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The End of the Ninevite 5 Period at Tell Leilan

Laura Calderone and Harvey Weiss

Introduction

The Operation 1 stratigraphic sequence at Tell Leilan, excavated in 1979 and 1980, provided a guide to the nature, date and sequence of the ceramic assemblages of the fifth through third millennium B.C. on the Habur Plains[1]. The sequence additionally provided a first opportunity for dating the circumvallation of the Acropolis, if not the Lower Town as well, and thereby defined one arena for examination of north Mesopotamian urbanization and state formation processes in the first half of the third millennium B.C.

The archaeological issues raised by Operation 1 stratigraphy and chronology lent emphasis to the value of the Operation 1 data and, as well, to two weaknesses within them:

1. small sample size: "telephone-booth archaeology" has become an almost standard feature of American excavations but remains an obstacle to credible historical research; Operation 1 could easily be expanded to generate the kinds of samples which would enhance chronological precision and provide samples of agricultural, architectural and administrative data which might facilitate descriptions and explanations of socio-economic change (Weiss 1988b);
2. the stratigraphic hiatus observed between stratum 16 and stratum 12: these strata mark the construction of the "City Wall", its predecessors and its immediate successors, and hence the crucial linkages for an examination of north Mesopotamian urbanization (Schwartz and Weiss in press; Weiss 1986); only by "jumping over" the exterior faces of the large wall constructions at stratum 16 would it be possible to retrieve data from the interior of the earliest walled Acropolis occupations.

Expansion of Operation 1

The expansion of Operation was designed therefore for three purposes:

1. to retrieve the missing strata between Operation 1 strata 12 through 16;
2. to define precisely the stratigraphic circumstances of the massive "City Wall" walls 2 and 3, which rest upon stratum 16;
3. to initiate the horizontal exposure of large units of Acropolis early Period II occupations as part of the longer term goal of investigating the third millennium transformation of the dry farming zone (Weiss 1986; 1988a; 1988b).

The first phase of this expansion was begun in September - October 1987 with two one hundred square meter units, Leilan grid squares 44W12 and 44X12 on the northwest slope of the Acropolis. 44W12 included 31.5 square meters of the area of Operation 1.[2]

Summary of results

The transitional Period III/II strata were recovered. These comprise the immediately post-Ninevite Period IIa strata 13-14, and the late Ninevite 5 Period IIId strata 15-17. The extent and nature of the fortification walling (walls 3 and 2 of Operation 1) was clarified. Walls 3 and 2 of Operation 1 are the same wall; walls 3 and 2 are the equivalent of wall B of 44W12. Previously, it was thought that Operation 1 wall

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[1] Operation 1, on the Northwest slope of the Tell Leilan Acropolis, was designed as a first test of Tell Leilan occupations in 1979 following the project's initial season of surface survey and mapping in 1978. The excavation of Operation 1 continued in 1980 as a dissertation research project for Glenn M. Schwartz (see Schwartz 1988a).

[2] The excavation was directed by Laura Calderone and Harvey Weiss during the period September 1 - October 31, 1987. These excavations were supported by National Endowment for the Humanities grant RO-21483-87 for the Tell Leilan Project's seventh fieldwork season. The Directorate-General of Antiquities, Damascus, again provided much needed assistance for which the project is very grateful. Mr. Mohammed Muslim, Directorate-General of Antiquities, Aleppo, provided immeasurable support with his friendly counsel and unsparing attention to the details which make for an efficient archaeological project. Other fieldwork and analyses undertaken at Tell Leilan in 1987 are reported by Mayo and Weiss, Parayre, Blackman, Wetterstrom, Stein and Wattenmaker, and van Gijn (this volume).

3 was the city wall (Schwartz 1982: 39-41). From the 1987 excavation it is clear that wall A, which was not retrieved in the Operation I sounding, and wall B are part of the fortification walling of the Acropolis. Rather than terming wall A the city wall (and thus linking it with the circumvallation of the Lower Town), it is understood as the fortification wall of the Acropolis, which was walled earlier than the Lower Town (Weiss, Nicholas and Calderone, in progress).

The results of the 1987 excavation underline the rapidity with which the Ninevite 5 society was transformed from small settlements sparsely scattered across the dry-farming region of North Mesopotamia into an urban civilization.

At Tell Leilan this is reflected in the flurry of building activity in strata 17, 16, and especially 15 (Figs. 1 and 2). The pace of this building and re-building provided the complex stratigraphy, numerous levelled walls, and levelling material.

The 1987 excavations yielded two buildings which were separated by a courtyard or open area. Buildings 1 and 2 were located in almost precisely the same location from stratum 17 through 15e.[3] The complete plans of these buildings were not excavated. Both buildings continue beyond the boundaries of the excavation units; the modern village of Leilan is positioned above their eastern continuation. Building 2 was built up against monumental wall C, which implies that building 2 and wall C were part of the same building complex. Based on the excavated evidence, building 1 is not demonstrably a part of the same building complex, although excavation to the east would clarify the situation. Stratum 17 was reached only in the courtyard in the 1987 excavations, although the exterior walls of buildings 1 and 2 reached the stratum 17 courtyard surface. The interior floors of buildings 1 and 2 excavated in 1987 were associated with strata 16 and 15g-e, architectural phases 1 and 2 respectively. In 1987, time dictated that the monumental walls A and B be left in situ, which also limited the exposure of architectural phases 1 and 2.[4]

More than 80 seal impressions were recovered from a variety of contexts; the courtyard surface, the floors of building 1, and the layer of ash beneath wall B (stratum 15c). All but two of the sealings were in association with late Ninevite 5 incised ceramics (including hatched zigzag and panel or "excised" motifs). The presence of the sealings strongly implies that these buildings were involved in the administration of production. Although it has been suggested that this area of the Acropolis was the "palace" in control of the Lower Town (Weiss 1990), this cannot be definitively proven or disproven without further excavation of the area to the east. While the plan of strata 15e-17 is not "palatial" in the sense generally associated with Southern Mesopotamia[5], the functional context and number of the sealings does indicate that late Ninevite 5 society was far more complex in nature than heretofore realized. The activities documented in these two buildings indicate that these were at least large households engaged in the storage of produce, and the processing and/or preparation of foodstuffs. A majority of the sealings seem to be door sealings, which is an indicator of a large household of a public or private nature (Martin 1988: 66). It should also be remembered that a functional study of sealing practices has yet to be written. The circumstances that dictated what types of room would have been sealed, and when they would have been sealed, are not well understood.

The building and rebuilding finally culminated in the construction of the Acropolis fortification wall (walls A and B), which marks a radical change in the use of this area (compare Figs. 3 and 4). Building 1 and 2 were levelled, and walls A and B sit directly on these structures.[6] A new exterior surface (stratum 15) was built atop the levelled remains of building 1 in 44X12. This surface was in use for only a brief period of time and then stratum 14, the first Period II surface, was built. Several radiocarbon samples were taken from Building 1, the black ash of stratum 15b and stratum 14; these, along with the sealings, will help to firmly date the end of the Ninevite 5 period at Tell Leilan.

Architecture and stratigraphy

The stratigraphy is based on the strata of the exterior area between buildings 1 and 2 of 44W12 and 44X12; the numbering of the strata is based on the numbering of the strata in Operation 1. Stratum 17 and 16 of 44W12/44X12 and Operation 1 are the same; strata 15 through 13 are strata which were not recovered in the Operation 1 sounding. The interior surfaces are linked to the exterior surfaces. Occupation

[3] Excavations in 1987 and 1989 have demonstrated that the basic plan of the area was unchanged though several architectural phases of the late Ninevite 5 period, except for very briefly in stratum 18.

[4] These were removed in the 1989 season.

[5] Cf. Margueron (1982: 3 ff.) for a discussion of the problems of identifying a palace.

[6] The 1989 excavations at Tell Leilan showed that earlier wall stubs were used as foundations for these walls.

surfaces and the deposits above them are numbered as one stratum. When a stratum has more than one surface associated with it — i.e. rather than being stratified above or below, surfaces branch out from one stratum — the additional surface(s) are labeled by the number of the main stratum plus a letter, e.g. 16a. The youngest are labelled from the letter "a" on, so stratum 16a is later than 16c, but stratum 16 is contemporaneous with both. Therefore, stratum 16 must be dated by the latest, and not the oldest material.

Stratum 17

Stratum 17 was reached only in the open or courtyard area; none of the interior floors associated with stratum 17 were excavated in 1987. Therefore it not possible to do more than generalize about this stratum. The exterior walls of buildings 1 (wall Q) and 2 (Wall G) reached this stratum, so it is clear that the basic plan of two buildings separated by an exterior surface ca. 5.5 meters wide was in use.[7] Note that there is probably a doorway to the west of the end of wall G (the exterior wall of building 2). A door sealing was retrieved from the stratum 17 surface in this area (L87-1506). It is assumed that the function of these structures were unchanged.

The exterior surface of stratum 17 was constructed of grayish tamped earth. A preliminary analysis indicates that this surface yielded more bone than the exterior surface of stratum 16. The deposit above the floor of stratum 17 was a thin ashy soft deposit.

Wall C is a large wall which extends 20 cm to 1 meter out of the east balk of 44W12. Wall C is separated from building 1 by 1.5 meters; however building 2 is built up against it (Fig. 3). Therefore building 2 is most likely part of the same building complex as Wall C. Wall C is evidently the exterior wall of a large building in the unexcavated area to the east. It was rebuilt several times in strata 17-15 and red brick was used in all of its construction phases; most of the other Period IIId constructions used yellow brick.

Stratum 16

The basic architectural plan of buildings 1 and 2 was unchanged in this stratum. The building associated with wall C was still in use. The exterior surface of stratum 16 was reddish, and the deposit above it was gray and soft. Stratum 16 between buildings 1 and 2 was completely excavated. The fill above the surface of stratum 16 (45 cm) was thicker than the deposit separating strata 16 and 17 (20 cm).

Building 2

Only a small portion of building 2 in architectural phases 1 and 2 was excavated (16.5 meters square) in 1987 because the later wall B was not removed, except for a 2 meter test trench; consequently wall B formed the northern limit of excavation in 44W12 (Fig. 3). Room 1 of building 2 is bounded by walls C, G, H and the northern limit of excavation; the excavated area is 1.5 x 2 meters. Room 3 is bounded by walls G, H, the east balk and the northern limit of excavation; ca. 5.5 square meters were excavated. Several sherds of large storage vessels were recovered from stratum 16b of room 3 (Fig. 6: 1-3). A large corrugated pottery stand (rim diameter 35 cm; extant height 39 cm) was recovered from the floor of stratum 16b; it is similar to stands depicted on banquet and music scene sealings (L87-1036, L87-1493). A doorway is probably located west of wall G.

Strata 16d and 16c (Figs. 1 and 2) were encountered only when the balk was removed between 44W12 and 44W11A; these strata are associated with building 2 and continue beneath the unexcavated area of wall B.

Wall K was built on the surface of stratum 16; stratum 16a is a second surface associated with wall K and room 3 of Building 2 (Fig. 2). Wall K was preserved 6 courses high, and was built of red brick. Wall F was built on stratum 16A (Fig. 1); it was preserved 3 courses high, and was built of yellow bricks, measuring 26x17x7 cm. A two meter wide test trench was excavated along the west balk. Consequently, only the western face of wall F was excavated, because of later walls which were not removed (Fig. 3). However, wall F is clearly part of the stratum 16a phase of building 2.

Building 1

Only two interior surfaces of building 1 were excavated in 1987. These were in rooms 1 and 2, which is the older wing of the building. From the pottery and other finds it is clear that rooms 1 and 2 had a different function from rooms 3-9. Rooms 3-9 were used either for food preparation or processing and consequently had more associated surfaces because of the nature of the activities in those rooms. Building 1 is described in detail in the next section, because that phase of use was more completely excavated. Little can be said of the stratum 16 use of rooms 1 and 2 since little beyond fine ware sherds were retrieved from the floors.

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[7] This has been verified by the 1989 excavations.

Stratigraphic Introduction

The period encompassed by strata 15g-15 is extremely complicated because of the extensive building activity that occurred. Because the stratigraphy is so complex, a brief discussion of the stratigraphy of 15g-15 is presented first and then is followed by a lengthier description of the strata and the associated architecture.

There are two major events encompassed within 15g-15. Event 1 is the continued use of buildings 1, 2 and the associated building of wall C, and event 2 is the construction of the large, monumental walls A and B. These walls were constructed on top of the leveled off walls of buildings 1 and 2.[8]

As noted above, inter-related strata are assigned letters. Strata 15a, 15b and 15c occur only in 44W12; stratum 15a is the latest. Wall B is built upon the ash of stratum 15b/c, and the first associated floor of wall B is stratum 15a (Fig. 1). The ash of stratum 15b/c is doubtless associated with the activities of building 2.

Strata 15g, 15f, 15e, 15d, and 15 occur mostly within 44X12 (Fig. 2), stratum 15 is the latest and 15g is the earliest. Strata 15g through 15d are roughly contemporaneous with strata 15b/c.[9] Strata 15g-e are associated with the final phase of use of building 1. Stratum 15d is the stratum in which building 1 was leveled in order to build wall A. Stratum 15 is the first associated floor of wall A, and stratum 15 met wall A at the mid-point of the bottom brick of the wall. The ceramics for stratum 15 are transitional between the Ninevite 5 incised assemblage and the Leilan IIa coarse ware and small cup assemblage.

Architecture and Small Finds

Building 1

Building 1 consists of at least 9 rooms; the building continues to the east and possibly to the south. Only 2 complete rooms were excavated; 2 or more occupation surfaces were recovered from every room, but there are more surfaces beneath the limit of the 1987 excavation. For this reason, the floors are numbered from the top down; floor 1 is younger than floor 2. Wall Q, the northern wall of building 1 (Fig. 3), was in use from the 15e occupation surface to stratum 17. Thus the use of building 1 is represented by a cultural deposit of ca. 1 meter.

Rooms 3-9 were later additions to building 1. Walls P, Q, R and T of rooms 1 and 2 are 3-4 bricks thick (ca. 90 cm-1 m), while walls M, N, O, U, V, W and Y of rooms 3-9 are one brick thick (35-30 cm). The base of these walls were not reached in the 1987 excavations.

All the bricks used in this building were yellow and measure ca. 33-36x18-15x7 cm, 26x17x7-6 cm and less frequently 20x15x6 cm. For the most part, they were laid in irregular patterns. The northern exterior wall of this building is clearly wall Q, but it is not clear if wall M is the southern exterior wall. A complete pot was located in the niche in wall M. This was presumably a blocked doorway.

The excavated portion of *room 1* measures 2.6 x 2.3 m.; it is bounded by walls P, Q and R and the east balk. Only one floor was associated with the 15e-g use of building 1. Two complete vessels were retrieved from this floor (Fig. 7: 6).

The internal dimensions of *room 2* are 2.3 x 1.5 m.; it is bounded by walls P, Q, R and T. Wall T was disturbed by a large modern pit, and it is possible that a doorway was placed in the area that was pitted out. There was only one floor associated with strata 15e-g in this room. A door sealing (L87-1031) and a broken hammer head or mace head of a hard greenish-blue stone (L87-1064) were recovered from the floor. The deposit was light gray and contained no ash, charcoal or other organic debris.

The excavated area of *room 3* measures 1.3 x 1.2 m; it is bounded by walls O, P and S. This room, although tiny, was used in storage and/or food processing. A thumbnail incised Leilan III "cooking pot" type vessel was found in situ in a niche in wall P (Fig. 3). This vessel was used for storage rather than cooking. Only one floor was excavated in this room; and that only centimeters below the leveled off wall stubs and debris of stratum 15d. Two grinding stones were recovered from the floor; one was exceptionally large, although broken (extant size: L. 43 x W. 32 x H. 10 cm).

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[8] The 1989 excavations answered conclusively why these massive walls have no foundation trenches. The leveled stubs of walls were used as foundations.

[9] In reference to the west section (Fig. 2), a pebble disturbance (north of wall J) cuts stratum 15c and 15g at the point at which they should link. The only surface associated with the northern edge of the pebble disturbance is stratum 15c. Strata 15g through 15 are stratified between strata 16 and 14; therefore these strata can be linked.

The excavated portion of *room 4* measures ca. 1.5 x 1.2 m; it is bounded by walls M, O, and S. Two floors were recovered. Floor 1 was reddish and very disturbed by the later leveling, and yielded very little material, although one door sealing was recovered (L87-1132). In the next occupation level (floor 2), this room, although already small, was divided into two by a one brick thick feature wall (wall N). The northern half of this room is labelled *room 4*, and the southern half is labelled *room 5*. Floor 2 of room 4 yielded a collapsed hearth. The deposit of floor 2 from both rooms 4 and 5 yielded more animal bone than any other room, although the total amount of faunal material retrieved from Building 1 is small. Only a small number of sherds were recovered from room 5.

The internal dimensions of *room 6* are 2.6 x 2.4 m; it is bounded by walls M, P, S and U. Numerous impressed and unimpressed sealings, grinding stones and storage vessels were retrieved from room 6. There were four floors excavated in this room; all were ashy and black with abundant organic material preserved. Several flotation samples and radiocarbon samples were taken from the floors of this room. Floor 1 was not well preserved because of the extensive leveling of stratum 15d, but a large storage vessel (no. 1) and a grinding stone were recovered from it. Storage vessel no. 1 remained in use in floor 2, and another, larger grinding stone was recovered in situ. A smaller broken storage vessel (no. 2) was located directly beneath storage vessel no. 1 on floor 3, and the complete jar in the "niche" was in use in this floor level, although little below the shoulder was visible. One decorated sealing (L87-1032) was recovered from floor 3. Storage vessel no. 2 was first in use in floor 4, and the jar was dug into floor 4 to a depth of ca 5-10 cm. Three decorated sealings (L87-1034, 1035 and 1036) were recovered from floor 4.

The excavated area of *room 7* measures 1.8 x 1.1 m.; it is bounded by walls T, U, W and Y. Part of the deposit in this room was robbed out by a large modern pit, and only one occupation surface was retrieved.

The excavated area of *room 8* is 1.4 x 1.3 m.; it is bounded by walls M, U, W and the western limit of excavation. Four floors were excavated; the deposit on all floors was ashy and gray, without much organic content. Above floor 1 was a thick layer of levelling material (stratum 15d) for wall A (Fig. 2). Floor 1 of room 8 was partitioned by a small one brick thick feature wall (wall V). The partitioned area to the west is labelled *room 9*. The function of room 9 cannot be determined since such a small sample of it was retrieved. The partition wall V was in use only on floor 1, and was only preserved 2 courses high. Floor 2 of room 8 yielded a large amount of incised and excised pottery, and complete vessels; one sealing (L87-1030) was also retrieved from floor 2. Floor 3 did not yield incised pottery in anywhere near the same quantity as floor 2. Floor 4 yielded very little pottery, and one sealing (L87-1508) was retrieved from the floor.

Building 2

Unfortunately, very little of the final phase of building 2 was excavated in 1987.[10] However, it consisted of at least three rooms. The main difference between the stratum 16 use[11] and the final use of building 2 is the addition of room 2, which is a feature within room 1. Room 2 measures 50 cm x 30 cm, and was formed by the construction of wall I.

The ash of stratum 15b must be associated with activities within building 2. The ash seems to have accumulated upon the surface of stratum 15c during the time encompassed by strata 15g-15e. The ash of stratum 15b extended 4 meters south from the north balk of 44W12; it did not cover the entire area of stratum 15c. The black ash of 15b was up to 10 cm thick, and contained sherds, sealings and organic material. Circa 60 impressed sealings and fragments were recovered from the ash (L87-185-192, L87-196, L87-1037-1038, L87-1493-1502, L87-1506, L87-1509-1520).[12] They include motifs of ED II and ED IIIa styles; they had been used to seal jars and doors, and as jar stoppers, although a preliminary analysis indicates that door sealings predominated. The sealings included several different motifs, although two motifs predominated, the harpist playing and the harpist struggling (see Parayre, this volume). There was no overlap in the motifs from the ash and the 9 impressed sealings within secure contexts of building 1. Flotation and radiocarbon samples were taken from the ash.

