

# MADABA PLAINS PROJECT: THE 1989 EXCAVATIONS AT TELL EL-'UMEIRI AND VICINITY

by

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## Introduction

A third season of excavation and survey at Tell el-'Umeiri and vicinity occurred between June 19 and Aug. 8, 1989 (for a full report of the first season 1984 see Geraty *et al.* 1989b; on the second season 1987 see Geraty *et al.* 1989a). A team of about 130 persons took part in the interdisciplinary project, which included excavations on the tell, surveys and soundings within a 5 km radius of the tell, processing of finds in camp laboratories, and camp logistical activities (Fig. 1).<sup>1</sup>

Once again the theoretical objectives of the project focused on cycles of intensification and abatement in settlement and land use in this frontier region between the desert and the sown. Central to this focus was the study of the food systems employed by the inhabitants through time (for a full discussion of the

theoretical framework for the project, its history and previous work done in the region see Geraty *et al.* 1986: 117-119).

The implementation of these objectives were refined during the 1989 season by enlarging the regional survey to five teams, each with its own primary objective; by expanding excavation areas on the central tell; and by excavating two "hinterland" sites, Tell Jawa and ed-Dreijat.

## STRATIGRAPHIC EXCAVATIONS AT TELL EL-'UMEIRI

In 1984, four fields of excavations were opened (Fields A, B, C and D). In 1987, three of the four were expanded (Fields A, B and D), one was completed (Field C) and two new fields were opened (Fields E and F). This season, one was expanded (Field A), two reopened old squares and expanded

1. The authors of this report are especially indebted to Dr. Ghazi Bisheh, the then Director General of the Department of Antiquities; Hefzi Haddad, Amman Antiquities Inspector and Department of Antiquities representative; and Hanan Azar, Department of Antiquities representative. Other members of the Department of Antiquities facilitated our project at several junctures.

The land owner of Tell el-'Umeiri, Dr. Raouf Abujaber, was again generous in allowing our research to proceed unhindered. The officers and staff of the American Schools of Oriental Research and its local affiliate, the American Center of Oriental Research in Amman directed by Bert de Vries, provided invaluable assistance. Others within Jordan, who gave significant help, were Prince Raad ibn Zeid, who has been a constant supporter, and Richard T. Krajczar, then Superintendent of the American Community School in Amman. The Baptist School near Shmeisani, Amman, through its former principal, Wilson Tatum, gave virtually all its very ample facilities to the dig for headquarters.

The expedition took place only because of the financial assistance of Andrews University in con-

sortium with Atlantic Union College, South Lancaster, MA, USA; Canadian Union College, Lacombe, AB, Canada; Walla Walla College, College Place, WA, USA; and Wilfrid Laurier University, Waterloo, ON, Canada. Other funds were raised from private donors and volunteer participants.

Thanks are also due each member of the staff who helped make possible these results. The staff was divided into five sections, including tell excavation, hinterland excavation, regional survey, laboratories, and camp logistics. In charge of planning and overall execution of the project were Lawrence T. Geraty, Larry G. Herr, Øystein S. LaBianca, and Randall W. Younker, co-directors of the project. Field Supervisors included John Lawlor (Field A), Douglas Clark (Field B), Timothy Harrison (Field D), Russanne Low (Field F), James Fisher (Fields E and G), Michele Daviau (Tell Jawa), Lorita Hubbard (ed-Dreijat), Gary Christopherson (random survey), James Battenfield (farmstead documentation survey), Jon Cole (subsurface radar survey), and Doug Schnurrenberger (environmental survey). Roughly 120 volunteers, specialists and camp staff made up the remainder of the personnel.



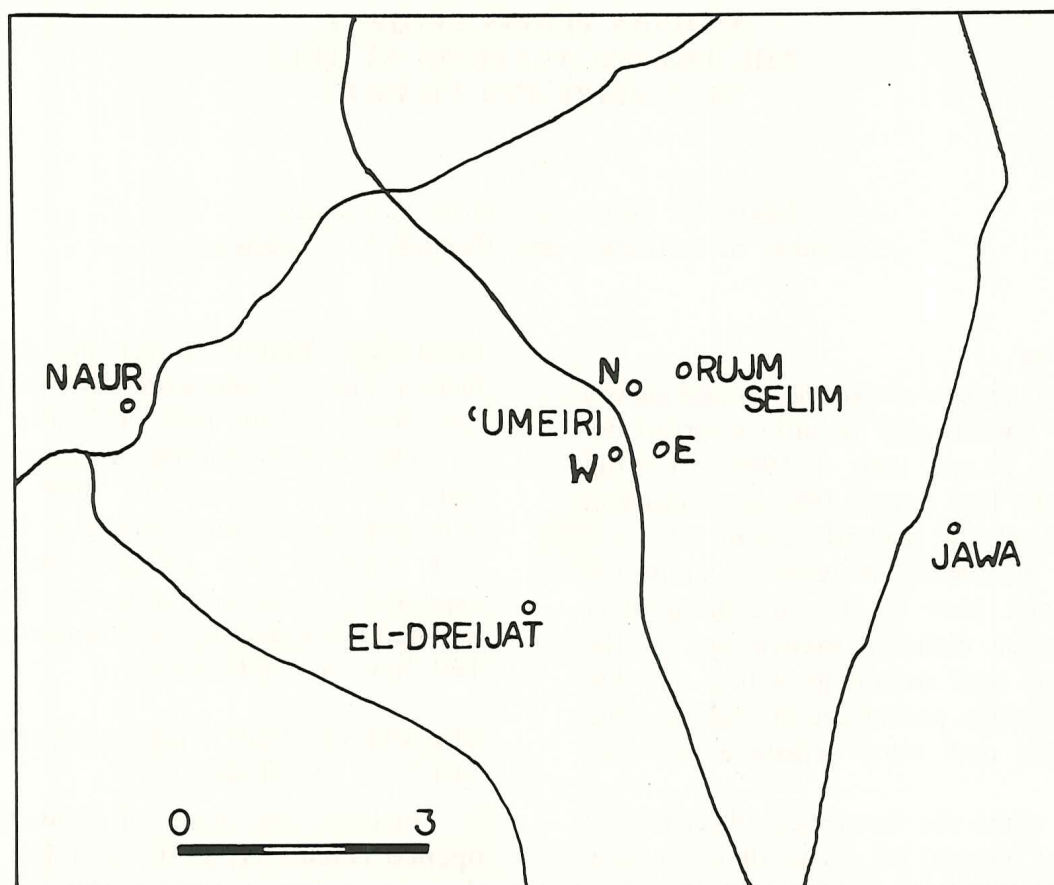


Fig. 1. Sketch map of Tell el-'Umeiri and vicinity with hinterland sites.

slightly (Fields B and F), one did not expand (Field D) and another reduced excavation from two squares to one (Field E) (Fig. 2).

#### Field A: The Ammonite Citadel<sup>2</sup>

Examination of the latest major period of occupation at the site was continued in Field A at the western edge of the acropolis where eight squares had been opened in 1984 and 1987. Four new squares (Fig. 2) were laid out in a line east of the previous excavation in order to outline the eastern limits of three separate buildings discovered in previous seasons. It was hoped that a detailed study of these major buildings in one of the most important parts of the acropolis would help answer questions regarding the function, plan, and extent of the buildings. Whereas earlier excavations had been inconclusive regarding this question; the finds this season were much more satisfying. There is now

evidence for seven phases stretching from Iron I to Byzantine times.

*Field Phase 7* (FP 5 in 1987). The late Iron II and early Persian basement structures of phases 6-3 dug into Iron I remains in the west and east. Those in the west were found in 1987. This season, a layer of ash, ca. 5-10 cm thick, was found which seems to separate late Iron II remains above from Iron I remains below. No early Iron II material was found. More excavation beneath the ash is needed to confirm this suggestion.

*Field Phase 6B* (FP 4B in 1987). Three distinguishable buildings have been delineated (compare Fig. 3 for FP 5, which is similar). Building A, the southernmost of the three, consisted of at least two rooms with another possible room to the east. The walls of Building A averaged about 1.30 m thick. The middle building, Building B, seems to have followed the typical four-room house

2. This section is based on a detailed field report written by John I. Lawlor (Baptist Bible Seminary), supervisor of Field A. The full report will appear as

part of the 1989 seasonal report, *Madaba Plains Project 3*.



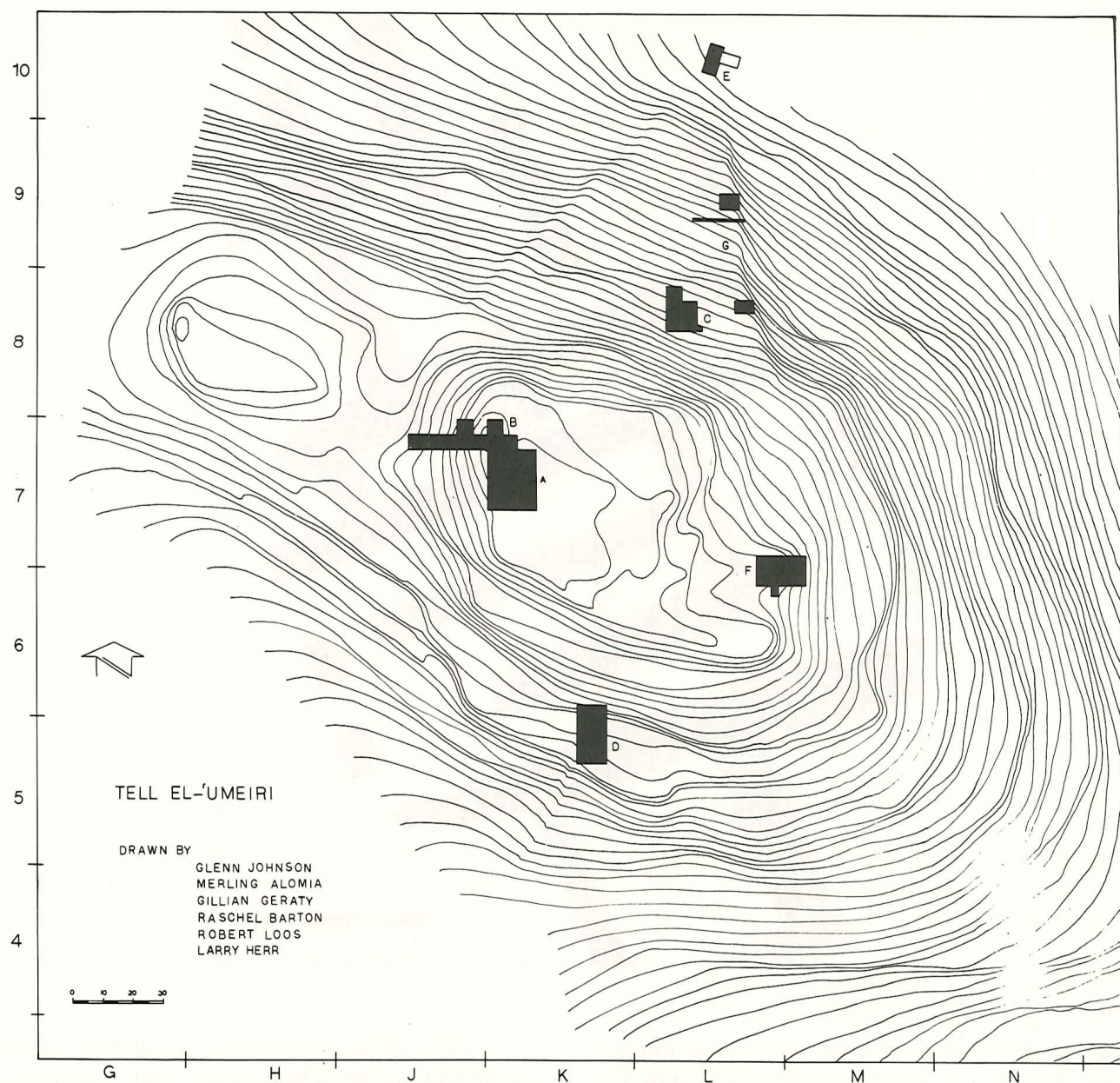


Fig. 2. Topographic map of Tell el-'Umeiri with fields of excavation.

plan, although this plan may not have been complete until Phase 5 (below). Its walls were thinner than those of Building A, ca. 1.00 m thick. Although it appears the entrance to the building was in the east, the evidence is not unambiguous. Building C, the northernmost, contained at least seven or eight rooms connected by doorways. This building included a stairway to the basement with a stone platform at the top. All three buildings seem to be larger and more monumental than most domestic dwellings, especially Building A. Because the original surfaces of the buildings were not reached, no small finds can help determine room or building functions.

