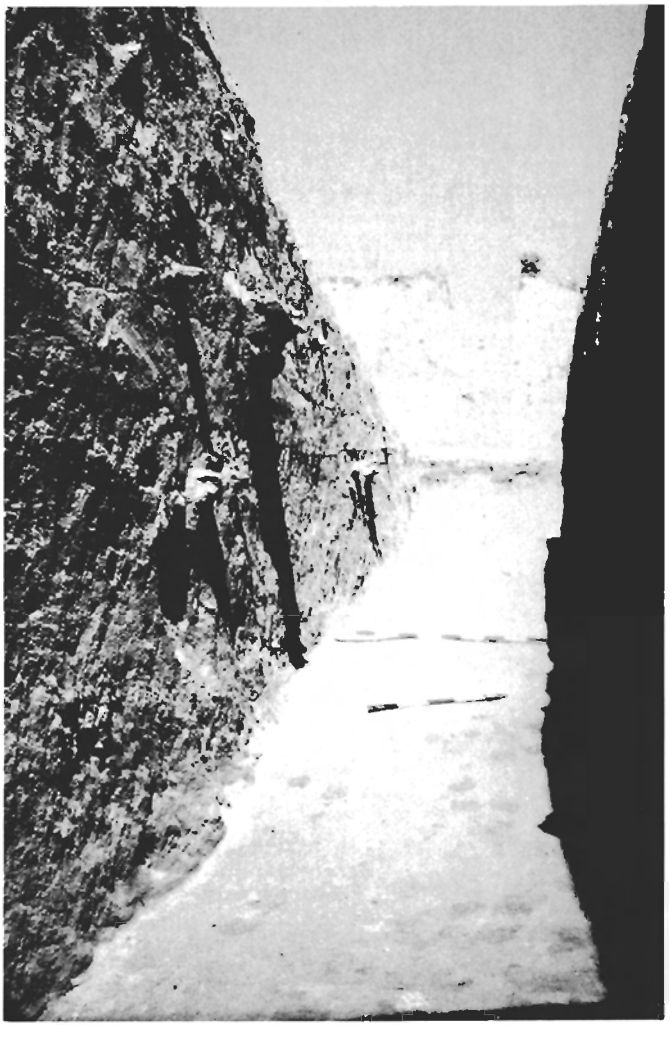


Illustration 19.

PLATE XII

Left:	Mid left:	Mid right:	Right:
M1 205	M1 200	M1 189	M1 203
M1 206	M1 196	M1 199	M1 204
B1.40	M1 193	M1 188	M1 202
M1 195	M1 201	M1 190	M1 187
M1 192	M1 197		M1 186
M1 194	M1 198		M1 185
M1 191			M1 184

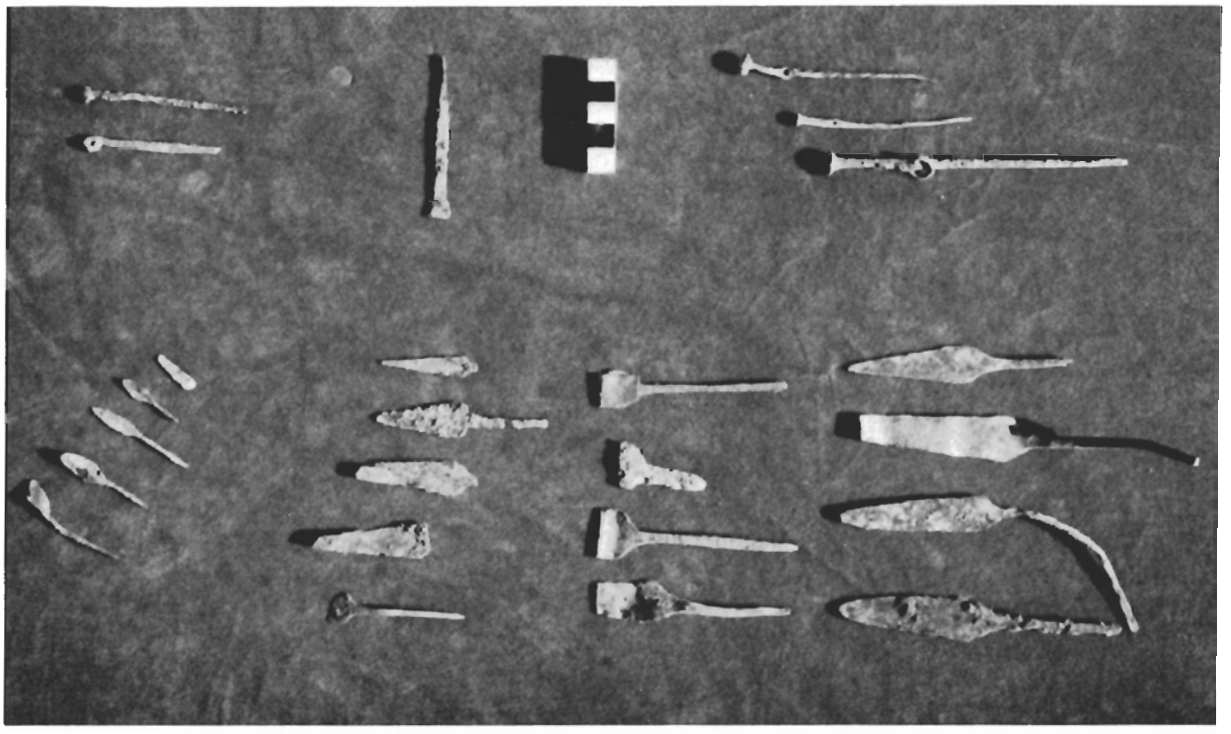


Illustration 21. Assemblage of metal objects (Areas B1 and K1).

The three pins at the upper right are from the burnt deposit in K1, the points at the lower right are mostly from the northwestern portion of B1, and the small spoons at the lower left are mostly from the central portion of B1.