Stratum 15c/b - 15

Subsequent to 15d, building 1 was levelled, wall A was built and an exterior surface of tamped earth (stratum 15) was constructed (Fig. 2). Stratum 15 met wall A at the mid-point of the bottom brick of the wall; it extended from the south balk of 44X12 to wall J, and is linked with stratum 15b on the north side

[10] The 1989 excavations have shown that much of building 2 was destroyed in the leveling for the construction of wall B.

[11] See above for descriptions of room 1 and 3.

[12] This number represents the majority of the Ninevite 5 sealings. The precise number is difficult to calculate without more study of the sealings in the museum in Der ez-Zor, Syria.

of wall J. Wall B was built upon the ash of stratum 15b and wall F (Figs. 1 and 2). The exterior surface of 15/15c was the final Ninevite 5 stratum (see discussion of ceramics, below). Based on a preliminary examination of the ceramics, this exterior surface was in use for only a short time. Stratum 15a is an exterior surface which was only recovered when taking out the balk between 44W12 and 44W11A; this stratum must continue to the north (Fig. 1).

Walls A and B are both built of red brick which measures 30x15x8 cm or 22x15x8 cm. Wall A is of undetermined thickness; a modern pit cut into it in the southwest corner, and articulating bricks immediately adjacent to the pit was difficult. The wall may continue, or it may be 2.7 m. wide (Fig. 4). Part of a buttress for wall A was excavated adjacent to the balk of 44W12 and 44X12. Wall B extended further to the north; its excavated extent is 2.5 meters. 2 buttress were excavated for wall B. Wall A is clearly the encircling wall of the Acropolis; wall B is most probably part of a tower or gateway of the fortification wall (A), and is thus considered to be part of the fortification complex of walls. The plan of wall C was unchanged from strata 17 - 15c; wall B, although it was not removed in 1987, was probably built on top of part of wall C. The southern extent of wall C was reused in stratum 15/15c. Most of the area of this stratum was an outside area.

The date of the construction of the Acropolis fortification wall

Based on the 1979/80 Operation I excavation, it was thought that the monumental wall was built after stratum 16 and before stratum 15. It was noted that the orientation of the bricks of wall 3 in Area D indicated that there may have been two different walls or two building phases. The monumental wall of Operation I was thought to be built atop wall 4 of stratum 16 (Schwartz 1982: 39-41).

From the 1987 excavations it is clear that wall 4 is not part of stratum 16; subsequent to stratum 16, wall 4 was built and then the floor of stratum 15c was laid. Ash accumulated on this surface, and wall B was built upon the ash, in late Period III (Fig. 1) This date is established by the pottery and sealings stratified beneath walls A and B, and by the pottery retrieved from the first floor of wall A. The brickwork between wall 4 and wall B is a blocked door or gateway. Wall 4 is part of the Acropolis fortification walling, and may be the continuation of wall A. More excavation is needed to completely understand the relationship of walls 4 and A. There are no foundation trenches for walls A or B.

Strata 14 and 13

The architectural plan of stratum 14 (Fig. 4) was very similar to that of stratum 15/15b. However, the pottery assemblage changed radically; stratum 14 is the first period II surface. Stratum 14 consisted of walls A and B, a large outside area (ca. 14 x 7 meters) and two rooms which were built up against wall B. These rooms are not part of a building, but represent a secondary use of the fortification wall. The position of the two buttresses of wall B make this clear (Fig. 4).

There was no evident rebuilding of wall A in this stratum, but 5 courses of brick of wall B were browner than the bricks above or below. The plan of wall C was drastically altered; its north-south extent was decreased by 4.5 meters to 2.25 meters, and its excavated width increased to 1.5 meters from 1 meter. The stratum 14 phase of wall C was preserved to a height of 40 cm; red brick continued to be used in its construction. The exterior surface of stratum 14 was of tamped earth and yielded a number of features, including fire pits and a feature built of re-used coarse ware sherds.

Room 1 is formed by walls B, C, D and E; its internal measurements are 4.75 x 2.3 m. Wall D is 3 bricks thick (50 cm), and is built of red brick. Wall E was plastered, and was made of pise rather than mud-brick. It was preserved only a few centimeters high, and was 50 cm thick. No doorway was retrieved. The deposit in room 1 was ash which ranged in color from grey to black. Numerous whole vessels were recovered from this room (see ceramics, below; Fig. 9: 1-3, 6, 7), as was a copper writing stylus (L87-74). A seal impression (L87-79) was also recovered from room 1. Only a small portion of the plan of room 2 (2.5 x 0.7 m) was recovered; it continues to the west. Room 2 is formed by walls B and D.

Stratum 13 was extremely disturbed by modern pits, and only a small fraction of it was retrieved. However, the basic plan was unchanged from that of stratum 14; the fortification wall was still in use, although rooms 1 and 2 were not.

Ceramics

The ceramic assemblage of *strata 17 - 15d* (Figs. 5-7) is characterized by pastel greenish fine ware, both plain and incised, which occurs with cups and bowls with inverted beaded or simple rims. Although pointed and pedestal bases (Fig. 7: 7, 8) continue to occur, the fine ware cups and bowls increasingly have mini-flat bases (Fig. 5: 1, 2; Fig. 7: 5); Schwartz noted the increasing occurrence of flat bases for strata 20-16 whereas the earlier strata of Period III were marked by pointed and pedestal bases (1982: 132).

Incised and excised pottery was common (Fig. 5), although the repertoire of motifs is greatly reduced from the earlier Leilan III sub-periods. The "panel" motif, or excision, is quite common, as are variations on the hatched or slashed zigzag motif (Fig. 5: 1-4; Fig. 5: 7, 9-11). A less common version of the zigzag is the hatched horizontal zigzag. The "step" pattern (Fig. 5: 6, 8) is occasionally considered to be a motif at home in the Habur plains, but does occur in the Eski-Mosul region and its comparative absence east of the Tigris is more likely to be explained in chronological terms. Another important less-frequently occurring motif is the slashed triangle motif (Fig. 5:12).[13]

There is a trend towards simplification in the incised motifs; in strata 17 and 16 the zigzag motif is almost always hatched, and a simplified version of this motif develops without the hatching, with broader spacing between the design elements. Although the earliest appearance of the simplified motif is in stratum 17 (Fig. 5: 8), these gradually increase in frequency from stratum 15g-15.

A type which increases in frequency from earlier strata is a short necked jar with ledge rim, which occurs with a rounded base, in medium and fine wares (Figs. 5: 5, 7: 1-3, 6). Noting the increasing frequency of these jars is important because they are characteristic of Leilan IIb in the Lower Town and Tell Brak late ED III and Brak Akkadian pottery (cf. Fielden 1977; Oates 1982) and Chagar Bazar 3 and 2 (Mallowan 1936; 1937).

The coarse ware of these strata is characterized by the Leilan III "cooking ware" (Schwartz 1985: 54). These closed hole mouth vessels, which often have crescent lug handles (Fig. 6: 4), are burnished and the ware is straw, or straw and black limestone, tempered. In addition to burnishing, the surface treatment of the cooking pots often includes fingernail impressions (Fig. 6: 5). The assemblage of storage vessels in coarse to medium ware shows a greater variety of rim shapes than periods IIIa and IIIb in the presence of jars with necks and simple or ledge rims (Fig. 6: 1-3; Fig. 7: 4).

The ceramic assemblage of *stratum 15/15b* is also characterized by the pastel greenish fine ware in the shapes discussed above, but the frequency of incision drops markedly (Fig. 8: 4, 11). The incised ware of this stratum includes both hatched and simplified motifs, in approximately equal frequency of occurrence. The most common vessel type is a cup with an inverted cocked or beaded rim, carination and a mini-flat base (Fig. 9: 4-5, 12-13). The fabric of these cups is almost always pastel greenish, fine ware with no visible temper; average rim diameter is 6 cm; average base diameter is 2 cm. These "chai cups" develop from the cups with inverted, beaded rims and pointed bases which appear earlier in the Leilan III assemblage. In late period III the "chai cups" appear with and without incision (Fig. 5: 6; cf. Oates 1986: fig. 5, no. 94). The frequency of the incised chai cups greatly increases in the pottery of stratum 15; cf. two published examples from Tell Brak ED levels, ST 127 and ST 129 (Oates 1986: fig. 5, nos. 85-86). A small pot-stand in pinkish-buff fine, no visible temper ware prefigures those of strata 14 and 13 (Fig. 8: 6). A rare — but notable — new pottery type is highly burnished grey or black ware which occurs with a bowl with a gently everted beaded rim, flat base, sometimes carinated (Fig. 8: 1, 5). The coarse and medium ware of stratum 15 includes the Leilan III cooking pots, and also the necked and ledge-rimmed storage jars (Fig. 8: 3, 10).

In marked contrast to the earlier strata, the pottery of *strata 14 and 13* was characterized by coarse storage vessels; the most common rim shape is the closed collared rim (Fig. 10: 1-3, 6); some rim sherds had markings made in the wet clay (Fig. 10: 2-3). These marks are presumably either potters' marks or volume/content indicators. The fabric is reddish-buff in color, is incompletely oxidized and almost exclusively straw tempered. Body sherds with crude scratchings were also recovered (Fig. 10: 4).

The fabric of the fine ware from stratum 14 is still predominantly pastel greenish, although an open simple, rounded base cup has a spiraling of pinkish to greenish color. Some red and black metallic ware was recovered, including a complete small jar (Fig. 9: 2); although its occurrence is relatively infrequent in stratum 14, this type of metallic ware occurs in late ED III Brak (Oates 1982).

Pot-stands occur in a pinkish-buff, fine to medium ware with no visible temper or calcite inclusions (Fig. 9: 3, 9). Incised ware (Fig. 9: 10) and "chai cups" continue in use, but frequency decreases. The most common motif is a simplified variety of the zigzag motif.

Conclusions

The 1987 excavation of 44W12/X12 provides new data for understanding mid-third millennium state formation, urbanization and circumvallation in Northern Mesopotamia. These excavations are the first exposure of Acropolis strata associated with its fortification wall and the occupations immediately preceding this construction. Acropolis strata 13-14 are likely to be associated, only tens of meters east of

[13] At Tell Leilan, a preliminary analysis of the 1987 and 1989 ceramics indicates that the slashed triangle motif occurs most often in strata 17-18.

44W12/-X12, with public architecture, administrative artifacts and the residues of state-level wealth, which were served by the construction and maintenance of the fortification wall. Exposed for the first time, as well, are the occupations which immediately preceded the construction of the fortification wall. These strata, 15-17, provide our first evidence for the source and nature of external influences upon terminal Leilan III/Ninevite 5 societies, the first sample of terminal Leilan III architecture, ceramics and administrative artifacts.

The date of 13-14 and 15-17

These excavations also clarify our understanding of the chronology and ceramic sequence of the late Ninevite 5 and succeeding ceramic period. The destruction and stratigraphic disruption caused by construction of Leilan II/Taya IX/"late ED III" fortifications has precluded observation and retrieval of the transitional stratigraphic linkages and occupations. At Tell Leilan, this sequence has now been retrieved, despite the extensive levelling required to construct walls A and B. Wall J provides a crucial link between strata 16 and 14; the strata associated with it demonstrate that the transitional exterior surfaces were not scraped away. Although only a small sample of the transitional strata have been recovered, the ceramics bear witness to the continuity of the Leilan III/Ninevite 5 ceramic tradition (cups and bowls, incision, simple and beaded rims) while the increasing frequency of such Leilan II types as globular necked and ledge rimmed jars, and flat bases demonstrates the continuity of periods III-II at Tell Leilan.

The first Leilan II stratum, stratum 14, is clearly earlier than the Period IIb strata retrieved in the Lower Town (Operations 2, 3, and 4). The IIb strata are characterized by green metallic or stoneware with flaring, everted sides and flat bases, globular jars in a variety of wares, and large storage vessels. This ceramic assemblage is similar to that of the "Akkadian" levels at Brak with its metallic ware, incised and applique motifs and flat bottomed, flaring sided bowls.

The ceramic assemblages of strata 14 and 13 are similar to "late ED III" Brak, and Chagar Bazar 3 in the occurrence of the red and black metallic ware, globular jars, "chai cups" and open simple bowls with rounded or pointed bases. Strata 15-17, the last Leilan III/Ninevite 5 period strata at Tell Leilan, are probably contemporary with the early ED IIIa period in southern Mesopotamia, to judge from their stratigraphic position at Tell Leilan and the date of the latest items within their seal impression assemblage (see Parayre, this volume). The urbanization and subsequent circumvallation of North Mesopotamian towns was, therefore, a function partially of processes which began in the Early Dynastic II-IIIa period in southern Mesopotamia.

The Leilan III/Ninevite 5 Developmental Sequence

The Late Uruk - early Ninevite 5 collapse

The two largest Late Uruk period occupations on the Habur Plains, at Brak and Hamoukar, appear to have been abandoned synchronously at the end of the Late Uruk period,[14] with scant evidence of a Leilan IIIa occupation.

The abandonment of Brak and Hamoukar by their southern inhabitants marked the collapse of these settlements and perhaps the collapse of sedentism in the region as a whole. Very few Leilan IIIa sites have been identified: in three surveys of the region 15 kilometers around Tell Leilan only one Leilan IIIa site, apart from Tell Leilan, has been identified.[15] Confirmation of a Late Uruk/Leilan IV "collapse" on the Habur Plains remains difficult, however, due to the ambiguous nature of Leilan IV and IIIa ceramic assemblages. We are not yet certain, as in other regions, how many pre-Late Uruk settlements continued into the Late Uruk expansion period when the only diagnostic ceramics for that period remain Late Uruk type ceramics, e.g., bevelled rim bowls. How many Leilan V sites were contemporary with the two sites (Leilan and Nasran[16]) which show evidence of Late Uruk occupation in the Leilan sustaining area?[17]

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[14] The Yale University Tell Leilan Project surface collections at Hamoukar (Weiss 1983: 44) include many of the Late Uruk ceramic types labelled "genuine" by Sürenhagen (1986). For the possibility that Brak CH 9-12 may have extended into the Jemdet Nasr period, as suggested by J. Oates (1985), see now Schwartz 1988b: 16, note 42, and Schwartz and Weiss in press.

[15] Tell Sharmukh, site no. 28 in Weiss 1986.

[16] Nasran is Weiss 1986 site number 35; additional late Uruk sherds were retrieved there by Stein and Wattenmaker in a second stage 1987 survey (Stein and Wattenmaker 1988).

[17] Similar developmental and data manipulation problems cloud our view of the contemporary and probably related Late Uruk "collapse" in southern Mesopotamia (see Postgate 1986, and p. 371: "...we have practically no types in Babylonia except for the polychrome pottery which I don't count at all, by which we can identify the Ğamdat Nasr".).

Regional and intra-site patterns of social and economic organization, however, do not extend from the Late Uruk/Period IV period into early Ninevite 5/Leilan IIIa. The withdrawal of primary state expansion from a target region may generate the disruption we can identify as "tribalization", including possibly a shift from sedentism to pastoral nomadism among population groups previously enmeshed within intrusive state level structures (Price 1978; Weiss 1988b). Period IIIa seal impressions from Leilan are part of the piedmont Jemdet Nasr - Susa - proto-Elamite tradition; they suggest linkages to the south-east, and the maintenance of administrative linkages with outlying population groups. These need not have represented more than the central storage and processing relationships which have a lengthy history in northern Mesopotamia and continue to be visible in this period within sites such as Telul eth-Thalathat (Fukai et al. 1974) and Karrana 3 (Rova, this volume).

The Leilan IIIb-c and IIId transformations

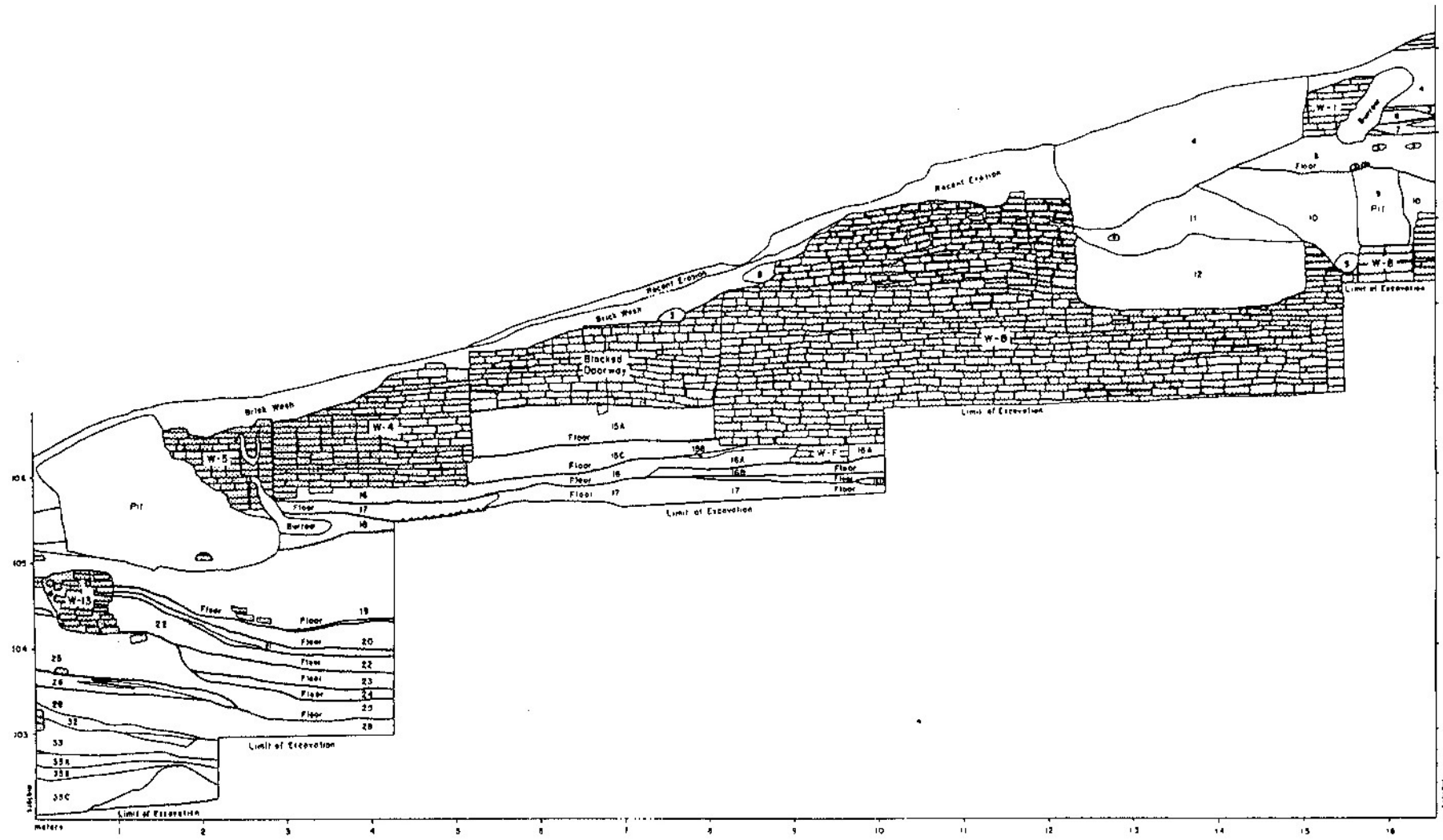
Two notable alterations follow upon this hypothesized period of "collapse". The first is the increase in sedentary population which seems to begin in Leilan IIIb and continue into Leilan IIIc. Accompanying this return to sedentary occupation is the period IIIc appearance of high status burials (stratum 19). There is no evidence for state level organization anywhere on the north Mesopotamian countryside at this time. It seems reasonable therefore to label Leilan IIIc society as a developed chiefdom, although there is presently little evidence with which to refine the ambiguities of this nomenclature (Earle 1987).