The pottery in the lowest fill layers suggests a date in late Iron II.

No additional evidence for the ephemeral rebuild of Field Phase 6A (4A in 1987) was found this season.

*Field Phase 5* (FP 3B in 1987). The major restructuring of Building A has been described in earlier reports (Geraty *et al.* 1989b: 238-242). The other two buildings were reused with possible minor changes and higher floors (Fig. 3). The best preserved floors were in Building C where they were made of beaten earth and contained typical domestic deposits, such as small ash lenses, basalt grindstones, spindle whorls, jar stop-



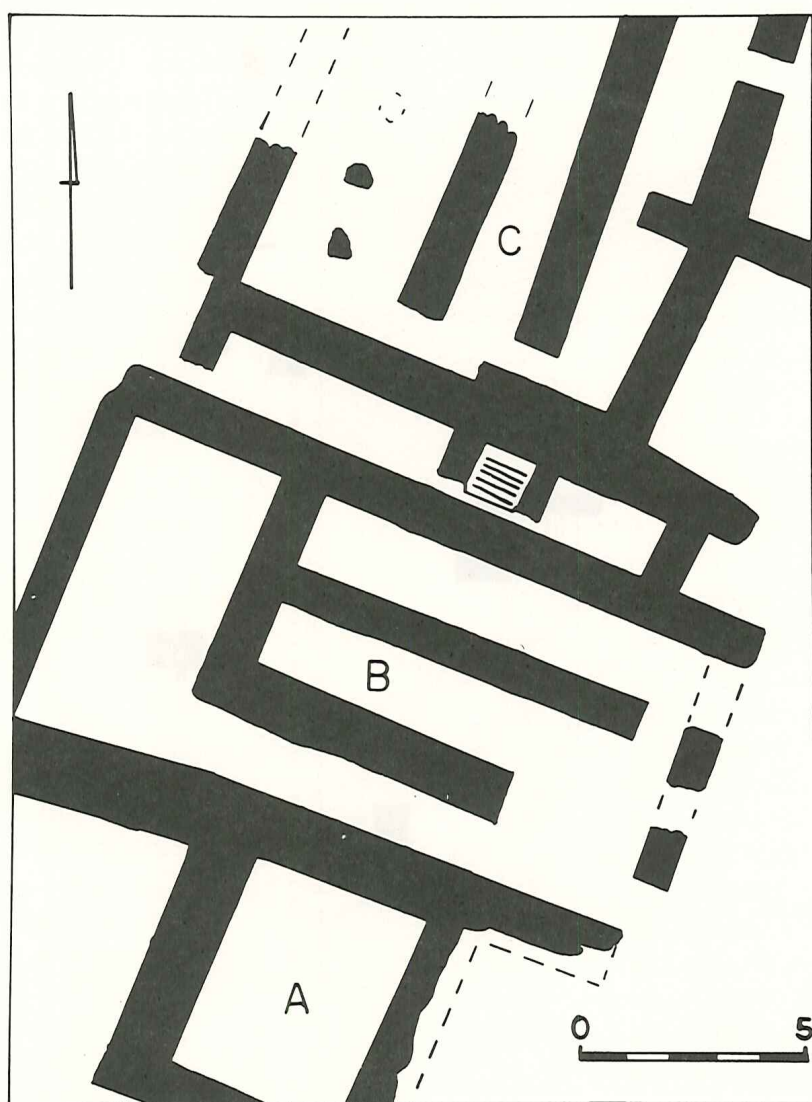


Fig. 3. Field A: Sketch plan of Phase 5.

pers, oven fragments and three large mammal ribs. Two of the doorways in Building C had been blocked. It is perhaps to this phase that the stone-lined silo discovered in 1987 and mistakenly attributed to Phase 2 was constructed. The pottery suggests a date in late Iron II or early Persian.

*Field Phase 4* (includes FP 3A of 1987). The eastern portions of Buildings A and B were altered in this phase by constructing few new walls and altering existing ones. The result was the superimposition of Building D over the earlier remains. The floors were not clear, but portions of three broken storejars were located in one corner. Other finds included a small Assyrian-style bottle (which continued much longer than the Assyrian presence in the region) and pottery most likely from the 6th and 5th centuries B.C.

*Field Phase 3.* A few fragmentary walls seem to have been built above the remains of Phase 4. They included a *tabun* and a small bin with no contents. Part of an early Persian jar was found leaning against one of the walls. From the fill layers surrounding the fragmentary walls came a seal inscribed on both sides with iconography and inscriptions (Pl. I,1). The flat bottom of the seal showed a horned mammal, either a bull or a ram, with a six-letter inscription, *l'l'ms* ("Belonging to 'El'amats"). The convex top showed a bird, possibly a falcon, sitting atop a flower with a 13-letter inscription surrounding the iconography, *l'l'ms bn tmk'l* ("Belonging to 'El'amats son of Tamak'el"). The script of the seal suggests a date in the 7th century. The seal was most likely preserved as earlier material in the Phase-3 fill debris.



*Field Phase 2.* The plastered ritual bath discovered last season and attributed to the early Persian period on the basis of the latest pottery in the fill, must now be moved up to the early Roman period. Upon dismantling a few stones of the foundation structure, two clearly early Roman sherds were recovered.

*Field Phase 1.* Two seal impressions on jar handles were found in topsoil with an inscription containing one name, *lb'r'mn* (Belonging to Be'er'ammon). The paleography suggests a date in the very late 7th to 6th centuries B.C. Although the latest pottery in topsoil suggests a date in the Byzantine period, these impressions must date earlier.

### Field B: The Western Defense System<sup>3</sup>

The objective for Field B on the western slope of the acropolis was to examine the changes which took place in the defenses of the site through time. Four Squares and part of another were opened in 1984 (Geraty *et al.* 1989b: 244-257). In 1987 three squares lengthened the section both up and down the slope (Geraty *et al.* 1989a: 138-145). This season, the field was expanded by one more square at the bottom (Fig. 2). Bedrock was reached only in that bottom square in a narrow probe. A total of twelve phases have been encountered during the three seasons.

*Field Phase 12.* A 2 × 5 m probe descended ca. 2 m into the top layer of a brown, beaten-earth rampart which sloped 24 degrees downward to the west (no. 7 in Fig. 4). The latest pottery in nearly 5000 sherds belonged to the late MB II horizon, including quantities of "chocolate on white" ware.

*Field Phase 11* (FPs 10 and 9 in 1987). The casemate-and-rampart fortification system of Phase 11 was the most coherent phase yet uncovered in Field B (Fig. 4). Although the casemate wall was already discovered in 1984, not until this season was the casemate room excavated. At the bottom of the system was a dry moat. From top to bottom the system was composed of the following items

(numbered according to Fig. 4): 1) The inner casemate wall, ca. 1.0 m wide, separated the defensive system from the town. 2) The outer casemate wall, ca. 2.25 m wide, functioned as the primary defensive wall. 3) A casemate room formed by two crosswalls contained the remains of about 13 collared-rim pithoi (Pl. I, 2). Flotation from the earth inside the broken jars produced a great variety of seeds, such as lentils, chick peas, wheat, barley and spices, suggesting that the pithoi were used to contain dry goods. 4) A beaten-earth rampart laid in layers corresponding to courses in the outer wall. Such construction technique suggests that the rampart served to support the wall structure against the weight of debris inside the city as well as provide a defensive function. 5) A lower retaining wall supported the rampart layers. 6) A dry moat cut almost 5 m deep into the rock of the adjoining ridge.

The casemate room was filled with almost 2 m of burned brick, wooden beams, and calcined stones. A few of the stones in the inner wall were also calcined (Pl. I, 2 lower right). The collared-rim pithoi and other vessels come from the Iron I period (Figs. 5-6). As far as we know, this is the first defensive complex with all these features from Iron I. Inside the casemate wall there was a similar depth of burned brick debris.

*Field Phase 10* (FP 8 in 1987). This was a fill layer overlying the inner casemate wall to level the area for the early Iron II storeroom described in Geraty *et al.* 1989b: 250. Its pottery dated to Iron I.

*Field Phase 9* (FP 7 in 1987). The southern wall of the early Iron II storeroom discovered in 1984 was cleared and found to be resting on FP 10 fill layer. A few fragments from a javelin point were discovered here as well as a complete ceramic figurine mold of a lion's head.

*Field Phase 8* (FP 6 in 1987). A series of pits found inside the defensive system matches those found from this phase in 1984 (Geraty *et al.* 1989b: 253). The fill from the pits contained late Iron II pottery. It is

3. This section is based on a detailed field report written by Douglas R. Clark (Walla Walla College), supervisor of Field B. The report will appear

as part of the 1989 seasonal report, *Madaba Plains Project 3*.



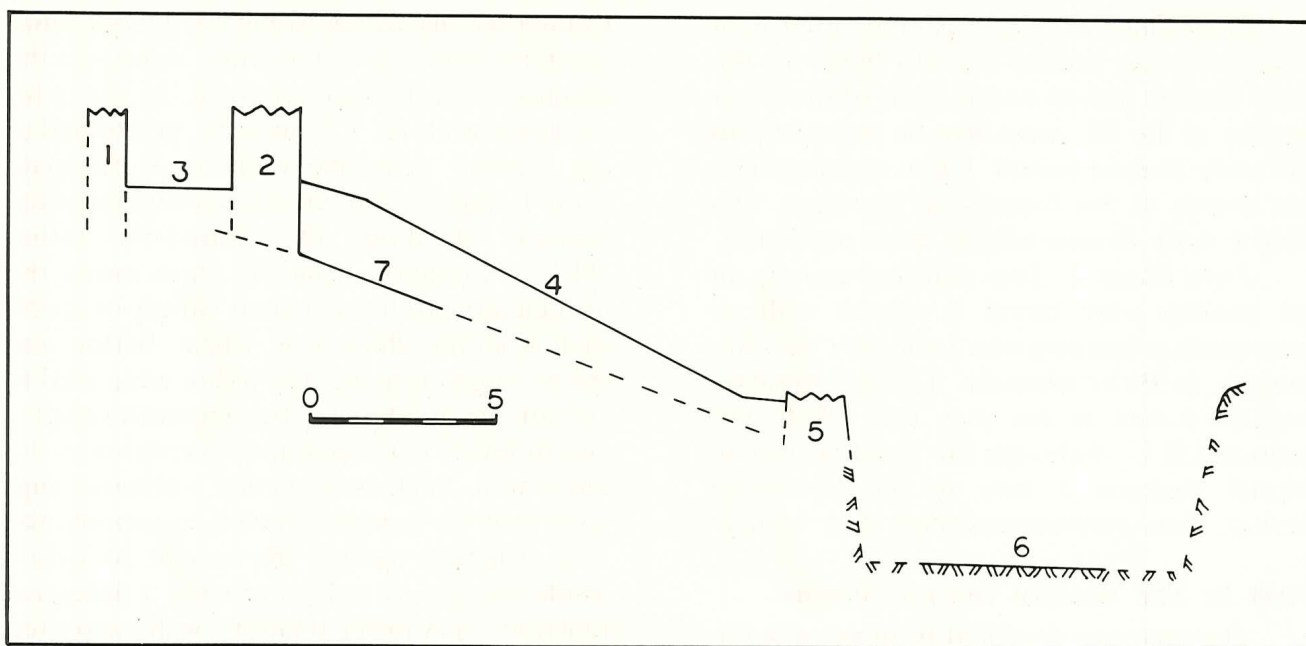


Fig. 4. Field B: Sketch section of Phase 11 casemate-and-rampart defensive system.

possible that the lowest Iron II earth layer, used to repair the surface of the rampart, was part of this phase.

