

THE 1990 WADI EL-YABIS SURVEY PROJECT AND SOUNDINGS AT KHIRBET UM EL-HEDAMUS

by
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Introduction

The third season of excavation and survey in the Wadi el-Yabis, in the Ajlun region of northern Jordan, was conducted from October 2 to October 28, 1990. During the first three weeks test excavations were conducted at the Iron Age site of Khirbet Um el-Hedamus. During the last week of fieldwork 20 sites known from previous explorations were visited, and 20 new sites were found as a result of purposive surveys and casual discoveries.

Previous surveys in the Wadi el-Yabis (Mabry and Palumbo 1987; 1992; Palumbo, Mabry and Kuijt 1989) have revealed a long sequence of occupation along the wadi. While more work is needed in order to fully understand human-environmental relationships during different periods, the results of the third season of fieldwork in the Wadi el-Yabis fill some gaps in the archaeological record of the area.

The 1990 fieldwork was made possible by grants provided by the Italian Ministry of Foreign Affairs and the Italian National Research Council (CNR). Fieldwork was directed by Gaetano Palumbo (Università di Roma); Adele Tempest (Wilfrid Laurier University, Canada) was square supervisor; Ibrahim Fayyumi, Mahmud al-Quda, Motassim Radwan, and Bilal Subhay (University of Jordan) were volunteers. Mohammed Abu Abileh was the representative from the Ajlun office of the Department of Antiquities, and an active member of the team.

Excavations at Khirbet Um el-Hedamus

Khirbet Um el-Hedamus (site WY70) is located at Palestine grid coordinates 220.3 196.7. The site has been known since the late nineteenth century explorations of Schumacher and Van Kasteren (Van Kasteren

1980:206; Steuernagel 1925:332), but the first real archaeological survey of its remains was conducted in 1965 by Mittmann (1970:68, site 161). In 1989 it was revisited by the Wadi el-Yabis Survey team (Palumbo n.d.). Mittmann identified surface pottery dating to the Iron Age (the dominant period), and the Hellenistic, Late Byzantine, and Umayyad periods. This dating was confirmed by last year's surface survey. Two new periods, the Early Bronze Age I and the Roman periods, were recognized during that visit.

The site is located on a ridge spur north of the village of Ishtafeina, at approximately 950 metres above sea level. It covers an area of about 5 hectares. The north, east and west slopes are relatively steep. To the south a shallow saddle, where a large cistern was found, connects the spur to a higher ridge. The entire area of the site is terraced and cultivated today. Modern threshing floors are visible on the upper terraces and ridge top. The area surrounding the site, where not cultivated, is covered by a thick stand of oak and pistachio trees, and receives some of the highest average rainfall in Jordan, about 800mm annually¹

Methodology

The goal of this test excavation was to check the stratigraphic and cultural sequence of Khirbet Um el-Hedamus, particularly to verify the possible presence of an Iron Age I-Iron II sequence and a buried Early Bronze Age I occupation, indicated only through a few pottery fragments found on the surface. Two small excavation units were opened on the site's upper terrace. The western square, identified on the excavation grid as K51 South-East, measured 2 1/2 by 2 1/2m. (one fourth of a regular 5 by 5m. square; the South-East designation identifies the position of the small square inside the regular 5 by 5m.

¹ The Ishtafeina meteorological station is less than a kilometer to the South

K51 square). The eastern square, M52 North-East, measured 2 by 2m. square. It was later enlarged to include another 2 by 2m. square to the north (M51 South-East) in order to ascertain the width of wall 005 that occupied the entire length of the north balk in square M52 N-E (see below). Excavation was conducted using a stratigraphic approach with detailed locus designations, separated into 10 cm. levels within the same loci. All excavated material was screened through 4 mm. mesh screen to ensure the recovery of smaller artifacts and faunal remains. Flotation and C14 samples were taken from selected loci (ashy areas, inside jars, surfaces).