The second alteration is the Leilan IIId expansion of settlement into the Lower Town, Acropolis fortification, and the synchronous expansion of regional settlement. These phenomena are regional and interregional. Synchronous developments occur across northern Mesopotamia (Weiss 1983) and as far as Tell Mardikh in the west (Matthiae 1977; Schwartz and Weiss in press), Shahr-i Sokhta and the Indus valley in the east (Tosi 1977).

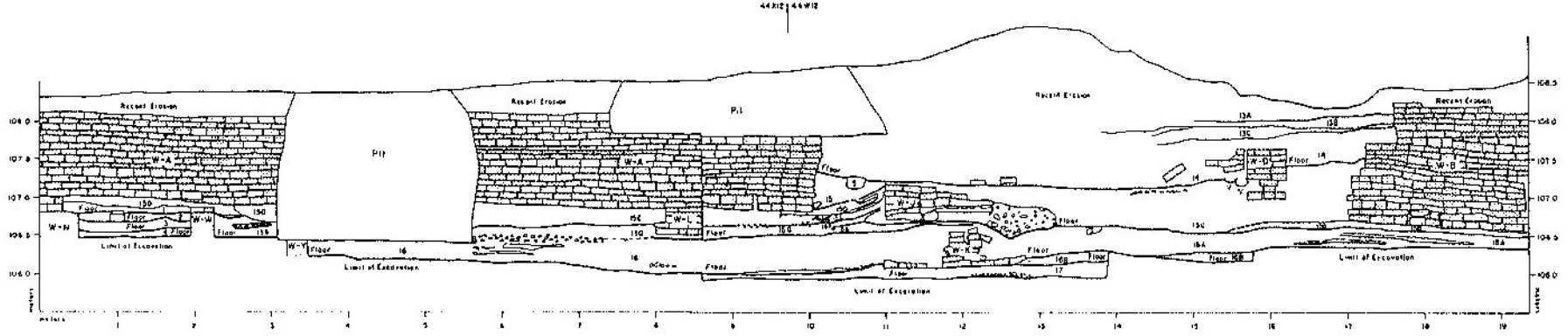
This "second urban revolution" is widely understood in terms not terribly different from those in which Childe (1951) initially framed the problem, Renfrew's (1972) analysis notwithstanding. Trade relationships with southern Mesopotamia transformed local political and economic structures (chiefdoms) into stratified states whose elites functioned, or found economic support, within the context of political and economic relationships structured within southern Mesopotamian interests (Kohl 1979, 1987a, 1987b; Marfoe 1987; Schortman and Urban 1987; for a similar relationship between Egypt and Palestine, see Stager 1985: 177). In the case of the Habur Plains, the exchange of Anatolian mineral resources seems a likely medium for the local transformation (Palmieri 1985).

The new Leilan data for strata 15-17 support the outlines of this model by suggesting Early Dynastic II or IIIa transformation of long distance trade interests from the piedmont interaction sphere to the southern Mesopotamian sphere. This provides additional support for the hypothesized power behind the cultural traditions of the "Kish civilization" (Gelb 1981) which are likely, therefore, to be the source of these southern "diffusions" onto the Habur Plains as well as the plains of Aleppo. The instigation for late ED IIIa expansion across Mesopotamia and the process of "civilizing Mesopotamia" must be sought within the perduring strength of early third millennium southern agriculture (Powell 1985; Postgate 1984) and a mode of production with few constraints upon the extraction and deployment of surplus. Why this system expanded into northern Mesopotamia at this juncture remains unknown and is not a question whose answers are accessible on the Habur Plains.

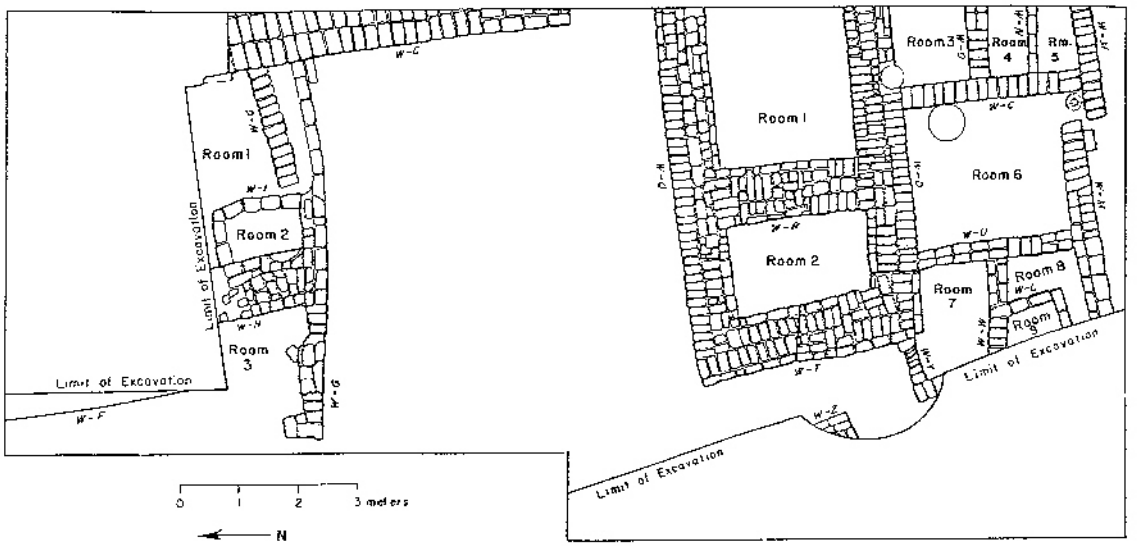
Habur Plains' archaeology is poised, however, to probe another unanswered question: why did secondary state formation "succeed" in the mid-third millennium after "failing" in the late fourth millennium? Some partial answers to this question are immediately available, but the continuing interest in this issue should not obscure the centrifugal forces within unmechanized dry-farming agriculture. The secular trend across northern Mesopotamia suggests "Assyrian cycles" of short-lived urban-centered political structures bounded by longer periods ("dark ages") characterized by dispersed, low density village settlements and extensive pastoral nomadism.



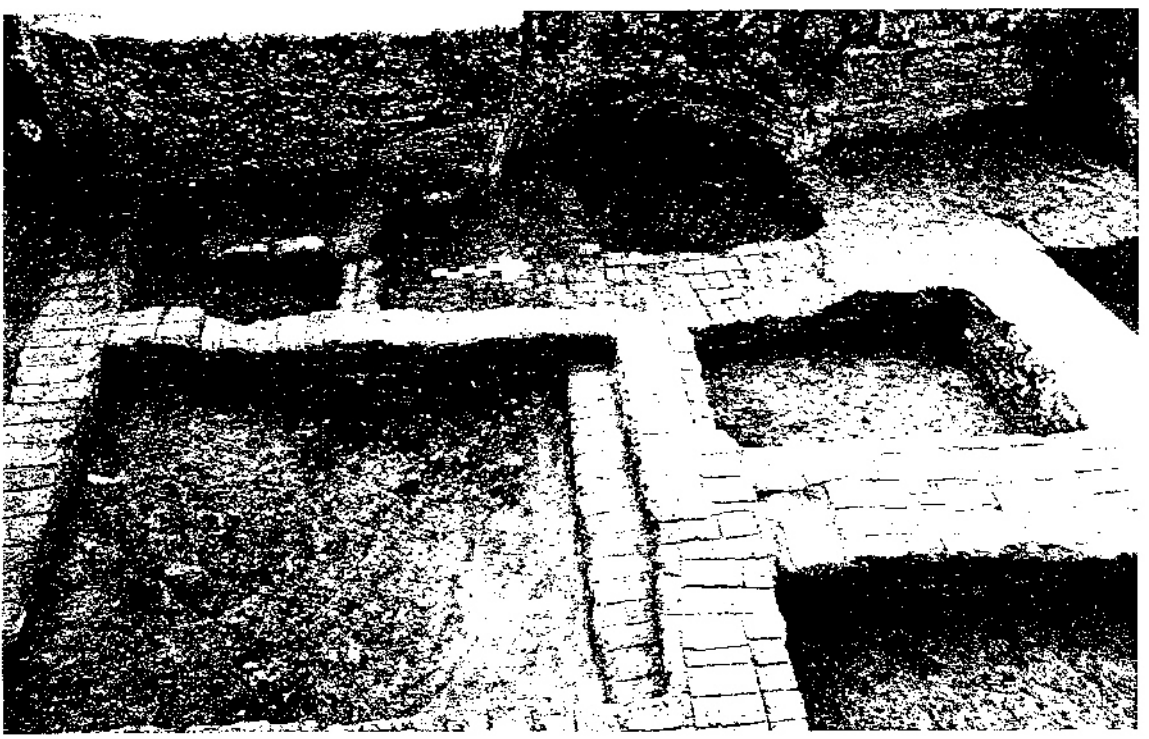
- Fig. 1: Operation 1 and 44W12 North Section (1979, 1980, 1987).



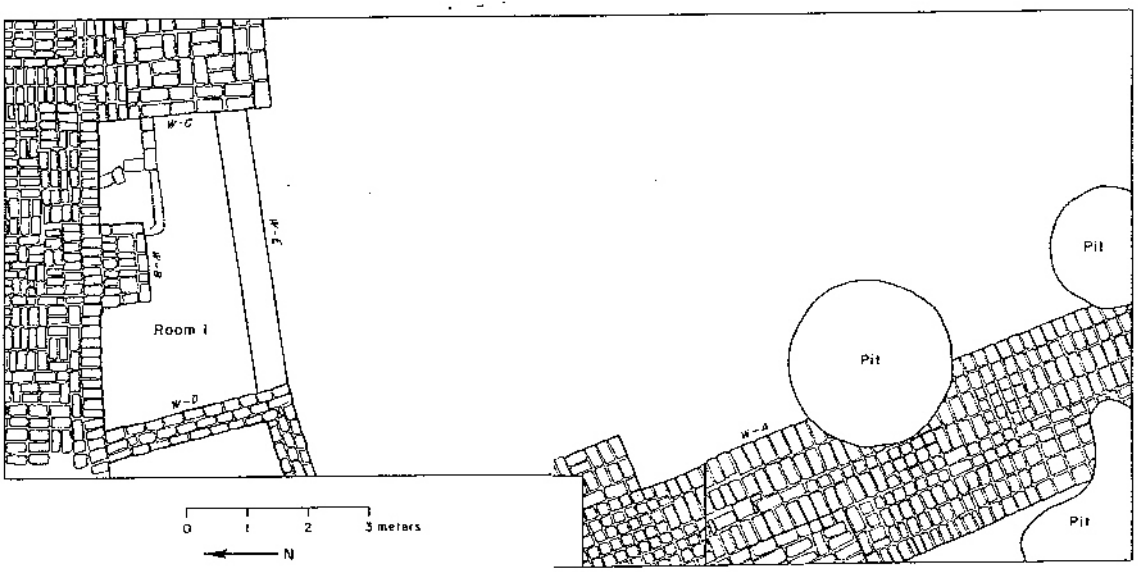
- Fig. 2: 44W12/X12 West Section (1987).



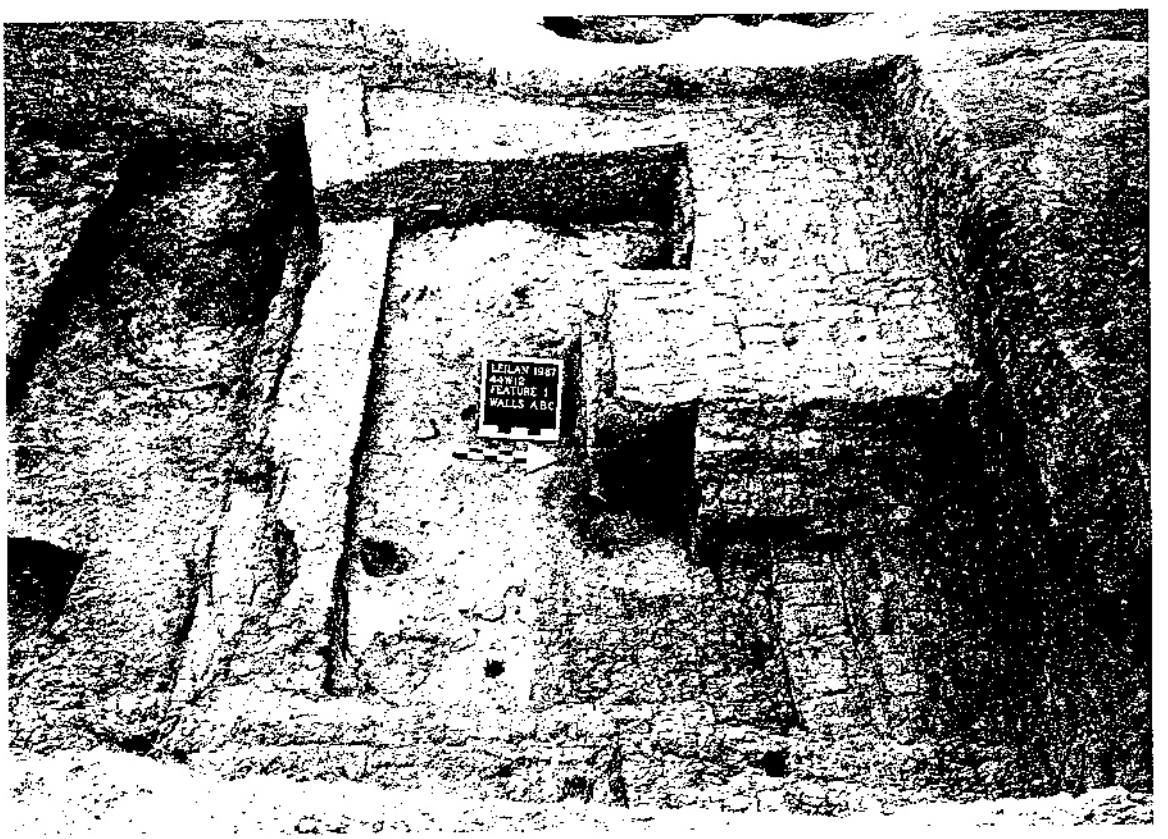
- Fig. 3: 44W12/X12, plan of strata 15-17.



- Fig. 3a: 44X12, strata 16-17.



- Fig. 4: 44W12/X12, plan of strata 13-14.



- Fig. 4a: 44W12, strata 13-14.

- *Fig. 5: Ceramics from 44W12/X12, strata 15h-17.*

1. Incised bowl, simple inverted rim, mini-flat base. H = 9 cm; RD = 11 cm; BD = 1.4 cm. Green-buff fine ware, no visible temper. 44X12 building 1, floor 2 of room 8, building level 1.

2. Incised panel motif, simple inverted rim. RD = 10 cm. Green-buff fine ware, no visible temper. 44X12 building 1, floor 3 of room 6, building level 1.

3. Incised panel motif, inverted beaded rim. RD = 8 cm. Green-buff fine ware, no visible temper. 44X12 building 1, floor 3 of room 6, building level 1.

4. Incised panel motif, inverted beaded rim. RD = 8 cm. Green-buff fine ware with calcite flecks. 44X12 stratum 15g exterior surface.

5. Incised wavy line, thin ledge neck rim. RD = 12 cm. Pink-buff fine ware, no visible temper. 44X12 stratum 15g exterior surface.

6. Simplified zigzag motif, carinated cup with mini-flat base. BD = 2.2 cm. Green-buff fine ware, no visible temper. 44W12 stratum 16.

7. Hatched vertical zigzag, carinated cup with everted beaded rim. RD = 8 cm. Green-buff fine ware, no visible temper. 44W12 stratum 17.

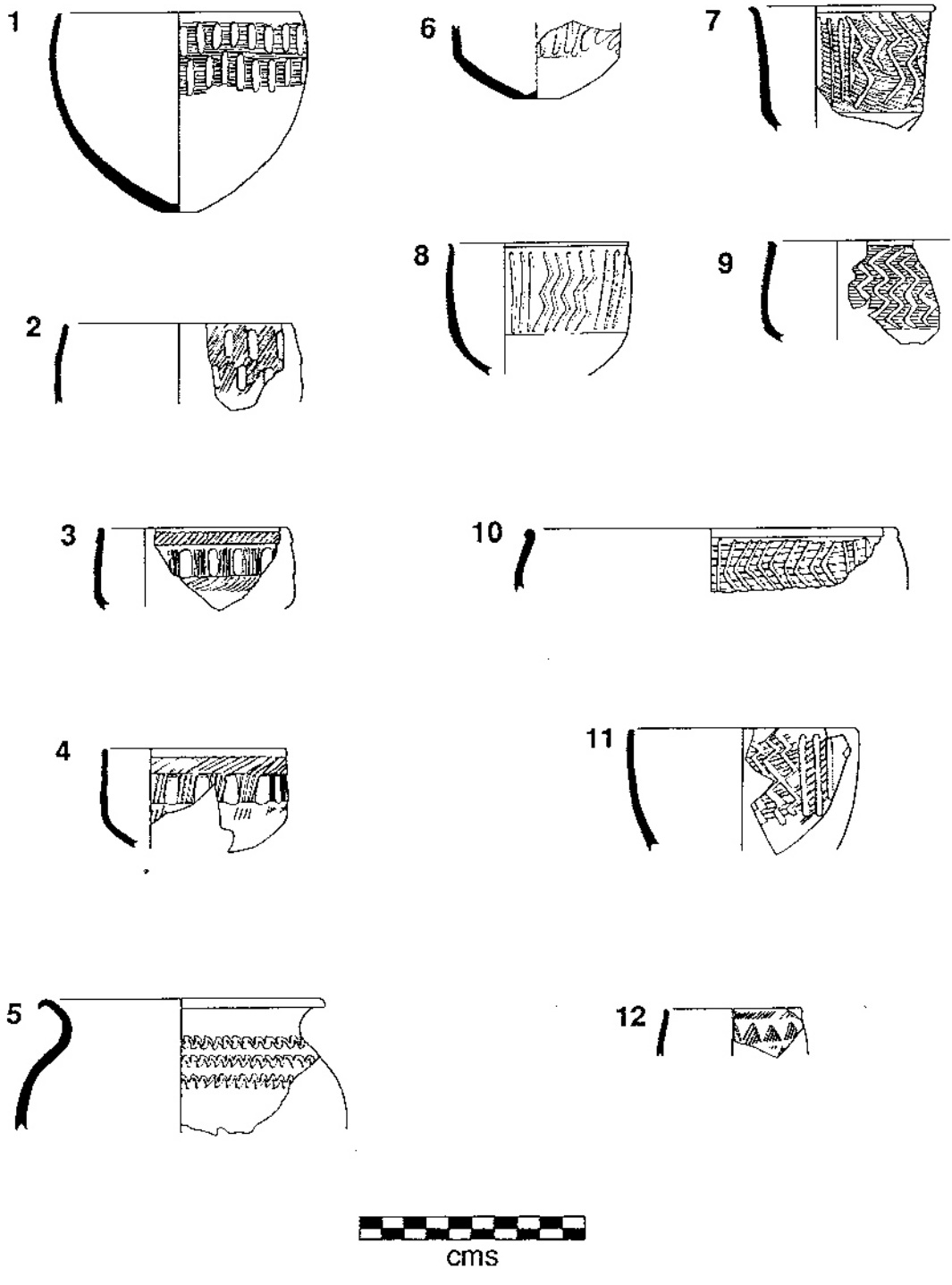
8. Simplified zigzag motif, cup with inverted rim. RD = 8 cm. Green-buff fine ware, no visible temper. 44W12 stratum 17 exterior surface.

9. Hatched zigzag motif, cup with inverted beaded rim. RD = 8 cm. Green-buff fine ware, no visible temper. Building 1, floor 2 of room 8, building level 1.

10. Hatched zigzag motif, bowl with inverted beaded rim. RD = 16 cm. Green-buff fine ware, no visible temper. 44W12 stratum 17 exterior surface.