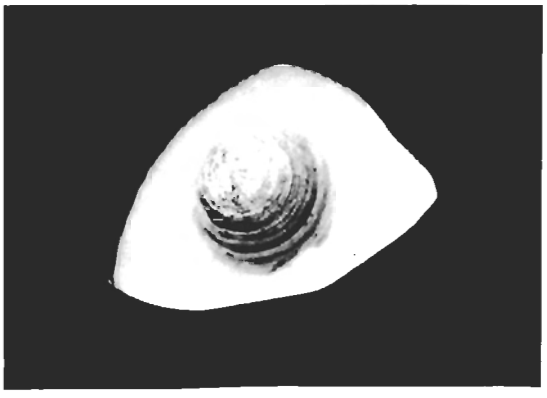


Illustration 20. Eye socket of statue (Area B1).

M1 210 (B1.19). The socket, with traces of bitumen in the hole for a colored pupil, was found among the stones in the southwestern corner of the building.

Illustration 22. Spouted mid third millennium vessel (Area K1).

M1 52 (K1.12-2). Simple ware with darker traces and burnt-on clay from secondary firing (from the burnt deposit K1f16).

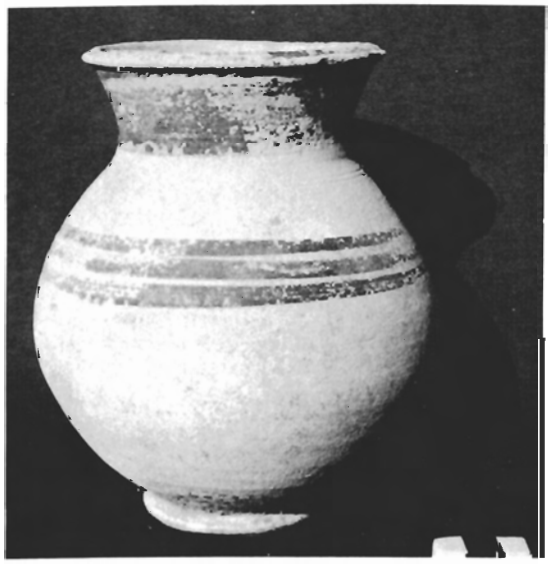
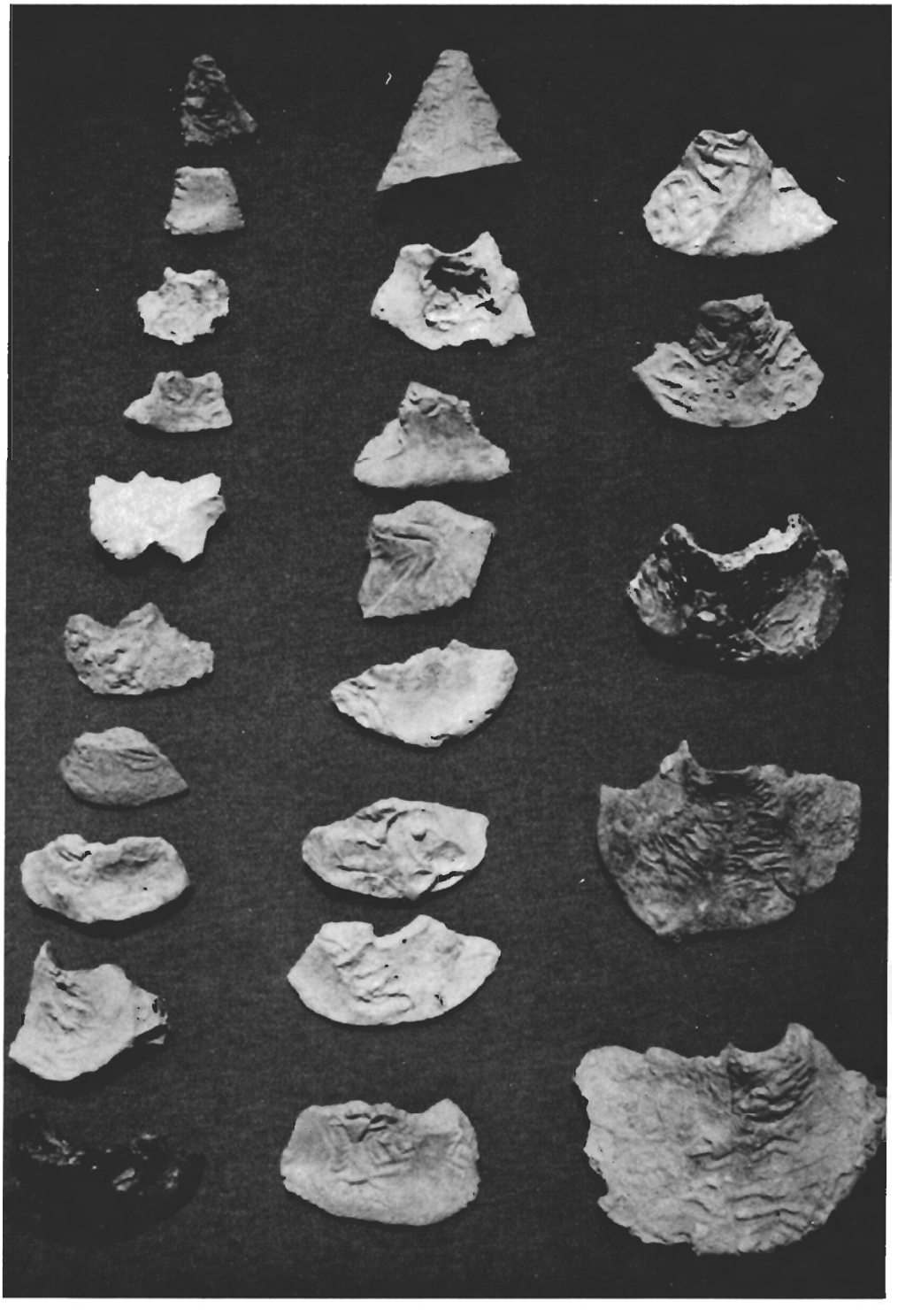


Illustration 23. Khabur ware jar (Area B1).