Squares M52 N-E and M51 S-E (Fig. 1. Pl. I, 1)

Two robbers' trenches (about 2 m. apart) were visible on the northern, upper terrace of the site. In the eastern trench, traces of a possible wall were visible; however, no excavations were conducted in or around this trench to clarify this possibility. Judging from the number of large stones piled beside the western trench, a large wall had been uncovered and partially destroyed by the robbers. The remaining section visible in the west balk of the western trench was preserved to a height of approximately 1 meter. In order to trace this wall from the surface, a 2 by 2m. excavation unit was opened to the west of this robbers' trench. This unit was identified on the excavation grid as M52 N-E. The unit is located at the south-eastern margin of the upper terrace, below a 2 meter-high slope. Balk drawings and top plans were also completed for both the western and the eastern trenches.

In the topsoil zone (locus 001) of square M52 N-E a mixture of Iron Age II, Byzantine, and Umayyad pottery fragments was found, together with many loose white tesserae probably from a courtyard pavement of a Byzantine or Umayyad house. Traces of a badly damaged plaster floor were encountered in the southeast section of the excavation unit, but no clear date could be attributed to this feature (locus 003). Below it, however, very few pottery fragments later than the Iron II were found, and the top of wall 005, already traced in the western

robbers' trench, was uncovered (at only 10cm. below the surface). Wall 005 spanned the entire northern balk, being oriented to the east-southeast/west-northwest axis. Locus 006 was a fill of finely-textured clayey sediment, from which sherds and faunal remains were recovered. A few Byzantine sherds were also recovered from part of this locus. The lowest level in which Byzantine pottery was found was at approximately 80 cm. below the surface. This fill, found above locus 008 starting at 105 cm. below the surface, was very rich in material culture remains, including some partially restorable jars and cooking pots. In particular, an area of smashed pottery was found below a wall collapse (009), possibly originating from a wall further to the south. This pottery was found lying on an ashy surface along with some burned clay fragments probably belonging to a tabun. Unfortunately, only a small corner of this feature could be excavated because it was located at the southeast corner of the unit. Most of the pottery, as well, was left in the southern balk. Locus 008 was a layer of fill above surface 010. It was composed of an extremely hard and compacted clayish matrix, only 2/3 cm. thick, lying directly on an uneven ledge of bedrock found approximately 170 cm. below the surface. Very few pottery fragments were found in this locus; some charcoal fragments were collected for C14 dating, along with some samples for flotation. Wall 005 was also found lying directly on bedrock. From the section profiles and the associated materials, it is clear that the wall does not cut through earlier deposits, but is associated with the Iron Age IIB material culture found in the lower strata. It should therefore be dated to that period (see section in Fig. 3b).

In the last days of fieldwork, another 2 by 2m. test unit was opened to the north of M52 N-E, M51 S-E in order to determine the width of wall 005. Unfortunately, its edge could not be traced completely since the north side of this wall probably collapsed. In the northeast corner of the unit a large storage jar in fragments was found only 50 cm. below the surface (Fig. 4, right). Another badly smashed and incomplete jar was found to the south of it, partly below the collapse of