*Field Phase 7* (FP 5 in 1987). Above the rampart repair were thin layers that showed signs of being colluvium or sheetwash originating from periods of low intensity at the site. The pottery was late Iron II.

*Field Phase 6* (FP 4 in 1987). Several fragmentary walls were found in one square above the storeroom of Phase 9 that seem to have had domestic functions. The remains included a cobbled floor and a pillar base. Associated pottery was late Iron II. The outer casemate wall probably did double duty as both the outer wall of this complex and the defensive wall for the settlement.

*Field Phase 5* (FP 3 in 1987). The following two phases reused several of the Phase 6 walls or used its surface to found subsequent walls. New fragmentary walls altered the plan of the domestic structures from Phase 6. There was a beaten-earth floor, a small stone-lined pit, and a hearth. Domestic objects, such as spindle whorls, an earring and millstones, were found on the surface. Pottery belonged to the early Persian period.

*Field Phase 4* (part of FP 2 in 1987). Again, new wall fragments were laid on top of the Phase 5 surface, but also seem to have reused earlier walls to create a new domestic plan. The outer casemate wall still seems to

have functioned as the primary defensive wall in this phase. Pottery belonged to the early Persian period.

*Field Phase 3* (Part of FP 2 in 1987). The plastered ritual bath, dated to the early Persian period after the 1987 season, was clearly identified as belonging to the early Roman period when some of the stones were removed and two ER sherds were recovered. The pool must have been a subterranean part of a Roman building, since disappeared.

*Field Phase 2* (part of FP 1 in 1987). A deep trench-pit excavated in an L-shape around the west and north sides of the Phase 3 pool seems to have robbed materials surrounding the pool. Although its fill contained a rich corpus of pottery and objects, nothing could be dated to the Roman period. But because it seems to have been a robber pit, we have tentatively suggested it post-dated Phase 3 and possibly belonged to the Byzantine farm found in Field F in 1987. But it is also possible the pit was part of the foundation for the pool. However, it was not found south and east of the pool.

*Field Phase 1* (part of FP 1 in 1987). Topsoil contained a great amount of pottery and objects (a far greater proportion than any lower earth layer), suggesting that agricultural activities and concomitant wind erosion have reduced the depth of deposition at the site by a considerable amount.



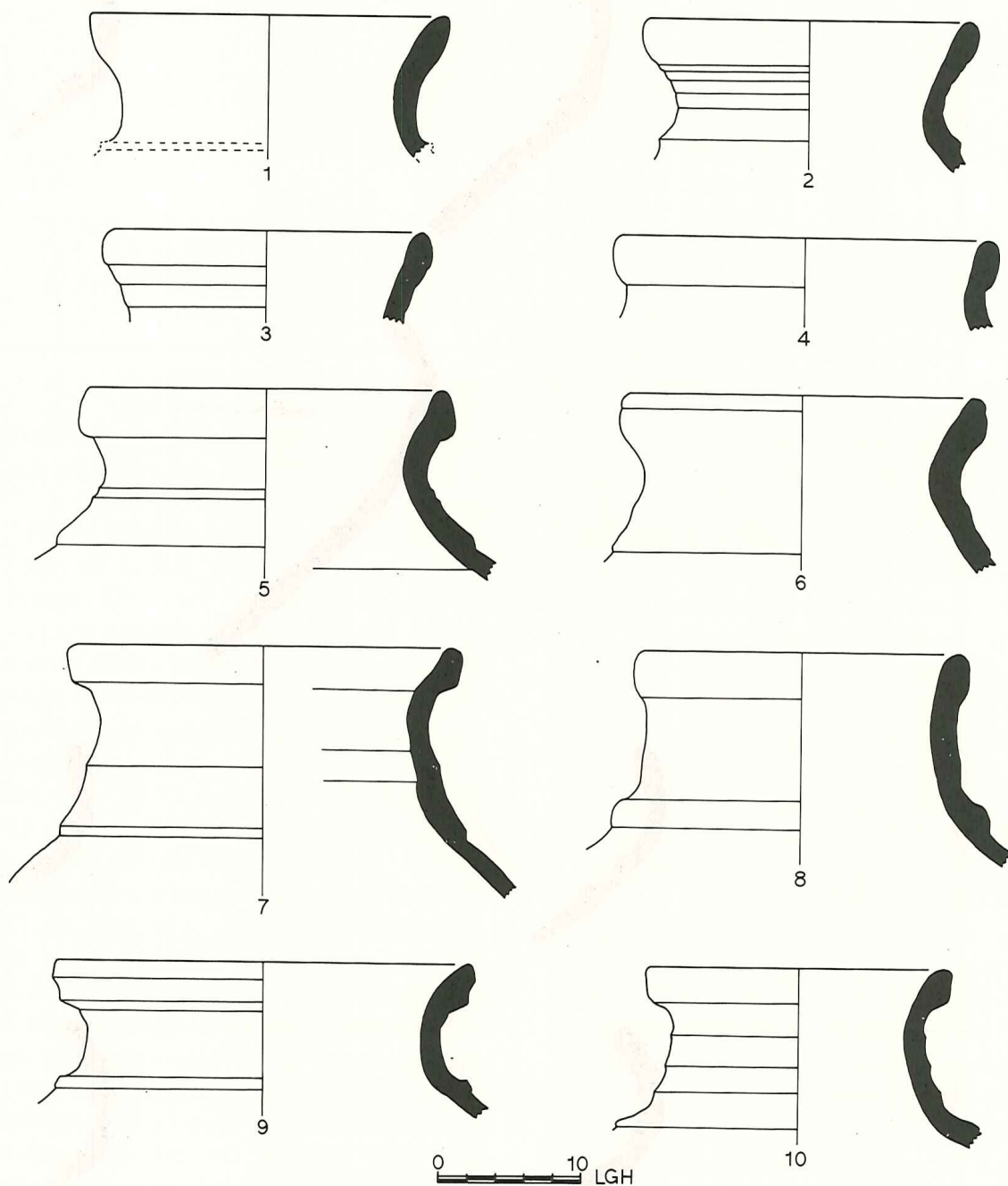


Fig. 5. Field B: Rim fragments of Iron I collared-rim pithoi from Phase 11.



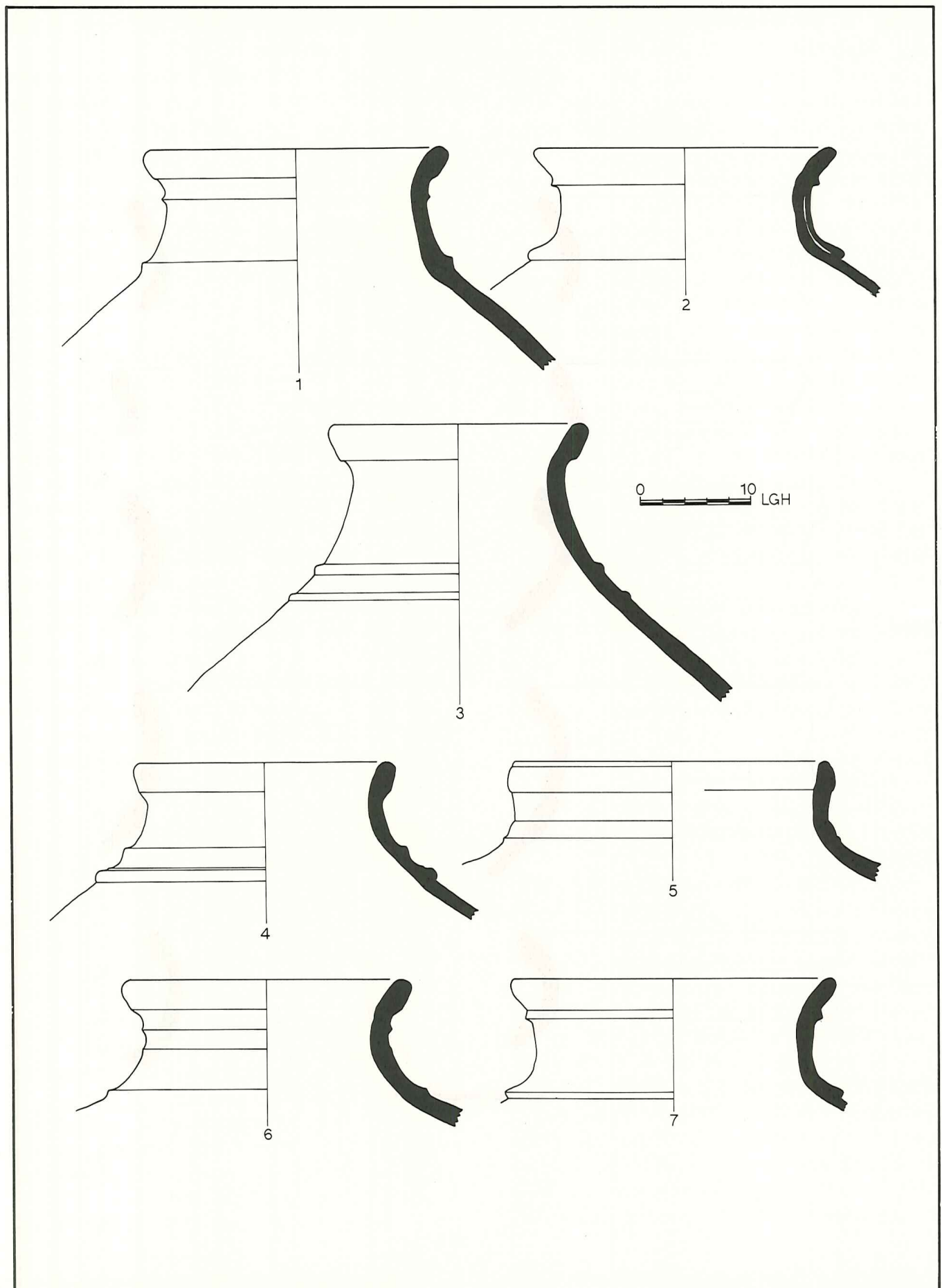


Fig. 6. Field B: Rim fragments of Iron I collared-rim pithoi from Phase 11.



#### Field D: The Lower Southern Shelf<sup>4</sup>

The 1984 excavations on the lower southern shelf (Geraty *et al.* 1989b: 182-295) uncovered two fragmentary phases which were originally ascribed to the EB IV period, but now must move to late EB III. Below were emerging remains of earlier phases. In 1987 the field was expanded to the north, where five phases (now called sub-phases) of an EB III domestic complex were found (Geraty *et al.* 1989a: 138-145). This season, excavation returned to the initial area laid out in 1984 and took all four squares deeper. Additionally, one of the 1987 squares was excavated to bedrock and a narrow probe investigated the remains on the southern slope of the shelf. There are now six phases of remains in Field D.

*Field Phase 6.* By the end of the season there was no suggestion that we had reached the earliest deposits in Field D. The earliest stratigraphic loci have been included as Phase 6. Debris seems to have accumulated on a broad bedrock shelf immediately to the south of the 1987 excavation. Descending through this debris was a stone-lined shaft whose mouth was beneath the Phase 5 surface. The shaft was only 0.25 m in diameter, but went down 1.50 m into the ground. There seems to be an open space at the bottom of the shaft. It is clearly too narrow for human passage and may have functioned as an air shaft. The pottery from surrounding layers suggest an EB III date.

*Field Phase 5.* Two structures were separated by a narrow passageway running north-south. The building to the east was roughly square-shaped, but so far excavation has not reached associated surfaces. Very little is preserved of the house west of the passageway. The pottery seems to be EB III.

*Field Phase 4* (FPs 10, 9, 7, 6B, 6A in 1987). This is the major architectural feature excavated this season (Fig. 7). Passageway 2 of Phase 5 continued into this phase and separated two housing complexes. Passageway 1, north of the eastern house, was wider than Passageway 2 and ran along the foot of a

terrace wall separating the terrace we dug this season from that of 1987.