11. Hatched zizag motif, cup with open simple rim. RD = 10 cm. Pink-buff fine ware, no visible temper. Building 1, floor 1 of room 8, building level 1.

12. Incised motif, cup with cocked rim. RD = 6 cm. Green-buff fine ware, no visible temper. Building 1, floor 1 of room 8, building level 1.



- Fig. 5: Ceramics from 44W12/X12, strata 15b-17.

- *Fig. 6: Ceramics from 44W12/X12, strata 15d-16.*

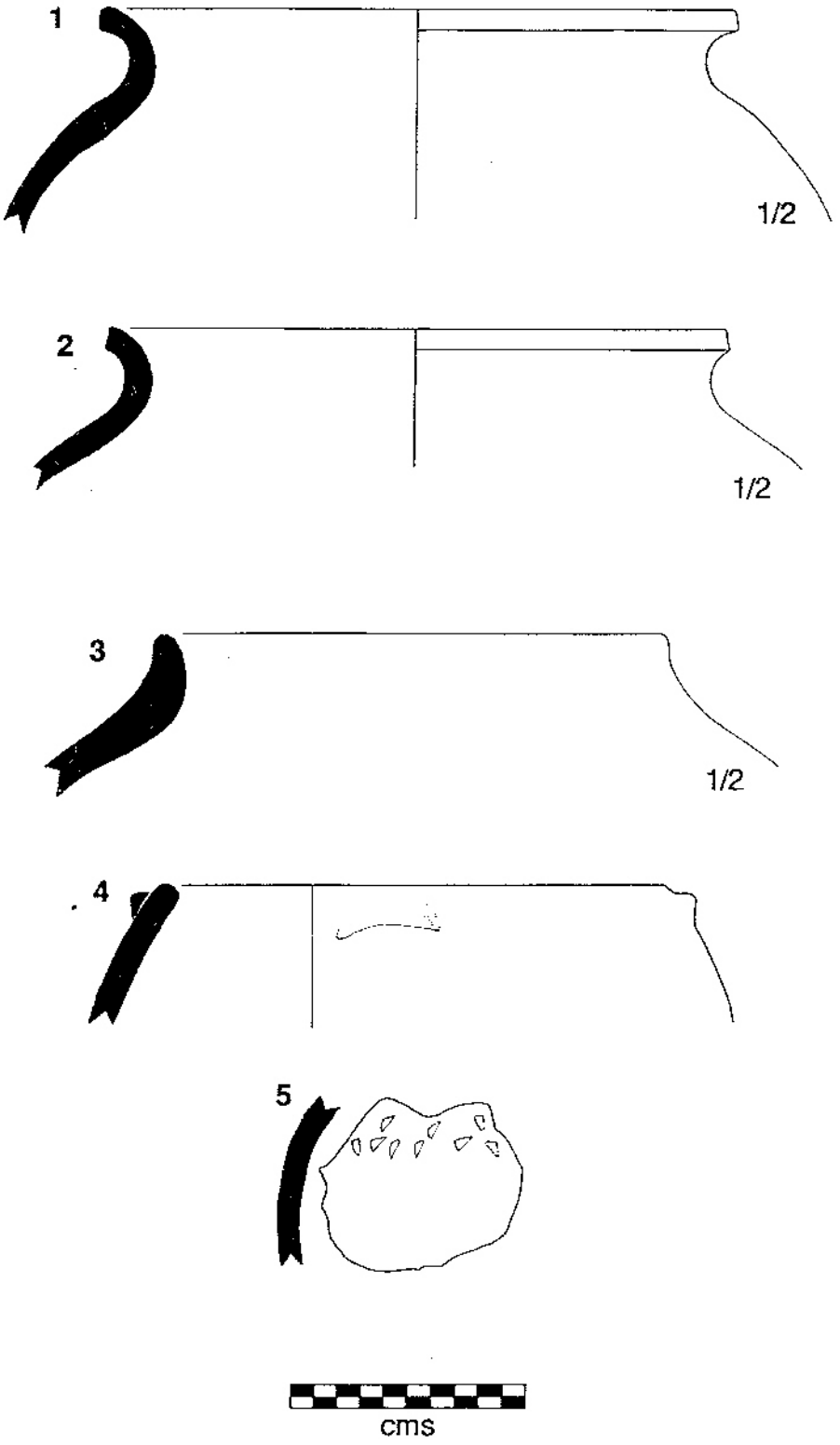
1. Storage jar, ledge neck rim. RD = 53 cm. Coarse red-buff ware, straw temper. 44W12 building 2, room 1, stratum 16a.

2. Storage jar, ledge neck rim. RD = 51 cm. Coarse red-buff straw and calcite temper. 44W12 building 2, room 1, stratum 16a.

3. Storage jar, simple neck rim. RD = 42 cm. Coarse red-buff straw and calcite temper. 44W12 building 2, room 1, stratum 16a.

4. Storage jar, closed hole mouth rim. RD = 21 cm. Coarse red burnished ware, straw and black limestone temper. 44X12, stratum 15d.

5. Storage jar, impressed body sherd. Coarse brown burnished ware, straw tempered; incompletely oxidized. 44X12 building 1, floor 3 of room 6.



- Fig. 6: Ceramics from 44W12/X12, strata 15d-16.

- Fig. 7: Ceramics from 44W12/X12, strata 15d-16.

1. Jar with incised ledge neck rim, rounded body and base. H = 6.2 cm, Int. RD = 7.5 cm. Green-buff fine ware, no visible temper. 44X12, building 1, floor 2 of room 6.

2. Jar with ledge neck rim. R = 2.6 cm. Buff fine ware, no visible temper. 44W12, stratum 16.

3. Jar with ledge neck rim. RD = 5 cm. Buff fine ware, calcite flecks. 44X12 building 1, floor 1 of room 4.

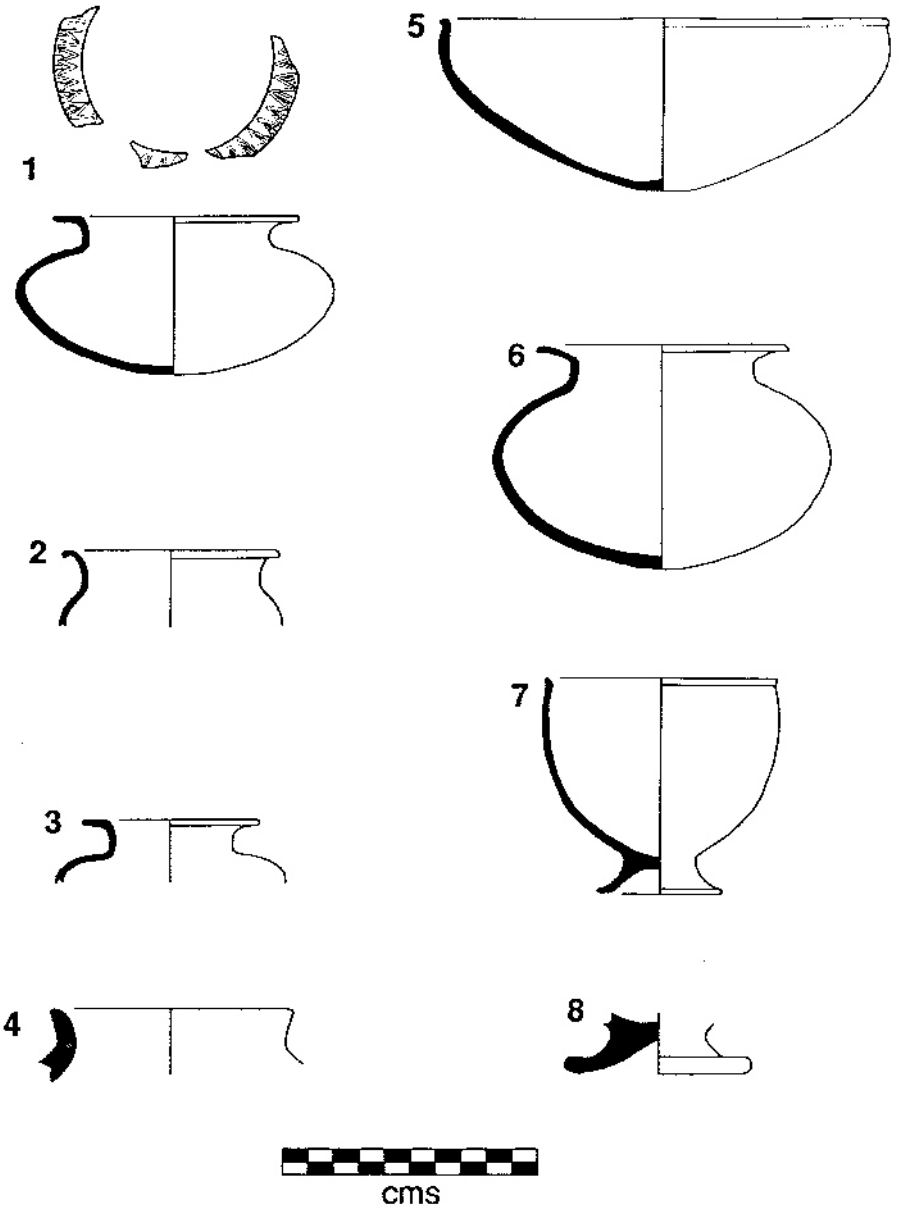
4. Jar with simple neck rim. RD = 9 cm. Buff medium ware, straw and calcite temper. 44W12, stratum 16.

5. Bowl with inverted beaded rim, mini-flat base. H = 6.7 cm, RD = 18 cm, BD = 2 cm. Green-buff fine ware, calcite flecks. 44X12, building 1, floor 2 of room 6.

6. Jar with ledge neck rim, rounded body and base. H = 9 cm, Int. RD = 9.1 cm. Brown-buff fine ware, calcite flecks. 44X12, building 1, floor 1 of room 1.

7. Cup with inverted beaded rim and pedestal base. H = 8.5 cm, RD = 8.7 cm, BD = 8.5 cm. Green-buff fine ware, no visible temper. 44W12 stratum 15e exterior surface.

8. Pedestal base. BD = 7.4 cm. Green-buff fine ware, straw temper. 44X12, stratum 15d.



- Fig. 7: Ceramics from 44W12/X12, strata 15d-16.

- Fig. 8: Ceramics from 44W12/X12, strata 15-15c.

1. Carinated bowl with everted rim and flat base. H = 10.6, RD = 14 cm, BD = 5.5 cm. Grey burnished medium ware, straw temper. 44W12 stratum 15c exterior surface.

2. Bowl with open beaded rim. RD = 13 cm. Pink-buff medium ware, straw and grit temper. 44X12 stratum 15 exterior surface.

3. Storage jar with everted neck rim. RD = 19 cm. Brown burnished coarse ware, straw temper, mica flakes; incompletely oxidized. 44X12 stratum 15 exterior surface.

4. Simplified horizontal zigzag incised body sherd. Green-buff fine ware, no visible temper. 44W12 stratum 15b.

5. Carinated bowl with everted rim and flat base. H = 8.5 cm. RD = 16 cm. BD = 6 cm. Black burnished medium ware, straw temper. 44X12 stratum 15 exterior surface.

6. Pot stand. H = 4.2 cm. RD = 5 cm. BD = 4.5 cm. Pink-buff fine ware, no visible temper. 44W12 stratum 15c or 15b.

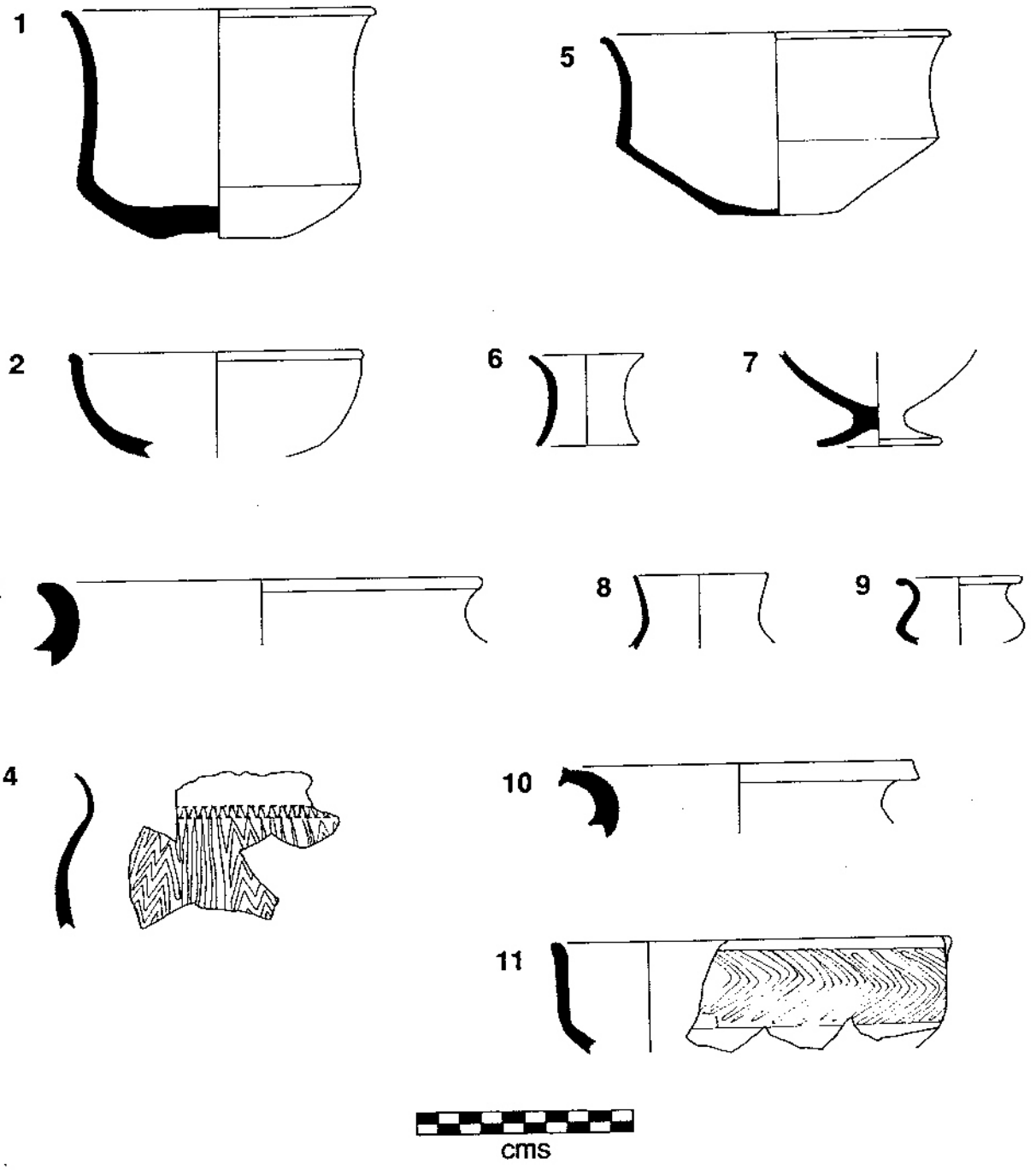
7. Pedestal base. BD = 5.6 cm. Green-buff fine ware, no visible temper. 44X12 stratum 15 exterior surface.

8. Simple neck rim. RD = 6 cm. Grey burnished fine ware, no visible temper. 44X12 stratum 15 exterior surface.

9. Beaded neck rim. RD = 5 cm. Pink-buff fine ware, no visible temper. 44X12 stratum 15 exterior surface.

10. Short-necked ledge rim. RD = 16 cm. Pink-buff medium ware, straw and calcite temper. 44W12 stratum 15b.

11. Simple incised chevron motif, cup with simple beaded rim. RD = 18 cm. Green-buff fine ware, no visible temper. 44W12 stratum 15b.



- Fig. 8: Ceramics from 44W12/X12, strata 15-15c.

- Fig. 9: Ceramics from 44W12/X12, strata 13-14.

1. Bowl with open simple rim and mini-flat base. H = 5.6 cm, RD = 15.4 cm, BD = 3.5 cm. Green-buff fine ware, no visible temper; overfired. 44W12 stratum 14, room 1.

2. Jar with ledge rim and rounded body and base. H = 6 cm, Ext. RD = 7.1 cm. Red and black metallic ware, no visible temper; highly vitrified. 44W12 stratum 14, room 1.

3. Pot stand. H = 11.5 cm, RD = 17 cm, BD = 15.4 cm. Green-buff medium ware, straw tempered. 44W12 stratum 14, room 1.

4. Carinated cup with beaded rim and mini-flat base. H = 4.4 cm, RD = 6.3 cm, BD = 1.3 cm. Green-buff fine ware, no visible temper. 44W12 stratum 14, room 1.

5. Carinated cup with cocked rim. RD = 5 cm. Green-buff fine ware, no visible temper. 44W12 stratum 13.

6. Bowl with open simple rim and mini-flat base. H = 5.7 cm, RD = 16 cm, BD = 2.3 cm. Green fine ware, no visible temper; highly fired. 44W12 stratum 14, room 1.

7. Cup with simple rim and pointed base. H = 7.2 cm, RD = 9 cm. Green-buff fine ware, no visible temper. 44W12 stratum 14, room 1.

8. Cup with simple rim and pointed base. H = 7.25 cm, RD = 9.4 cm. Green-buff fine ware, no visible temper. 44X12 stratum 14 exterior surface.

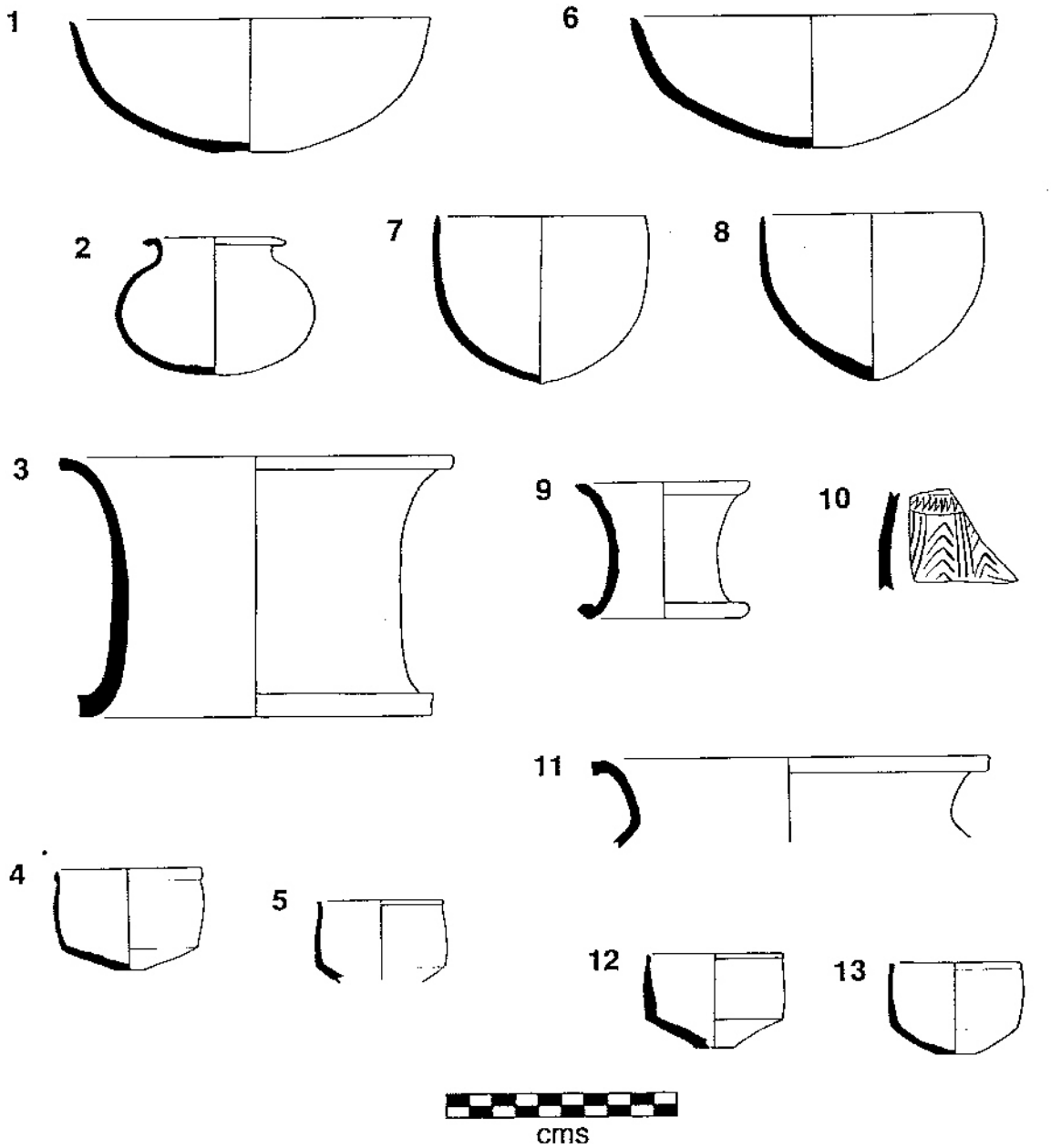
9. Pot stand. H = 6 cm, RD = 7.5 cm, BD = 6.5 cm. Pink-buff medium ware, calcitic matrix. 44X12 stratum 14 exterior surface.