WY 70-Khirbet Um el-Hedamus

Squares M51 S-E, M52 N-E

Top plan

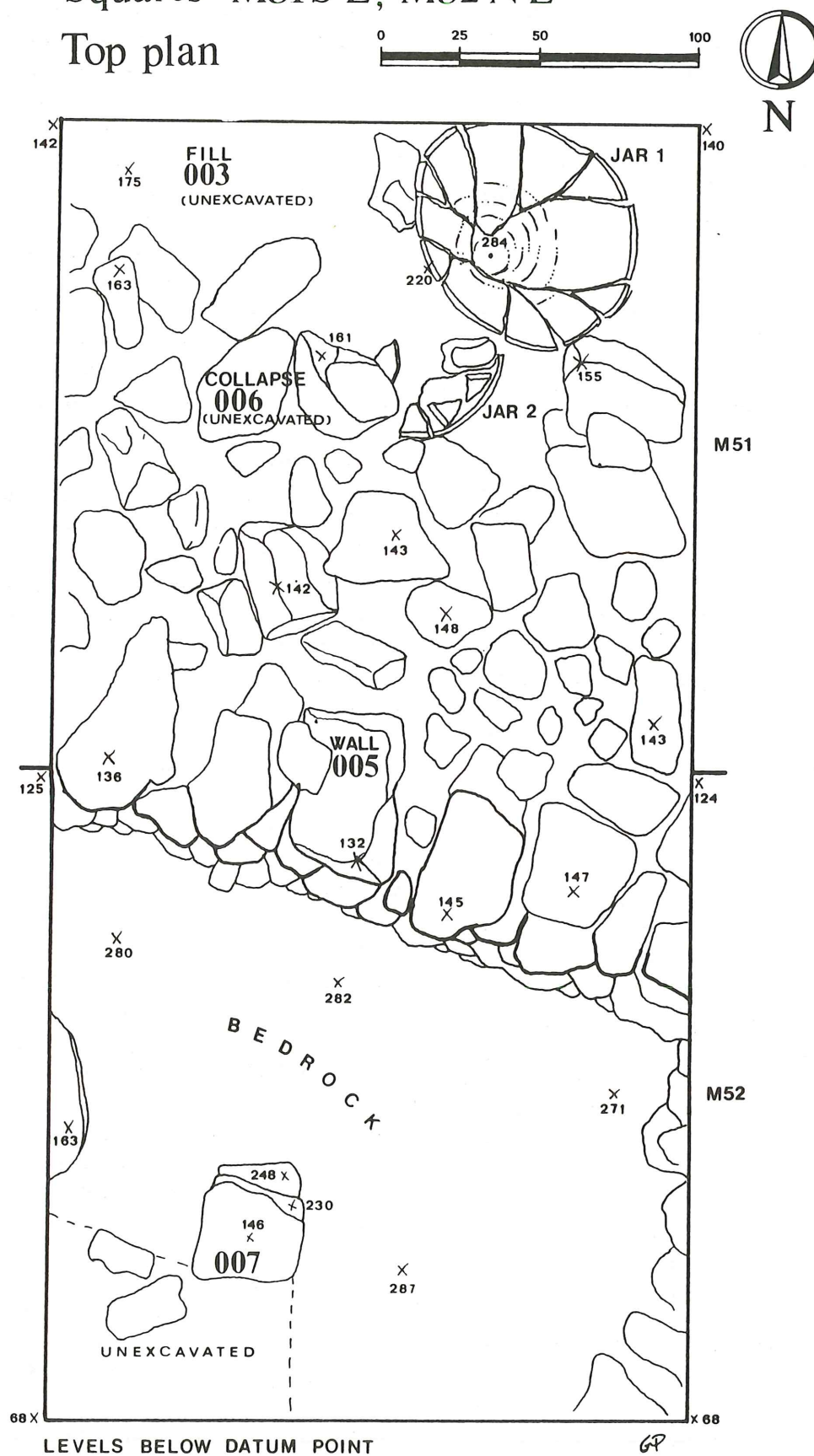


Fig. 1. Top plan of Squares M51 S-E and M52 N-E at Khirbet Um el-Hedamus.

wall 005, while another was partially visible in the north balk. This was probably a storage room area, while the surface and bedrock found in M52 N-E could be interpreted, in the light of these new findings, as an outdoor area, possibly a courtyard (taking into consideration also the presence of a possible tabun). Time constraints did not allow excavation in unit M51 S-E, and only the storage jar was recovered to avoid vandalism. Its content was taken for flotation, while the jar itself was found sitting on some pottery fragments, and on a hard and compact surface very similar to the one found above bedrock south of wall 005. Its level (171 below the surface) is also very close to the level of locus 010 in unit M52 N-E, providing additional evidence of the original occupation of the site (at least in this area). A C14 analysis was conducted at the University of Arizona on wood charcoal found inside the complete storage jar. This sample (017/90; Lab # $\beta/47406$) provided a date of 2740 ± 60 years bp. Dendrocalibration indicates that this date falls between 973-828 B.C. (1 sigma range). This date is similar to the ages of samples from Deir 'Alla phase M (with a radiocarbon date of 2690 ± 60 bp.) and from Tell es-Sa'idiyeh stratum V (2726 ± 157 bp.) Weinstein 1984).