The eastern house was entered through a cobbled courtyard, Room 1, opening onto Passageway 1 by a broad entrance. The presence of ashes, two bins, and the cobbled floor suggest courtyard activities as cooking and animal husbandry. Flint blades, grinding tools, and spindle whorls were found on the floor. The entrance from Room 1 into Room 2 was in the SE where a stepped threshold descended into an apparently rectangular room subdivided by a low stone step (the floor was higher in the north than the south). On the floor were major parts of 29 pottery vessels, ranging from holemouth jars to necked jars to small juglets (Fig. 8 illustrates two of the jars). There was also a wealth of other domestic artifacts, such as Canaanite flint blades, spindle whorls, a bone spatula, a whetstone, an upper millstone, a mortar and pestle, and other grinding stones. Preliminary analysis of the contents of the vessels included chick peas, sweet helbe, long fegal (an onion), wheat, barley, lentils, radishes, poppies, black-eyed beans, squash, sumac, figs, pomegranates, olives, and grapes. In Room 3 was a wide bench that may have served as a counter for a kitchen area. Into the counter was built a sunken hearth made of large flat stones; it was filled with ash.

West of Passageway 2 was another domestic complex, but only two rooms have been found. Room 4, the southern room, was only partially preserved. Room 5 was better preserved. The room was entered from Passageway 2 over a stone threshold. A square bin was found along the north wall and a curved bin emerged along the south wall.

In Passageway 2 was a small line of four upright stones opposite the door into Room 5. No satisfactory explanation for this feature has been proposed so far.

All these structures were supported in the south by a terrace wall. It stands over 2 m high in the southern probe and is also visible along the scarp of the shelf.

Above the surfaces of the rooms of both

4. This section is based on a detailed field report written by Timothy P. Harrison (University of Chicago), supervisor of Field D. The report will

appear as part of the 1989 seasonal report, *Madaba Plains Project 3*.



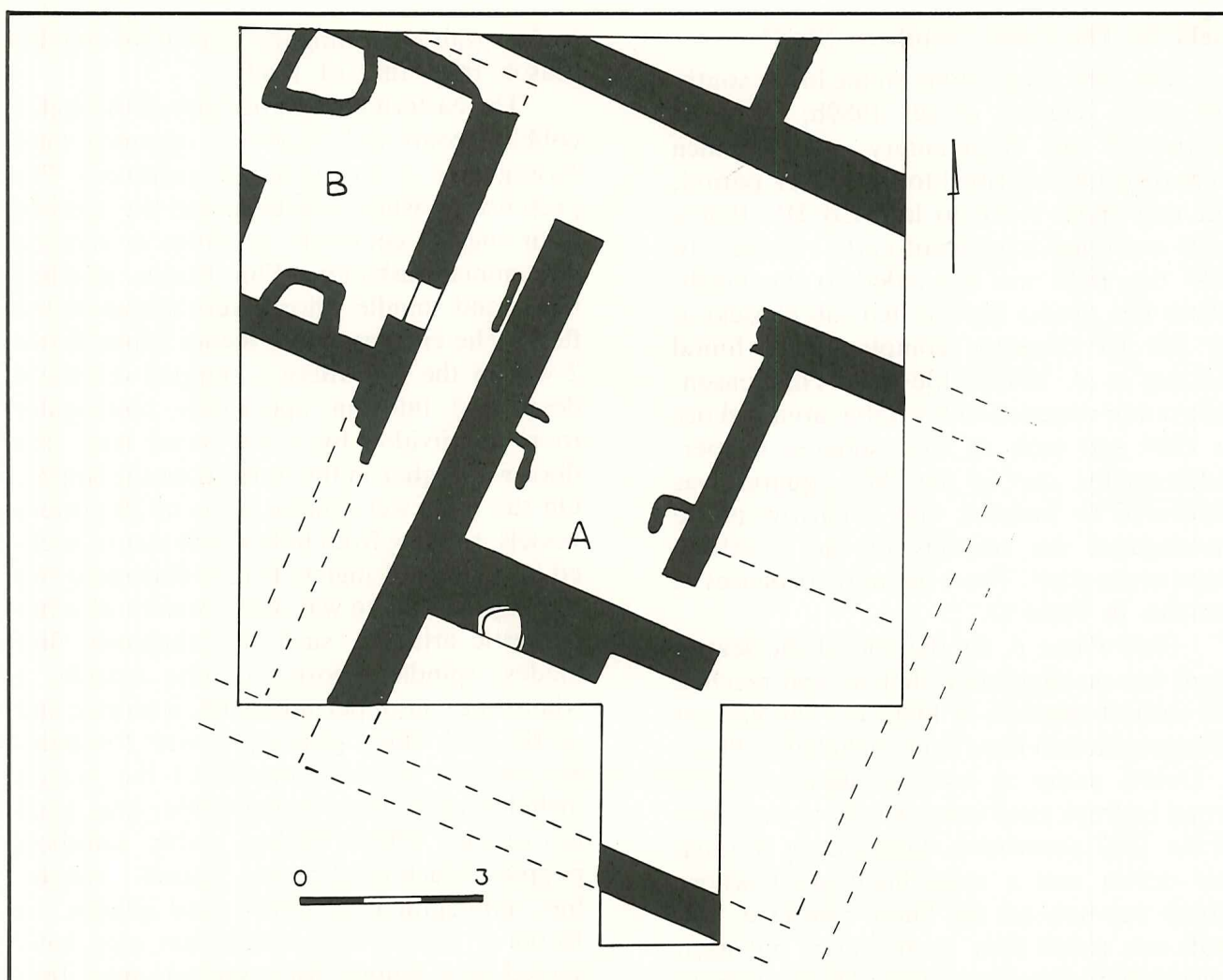


Fig. 7. Field D: Sketch plan of Phase 4 domestic architecture.

domestic complexes were indications of a fiery end. Burned bricky material was found throughout, as were ash deposits in the shape of wooden beams. Everywhere were clumps of plaster still preserving the impressions of reeds which formed the roof above the wooden beams. The pottery dates to the EB III period.

From the remains excavated it is possible to suggest that the Phase 4 settlement was unwallled, perhaps secured only by terrace walls that also incorporated house walls. The house compounds were arranged neatly on terraces with passageways providing communication and separating the houses into blocks of dwellings. There was thus consider-

able town planning, but not much interest in defensive concerns.

*Later Phases.* No remains of the later phases were excavated this season.

#### Field E: The Water System<sup>5</sup>

In 1987 two squares were opened west of the present well house at the bottom of the north slope of the tell. Because the southern of these two squares produced only fill layers, it was not reopened this season. Thus, excavation in 1989 was limited to one square immediately west of the well house. Eight phases have so far been isolated.

*Field Phase 8.* The top of a wall began to emerge at the end of the season. It was sealed

5. This section is based on a detailed field report written by James R. Fisher (Andrews University), supervisor of Field E. The report will appear as part

of the 1989 seasonal report, *Madaba Plains Project* 3.



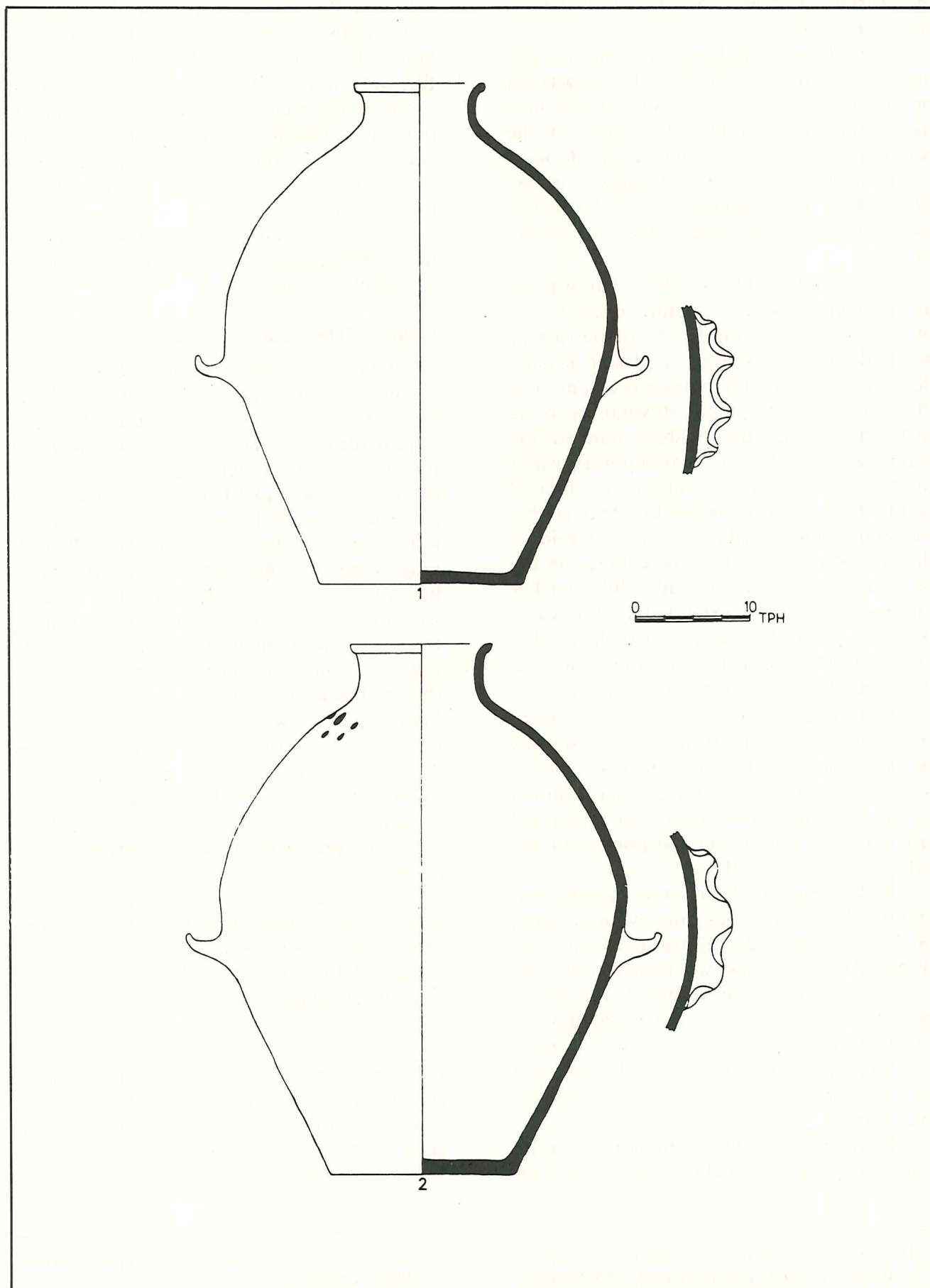


Fig. 8. Field D: Two jars from Phase 4, Room 2.

by a surface of Phase 7 and may thus date to Iron I (below).

*Field Phase 7.* A hard sandy surface was used with a small patch of plaster. It was cut by the large Phase 3 foundation pit, but may have functioned to provide access to the water system, which presumably would have been roughly where the well house is today. The pottery was primarily Iron I, but a few early Iron II sherds suggest the date of the surface.

*Field Phase 6* (FP 5 in 1987). This was the most coherent water structure prior to the present well house (Fig. 9). A cobble surface was laid north and south of a plaster installation, of which only the bottom is extant. The Phase 3 foundation pit cut off what lay to the east. Presumably the cobbles flanked the immediate area of the contemporary water source. The plaster installation was situated at the low point between the two cobble pavements and possibly served to retain or channel water. Bordering the cobbles on the northwest was a curving wall, while, farther south, another wall extended to the west. Between the walls was an earth layer that contained late Iron II pottery, the same date as the pottery lying on the cobble pavement.

*Field Phase 5.* In 1987, two walls were found which extended from the west toward the water source. This season it was discovered that the Phase 6 curving wall continued in use with these two walls. No associated surfaces were found, but the pottery in the walls was late Iron II.