10. Simple incised body sherd. Green-buff fine ware, no visible temper.

11. Jar, Tall-necked ledge rim. RD = 16 cm. Buff fine ware, no visible temper. 44X12 stratum 14 exterior surface.

12. Carinated cup with beaded rim and mini-flat base. H = 4 cm, RD = 5.8 cm, BD = 1.7 cm. Green-buff fine ware, no visible temper. 44X12 stratum 14 exterior surface.

13. Carinated cup with beaded rim and mini-flat base. H = 4 cm, RD = 5.6 cm, BD = 1.5 cm. Green-buff fine ware, no visible temper. 44X12 stratum 14 exterior surface.



- Fig. 9: Ceramics from 44W12/X12, strata 13-14.

- Fig. 10: Ceramics from 44W12/X12, strata 13-14.

1. Storage jar with collared rim. RD = 30 cm. Pink-buff coarse ware, straw temper. 44W12 stratum 14, room 1.

2. Storage jar with incised and impressed collared rim. RD = 44 cm. Pink-buff coarse ware, straw temper. 44W12 stratum 14, room 1.

3. Storage jar with incised and impressed collared rim. RD = 38 cm. Pink buff coarse ware, straw temper. 44X12 stratum 14 exterior surface.

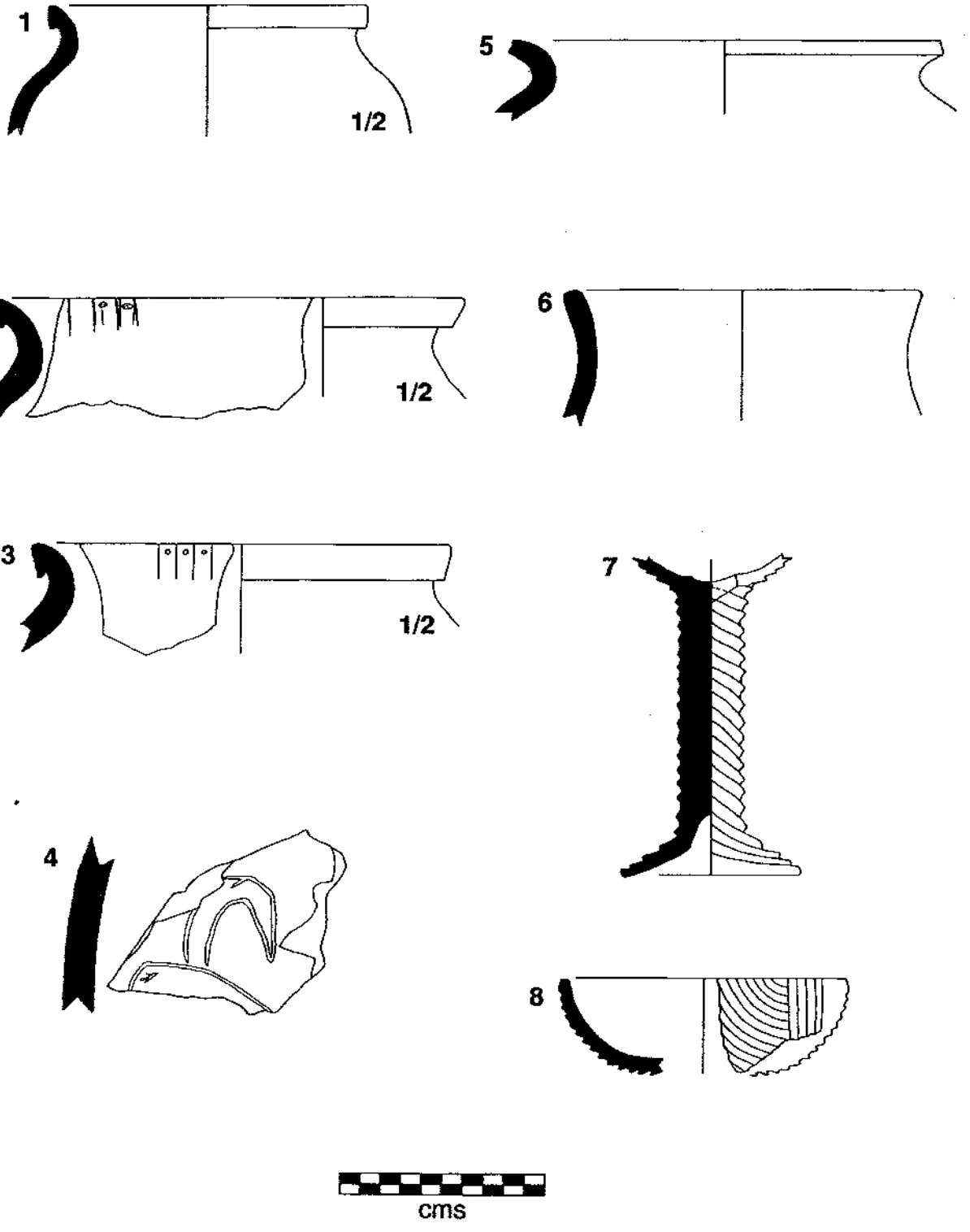
4. Body sherd with crude markings. 44W12 stratum 14.

5. Storage jar with ledge neck rim. RD = 20 cm. Pink-buff coarse ware, straw temper. 44X12 stratum 14 exterior surface.

6. Storage jar with simple neck rim. RD = 16 cm. Buff medium ware, straw temper. 44X12 stratum 13 exterior surface.

7. Pedestal base with spiraling corrugation. Extant height = 15.5 cm, BD = 8.6 cm. Red buff coarse ware, straw temper. 44W12 stratum 13.

8. Corrugated bowl with simple rim. RD = 13 cm. Red-buff coarse ware, straw temper. 44W12 stratum 13.



- Fig. 10: Ceramics from 44W12/X12, strata 13-14.

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The Middle Habur in the Third Millennium B.C.

Michel Fortin and Glenn M. Schwartz

Introduction

In 1984, the Syrian Directorate-General of Antiquities issued a request for assistance in recovering archaeological evidence from the valley of the middle Habur, threatened by the planned construction of a dam on the Habur 28 km south of Hasseke (Fig. 1). As Monchambert's 1983 survey indicated (Monchambert 1984), the third millennium was one of the more intensive periods of occupation in the valley, and excavations have retrieved evidence of third millennium habitation on at least eight sites. These include the larger settlements (ca. 2-5 ha) of Bderi (Pfälzner 1986-87, 1988), Melebiya (Lebeau et al. 1987), and Mashnaqa (Monchambert 1987), and smaller sites such as 'Atij (Fortin 1988a, 1988b), Raqa'i (Curvers and Schwartz 1990), Judeida (Fortin 1988a, 1988b), Kerma (Muntaha Saghie, personal communication), Umm Qseir (Frank Hole, personal communication) and Ziyadah (Buia 1989). The third millennium evidence from the middle Habur is particularly significant because it contributes to our understanding of the later part of the Ninevite 5 period and to the social and political changes taking place at that time. This paper details the results from Tell Raqa'i and Tell 'Atij, reviews data from other sites, and advances a synthetic discussion of the current evidence available from the middle Habur.

The region

The middle Habur valley is located south of the confluence of the Habur with the Jaghjagh and the other tributaries of the upper Habur "triangle". While the Habur triangle is a highly productive rainfall agriculture zone, the middle Habur receives only 200-250 mm of annual rainfall and cannot sustain a successful dry farming regime; the predominant subsistence strategy historically attested for the area is irrigation agriculture, with Habur water used to cultivate fields on either side of the river (van Liere and Lauffray 1954). Accompanying settlements are concentrated in a band 1-2 km wide along the Habur.

Tell al-Raqa'i

Tell al-Raqa'i (Curvers and Schwartz 1990), on the east bank of the Habur 12 km downstream from Hasseke, is under excavation by a joint Johns Hopkins University — University of Amsterdam (Instituut voor Prehistorie) team under the co-direction of Hans Curvers and Glenn Schwartz.[1] The site, some 100 x 55 meters in area, stands seven meters above the contemporary plain, with excavation to virgin soil documenting an additional meter of occupation below the contemporary plain level. In order to implement the primary goal of the Raqa'i project, the investigation of the socio-economic organization of a third millennium rural settlement, broad horizontal excavations were conducted to expose the uppermost third millennium occupations at the site. Efforts were concentrated on the excavation of levels 2 and 3, the latest third millennium contexts, situated below a vestigial Hellenistic occupation designated level 1 and numerous burials dating from Roman times up to the present day.

Levels 2 and 3 have been exposed in an area of over 900 square meters. Level 2, the more recent occupation, consisted of erratically-distributed mud-brick and stone architecture much disturbed by the later burials. Level 3 (Fig. 2) was better preserved and is characterized by small-scale rectilinear mud-brick architecture radiating around a large thick-walled rounded building, with a square one-room temple or shrine with recessed entry and two adjacent stepped altars situated behind a flimsy enclosure wall (Fig. 3).

The small-scale architecture included several features which suggest specialized production, such as plastered basins or bins (Fig. 4), mud-brick floors, drains, and two square brick semi-subterranean structures identified as silos on analogy with the results from 'Atij. One of these structures had a stairway leading down to its floor and two pairs of facing arched interior buttresses. Inside the rounded building (Fig. 5), whose outer wall appeared to be vaulted, was a sequence of ashy lenses sloping down from the center of the building associated with ovens, occasional partition walls, parallel walls one mud-brick wide recalling grain storage substructures (Schwartz 1987: 95), mud-brick platforms, and mud-brick floors. Excavated burials included individuals interred in pits or in brick cists; the larger grave good deposits of

[1] Excavations at Tell al-Raqa'i in 1987 and 1988 were funded by support from the National Geographic Society (grant no. 4016-88), the University of Arizona, the Johns Hopkins University, Dr. Hendrik Muller's Vaderlandsch Fonds, Stichting fonds voor de Geld en Effectenhandel, Vereniging van Vrienden van het Allard Pierson Museum, and several private contributors.

ceramic vessels, copper/bronze pins, beads, and anthropomorphic or animal-shaped pendants (Fig. 6) may be indicative of differential social status.

Dominating the level 3 ceramic assemblage was undecorated buff pottery, generally wheelmade. Jars characteristically had everted rims (Fig. 7: 13-14), while bowls and cups had beaded or simple rims and sometimes pointed bases (Fig. 7: 8-10). Handmade grit-tempered hole-mouth "cooking ware" pots had either crescent or horizontal lugs below the rim (Fig. 7: 11-12), and coarse disc-shaped lids were also common.

Some sixty Ninevite 5 fine incised sherds were retrieved from level 3 contexts. Incised motifs represented are characteristic of late Ninevite 5 contexts at Tell Leilan, Leilan IIIc and IIId, including patterns of deep grooving and light incising on the raised areas between them conventionally termed "excision", with motifs such as "panels" (Fig. 7: 2, 4; Schwartz 1988: fig. 31: 10-11, 14), "horizontal lined zigzags" or "step pattern" (Fig. 7: 1; Schwartz 1988: fig. 31: 9,12), "slashed" designs (Fig. 7: 5; Schwartz 1988: fig. 31: 1-8), and motifs of parallel incised lines without light incision between them ("simplified" motifs) (Fig. 7: 3; Schwartz 1985: fig. 6: 1-6; Calderone and Weiss, this volume).

A comparably small sample of Metallic or Stone ware sherds was retrieved from level 3 (Fig. 7: 6-7), attesting to the contemporaneity of late Ninevite 5 incised and Metallic ware, first reported at Ailun (Moortgat 1959) and corroborated at 'Atij.

Raqa'i 2 ceramics contain virtually no incised Ninevite 5 sherds, and crescent lugs on cooking ware pots disappear (although horizontal lugs do not), as do disc-shaped lids, while triangular lugs now appear on cooking pots (Fig. 8: 8-9). A few jar rims resemble the collared rims of Leilan II and Brak Late Early Dynastic III (Fig. 8: 11-13; Weiss 1983: fig. 10: 19; Schwartz 1988: fig. 30: 7, 9; J. Oates 1982: fig. 5: 77, 81); missing from the Raqa'i 2 assemblage, however, are the straight-sided flaring bowls common in Leilan and Brak.

Therefore, Raqa'i 2 is tentatively dated to early Leilan II and a period just prior to Brak Late Early Dynastic III, on the evidence of the triangular lug cooking pots and the collared rim jar sherds. Raqa'i 3, with its sample of late Ninevite 5 incised sherds, pointed base cups, crescent lug cooking pots, and Metallic Ware, is probably contemporary with the end of the Leilan Ninevite 5 sequence, i.e. Leilan IIId. Raqa'i 2 should not be dated much later than Raqa'i 3, since there is evidence of architectural continuity between the two levels.

Four seal impressions were retrieved from Raqa'i 3 contexts. One had a geometric motif with ladder and dotted circle comparable to "Piedmont Jemdet Nasr" examples (Fig. 9), while the others bore figurative designs, including an example with squatting and standing figures back to back (Fig. 10) similar to Archaic Fara examples from southern Mesopotamia and to impressions from the Kleiner Antentempel area at Tell Chuera (Moortgat and Moortgat-Correns 1978: 21-33). An unbaked clay tablet with apparent numerical notations came from fill in Raqa'i 2 (Fig. 11).

Early occupation levels were documented in a step trench operation, but the sherd sample from this trench was very small. Seven major building levels were recognized, with a complex of rectangular *pisé* bins in levels 6 and 5 and an early version of the large rounded building in level 4. In levels 7-5, ceramics included handmade hole-mouth cooking pots with or without crescent lugs and a Ninevite 5 fine ribbed cup with pointed base (Curvers and Schwartz 1990).

Tell 'Atij

Excavations at Tell 'Atij (Fortin 1988a, 1988b, 1990a, 1990b), 2 km downstream from Raqa'i, have been conducted since 1986 by a team from Université Laval (Quebec) under the direction of Michel Fortin. The site consists of two components. The main tell, a steep-sloped mound rising 10 m from the surrounding plain, is 150 m long x 40 m wide, with a narrow summit 6-8 m x 40 m; the western slope of this tell is partially eroded by the river. The secondary tell, thirty meters east of the main tell, is 2 m high, 200 m long and 40 m wide.

Excavations at 'Atij have revealed a complex of large-scale storage installations probably to be identified as granaries (Fortin 1988a, 1988b) dating to the later part of the Ninevite 5 period. The structure located at the northern edge of the summit of the main tell (Fig. 12) was composed of at least four partly vaulted mud-brick silos with plastered interiors preserved up to two meters high (Fig. 13); the extant structure is incomplete, with part of the original building lost to erosion. Each silo had a trapezoidal base (1-1.40 m x 1.20-1.60 m) and a vaulted upper section covering about 2/3 of the structure. Since no doors were observed, the tops of the vaults were probably left open to permit access to the silos.[2] Each silo could have

[2] For roof access to granaries cf. Schwartz 1987: 95.

contained about 4.50 cubic meters of grain or slightly more than 2 tons, an amount which would have fed two families of 5 persons each for one year (Halstead 1981: 198-199). The entire building was constructed against a mud-brick retaining wall three meters wide which probably supported a second storey.

Adjacent to this building on its southern side stood a 6 x 8 m mud-brick platform whose probable function was to provide access to the silos and to other storage facilities uncovered to the west and south (Fig. 12). To the west was a large room (2.5 x 3 m) originally subdivided into many vaulted smaller rooms with plastered walls and floors, later reduced to a corridor leading to a tunnel dug into the access platform. To the south was a room 4 x 4 m divided by arched walls into cubicle measuring 1 x 1.5 m on average.

Much-eroded rectilinear structures of probable storage function were discovered on the southern slope of the main tell of 'Atij (Figs. 14 and 15). Almost all of the rooms had their areas reduced in later phases by the addition of walls to reinforce outer walls or to partition inner spaces. It appears that the builders made use of terraces to erect their storerooms on the already sloping tell surface. An extension of the excavation area in 1988 discovered another set of storage facilities associated with six building phases.

Several jars had been broken and thrown into the northern silos at the time of their abandonment: some of them were of the same size, and their association with the silos may imply their use as standardized grain measures. A ceramic funnel found with the jars was presumably used to fill them with grain. In one of the southern storerooms, three large storage jars were found in situ in a row against a wall (Fig. 17); the interior of the jars had been covered with a thin layer of plaster, ostensibly to insure better conservation of the contents.

There was no grain discovered in the silos, but the gray ashy fill inside them may represent decomposed and burned organic material. Paleobotanical analysis of this fill is now underway.

There is considerable evidence of administrative technology associated with the 'Atij storage complexes. Some twenty unbaked clay tokens were recovered from a room adjacent to the granary on the northern edge of the main tell summit; attested shapes included crescent, disc, cone and sphere, and the majority bore incised lines, punched markings and circular impressions (Fig. 18) (Schmandt-Besserat 1978, 1979). Further, a small rectangular crude clay tablet with apparent numerical notations consisting of horizontal lines and rows of dots (Fig. 19) (Schmandt-Besserat 1981a, 1981b) was found in association with the storage architecture. 'Atij also yielded a cylinder seal of feldpath with a linear design (Fig. 20) discovered on the uppermost floor level of the main tell, comparable to an example from Kash-Kashok (Suleiman 1988) and to an impression from Leilan IIa (Parayre, this volume).

Graves dug into the uppermost layer of the 'Atij main tell contained, in addition to pottery, such objects as a shell pendant in the shape of a stylized bull (Fig. 21; cf. Moortgat and Moortgat-Correns 1976: Abb. 24b, and D. Oates 1982: Plate XII a-b for parallels from Chuera and from Brak Late Early Dynastic III); and other poorly preserved ornaments and metal bracelets, attesting to the likely presence of high status individuals at the site.

The latest third millennium levels at 'Atij, at the summit of the main and secondary tells, are characterized by a ceramic assemblage which includes late Ninevite 5 incised pottery, cooking ware vessels with crescent, horizontal and triangular lugs, Metallic Ware, and other types which are comparable to Raqa'i level 3 (Fig. 22). A deep sounding to virgin soil on the western slope revealed the establishment of the site at an earlier point within the Ninevite 5 period.