M1 82 (B1.73). From the destruction stratum above the white floor of the stone building.

PLATE XIV

Left column:
K1.24
M 1 175
M 1 168
K1.87
K1.75
K1.70
K1.76
K1.13
K1.63
K1.77



Right column:
M 1 171
M 1 179
M 1 169
M 1 181
K1.16

Center column:
K1.20
K1.25
K1.72
K1.18
K1.41
K1.78
K1.46
M 1 172

Illustration 24. Assemblage of door sealings (Area K1).

All sealings are from Area K1, feature 16, the burnt layer.

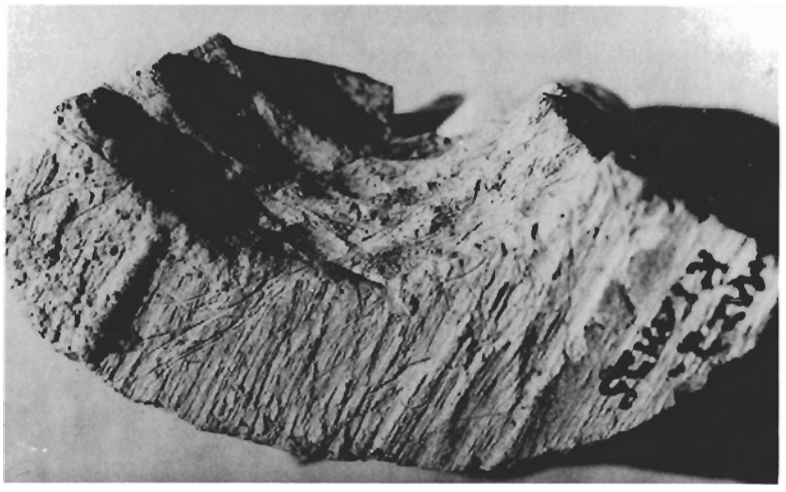


Illustration 25. Detail of bottom of door sealing (K1.25). Flat wood impression on the bottom and two strands of rope impression along the central cavity.

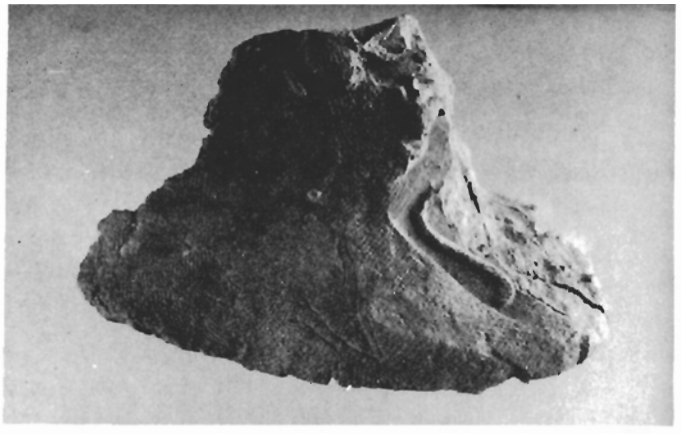


Illustration 26. Characteristic shape of door sealings (K1.78).

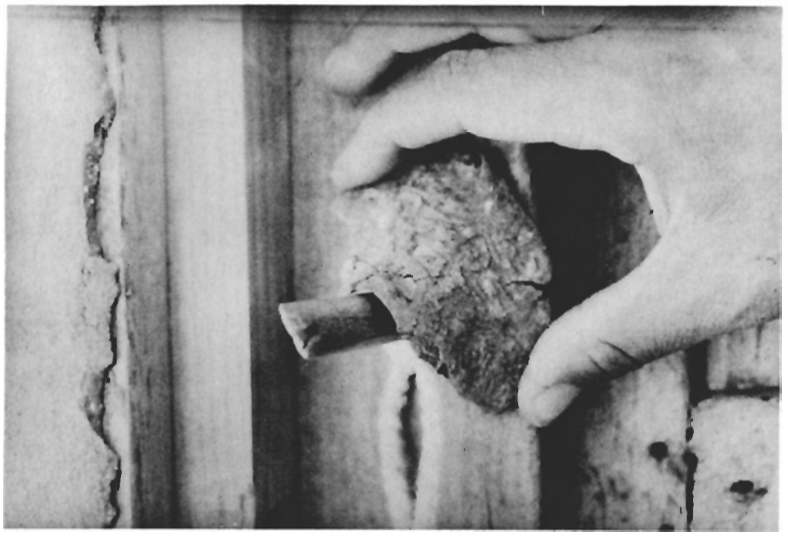


Illustration 27. Reconstruction of door sealing on modern door.

PLATE XVI

SEALINGS FROM THE BURNT DEPOSIT OUTSIDE THE CITY WALL (K1f16), MID THIRD MILLENNIUM

Illustration 28. Seal impression on shoulder of large jar

M1 167 (K1.6). The sealing is reversed with respect to the orientation of the jar (in this photograph the neck of the jar is at the bottom).

Illustration 29. Seal impression on rectangular tag

M1 168 (K1.8). The seal is rolled on the preserved length of the tag and fills the entire surface.

Illustration 30. Door sealing: crossed animals

M1 172 (K1.50). Traces of a human figure and a lion; cloth impressions also shown.