*Field Phase 4.* Again, the curving wall continued to exist, this time with a small patch of surface preserved within its curve. A plastered water channel was discovered in the northeast corner of the square. It ran north-eastward, suggesting that the contemporary water structure was north of the present structure. The pottery in the channel and beneath the surface patch was Roman/Byzantine.

*Field Phase 3.* The foundation pit in the southwest quadrant of the square was exca-

vated to the vaulted top of a short tunnel which branched off the west side of the well house. The tunnel is visible from the inside of the well house where its stones bond with those of the well house, indicating contemporaneity. The function of the tunnel remains elusive, but the date of the structure is now known from the Byzantine pottery in the foundation pit.

No new data impacting on the interpretation of Phases 2 and 1 were discovered during the 1989 season.

#### Field F: The Eastern Shelf<sup>6</sup>

During the 1984 random surface survey of the site, the eastern shelf produced the most balanced series of ceramic readings anywhere; that is, pottery quantities from all major periods of settlement were represented in more-or-less equal percentages (Geraty *et al.* 1989b: 216-232). There were also surface indications that the southern city wall, running along the edge of the acropolis, ended here in a tower (Fig. 2). North of the "tower" was a depression running up the slope from the east and flanked by another possible tower (a stone pile) on the north, suggesting the existence of a gateway to the acropolis. Four squares were laid out in 1987 to intersect the eastern side of the northern "tower" of the proposed gateway and to examine the eastern shelf as it approached the structure (Fig. 2). A fifth square was later added to the south in the topographic depression.

This season, two new squares were opened east of the original four on the eastern shelf, while the western two squares were deepened to bring the field into phase. So far, eleven phases of occupation have been discerned.

*Field Phase 11.* Two fragmentary, parallel stone walls (ca. 0.60m thick), with a cobble surface between, may have formed the boundaries of a room of a domestic dwelling situated near the eastern extent of Field F. On the surface was a spindle whorl and a

6. This section is based on a detailed Field report written by Russanne Low (University of Maryland, Munich), supervisor of Field F. The report will

appear as part of the 1989 seasonal report, *Madaba Plains Project 3*.



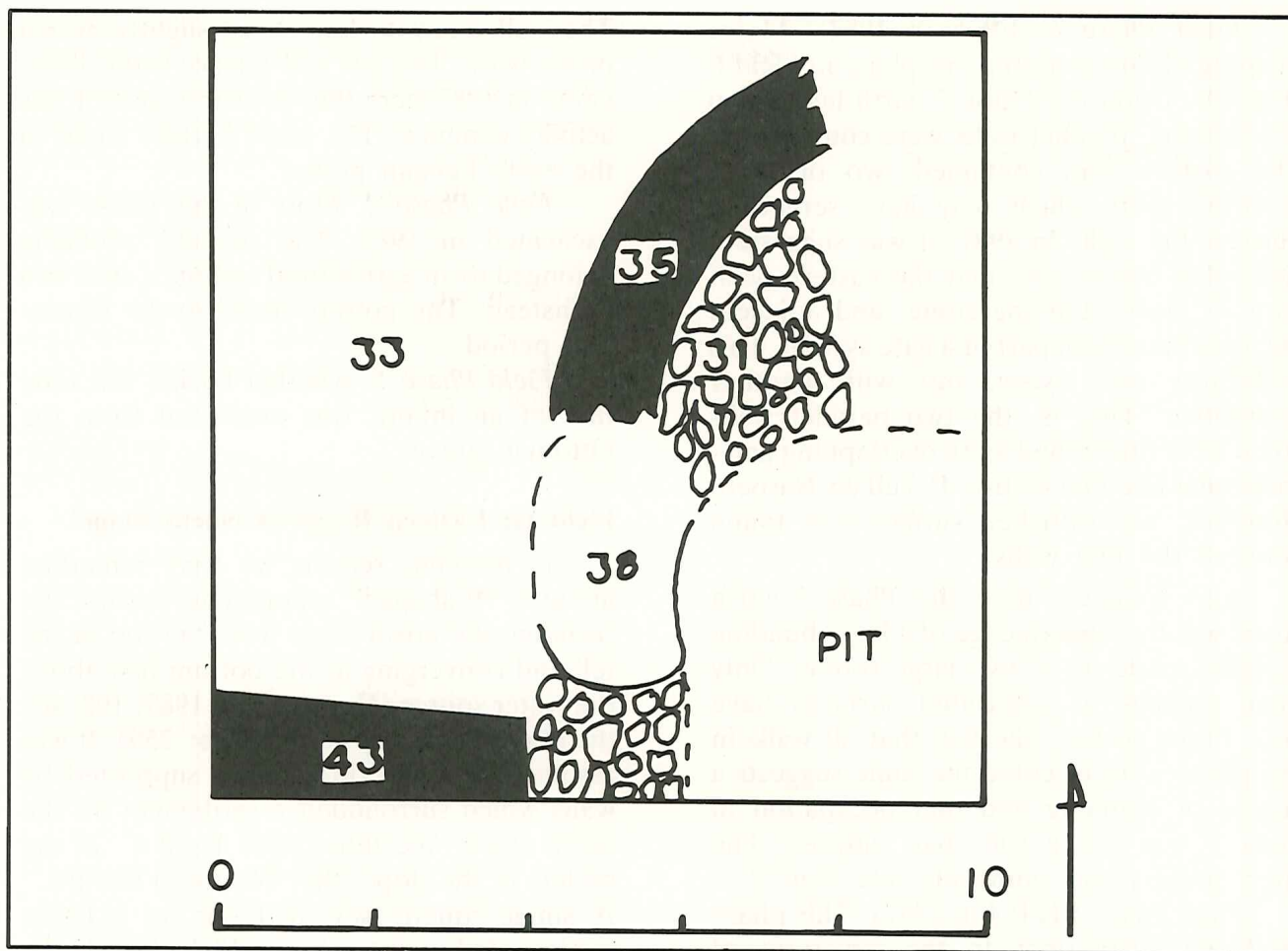


Fig. 9. Field E: Sketch plan of Phase 6.

stone bowl fragment. Not enough has been excavated to say more. The latest pottery in the associated earth layers belonged to the late Middle Bronze Age. Debris from a probable destruction overlay the ruins.

*Field Phase 10.* Subsequent occupation apparently did not settle the eastern shelf. Instead, a series of earth layers were deposited over an abandoned area. Finds included Late Bronze Age pottery, a millstone fragment, a spindle whorl, an unidentifiable cylinder seal and two fragmentary ceramic Astarte figurines (Pl. II,1).

*Field Phase 9* (FP 7 in 1987). The preservation of the preceding two phases is largely due to a terrace wall constructed east of these remains. Founded directly on one of the Phase 10 walls, it retained a series of fill layers behind it. Ca. 13 m to the west was the only sign of living occupation in the field. It consisted of a thick wall fragment (ca. 1.40 m wide and 2.99 m long) and a surface with no preserved artifacts. All remains were covered

by an ash layer 0.10-0.15 m thick. The latest pottery from the ash layer and below was Iron I.

*Field Phase 8.* East of the Phase 9 terrace wall were two exposure surfaces immediately above the Phase 9 ash layer. The sparseness of the cultural remains, which included Iron I pottery, suggests that these loci were located away from domestic activity areas.

*Field Phase 7* (FP 6 in 1987). In the western sector of the field, a wall fragment, ca. 0.60 m wide and 2 m long, was discovered founded directly above the ash layer of Phase 9. An associated surface contained a hearth area with a nearby smashed jar. Finds on the surface included grape and olive pips, three grinding stones, four spindle whorls, a bone bead, a jug strainer and a flint knife. Farther to the east, exposure surfaces represented an open area. The latest pottery from the earth layers was late Iron II. There does not appear to be any deposit from early Iron II on the eastern slope.



*Field Phase 6* (FP 5 in 1987). Major building occurred during this phase in Field F (Fig. 10). Upon the Phase 7 earth layers two overlapping, parallel walls were constructed. The eastern wall contained two or three eastward piers which may have served to buttress the wall. In 1987, it was suggested, somewhat timorously, that the eastern wall, with its piers, standing stone and adjacent jar, may have been part of a gate system. This possibility still exists, but with another alternative. That is, the two parallel walls could have functioned as an overlapping gate, somewhat like that of Iron II Tell en-Naşbeh. However, no trafficked surface was found between the two walls.

Also founded upon the Phase 7 earth layers was the eastern edge of a large building complex made up of two large rooms. Only small patches of associated surfaces have been found so far. The fact that all walls in this phase were oriented the same suggests a degree of planning and that occupation in Field F was not a suburban outpost. The latest pottery was uniformly late Iron II.

*Field Phase 5* (FP 4 in 1987). This phase produced adaptations to the structures of Phase 6. After a series of anthropogenic earth layers was deposited that covered the northern room of the Phase 6 two-room complex, a short wall was constructed blocking the "passage" between the two eastern parallel walls of Phase 6. Associated surfaces contained a hearth, pits with organic remains and domestic artifacts. East of the walls, colluvial earth deposits were uncovered. The pottery was late Iron II/early Persian.

*Field Phase 4.* This phase produced an exposure surface west of the Phases 6-5 architecture upon which a "boulder field" was found. This suggests architectural collapse, probably from the Phases 6-5 building to the west. The latest pottery was late Iron II/early Persian.

*Field Phase 3.* A single wall fragment and a robber trench were all that remained from a structure in the northwest sector of the field.

The walls seem to have been slightly over a meter wide. The pits and terrace walls discovered in 1987 were thus probably part of this activity complex. The latest pottery dated to the early Persian period.

*Field Phase 2.* Most of this phase was excavated in 1987. The remains probably belonged to an agricultural complex, such as a farmstead. The pottery dated to the Byzantine period.

*Field Phase 1.* Another burial, this time that of an infant, was excavated from the Ottoman grave.

### Field G: Eastern Ridge of North Slope<sup>7</sup>

In previous reports we have remarked about a "V-shaped" topographic feature descending the north slope from the top of the tell and converging at the bottom just above the water source (Geraty *et al.* 1987: 192; see the photo in Geraty *et al.* 1989b: 259). It was assumed that the ridges were supported by walls which surrounded a settlement on the north slope. We thus called Field C, in the middle of the slope, the "Northern Suburb." A single square was laid out on a lower section of the east ridge as Field G (Fig. 2). Later, when no wall was found as deep as 2.0 m, another square was laid out farther up the slope, where stones were visible on the outer face of the ridge. Still later, because this also proved a false lead, we excavated a trench, halfway between the two squares, from the ridge inward with mechanized earth-moving equipment.

*Square 9L46.* The lower square produced four phases of deposits, only the lower two of which were occupational. In Phase 4 a probe reached a surface which contained broken portions of two EB III storage jars (one holemouth, the other necked). Flotation produced a wide range of seeds, preliminarily identified as barley, wheat, black-eyed peas, figs, grapes, green beans, lentils, olives, poppies, radishes, sumac, and squash. This suggests a domestic area. No walls were found. A layer of ashy tumble, probably a

7. This section is based on a detailed field report written by James R. Fisher (Andrews University), supervisor of Field G. The report will appear as

part of the 1989 seasonal report, *Madaba Plains Project 3*.