Square K51 S-E (Fig. 2; Pl. I,2)

Eight meters to the west of test units M52 and M51, a $2 \frac{1}{2}$ by $2 \frac{1}{2}$ m. square was opened in a flat area used as a threshing floor, approximately 5 meters from the edge of the upper terrace where the other test units were opened. As in units M51 and M52, the top layers were characterized by a mixture of Umayyad, Byzantine, and Iron Age pottery, with the addition of loose white stones and large tesserae. In square M52, Byzantine pottery was not found below 80 cm. below the surface. In square K51, Byzantine and Umayyad pottery, though rare, was found up to 120 cm. below the surface.

A stone wall was traced very close to the surface, running in an approximate north-northeast/south-southwest direction (locus 004). This wall, 3 courses high (approximately 60 cm) was founded above an earlier, much better-constructed wall (locus 008) running

diagonally from the north-east to the southwest corners of the unit. The top course of this wall was found at a depth of approximately 80 cm. below the surface. The age of wall 004 could not be established, since no associated floors were found. Abutting wall 008, close to the southwestern corner of the excavation unit, wall 011 was identified, with the lower courses being bound to 008. While not much space was left to the east of 008 to dig on the other face of the wall, the space to the west was still enough to continue the test trench. Work was complicated, however, by ancient massive collapses (loci 010, 015). The finding of a smashed storage jar at approximately 190 cm. below surface, in the corner of walls 008 and 011, left no space for excavating. The unit was therefore expanded 0.5 m. towards the west. Removal of collapsed material was facilitated, and the work in the deep trench beside walls 008 and 011 could be completed without danger. The storage jar found in the corner of walls 008 and 011 is complete (*Fig. 4, left*), and was smashed by the collapse of either the upper courses of walls 008 or 011, or of another wall to the west. Large stones were even found inside the jar, which, like the jar found in M51 S-E, was sitting on a hard and compact surface laid directly on a bedrock shelf (locus 016). In this case, too, the content of the jar was taken as a flotation sample, and larger charcoal samples were collected for C14 analysis. One of these, found on a surface above bedrock, provided a radiocarbon date (uncalibrated) of 2700 ± 70 bp. (969-802 B.C. calibrated) Like the date of the sample found in M51 S-E, the closest parallels are with Deir 'Alla phase M and Tell es-Sa'idiyeh V. It should also be noted that the two radiocarbon dates are within one sigma range of each other, and therefore there is no statistically meaningful difference between them.

The surface identified beside the bedrock shelf (locus 018) sloped toward the north. Its appearance was very similar to the surface (locus 010) found in square M52 N-E, and was composed of small limestone and charcoal fragments embedded in a very compact clayish layer. An ashy area was also found near the unexcavated part of collapse 015.