Middle Habur relative chronology

Other middle Habur sites with relevant assemblages include Bderi, Melebiya, Mashnaqa and Kerma. At Bderi, the ceramics of step trench level 8 and Area 2965 are comparable to those of Tell Brak Late Early Dynastic III and Leilan II, with collared rim jars and thin-walled bowls with straight flaring sides. The pottery of step trench levels 9-12, roughly equivalent to that of Area 2963 and characterized by round-sided bowls, is pre-Brak Late Early Dynastic III but has no Ninevite 5 incised pottery and is perhaps to be dated to the Raqa'i 2 time range. Well below this in the step trench is stratum 25, associated with a town wall and gate, with late Ninevite 5 incised sherds.[3]

A similar sequence has been retrieved at Melebiya; at this site is an extensive exposure of a phase ceramically akin to Brak Late Early Dynastic III and Leilan II (*e.g.* Chantier B, B2, Chantier C, C1-2; Lebeau et al. 1987), an earlier phase exposed in a step trench sounding tentatively termed Early Dynastic II perhaps corresponding to Raqa'i 3 (or 2), and older step trench contexts with handmade cooking ware

[3] We thank Peter Pfälzner for generously sharing this information with us.

hole-mouth vessels such as those found in Raqa'i 7-5.[4] The assemblage from the lower levels at Mashnaqa in Chantier A is comparable to Raqa'i 3 in its cooking ware, plain buff ware jar and bowl shapes, and Ninevite 5 incised sherd with "panel" motif (Monchambert 1985: pls. 1-3, 1987: fig. 15); the pottery of the niveau 1 destruction, with triangular and horizontal lug cooking pots, suggests an equivalence with Raqa'i 2 (Monchambert 1987: figs. 16-17). The upper levels at Kerma have pottery comparable to Raqa'i 3 and perhaps 2.[5]

At this stage of research, then, the middle Habur third millennium periodization (Fig. 23) appears to consist of Ninevite 5 occupation at Raqa'i 4-7, early 'Atij, and early Melebiya of indeterminate date within the Ninevite 5 sequence, a late Ninevite 5 occupation at Raqa'i 3, late 'Atij, Melebiya, and probably at Kerma and early Bderi, a post-Ninevite 5 phase at Raqa'i 2 and Bderi, and a phase equivalent to Leilan II and Brak Late Early Dynastic III subsequent at Bderi and Melebiya.

To our knowledge, little or no painted Ninevite 5 pottery has been recovered from the middle Habur.[6] The absence of painted Ninevite 5 ceramics, if it has a chronological significance, may indicate a date for the middle Habur occupations subsequent to the use of painted Ninevite 5 pottery, which would mean no earlier than late Leilan IIIc in upper Habur terms (Schwartz 1988; Calderone and Weiss, this volume). Alternatively, painted pottery, unquestionably rare in the upper Habur (Schwartz 1985), may not have been in wide use in the middle Habur either, and it may be inappropriate, given our small sample, to infer the absence of early Ninevite 5 occupation on the basis of missing Ninevite 5 painted sherds.

Absolute dating evidence from the middle Habur is presently confined to two carbon-14 dates from Raqa'i levels 6 and 3, both virtually identical and calibrated to the second quarter of the third millennium.[7] If Raqa'i 3 is approximately contemporary with Leilan IIId, linked to late Early Dynastic II or early Early Dynastic IIIa (Calderone and Weiss, this volume; Parayre, this volume), its date and that of comparable assemblages such as late 'Atij, Kerma, and Melebiya Early Dynastic II should be ca. 2600 or 2500 B.C. The subsequent middle Habur occupations, Raqa'i 2 and the slightly later Melebiya Late Early Dynastic III and Bderi 8, would then be somewhat later, perhaps in the twenty-fifth or twenty-fourth centuries B.C.

Discussion

The preceding review has shown that the majority of the Ninevite 5 period data from the middle Habur pertain to the latest part of the period, for which there is evidence of a complex of small specialized sites in the northern part of the region. At 'Atij, there is a set of storage facilities probably to be interpreted as granaries, accompanied by clay tokens, a cylinder seal, and a numerical notation tablet. A contemporary large storage installation is also attested at Kerma, with carbonized grain found in situ.[8] And at Raqa'i, situated between them, there is evidence of specialized production within the central rounded building and in the small-scale architecture around it, associated with seal impressions and (in fill of the next level) a numerical notation tablet. Given the location of grain storage complexes to either side of Raqa'i, it is likely that the specialized production at Raqa'i concerned agricultural products. The available evidence from the middle Habur therefore suggests the presence of small specialized sites for the collection, processing, and distribution of agricultural products late in the Ninevite 5 period (=ca. Leilan IIId).

That the extent of specialization at the middle Habur sites was substantial is affirmed by the relative paucity of domestic architecture associated with the specialized structures, particularly at 'Atij. The 'Atij main tell did not produce any clear residential architecture and, as far as excavation has determined, was entirely occupied by storage facilities; the caretakers of this complex apparently lived on the secondary tell, where domestic structures have been excavated. But there appears to have been little room for agricultural producers or other individuals not associated with the maintenance of the storage structures, a situation paralleled by such redistribution sites as Assiros, a Late Bronze center in northern Greece inhabited by a managerial elite (Jones et al. 1986: 85). Domestic architecture can be recognized at Raqa'i 3, but again not much more than would have accommodated a population conducting the specialized activities within the rounded building and, at least on a part-time basis, in the smaller architecture around it. Kerma is also a very small site and would not appear to have supported much more than a caretaker population.

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[4] We would like to thank Marc Lebeau for generously contributing these data.

[5] We are very grateful to Muntaha Saghie for her communication of the results from Tell Kerma.

[6] The painted jar from 'Atij designated Ninevite 5 (Fortin 1988a: fig. 22) is now recognized to be of another type as yet unidentified. Marc Lebeau (personal communication) reports a possible Ninevite 5 painted sherd from the lower strata of the Melebiya step trench.

[7] Utc-822, Raqa'i 1987, 36/114-26, level 3, 4020+-70 B.P. uncalibrated; Utc-823, Raqa'i 1987, 42/116-73, level 6, 4020+-90 B.P. uncalibrated.

[8] See note 5.

Large-scale centralized staple storage can be interpreted as evidence of elites with significant economic power, who accumulate staples from the populations of complex chiefdoms or states and redistribute them to pay for services rendered (Earle and D'Altroy 1982). The existence of such elites in the Ninevite 5 period, already postulated on the basis of large-scale storage at such centers at Telul-eth-Thalathat and a complementary glyptic administrative technology (Schwartz 1987), is further supported by the discovery of the late Ninevite 5 complexes in the middle Habur.

The question to which we shall now turn is the identification of the elites associated with the middle Habur settlements and the nature of the economic system these settlements were part of. It is unlikely that the products of the middle Habur complexes were destined for local use: the small size of contemporaneous settlements and the apparent low population of the area relative to the storage capacities of the middle Habur centers militate against a local consumption of their products.

If we posit an association with outside elites, we may first turn to the immediate north and such upper Habur centers as Leilan, Chuera, Mozan and Brak, given the close material culture connections between the middle Habur and those sites. An exploitation of the middle Habur by upper Habur polities may have been effected in order to acquire a broader base for the production of agricultural surplus, necessary for the maintenance and growth of complex chiefdoms or early states. Postulating a northern exploitation of the middle Habur is problematic, however, because the middle Habur valley is relatively unproductive in comparison with the broad rainfed plains of the upper Habur, presumably not exploited in their entirety in this period. An alternate possibility is the exploitation of the area by a southern center, such as Mari, then in the early stages of its urbanization (Margueron 1987).

A third possibility is to consider the middle Habur not as the producer of these goods, but as an intermediary area between a southern center such as Mari and the rainfall farming plains of the upper Habur, functioning as a port of trade (Polanyi 1963) or a gateway community (Burghardt 1971; Hirth 1978). The middle Habur sites, situated at the juncture between the dry farming and irrigation zones, at the confluence of the tributaries of the Habur, and at the intersection of reconstructed ancient routes leading to the upper Habur from the Euphrates and from the Sinjar plain (D. Oates 1977: plate IV; Dussaud 1927: plate XVA), are eminent candidates for gateway communities, strategic points controlling the movement of commodities which "arise at entrance points to producing regions" (Burghardt 1971: 272) and are "located along natural corridors of communication and at the critical passages between areas of high mineral, agricultural or craft productivity" (Hirth 1978: 36); likewise, ports of trade, neutral points allowing exchange between polities, are characteristically located on the frontier between two environmental zones.

Had such a profitable trade been carried out by upper Habur centers in the late Ninevite 5 period, one might expect to see evidence of their increased wealth. The administrative building at Leilan IIId and its multitude of seal impressions (Calderone and Weiss, this volume) could be interpreted in this light, with the subsequent expansion of Leilan into a 90 hectare fortified metropolis perhaps to be associated with this phenomenon as well. It should be stressed, however, that the state of our evidence for this period is still too limited to begin to test any of these hypotheses effectively, rendering the above discussion highly speculative.

Data from 'Atij indicate the possibility of riverine distribution of the products processed and stored at the middle Habur sites. Although cataracts prevent navigability in modern times (Mallowan 1936: 2), pedological evidence from 'Atij indicates that the river level was higher in antiquity and could have been navigable, an interpretation supported by historical evidence (LeStrange 1905: 95; Mordtmann 1845: 46; von Oppenheim 1939: 66; Finet 1983: 93).[9] Further, a trench opened between the two tells at 'Atij yielded evidence of a channel in the third millennium, which would have made the main tell an island at that time (Fig. 24). This channel may well have provided a good spot for anchorage.[10] If transport of the goods stored and processed in the middle Habur was conducted by water, the location of a port of trade between a southern center and the upper Habur on the middle Habur would be appropriate, since the middle Habur, where the Habur and its tributaries unite to form one stream, would have been the point closest to the area

[9] Pedological information is provided by Michel Blackburn, Departement des Sols, Université Laval.

[10] A rock structure discovered on the edge of the secondary tell might be interpreted as the remains of a quay. In addition, ten stone oblong objects pierced at one end which may be anchors have been retrieved on the main tell at 'Atij; some were found in the silos of the granary, while others had been left in debris or were reused as foundation stones for walls built in the last phase of occupation of the tell (Fortin 1988a: 161, figs. 25, 26). Almost all these objects were made of local gypsum and are not to be confused with basalt weights pierced in the middle, of which many specimens were also found. Further, a miniature ceramic chariot wheel has an incised design which could be interpreted as the representation of a boat equipped with sails, comparable to the Uruk period model discovered at Eridu (Lloyd and Safar 1948: 118 pl. V, 1981: 231; but cf. Casson 1971: 22).

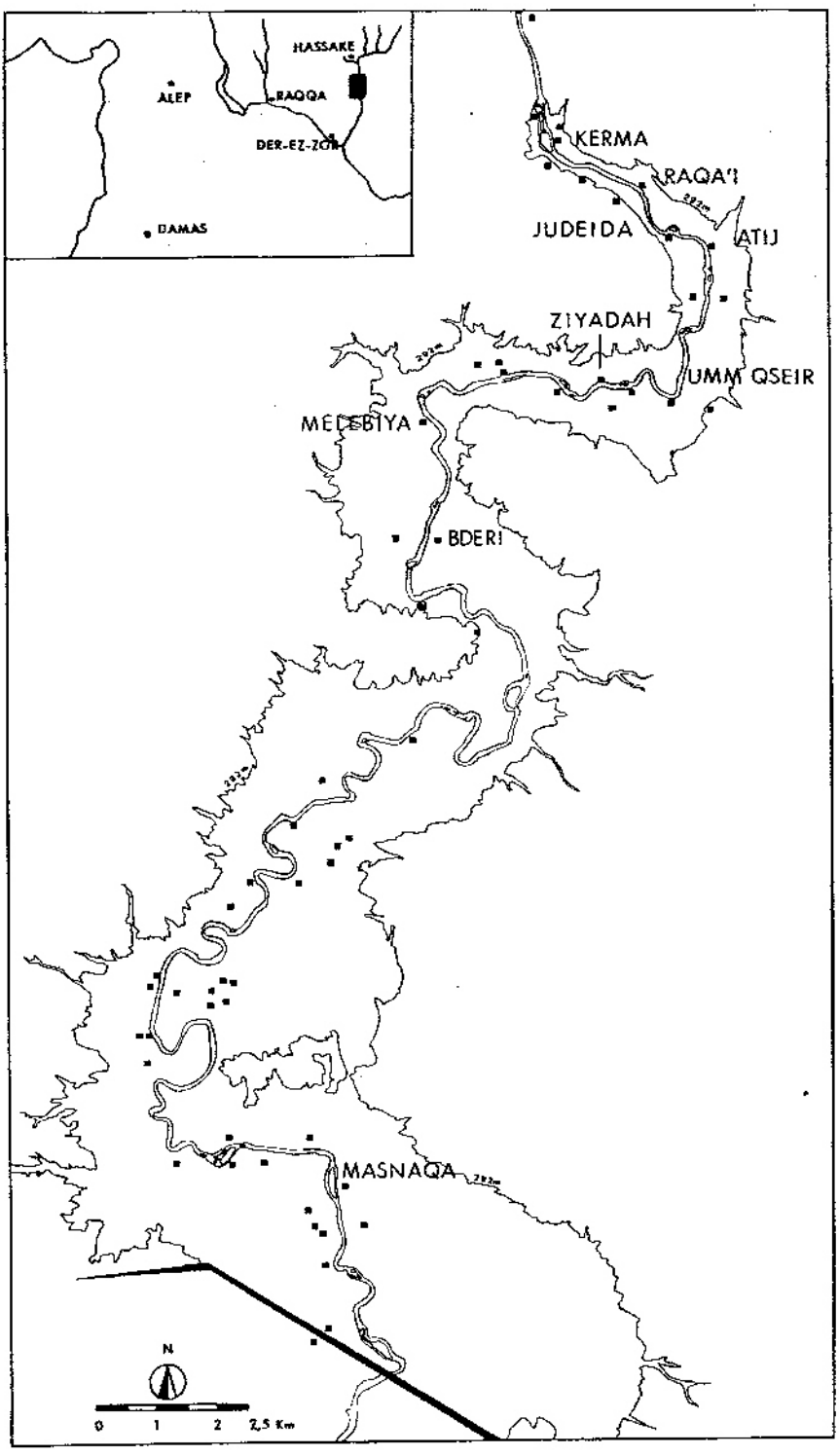
of production easily reachable by water from the south.[11]

Finally, the question of the chronological distribution of the middle Habur complexes needs to be addressed. The 1983 survey of the middle Habur valley by Monchambert indicated that a drastic increase in the number of settlements in the region took place in the third millennium. Only some five sites were datable to the preceding Halaf, Ubaid and Uruk periods, but as many as twenty-two had third millennium surface sherd scatter (Monchambert 1984). It has been proposed that this proliferation of sites was associated with the development of political complexity in areas outside the middle Habur (Curvers and Schwartz 1990). The discovery of Ninevite 5 occupations on virgin soil at Melebiya, 'Atij and Raqa'i support Monchambert's conclusions of an increase in settlement in the third millennium, but the precise date for these earliest Ninevite 5 occupations is as yet unclear and can only be fixed at some point prior to the latest Ninevite 5 pottery.

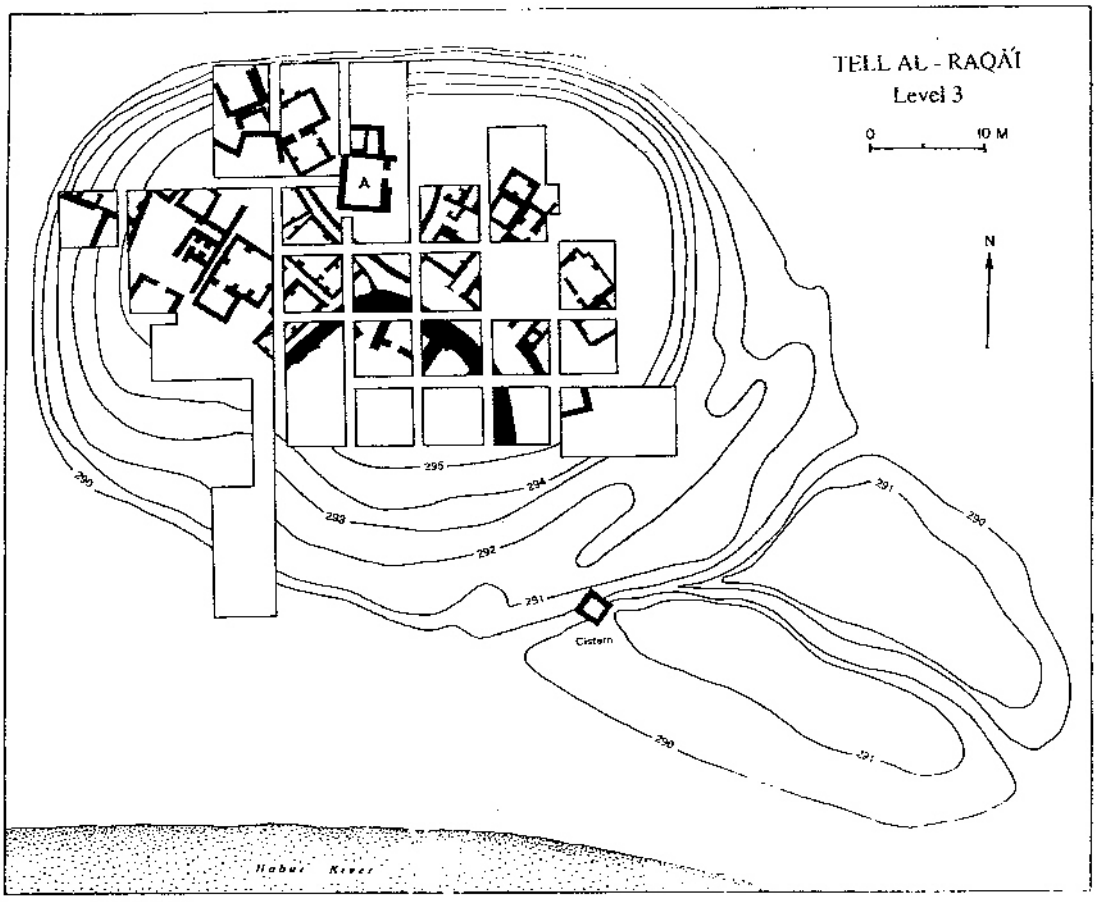
The complexes at 'Atij lasted no longer than the Ninevite 5 period, as we know from graves with Ninevite 5 shapes (fine cups with pointed bases) dug into the latest phase of the storage complexes on the main tell. Raqa'i's latest third millennium occupation, level 2, yielded a post-Ninevite 5 ceramic assemblage but cannot have been much later than level 3, given the architectural continuity between the two levels. Occupation in the middle Habur continued to flourish, however, with settlements excavated at Bderi, Melebiya, and Judeida which date to the third quarter of the millennium, contemporary with Brak Late Early Dynastic III and Leilan II.

In conclusion, we would like to stress that the ideas offered in this discussion, based on early stages of data analysis, are necessarily preliminary. Progress in faunal and paleobotanical analyses, for example, may significantly alter our current interpretations of the data. The function and duration of the middle Habur specialized sites, their relationship with larger settlements such as Bderi and Melebiya, and their possible inclusion in extra-regional economic or political systems are issues which, it is to be hoped, will receive further clarification from the ongoing salvage operations in the area, scheduled to continue into the 1990's.