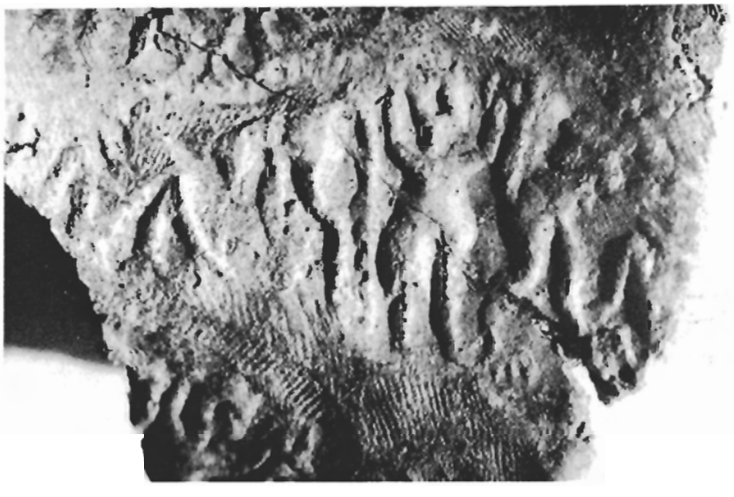
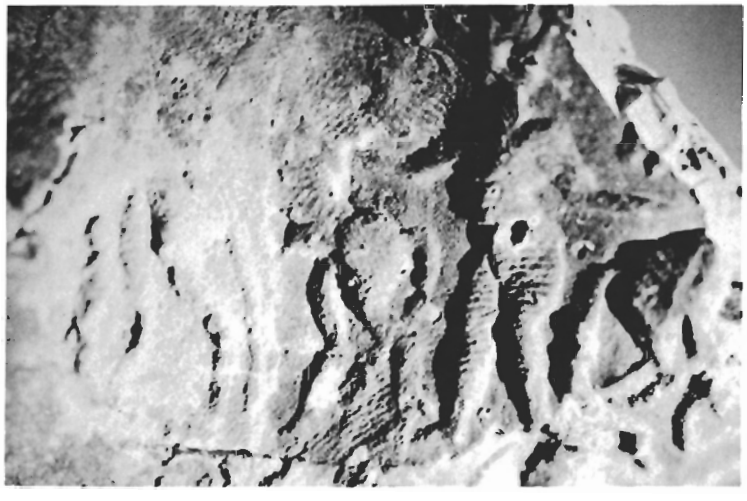


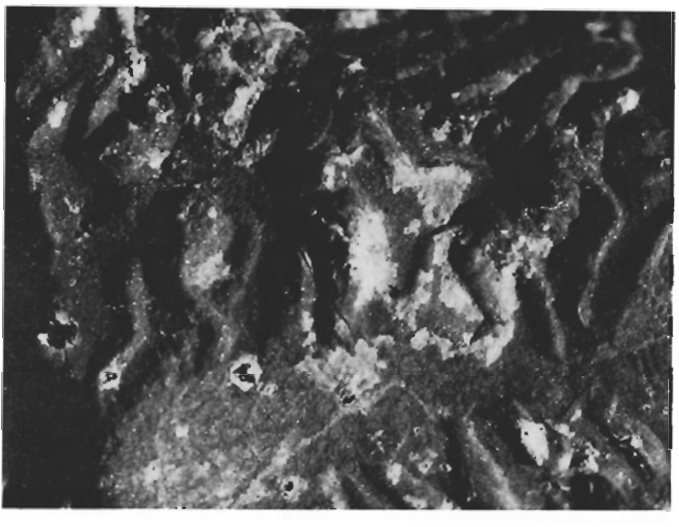
Illustration 31. Door sealing: hero with dagger

M1 181 (K1.92). Hero with dagger between two animals; traces of cloth show that the cloth impressions were on the clay before the seal was rolled.

Illustration 32. Seal impression: snake coil and horned quadruped

M1 171 (K1.45).





Illustrations 33-35. Seal impression: hero between rampant animals

M1 169 (K1.29) Nude hero with tufted hair between two bearded animals; three different details of the impression.

PLATE XVIII

Illustration 36. Seal impression: hero with rampant animal and crossed animals

M1 177 (K1.69). Hero and bearded horned animal; a pair of crossed lions.

Illustration 37. Seal impression: hero with skirt holding plant, with animal

M1 174 (K1.52). Skirted figure holding a stick and a bag(?) behind an animal.

Illustration 38. Seal impression: double animal file

M1 180 (K1.82). Two rows of animals with short tails, ears or short horns, and large eyes.

Illustration 39. Seal impression: geometric design

M1 173 (K1.51). Door sealing from burnt deposit outside the city wall, mid third millennium; geometric pattern (guilloche?).

Illustration 40. Seal impression: rampant bearded animal

M1 75 (K1.17). Door sealing from burnt deposit outside the city wall, mid third millennium; rampant animal (antelope?) with beard, horns, and short tail.

Illustration 41. Seal impression: impaled(?) scorpion

M1 183 (K1.17). Door sealing from general surface of mound.

Illustration 42. Two stamp seals

M1 183 (Z1.20 on right and Z1.17 on left). From general surface; two stamp seals with circular geometric pattern.