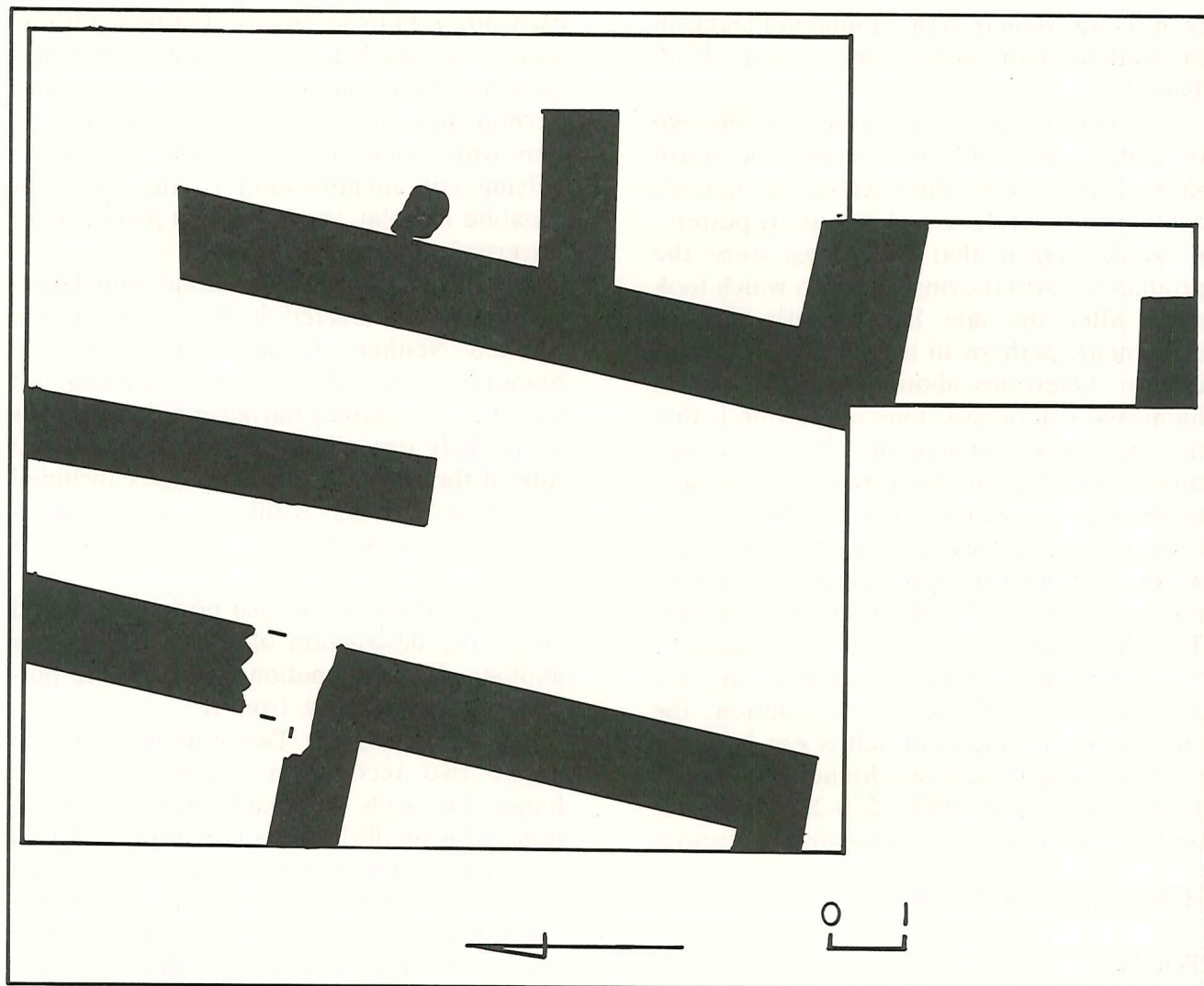


Fig. 10. Field F: Sketch plan of Phase 6.

destruction layer, covered everything. Because of the similar pottery and the similar destruction debris, it is tempting to suggest the same destruction which demolished FP 4 in Field D.

Phase 3 was made up of a surface with flat-lying sherds from EB III cooking pots. Because it was found only in a small probe, no architecture or other significant finds were recovered. Perhaps this phase can be equated with FP 3 in Field D.

The last two phases were made up of secondarily deposited debris with late Iron II pottery in very worn condition, as if the earth had been extensively tilled.

*Square 8L77.* The upper square was excavated ca. 1.0 m deep and again produced no sign of structural support for the ridge. The stones on the surface proved to be

haphazard tumble. Through all five earth layers excavated in this square, the pottery proved to be intensively worn, suggesting secondary deposition and extensive tilling. Most potsherds dated to late Iron II.

*Exploratory Trench.* A backhoe dug a trench ca. 20 m long, 2.5 m deep and 1 m wide. The sections thus created were studied and a total of 15 loci assigned, belonging to a variety of periods. As found in Square 9L46, two EB levels were discerned, the earliest showing a severe destruction followed by a second layer with a possible terrace wall. A plaster surface, from which an MB sherd was collected, was found above the EB levels. The plaster surface was cut by a large pit which contained an Iron I sherd. Above the pit were layers with late Iron II debris. This sequence of deposition (EB-MB-Iron I - late



Iron II) was similar to that found in Field C in the middle of the north slope (Geraty *et al.* 1989a).

In none of these excavations was any sign of a defensive wall surrounding the north slope. Based on the thick secondary deposits containing severely worn late Iron II pottery, it would appear that the ridges were the product of earth moving activities which took place after the late Iron II/early Persian settlement, perhaps in association with agriculture. Questions about when and how it happened still persist. One suggestion is that the two ridges making up the "V" were at one time higher than the surface of the ground inside the "V" (which, indeed, the western ridge still is) and were used to channel rain water down through agricultural fields on the terraces to the well at the bottom of the hill. This view plausibly assumes that, because the "V" converges just above the well, the two are connected. Whatever the solution, the fact that over a meter of debris was involved (similar deposits were also found in Field C in 1984, Geraty *et al.* 1989b: 258-281), indicates that it was a massive earthmoving operation.

## HINTERLAND EXCAVATIONS

### Tell Jawa<sup>8</sup>

Tell Jawa is ca. 4 km east of 'Umeiri and dominates the eastern skyline. It was surveyed by our team in 1984 (Geraty *et al.* 1989b: 143-145) and produced primarily late Iron II pottery. From its relatively flat top one's eye takes in a broad view of the Madaba Plain to the south. Some have suggested an identification with the Moabite town Mefa'at mentioned in Josh. 13:18 and Jer. 48:21, while others identify Mefa'at with Umm er-Raşas.<sup>9</sup>

After a bulldozer cracked against a large stone wall on the southern edge of the site, our project sent a team to conduct a salvage

excavation. Four squares were opened transsecting the southern fortification system and including a portion of the interior of the site. Several finds indicate an Ammonite association, while none suggest Moabite, apparently belying any identification of the site with Moabite Mefa'at. A total of 10 phases were discerned.

*Field Phase 10.* Two stone foundation walls were discovered in the lowest phase reached. Neither associated surfaces nor the founding levels of the walls were reached, but they were covered by burned mudbrick debris most likely originating from the superstructure of the walls. The latest pottery included early Iron II forms. A fill west of these walls produced secondary MB, LB and Iron I pottery.

*Field Phase 9.* An ash pocket deposited above the destruction of Phase 10 suggests another short occupational phase. The pottery was again early Iron II.

*Field Phases 8-6.* Two wall lines seem to define two rectangular rooms of a large house. The walls were made of stone foundations with mudbrick superstructures. Within these rooms, three surfaces were laid, one on top of the other, constituting three occupational phases. On the lowest surface (FP 8) was a collection of domestic artifacts, including a saddle quern, an upper millstone, two pounding stones and fragments of a *ṭabun* near one of the walls. There were also numerous animal bones and flint fragments. The pottery was early Iron II.

In Phase 7, the next surface up, the domestic nature of the rooms continued with broken cooking pots, numerous animal bones, an upper millstone, a stone pounder and a spindle whorl found on the surface. The pottery was later than that of Phase 8 and should perhaps be dated in the middle of the Iron II period.

The uppermost surface of the rooms,

8. This section is based on a detailed field report written by P. Michele Daviau (Wilfrid Laurier University), supervisor of the Tell Jawa excavations. The report will appear as part of the 1989 seasonal report, *Madaba Plains Project 3*.

9. Most recently this has been proposed by Y. Elitzur ("The Identification of Mefa'at in View of the

Discoveries from Kh. Umm er-Raşas," *IEJ* 32, 1989: 267-277). For other studies identifying Mefa'at with Umm er-Raşas, see M. Piccirillo and T. Attiyat, "The Complex of Saint Stephen at Umm er-Raşas — Kastron Mafaa," *ADAJ* 30, 1986: 341-351; and J. A. Dearman, "Historical Reconstruction and the Mesha' Inscription," *BASOR* 276, 1989: 55-60.



*Phase 6*, contained the most items on the surface: broken cooking pots, small bowls, animal bones, charcoal bits, two spindle whorls, a stone grinder, a stone pounder and a polished, finely serrated shark's tooth.

North of these "rooms" was a rather large building containing at least two rooms. The pottery was similar to that of Phase 6. The head of a small male figurine wearing a headdress similar to the Egyptian *atef* crown and identical to those depicted on the well-known limestone busts of probable Ammonite kings<sup>10</sup> was found here (Pl. II, 2). This is one of the indications that Jawa was an Ammonite town. Another strong indication is the similarity of the pottery to that found throughout the Ammonite region, but not elsewhere.

*Field Phase 5.* Although earlier phases have not established a connection with the fortification system, the system was in use at least by this time, when the walls seem to have been rebuilt. The pottery dated to late Iron II (below).

*Field Phase 4.* Further reconstruction of the fortification system established a casemate style wall (Pl. III, 1). A casemate room had a doorway leading to the interior of the town. Pottery on the associated floor was late Iron II.

*Field Phase 3.* This phase was actually the destruction debris of Phase 4, a widespread rock tumble and wall collapse that covered the fortification system. Immediately outside the wall, 13 javelin points were found embedded in the surface, suggesting the destruction was caused by battle. Amid the rock tumble were an additional two javelin points (Pl. III, 2). Large amounts of late Iron II pottery were also smashed against the walls.

*Field Phases 2-1.* Topsoil contained pottery of the Byzantine period as well as terraces, field walls, and plowed fields of modern vintage.

## Ed-Dreijat<sup>11</sup>

This site is located on a high hill ca. 2.8 km southwest of Tell el-'Umeiri (Pl. IV, 1). First identified by Fohrer as Site D (1961: 60), it was later included in the Hesban survey as Site 135 (Ibach 1987: 28-29). These surveys suggested an Iron II date for the site. Initial analysis of the site suggested it was a fortress rather than an agricultural complex. Its location on top of a hill with an excellent view of the Madaba Plain to the south, Tell Jawa to the east and el-'Al to the west, suggests an ideal site for a defensive military garrison.

Prior to excavation, a survey of the site by the excavation team identified apparent exterior walls ca. 2.5 m wide, as well as two interior walls of similar thickness. Immediately to the southeast a large open cave was identified. Further south on the crest of the hill was a bell-shaped cistern, ca. 15.5 m deep. It was still being used by local shepherds. All of the exterior walls were built of massive unhewn and partially hewn chert boulders, ranging from 1.1 m to 2 m in diameter. Excavation revealed a much more complicated picture than was anticipated. A total of seven phases were included.

*Field Phase 7.* Although no architecture, surfaces, or earth layers could be dated exclusively to Iron II, the presence of Iron II pottery on the surface, in fills and in isolated pockets in bedrock suggest that the site was initially occupied during this period. The site was apparently cleared to bedrock during the later Persian/Hellenistic occupation, destroying all late Iron II earth deposits. However, it would appear that the walls date to this period (Fig. 11). It is possible that the site functioned as a military fortress.

*Field Phase 6.* The building was apparently remodeled extensively, including sinking the floors into bedrock. Several of the inner walls appear to have been added at this time, as well as a room in the northeast corner. The pottery on the bedrock surfaces

10. Siegfried H. Horn, "The Crown of the King of the Ammonites," *AUSS* 11, 1973: 170-180.

11. This section is based on a detailed field report written by Lorita Hubbard (Riverside, CA), supervisor

of the ed-Dreijat hinterland excavations. The report will appear as part of the 1989 seasonal report, *Madaba Plains Project 3*.