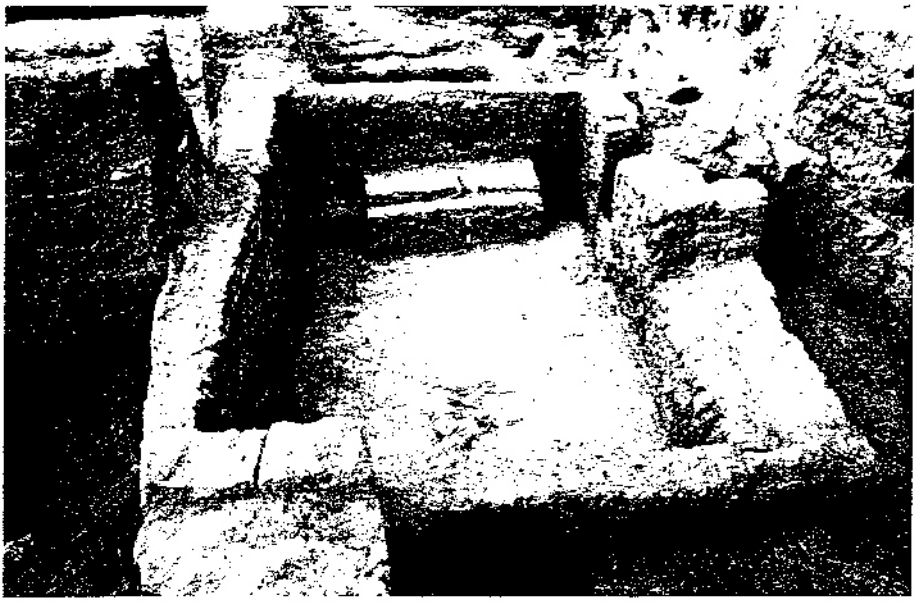
[11] Large-scale river transport of grain to Mari is attested in the early second millennium, when shipments from as far away as Emar were sent down the Euphrates (Finet 1985: 43). Importation of large quantities of grain from Nahur, a locality in the middle or upper Habur area, is also cited in the Mari texts (ARM XIII 36).



- Fig.1 : Map of the middle Habur salvage area.



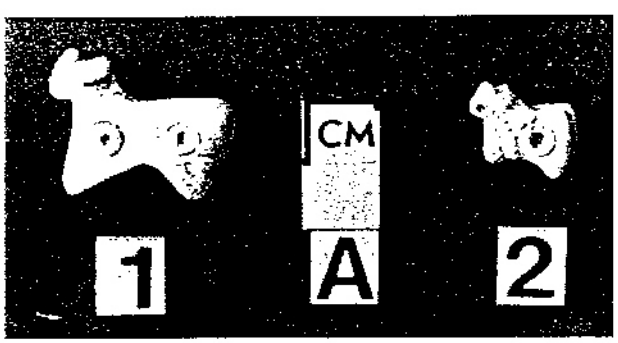
- Fig. 2: Tell al-Raqa'i, level 3. "A" designates the "temple"..



- Fig. 3: Tell al-Raqa'i, level 3, "temple".

- Fig. 4: Tell al-Raqa'i, level 3, plastered installation.

- Fig. 5: Tell al-Raqa'i, view of outer wall of the rounded building and mud-brick constructions inside. Sq. 42/102.



- Fig. 6: Sheep figurines, Tell al-Raqa'i, grave 48/90-7, limestone, vertically perforated.

- Fig. 7: Ceramics, Tell al-Raqa'i, level 3.

1. Sq. 36/96. Light green, fine grit, wheelmade, incised.

2. Sq. 36/120. Light yellow/light pink, fine grit, wheelmade, incised.

3. Sq. 29/114. Light yellow, fine grit, wheelmade, incised.

4. Sq. 36/102. Light yellow, no visible inclusions, wheelmade, incised.

5. Sq. 30/96. Light yellow, no visible inclusions, incised.

6. Sq. 29/114. "Metallic Ware," orange exterior, dark brown/black interior, high-fired, no visible inclusions, wheelmade.

7. Sq. 29/114. "Metallic Ware," black and orange horizontal streaks, black core, high-fired, no visible inclusions, wheelmade.

8. Sq. 29/108. Light green, fine grit and lime, wheelmade.

9. Sq. 36/102. Light yellow/white, no visible inclusions, wheelmade.

10. Sq. 36/102. Light yellow, no visible inclusions, wheelmade.

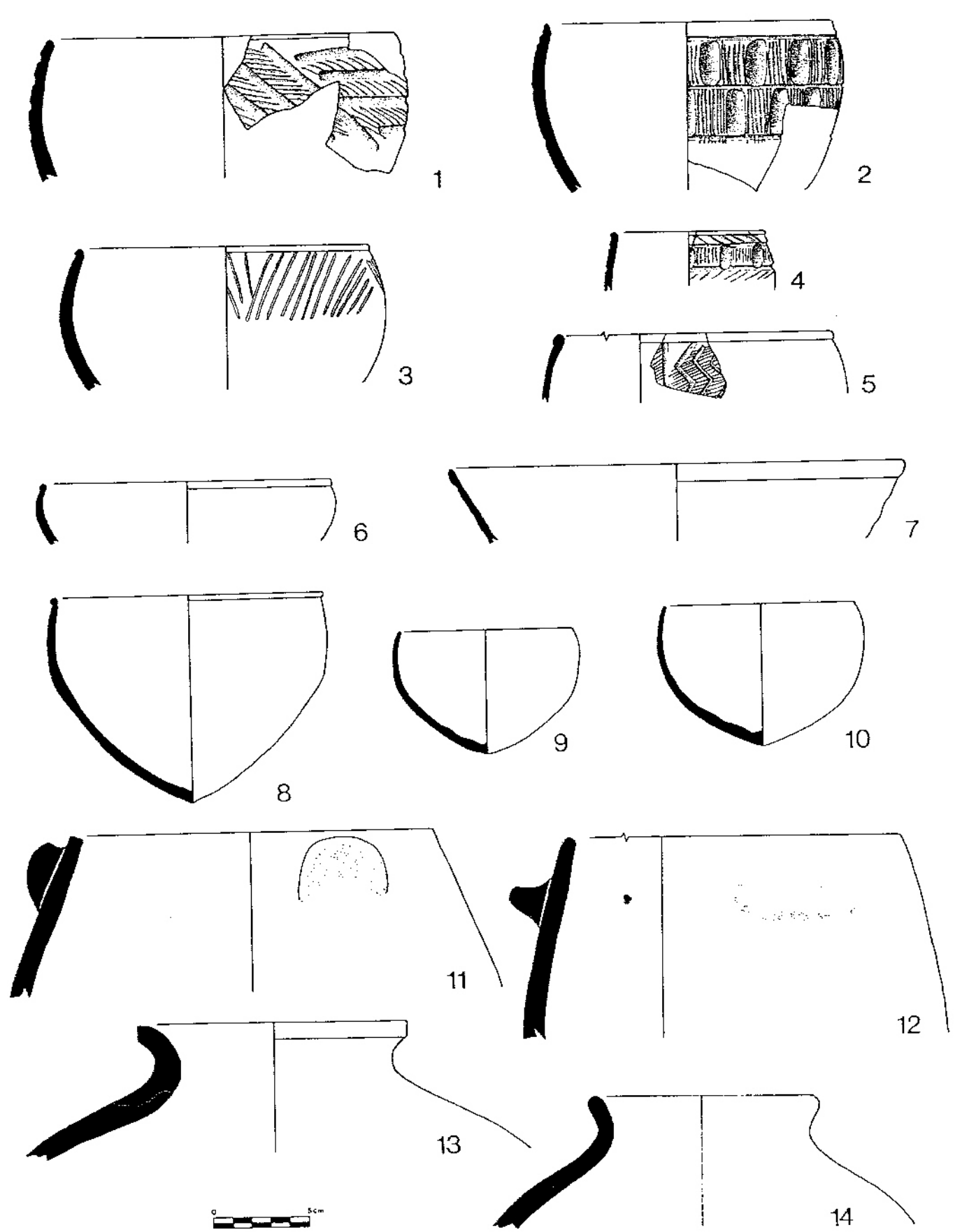
11. Sq. 30/102. Light brown, medium grit, handmade, crescent lug.

12. Sq. 30/120. Brown with dark brown/black areas, fine to medium grit, handmade, exterior smoothed, horizontal lug.

13. Sq. 30/120. Light brownish-red with gray core, fine grit and chaff.

14. Sq. 30/108. Light pink/light brown, chaff.

(Note: Fine grit= ca. .1-.5 mm; Medium grit= ca. 1-1.5 mm; Coarse grit=ca. 2.0 mm+).



- Fig. 7: Ceramics, Tell al-Raqa'i, level 3.

Fig. 8: Ceramics, Tell al-Raqa'i, level 2.

1. Sq. 29/120. Light green, no visible temper, wheelmade.

2. Sq. 29/120. Light yellow, no visible inclusions, wheelmade.

3. Sq. 29/126. Pink, no visible inclusions, wheelmade, traces of dark brown paint/wash in 2 cm horizontal band at rim, exterior.

4. Sq. 30/120. Light yellow, no visible temper, wheelmade.

5. Sq. 29/126. Light yellow with brown core and interior, fine grit.

6. Sq. 29/120. Dark gray, fine grit, exterior lightly burnished.

7. Sq. 29/120. "Metallic Ware," dark brown, red and pink, no visible inclusions, high-fired, wheelmade.

8. Sq. 29/120. Brown, medium to coarse grit, handmade, traces of burnish on exterior, triangular lug at rim.

9. Sq. 29/120. Light brown with dark brown to black areas on exterior and dark brown to black on interior below neck, fine grit, handmade, triangular lug at rim.

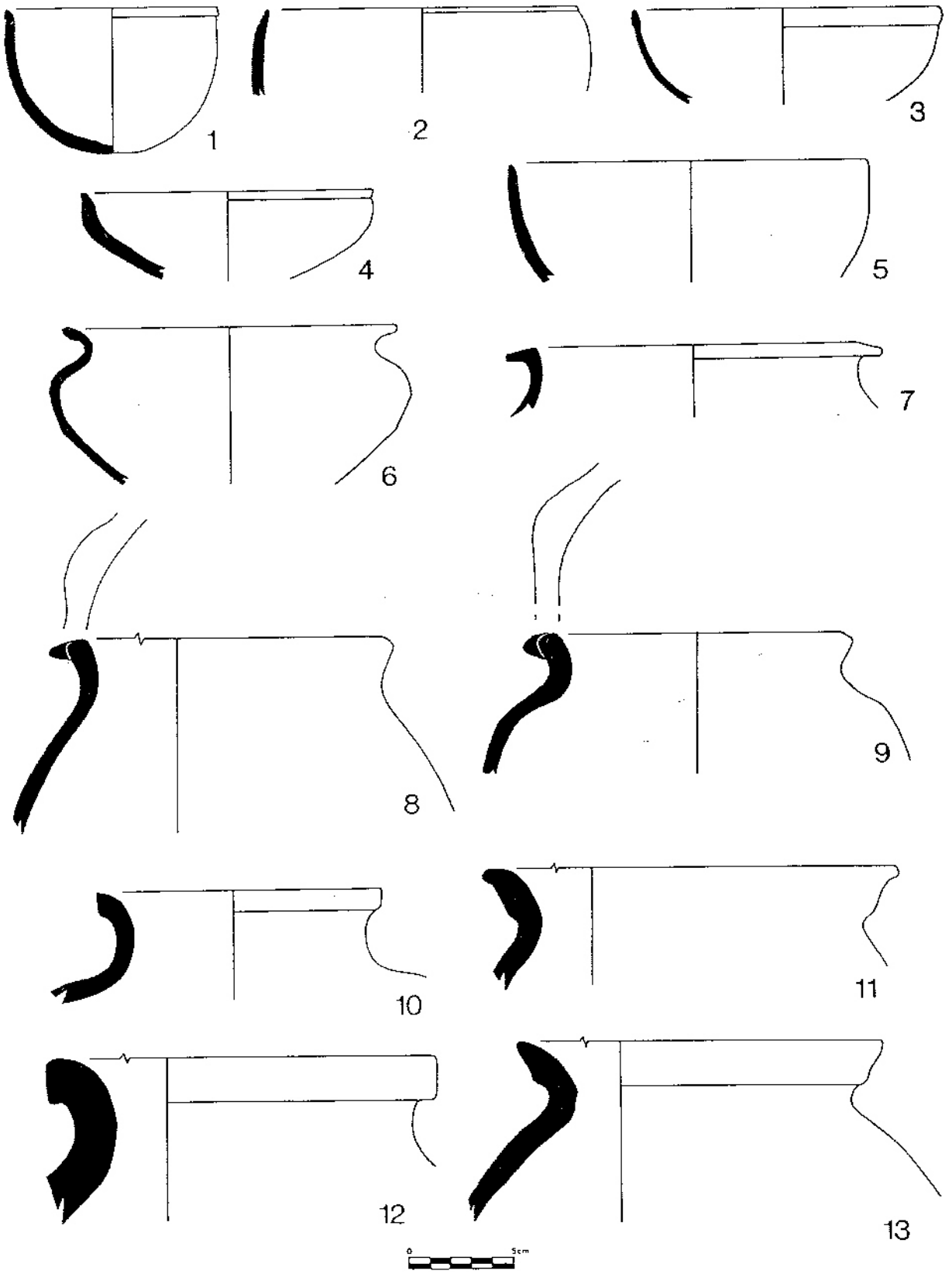
10. Sq. 29/120. Light yellow, fine grit, wheelmade.

11. Sq. 29/120. Light yellow (slip?) with pink core, fine grit and lime, wheelmade.

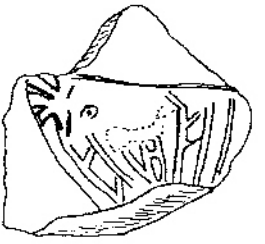
12. Sq. 29/120. Light yellow, fine grit, medium chaff.

13. Sq. 29/120. Light yellow (slip?) with pink core, rim darkened, fine grit, medium chaff.

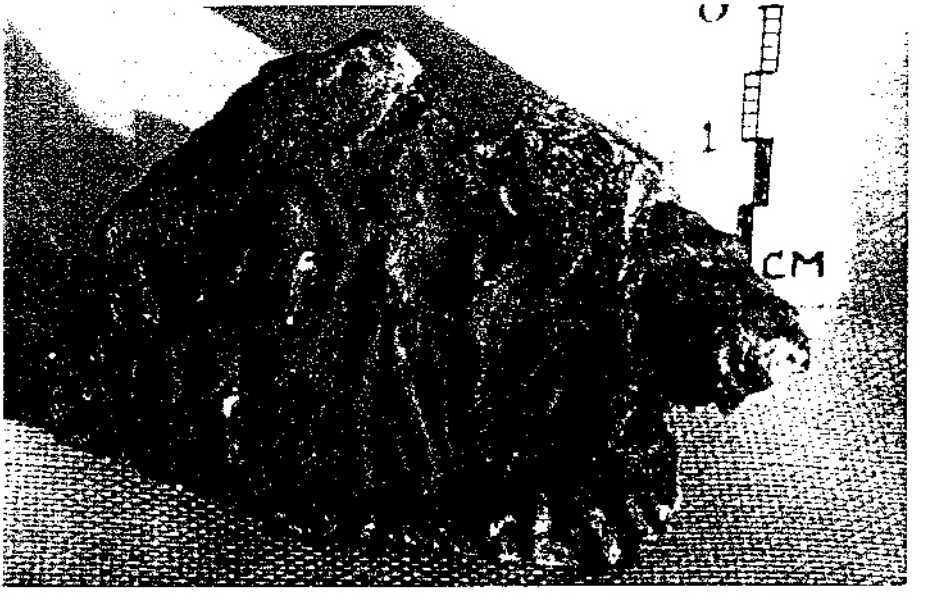
(Note: Fine grit= ca. .1-.5 mm; Medium grit= ca. 1-1.5 mm; Coarse grit=ca. 2.0 mm+).



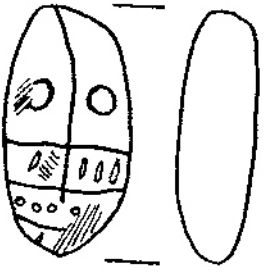
- Fig. 8: Ceramics, Tell al-Raqa'i, level 2.



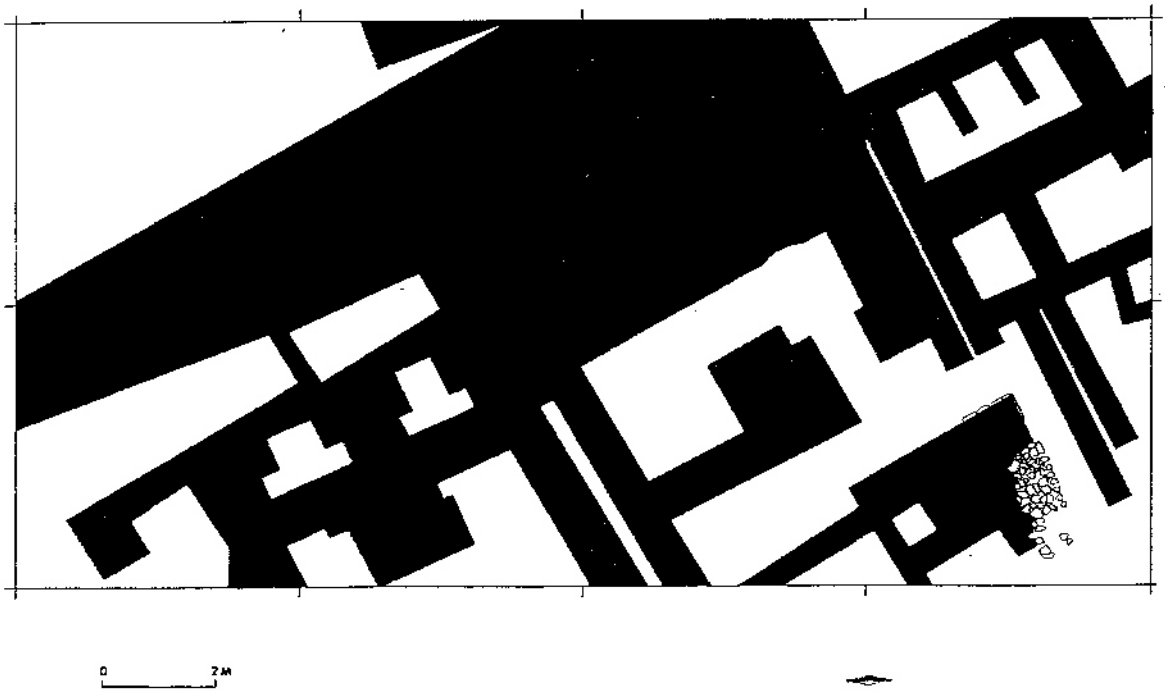
- Fig. 9: Seal impression, Tell al-Raqa'i, level 3. Scale 1:1.



- Fig. 10: Seal impression, Tell al-Raqa'i, level 3.

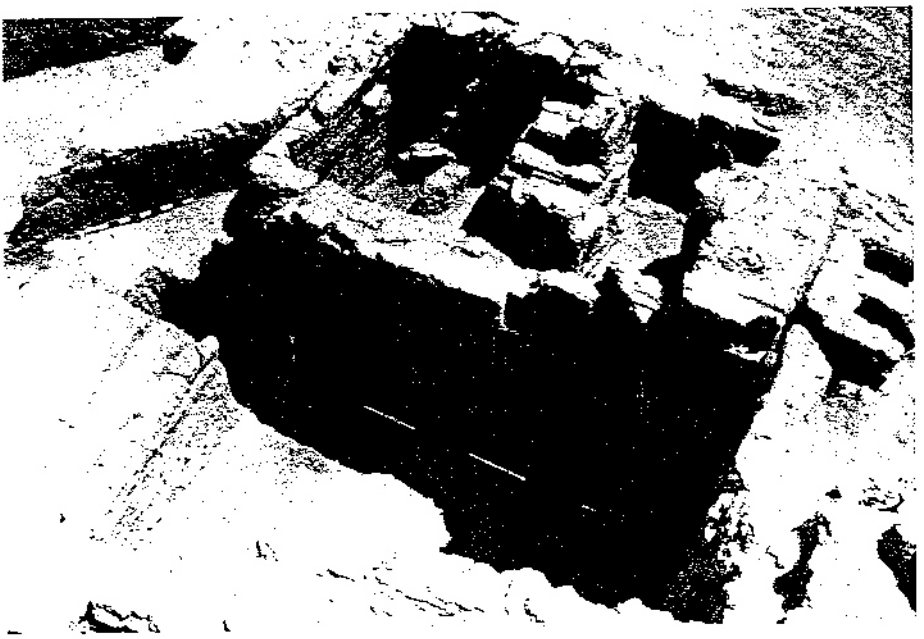


- Fig. 11: Unbaked clay tablet, Tell al-Raqa'i, level 2.