WY 70 - Khirbet Um el-Hedamus

Square K51 S-E

Top plan

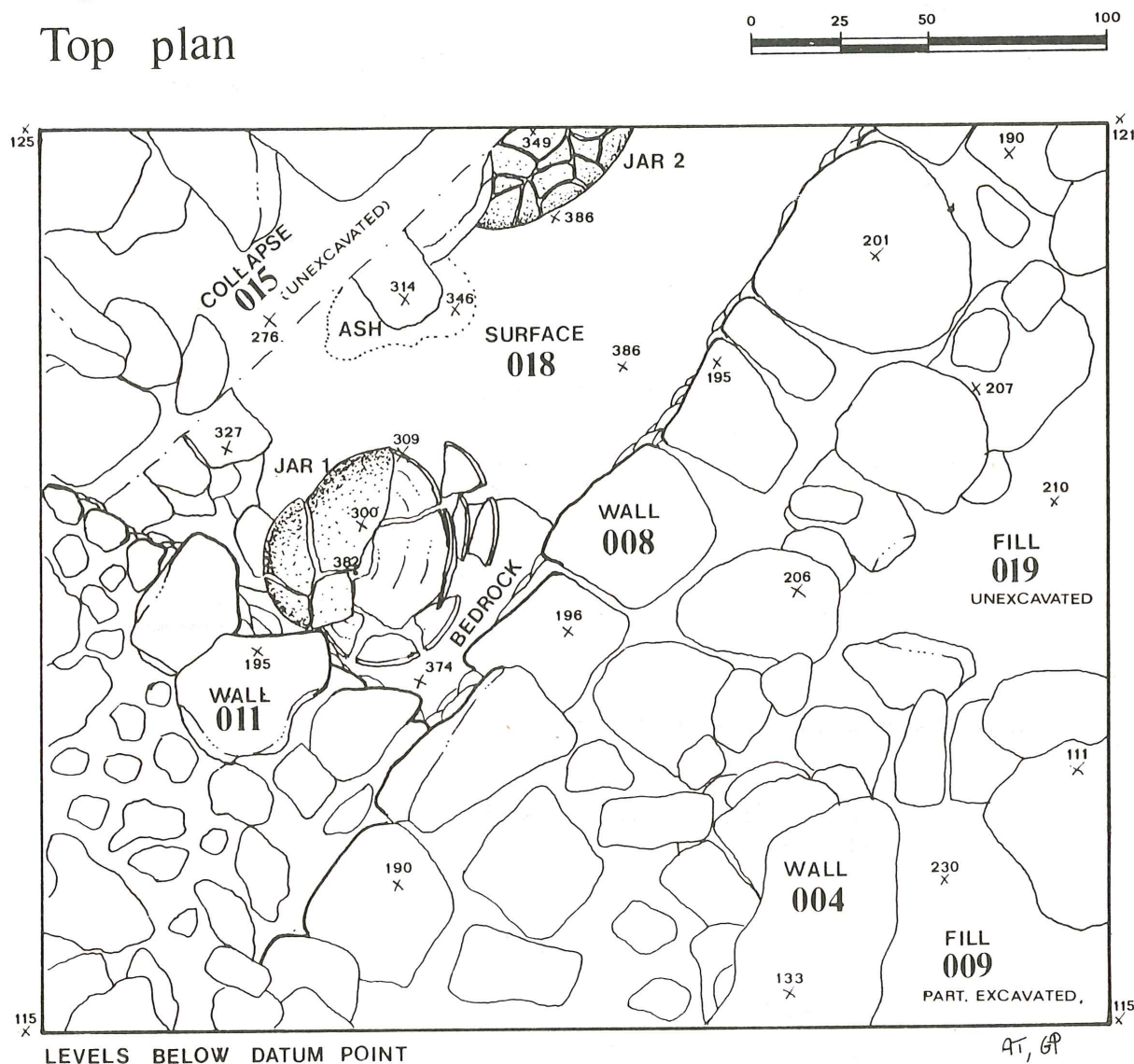


Fig. 2. Top plan of Square K51 S-E at Khirbet Um el-Hedamus.

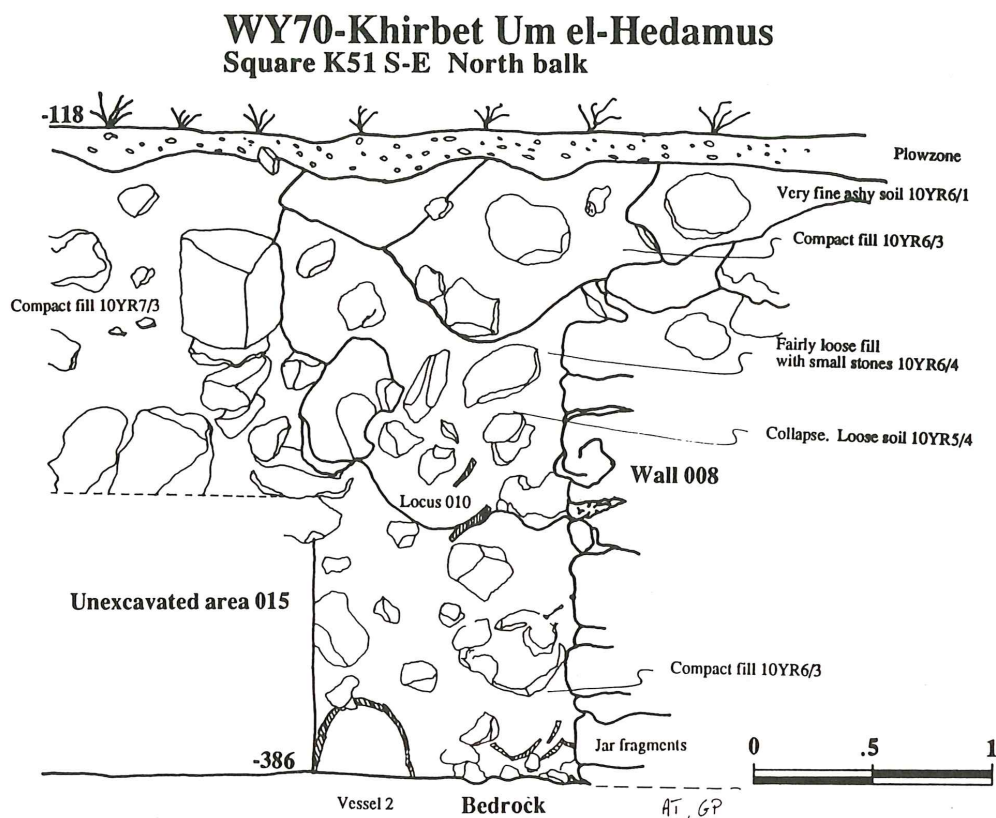
During the cleanup of some of the 010 and 015 collapse, another smashed jar was found partially embedded in the north balk and close to wall 008. Between the jar and wall 008, more sherds were visible in the balk, possibly belonging to one or more broken vessels (see section profile Fig. 3a).