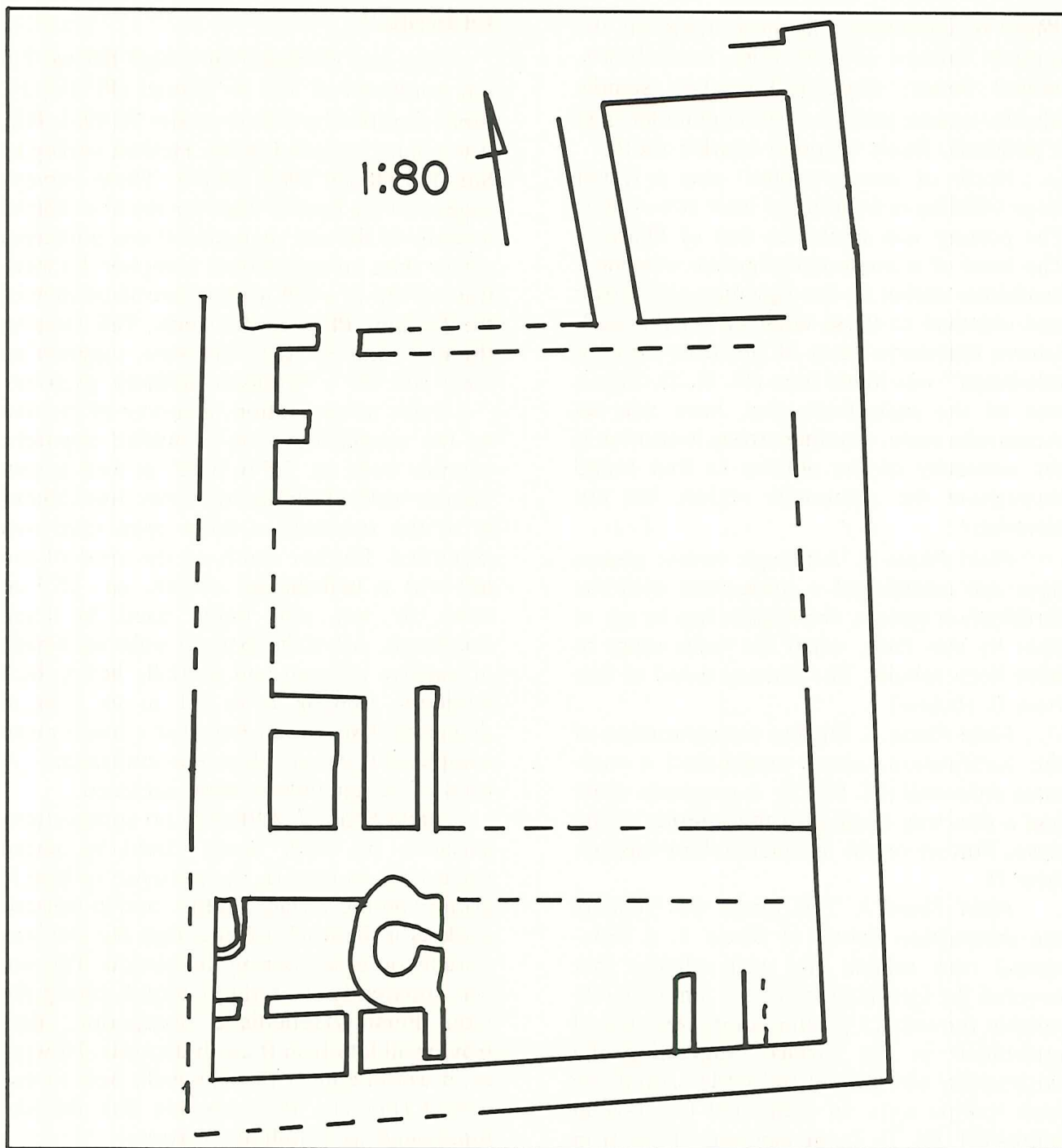


Fig. 11. Ed-Dreijat: Sketch plan of the architecture.

was late Persian/early Hellenistic (Pls. IV, 2; V, 1).

*Field Phase 5.* While there was no clear break between Phases 6 and 5, there was clear evidence for a later Hellenistic occupation of the site and some evidence for slight remodeling. This was evident from several Hellenistic lamps, cooking pots and other late Hellenistic forms. A circular installation in the southwest, used for storage, may have been constructed at this time.

*Field Phase 4.* A few potsherds from Roman times suggest activity at the site.

*Field Phase 3.* Worn potsherds from the Byzantine period suggest the site was part of agricultural activities. Also found was a coin from the reign of Constans or Constantine (4th century).

*Field Phase 2.* Fourteen Ayyubid/Mamluk sherds were found, suggesting perhaps a seasonal site on the hilltop. All sherds are painted and may have come from



the same vessel.

*Field Phase 1.* Most of the modern activity seems to have been centered around the open cave southeast of the site. A few modern sherds were found in topsoil.

## REGIONAL SURVEY

The region within 5 km of Tell el-'Umeiri was studied by a multidisciplinary survey team. During the last three seasons, the survey's scope has shifted from extensive coverage of the entire project area to intensive scrutiny of selected sites or regions. The emphasis during the 1984 and 1987 seasons was on exploration and mapping of new sites and dominant environmental, settlement, and landuse features, whereas the 1989 season emphasized in-depth study and documentation of limited features. The survey consisted of five different teams, each with its own objectives, procedures and staffs.

### Sub-surface Mapping

This team, whose work was mostly experimental, attempted to determine the feasibility of using ground-penetrating radar in locating sub-surface archaeological features. Preliminary results suggest potential to discover caves and isolated walls, such as terrace walls.

### Random Survey

The goal to survey five per cent of the project area with randomly selected 200 × 200 m squares was realized this season. The most significant discovery is that pottery from the Roman and Byzantine periods and, to a lesser extent, the Iron Age II, is present in topsoil throughout the project area, even in fields and hillsides. This lends support to other surveys which have found that these periods witnessed an intensive amount of occupational activity in the region. Twenty-five new sites were also discovered by this team.

### Environmental Survey

This team was specifically assigned to examine the landuse strategies which prevailed during the high intensity Roman and Byzantine periods in the Wadi Bishara, ca.2

km west of 'Umeiri (Pl. V, 2). Located adjacent to a large Roman/Byzantine town (Site 57), and small enough to study as a complete system, several features were studied: 1) a series of variously intact embankments which ran perpendicular to the fertile wadi bottom; 2) sections of ancient terraces ascending from the wadi floor to the north and south; and 3) diversion dams and embankments constructed along several smaller tributary wadies. The team suggests that, when the ancient system was at its peak, the wadi and its surrounding slopes could have produced tenfold its modern production in vegetable and fruit crops. The fact that terraces are again being constructed along the slopes illustrates a revival of ancient technologies.

### Farmstead Documentation

Previous surveys found rich remains of various types of agricultural complexes. This team's task was to document fully the visible remains in their immediate geographical and archaeological context. The sites selected were ones which represented good examples of the various categories of sites (Geraty *et al.* 1988: 222-224). These included large agricultural estates, smaller farmsteads, and agricultural camp sites. While the first two of these usually included clusters of buildings and agricultural installations, the third was typically represented only by an agricultural watchtower. A total of fourteen sites was documented, most of which were occupied both in the Iron Age and the Roman/Byzantine periods.

### Ethnoarchaeological Survey

The primary objective of this team was to ascertain how sedentarization and nomadization take place at the level of the household and the local village. Interviews were carried out among three groups of local residents: 1) 'Ajarmeh tribesmen who have been in the region for centuries; 2) Christian families who arrived the previous century; and 3) Palestinian families who have arrived only recently. Perhaps the most important insights gained from these interviews help to understand why single households and groups of families



converted back and forth along the nomadic-sedentary continuum through multiple millennia. Structural arrangements which have traditionally made such movement possible include the following: the nearly ubiquitous phenomenon of rural families moving into tents for the warmer part of the agricultural season and into houses or caves for the cooler parts; the widespread practice of raising a mixture of crops and pasture animals; the existence within most tribally organized populations of families along various points on the nomad-sedentary continuum; the maintenance by most tribal entities of tribal lands to both pastoral and agricultural pursuits; and the flexibility of tribal ideology when it comes to incorporating or excluding

members. It is by means of these fundamental structural mechanisms that it has been possible for families or groups of kinsmen to be fluid and to convert to either a more sedentary or a more nomadic way of life depending on prevailing economic, social, and political trends.

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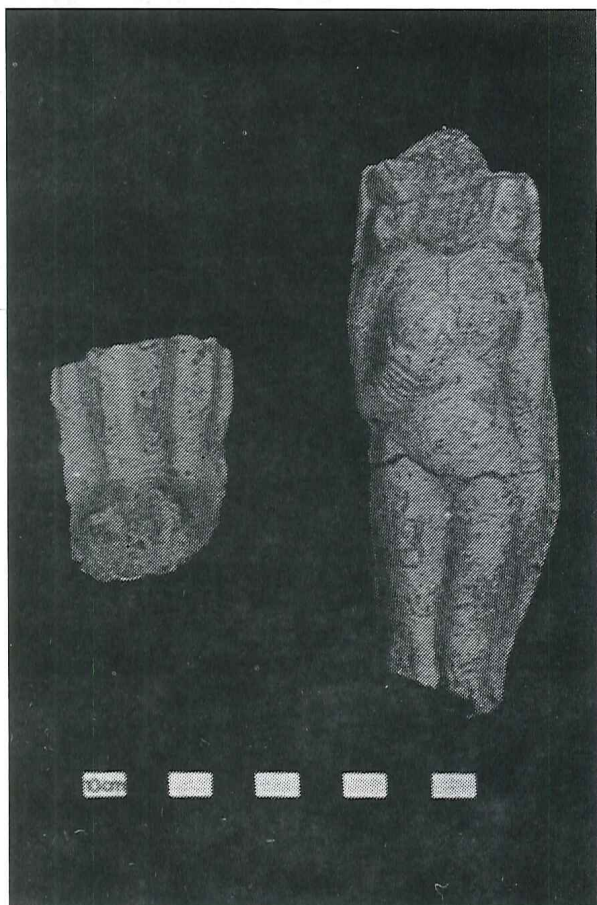