PLATE XX

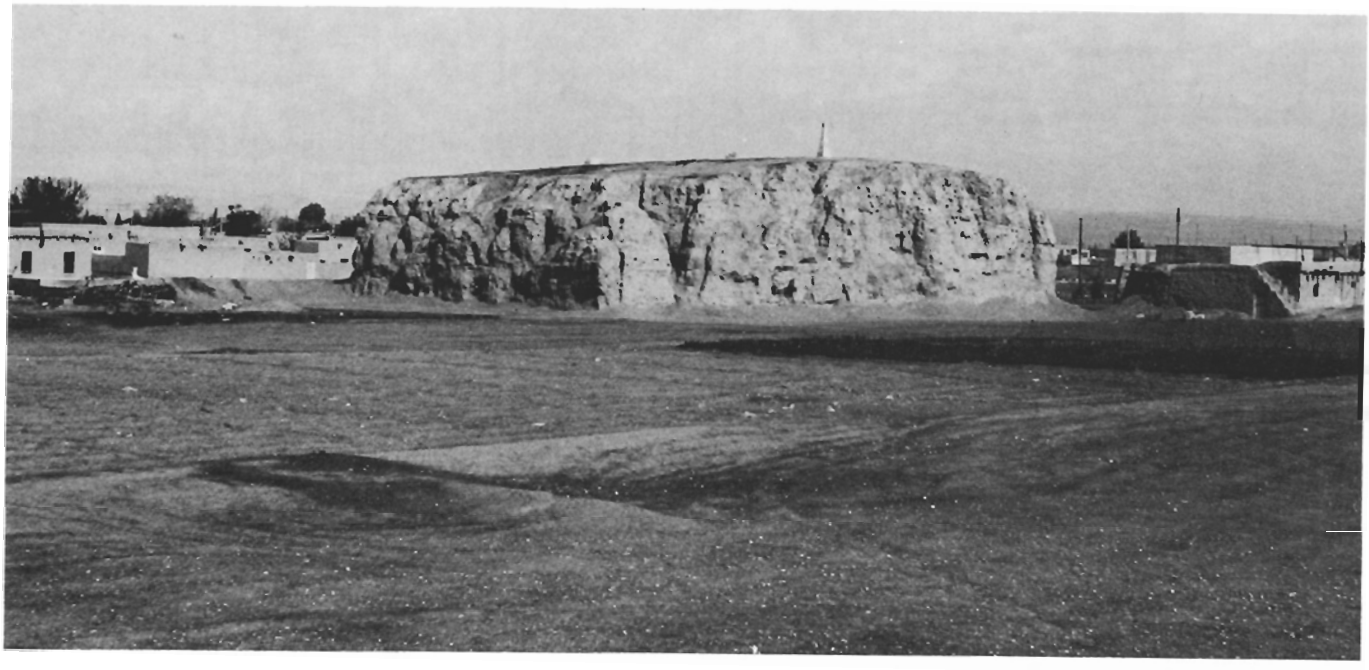


Illustration 43. Tell Shermola: the central mound (looking northwest).

Illustration 44. Tell Shermola: button base goblet (base).

Illustration 45. Tell Shermola: carinated shallow bowl.

Illustration 46. Tell Shermola: the lower mound (looking west).

Illustration 47. Tell Shermola: the lower mound (looking north).

PLATE XXII

Illustration 48. The Urkish lion in the Metropolitan Museum of Art: front view.

Illustration 49. The Urkish lion in the Metropolitan Museum of Art: side view.

Illustration 50. The Urkish lion in the Metropolitan Museum of Art: three-quarter view.

Illustration 51. The Urkish lion in the Metropolitan Museum of Art: top view.

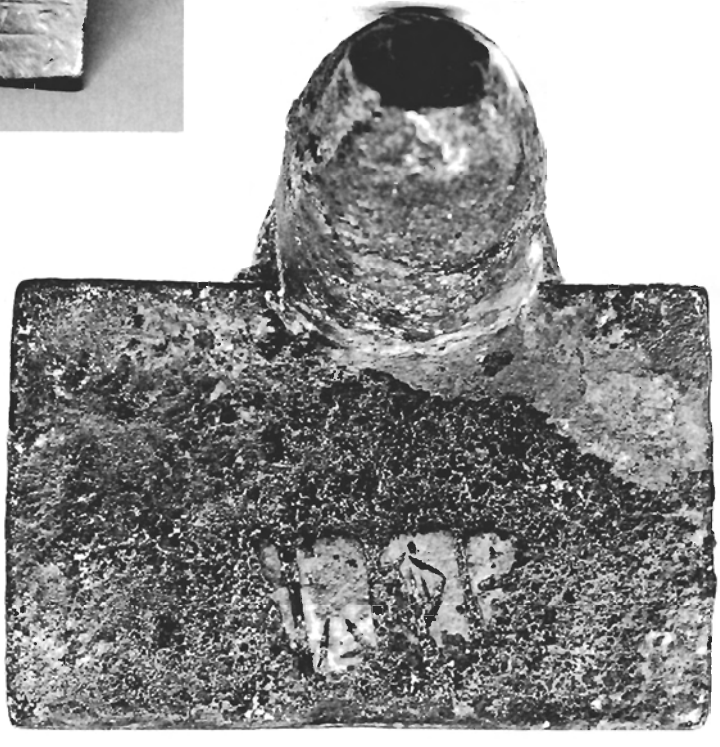


Illustration 53. The Urkish lion in the Louvre: bottom view.

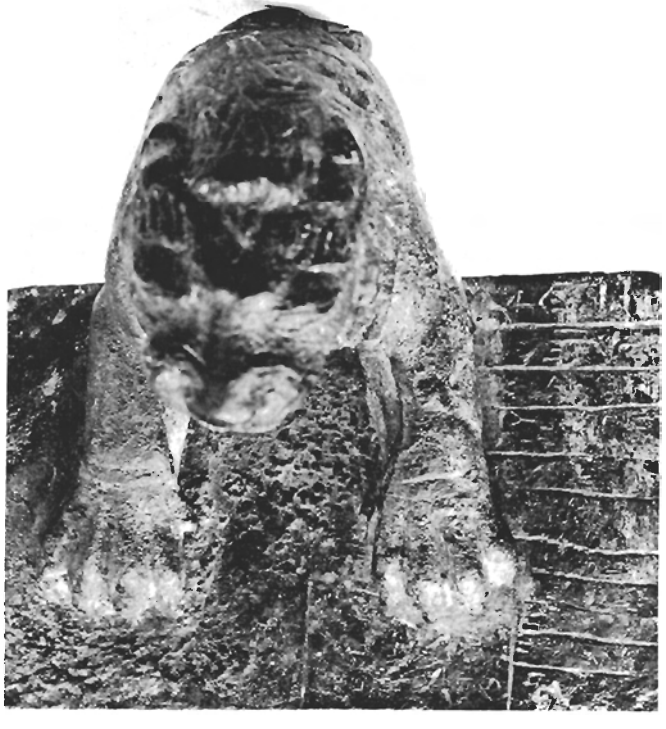


Illustration 52. The Urkish lion in the Louvre: top view.