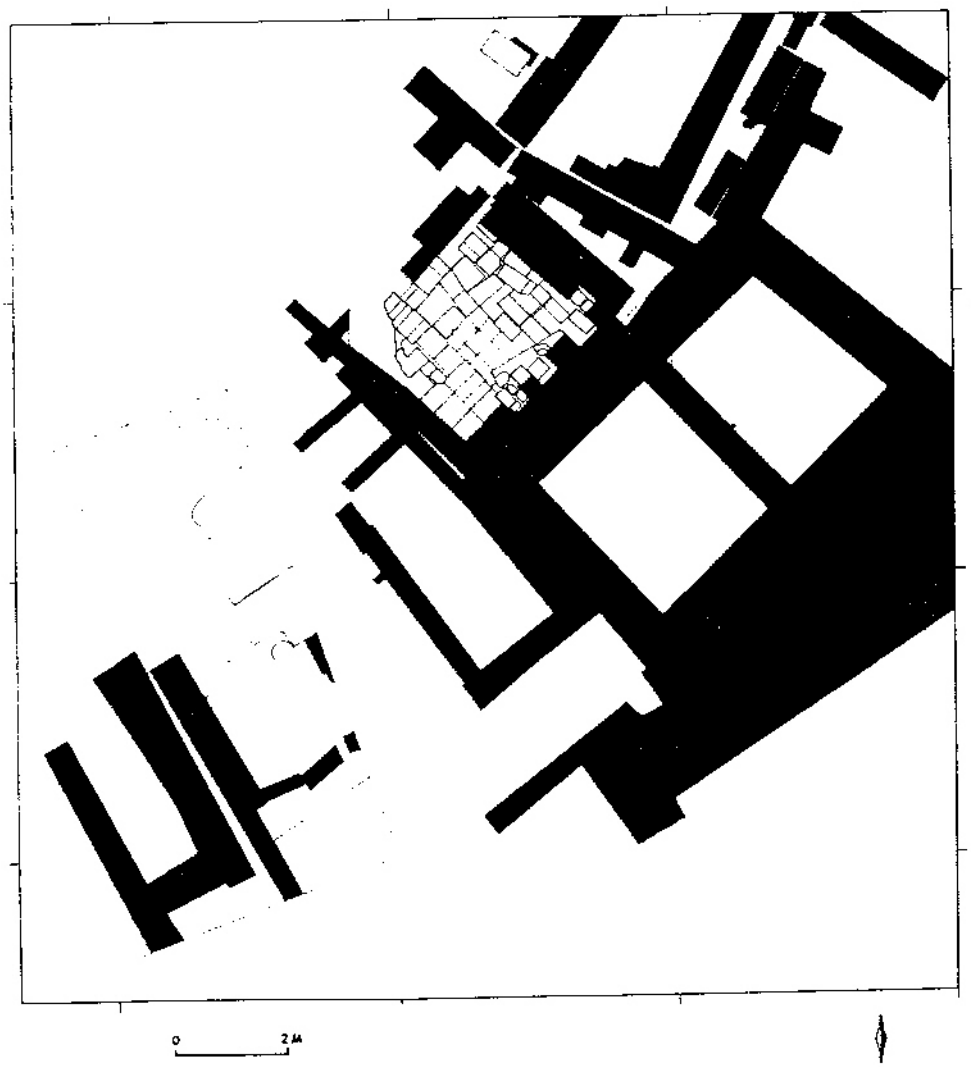


- Fig. 12: Tell 'Atij, plan of granary with adjacent storerooms.

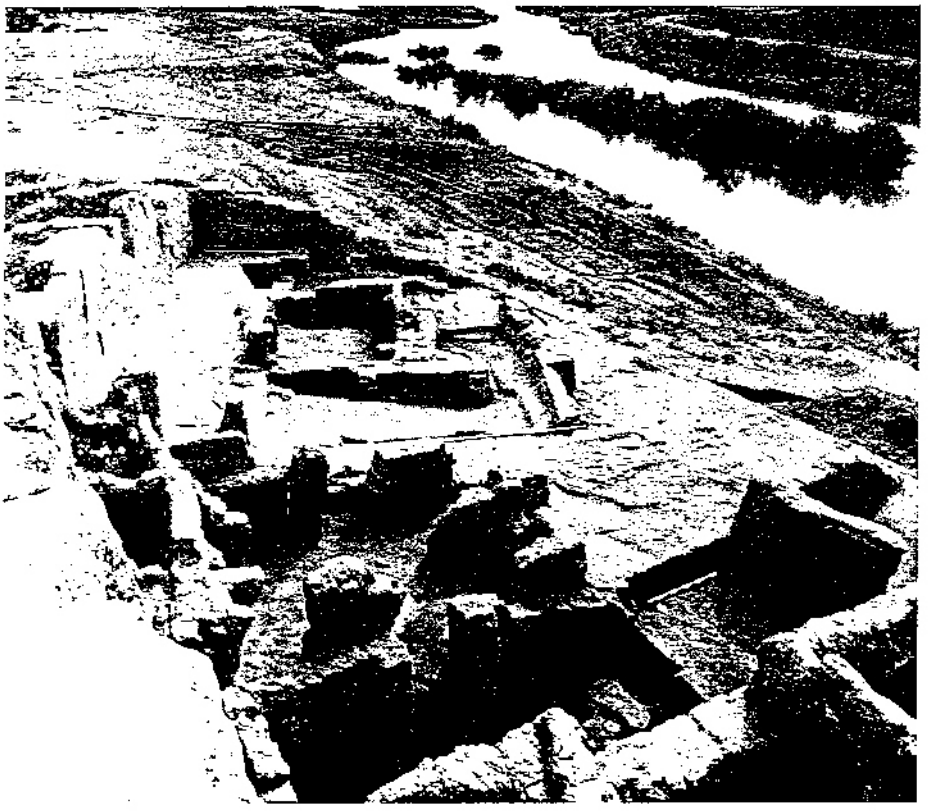
- Fig. 13: Tell 'Atij, granary with silos.



- Fig. 14: Tell 'Atij, storerooms on south slope.

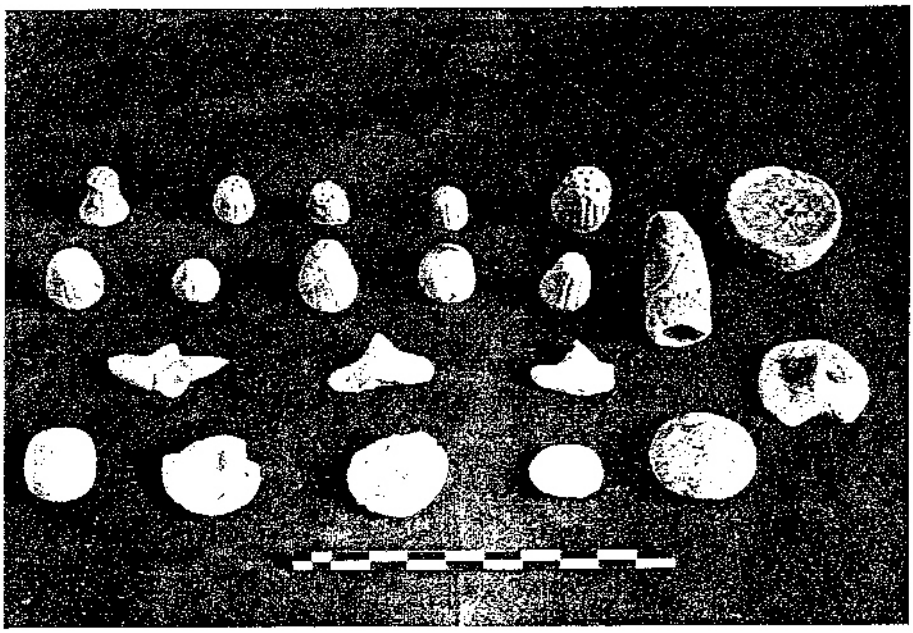


- Fig. 15: Tell 'Atij, storerooms on south slope.



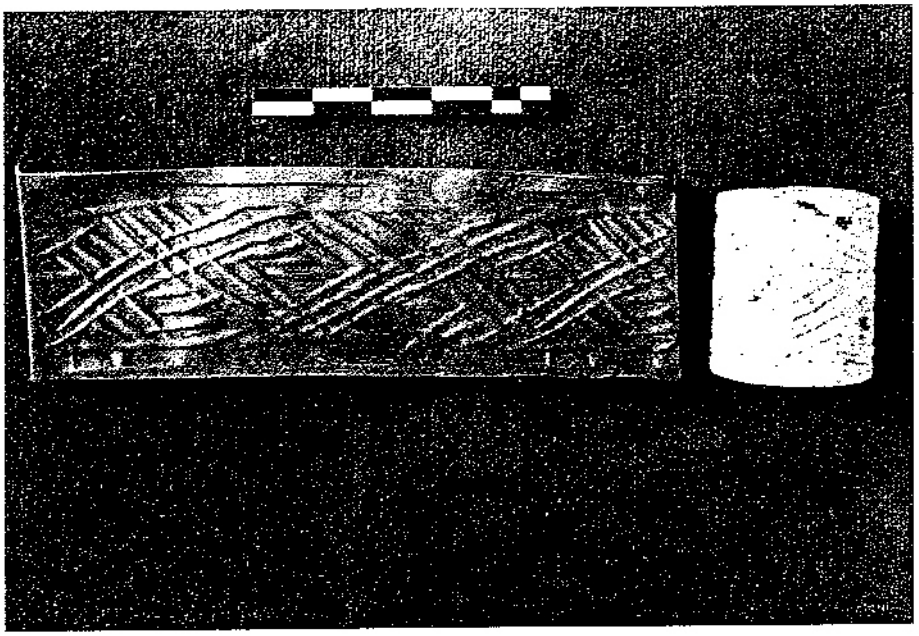
- Fig. 16: Tell 'Atij, storage facilities uncovered in 1988 on the summit of the main tell.

- Fig. 17: Tell 'Atij, storage jars found in situ.

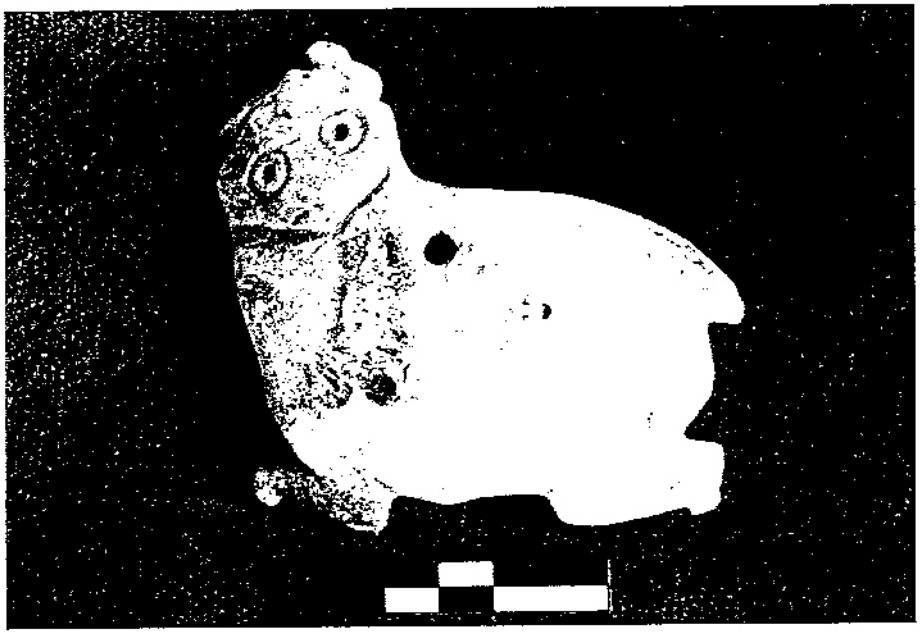


- Fig. 18: Tell ʿAtij, clay tokens.

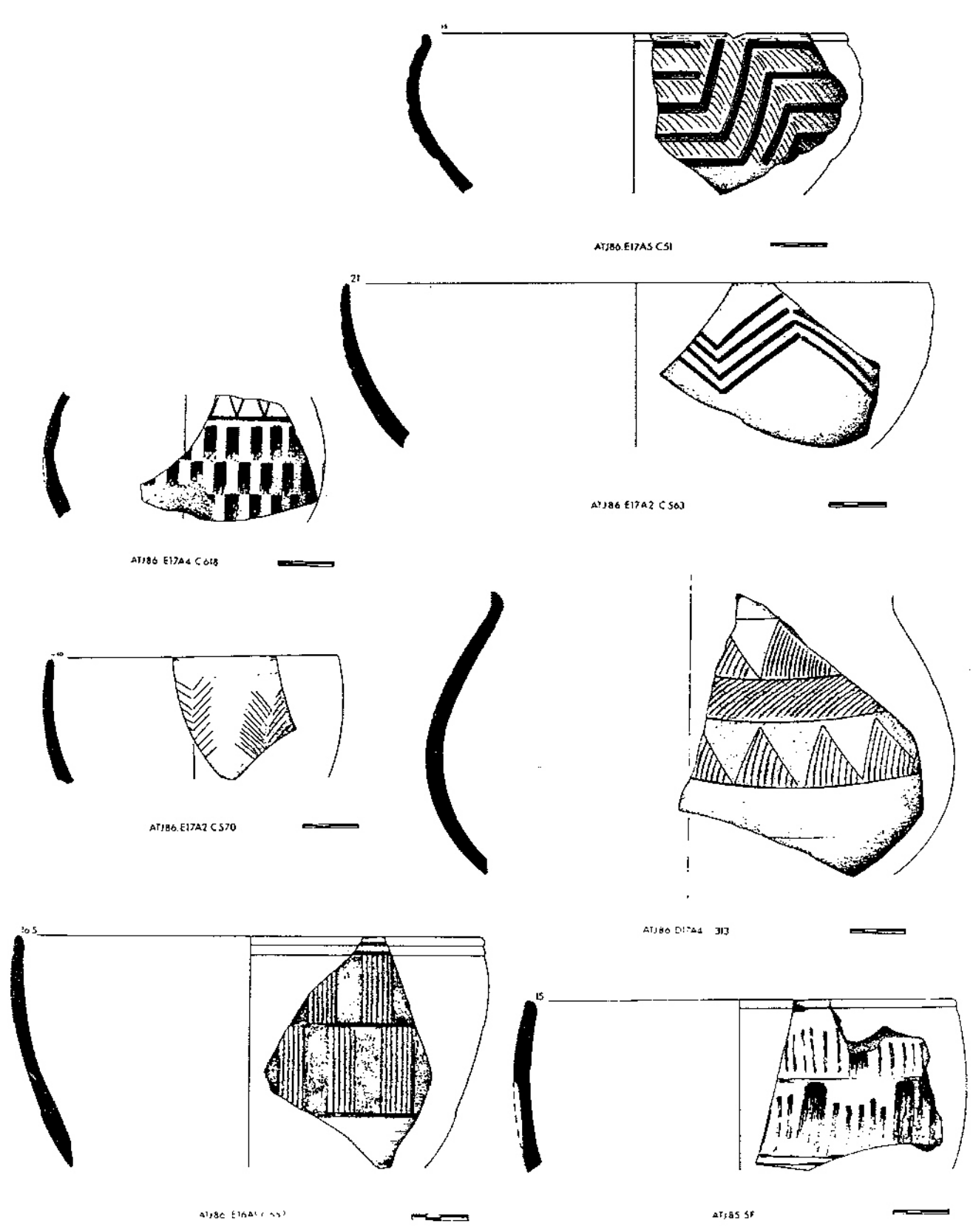
- Fig. 19: Tell ʿAtij, tablet.



- Fig. 20: Tell ʿAtij, cylinder seal.



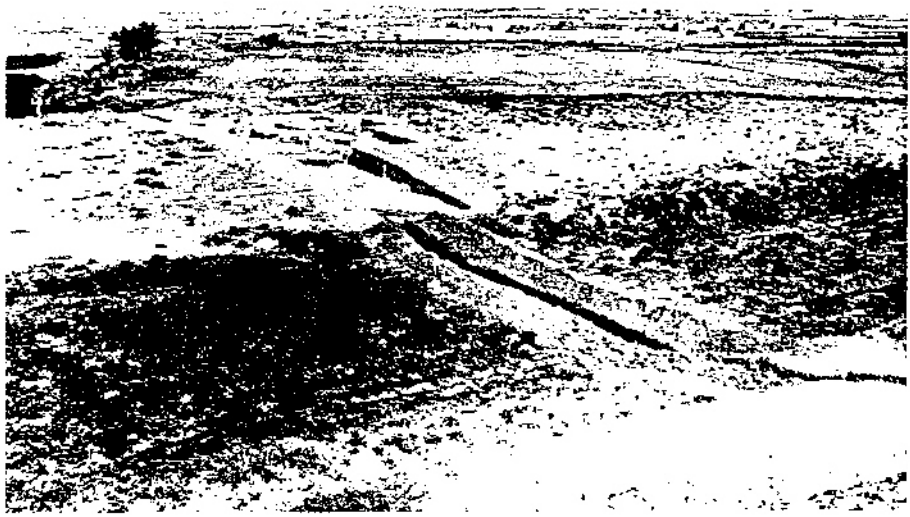
- Fig. 21: Tell ʿAtij, shell bull pendant.



- Fig. 22: Tell ʿAtij, ceramics.

	LEILAN	BRAK	RAQA'I	ATIJ	BDERI (Step Trench)	MELEBIYA	SOUTH MESOPOTAMIA
	II b	Agade					Akkadian
2300							
	II a	Late ED III	2		8 9-12	Late ED III	ED III
2500							
	III d		3	Silos		ED II	
					25?		
	III c		4-7				ED II
2700			? virgin soil	? virgin soil		? virgin soil	
	III b						ED I
3000							
	III a						

- Fig. 23: Tentative suggested relative chronology.



- Fig. 24: Tell 'Atij, channel between the two tells and exploratory trench across it.

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Addendum

Much new excavation and analysis have been conducted in the middle Habur region since this paper was written, and new explanations have been offered for the storage installations found there – although no consensus on their interpretation has yet been reached. For more recent results from Tell al-Raqa'i, including the exposure of an earlier version of the Rounded Building in level 4, see Curvers and Schwartz 1994; Dunham 1993a, b; Klucas 1996; Schwartz 1994b, 2000; Schwartz and Curvers 1992, 1993-,4; and Schwartz and Klucas 1998. For Tell 'Atij and Tell Gudeda, see Anderson and Chabot 2001; Blackburn 1995, 1998; Blackburn and Fortin 1994; Boileau 1998, 2001; Boileau et al. 2001; Chabot 1998, 2001; Chabot et al. 2001; Chénier et al. 2001; Fortin 1990c, 1994, 1995, 1998; Fortin et Cooper 1994; Lease et Laurent 1998; Lease et al. 2001a, b.

Additional early third-millennium sites from the middle Habur salvage region with results published recently include Kerma (Saghieh 1991), Kneidig (Klengel-Brandt et al. 1998), Melebiya (Lebeau 1993), Mulla Matar (Sürenhagen 1990), Rad Shaqrah (Bielinski 1996; Kolinski 1996), and Ziyadeh (Hole 1999).

For general discussions of the middle Habur in the third millennium and interpretation of the storage installations, see Fortin 1991a, 1997, 1999, 2000; Hole 1991, 1999, Pfälzner 2002; Schwartz 1994a, b. On the relationship between Mari and the middle Habur, see Margueron 1991, 2000. See Zeder 1995, 1998 for a discussion of the middle Habur animal economy; on agriculture, see McCorriston 1995, 1998. For Raqa'i, note that the anthropomorphic or animal-shaped pendants from graves discussed above under level 3 are now known to be mainly derived from level 2 graves (see also Fig. 6).

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