1. Field A: Seal of 'El'amats.



2. Field B: Phase 11 casemate room with collared-rim pithoi against crosswall; the outer casemate wall is at the left.





1. Field F: Astarte figurines.

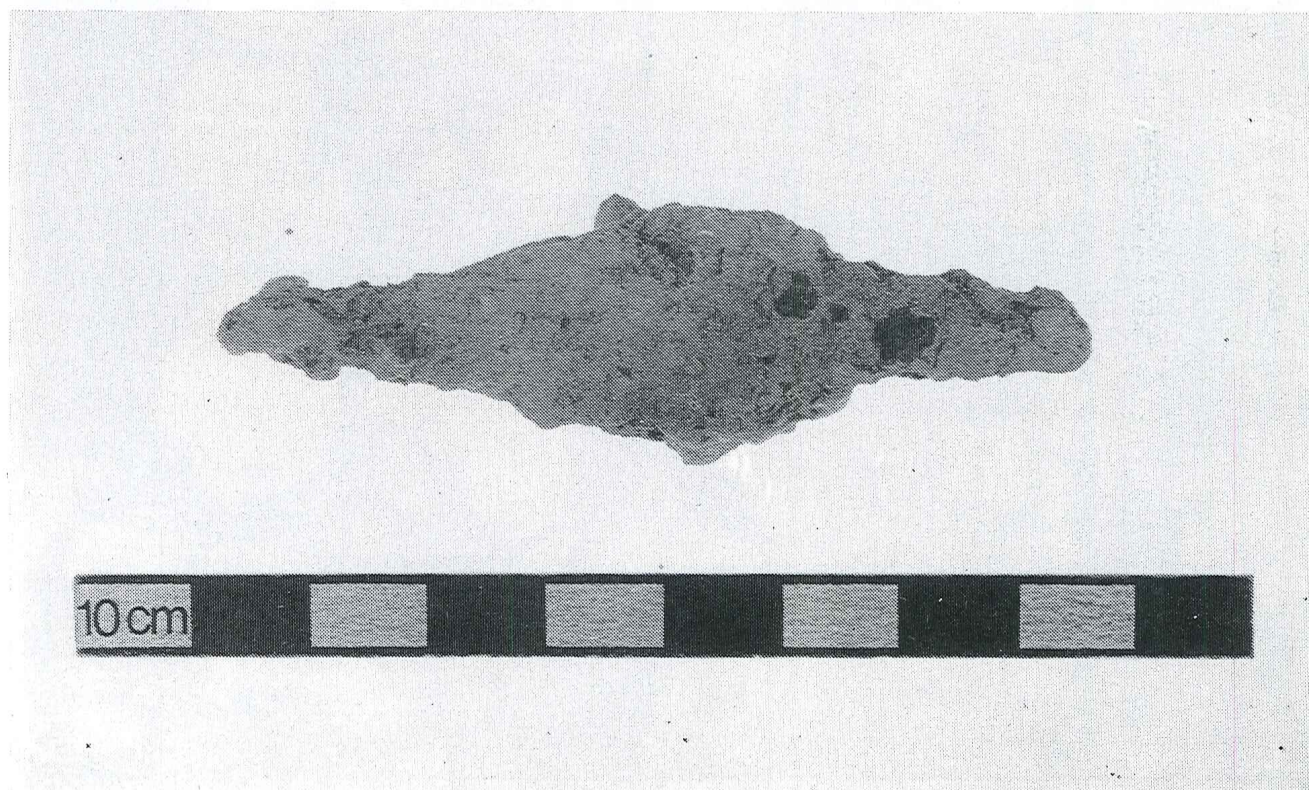


2. Tell Jawa: Male figurine head wearing Ammonite royal crown.



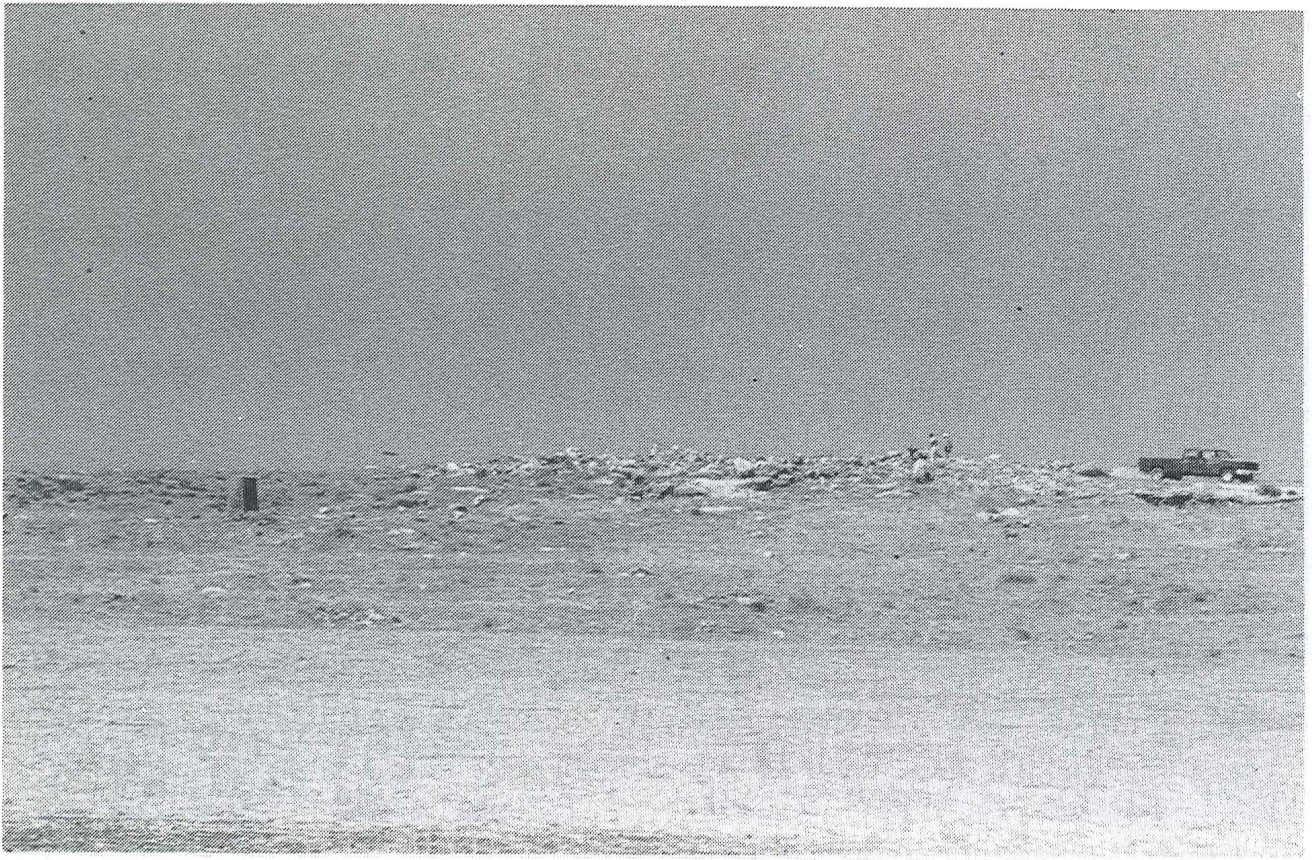


1. Tell Jawa: Outer wall of casemate fortification system.



2. Tell Jawa: One of the 15 javelin points found in Phase 3.



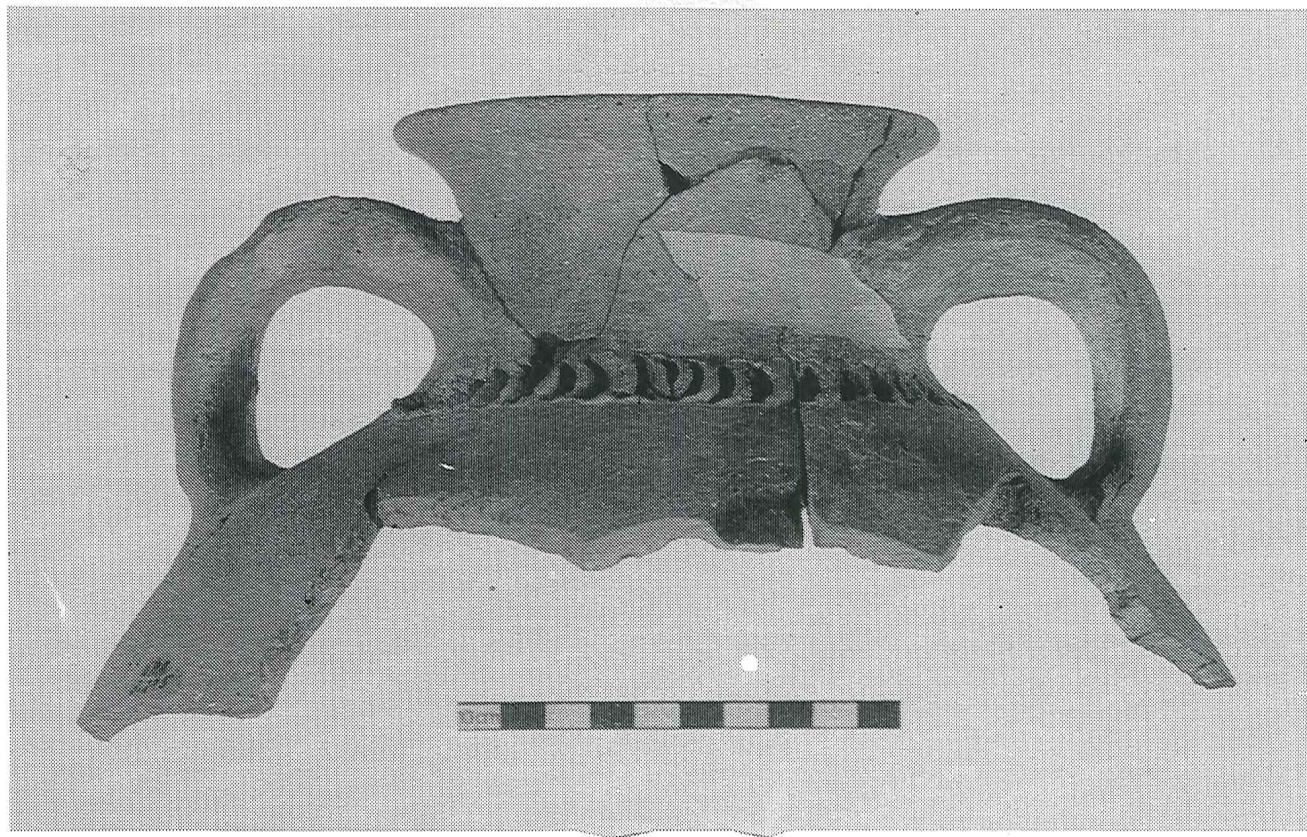


1. Ed-Dreijat: General view from the west.

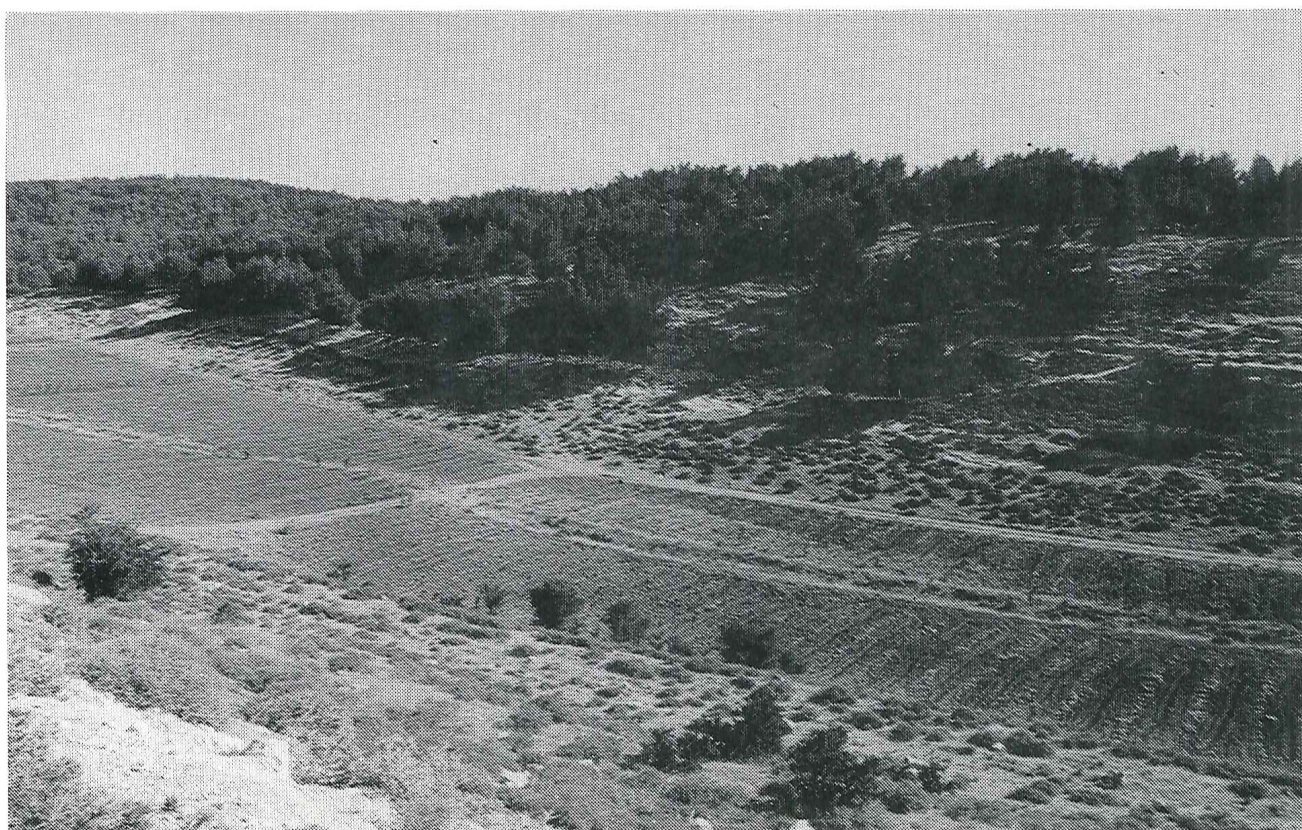


2. Ed-Dreijat: Room with bedrock surface.





1. Ed-Dreijat: Upper jar fragment.



2. Regional Survey: A portion of the Wadi Bishara.