PLATE XXIV

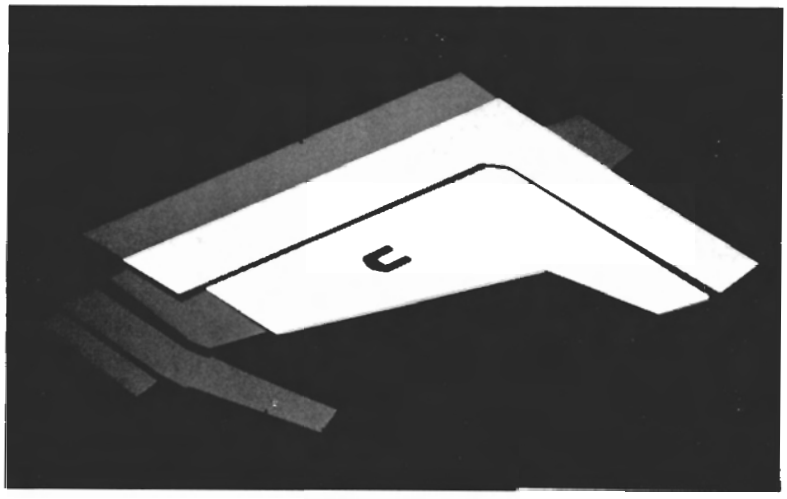


Illustration 54.

COMPUTER GENERATED RENDERINGS OF THE STONE BUILDING IN AREA B1

Illustration 54. Partially excavated foundations of stone building in Area B1 (viewed from the southeast).

The right-angle wall (light area) and its two additional parallel walls (dark gray) enclose the white floor (white area) with its horseshoe-shaped hearth. To the south of the white floor is the stone ramp (dark gray). To the north of the white floor is the brick-paved area (light gray).

Illustration 55. Axonometric perspective of Tell Chuera-style 'in antis' temple reconstruction at Mozan (viewed from the southeast).

The 'in antis' temple reconstructed on the Mozan foundations is entered via five steps from the east (this entrance is purely hypothetical, since this portion of Area B is currently unexcavated). The altar is on the west wall, flanked by two pairs of engaged pillars. The stone ramp serves to connect the cella with the exterior or perhaps a stone courtyard via the south. A doorway on the north wall connects the ante-cella with the brick-paved area north of the white floor.

Illustration 56. Low-angle perspective of Kish-style reconstruction at Mozan (viewed from the south).

The Mozan foundations are seen as part of a much larger 'palatial' structure which includes a second story. The stone ramp connects to the white floor through a portico. This in turn connects to the second story via a stairway whose lower steps can be seen rising just beyond the north wall of the portico.

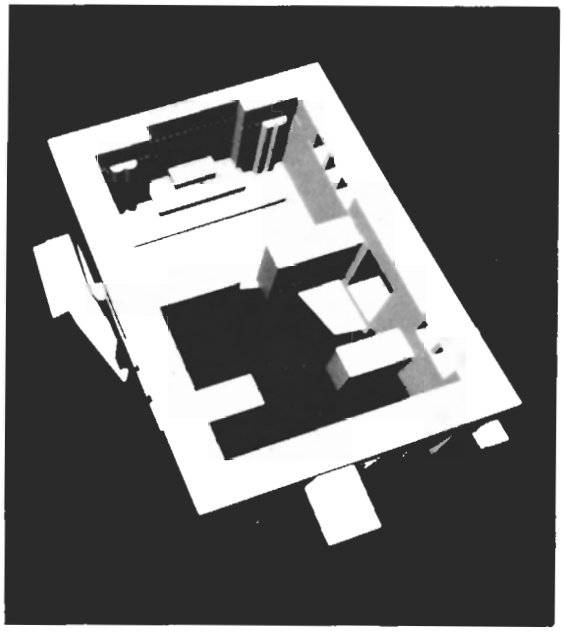


Illustration 55.

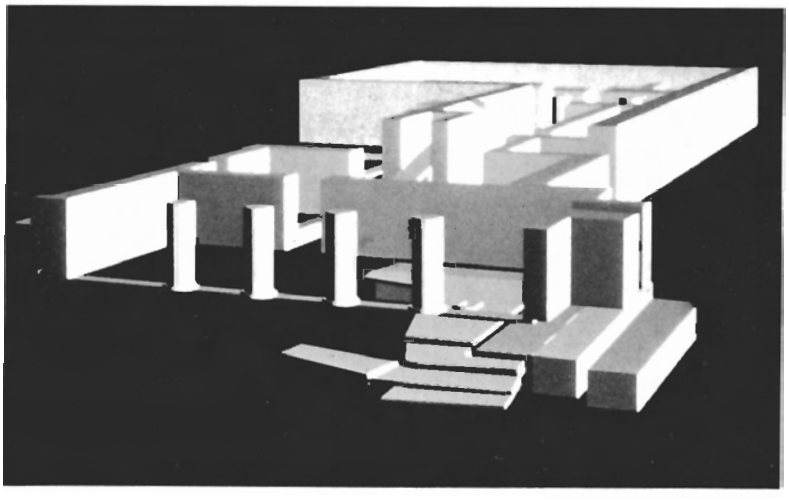


Illustration 56.

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Volume Twenty

Mozan 1

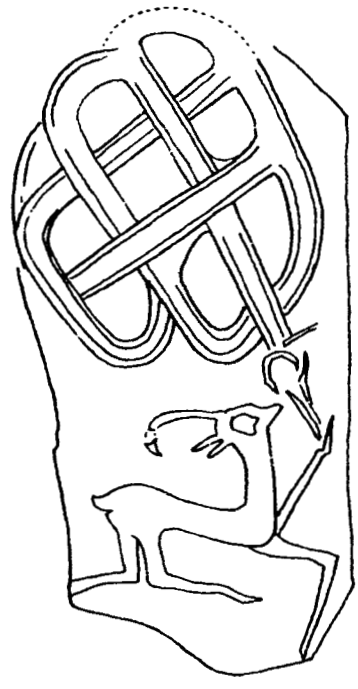
The Soundings of the First Two Seasons

Giorgio Buccellati and

Marilyn Kelly-Buccellati

MOZAN 1

THE SOUNDINGS OF THE FIRST TWO SEASONS



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Primary sources and interpretive analyses for the study of Mesopotamian civilization and its influences from late prehistory to the end of the cuneiform tradition

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Volume 20

Mozan 1

The Soundings of the First Two Seasons

Giorgio Buccellati and
Marilyn Kelly-Buccellati

UNDENA PUBLICATIONS
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ABSTRACT

Preliminary soundings were conducted at Tell Mozan in the north-central portion of the Khabur plains in 1984 and 1985. The site has proven to be a major urban settlement of the third millennium and early part of the second millennium, with the possibility that it may correspond to ancient Urkish, known to have been a major Hurrian center in the early periods.

This volume reports on the finds made as well as on various aspects and research goals of the project. After a presentation of the environmental, historical, archaeological and methodological considerations which provide the project its special scope, the following topics are covered: the two surface *surveys* of the High Mound and Outer City respectively; the *excavations* of the City Wall at the base, and of a stone building at the top of the High Mound; the *artifacts* found during the excavations, with special reference to an important group of seal impressions mostly on door sealings; paleobotanical and ^{14}C *samples*; the beginning of a *regional survey* in the immediate vicinity of Tell Mozan; an art historical discussion (by O. W. Muscarella) of the *Urkish lion pegs* preserved in the Louvre and the Metropolitan Museum of Art; and the application of *computer aided design* techniques to a study of the stone building on top of the High Mound. More than 200 objects are given in line drawings, and more than 50 black-and-white photographs illustrate various aspects of the report.

Color documentation for the material presented in this volume is available from Undena Publications in the form of 20 slides published as set No. 1 within the series *Photographic Data Sets* (*PDS*-1). Reference to the slides is given in the text.

The text portion of this volume is also available in electronic format as disk No. 1 in the series *Cybernetica Mesopotamica — Volumes* (*CMV* 1A), also published by Undena Publications under the sponsorship of IIMAS — The International Institute for Mesopotamian Area Studies.

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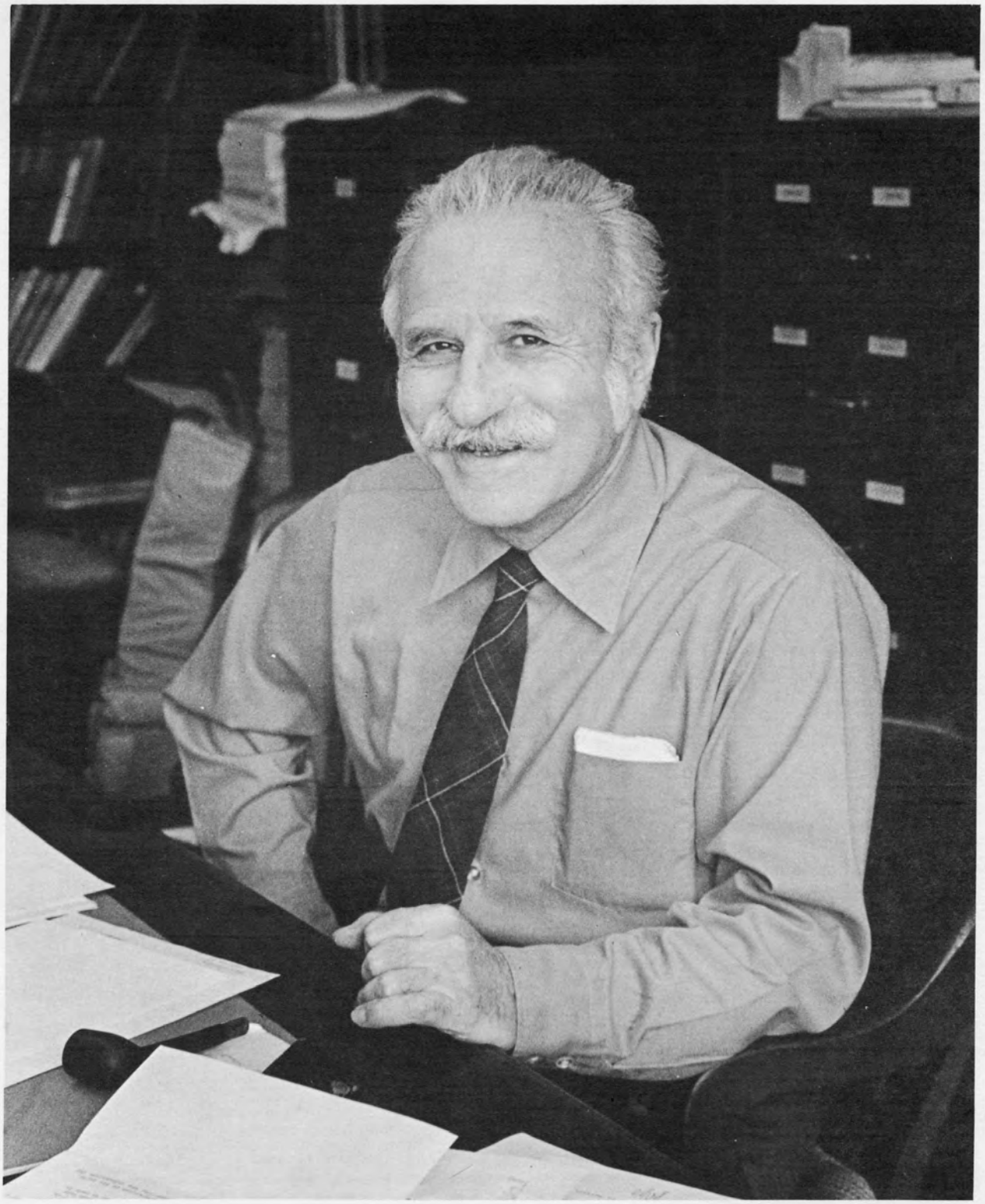

In Memory of I. J. Gelb
Who Showed Us the Way

PREFACE

The wheatfields of the Khabur have seen many a harvest over the millennia, but none perhaps as significant as the archaeological harvest which a number of expeditions have begun to reap in recent years. We have to thank for this the enlightened policies of the Syrian authorities, which have consistently welcomed and encouraged an unprecedented expansion of scholarly activity in their country. As a result, whole new vistas have been emerging not only for the history of Syria, but more broadly for the history of the ancient Near East as a whole. The Khabur region is especially attractive because it is generally less well known, while at the same time it gives every evidence of having been a crucible of civilization on a par with Sumer in the South or Ebla in the West.

Our new excavations at Tell Mozan are in line with these general developments on the one hand, and with our own specific interests on the other. The work we have been conducting at Terqa and Qraya for the last ten years have given us a special appreciation of the larger regional dimension within which the history of those two sites has to be understood. The Khabur region provides the natural setting for such a broader scope of inquiry. Terqa and Qraya are at the heart of both the fertile mid-Euphrates trough (known today as the *zor*) and the high-ground steppe dotted with springs and wells (known in ancient times as the *nawu*). They are also at the mouth of the Khabur, which serves as a major artery linking the *zor* with the "upper country" (the *matum elitum*, as it was known in ancient times). The start of a new excavation project in this "upper country" will thus allow us to develop a true regional project, based on concurrent field work at different sites, conducted with parallel methodology and direct cross-information. We hope that such long term and broadly based research may yield proportionately greater insights in the archaeology and history of the area, and serve as a significant experiment in the methodology of regional studies.

In and of itself, Tell Mozan seems to hold in store archaeological promises of the greatest magnitude. Its size makes it one of the largest settlements in the region, in fact one of the largest in ancient Syria if the preliminary indications for a vast lower city are verified by future work. The homogeneity of the deposit, which belongs predominantly and throughout to the third millennium, is just as impressive. And the circumstantial evidence which seems to suggest a possible identification of the site with Urkish provides a tantalizing working hypothesis for an interpretation of the pertinent historical framework. Regardless of

what the answer might be to the questions of either identification or size, Mozan is certain to prove a major site for the understanding of the civilization in the piedmont area, which not only thrived on rain-fed agriculture, but also served as the link between the mountain regions with their rich reserves of metal ores to the north and the urban states in the southern alluvium. Only the discovery of third millennium epigraphic material, of the type known through the Urkish lions, may allow us to define such culture as Hurrian: and that the prospect of such discovery is realistic is suggested by the fact that the inscriptions on the Urkish lions presuppose an important and autonomous scribal tradition that must have been at home in the Khabur plains.

As we were articulating our overall research design for the excavations at Mozan, we had made plans to have Dr. I. Jay Gelb join us in the field in the Spring 1985. In spite of his lifelong work in this general region, he had never been able to travel there, and we were eager to offer him, our personal mentor and friend for so many years, this opportunity. The potential significance of Mozan for an understanding of Hurrian civilization was especially inviting from a scholarly point of view, and we had great hopes to be able to develop with him a long term plan for the full historical evaluation of our findings there. For family reasons he was not able to join us in 1985, and so we postponed his visit until 1986. Or so we thought. The sudden illness which struck him in the Fall of 1985, and his death on the 22nd of December 1985, were to sadly alter all our plans. We can only, at this date, dedicate this first volume of the Mozan Reports to his memory — a small token of the strong human bond which united us as friends, and, we hope, a meaningful indication of the reverberation that his fundamental work on the Hurrians has left for the field.

It is with special pleasure that we recall one of our preliminary visits to the site in 1983, when we were joined by Dr. Herman L. Hoeh of the Ambassador International Cultural Foundation and a trustee of IIMAS — The International Institute for Mesopotamian Area Studies. As we looked together from the commanding position of Tell Mozan at the mountains to the North and the rolling plains to the South, we shared a precious moment in which the potential historical significance of the site seemed to blend with the sheer beauty of the landscape and elicit in us the resolve for an expanded new commitment to the archaeology of the region. The association with the Ambassador International Cultural Foundation, whose sponsorship has made it possible for us to develop the ambitious project on which we report here, was celebrated in a special way with the visit to Damascus in the Spring of 1985 by Mr. Herbert W. Armstrong, President of the Foundation. This was to be his last trip overseas before his death, and while he could not come as far as Mozan, where we were excavating at the time, we were able to share with him two days in Damascus, where he was most graciously hosted by the Minister of Culture, Dr. Najah Attar, and the Director General of Antiquities and Museums, Dr. Afif Behnassi.

We consider ourselves privileged to be able to be a part of these significant new developments in Syrian archaeology, and fortunate to be the recipients of the traditional and unmatched Syrian hospitality, at both the official and personal level. Especially at a time like today, it is but a small witness to truth to say that we feel as welcome in the contemporary Syria we have come to know through living there as in the ancient periods of her history, to the reconstruction of which we are happy to contribute.

G. B. and M. K-B.
15 April 1986

Because of a series of vicissitudes beyond our control, publication of this volume has been unfortunately delayed for over a year. Publication in its present form is essentially the same as had been originally submitted in completed form by the Fall of 1986, without updates (except for references to *PDS*-1).

A special note of gratitude is owed Dr. Alexis Martin, who with the greatest skill and personal commitment has provided the indispensable ingredients for seeing this volume through to its final publication.

6 January 1988

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