In conclusion, this unit showed a similar stratigraphic sequence to the one found in unit M52 N-E, even though in K51 S-E part of a possible later structure was found (wall 004), and bedrock was found 1 meter deeper than in the eastern units, Walls 008 and 011

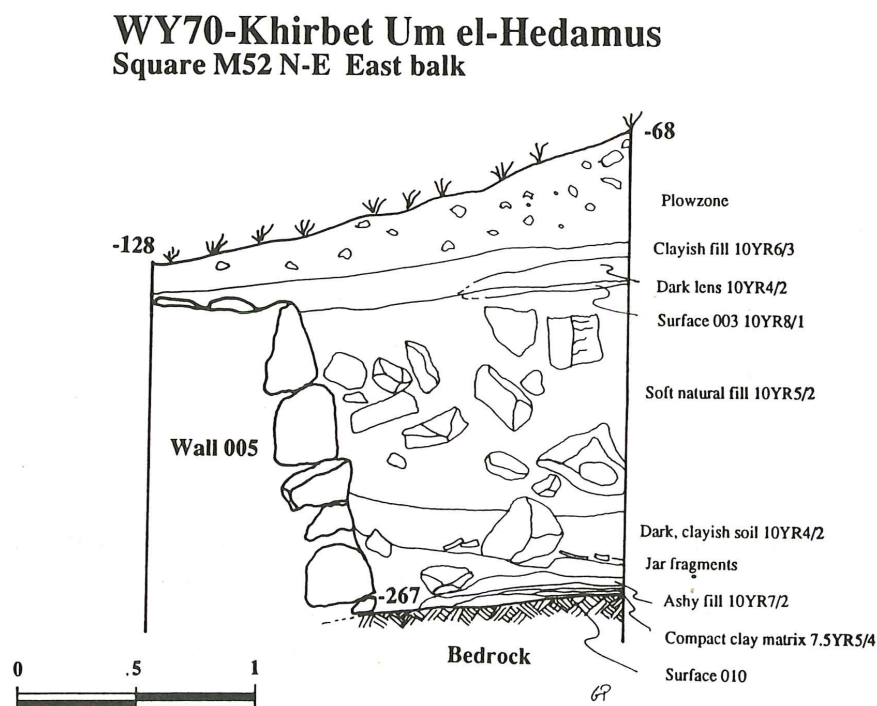
were founded on bedrock, and they are preserved up to 8 courses high (about 2 metres) at least 0.5 m. higher than wall 005 in unit M52 N-E. The finding of the two jars and smashed pottery also confirmed that the corner formed by walls 008 and 011 belonged to a room, perhaps one used as storage area.

Pottery

Most of the Iron Age pottery found belongs to closed forms: jars, craters, and cooking pots. Bowls are more rarely represented, as well as jugs and juglets. In general,



a: North balk section of square K51 A-E.



b: East balk section of square M52 N-E.

Fig. 3.

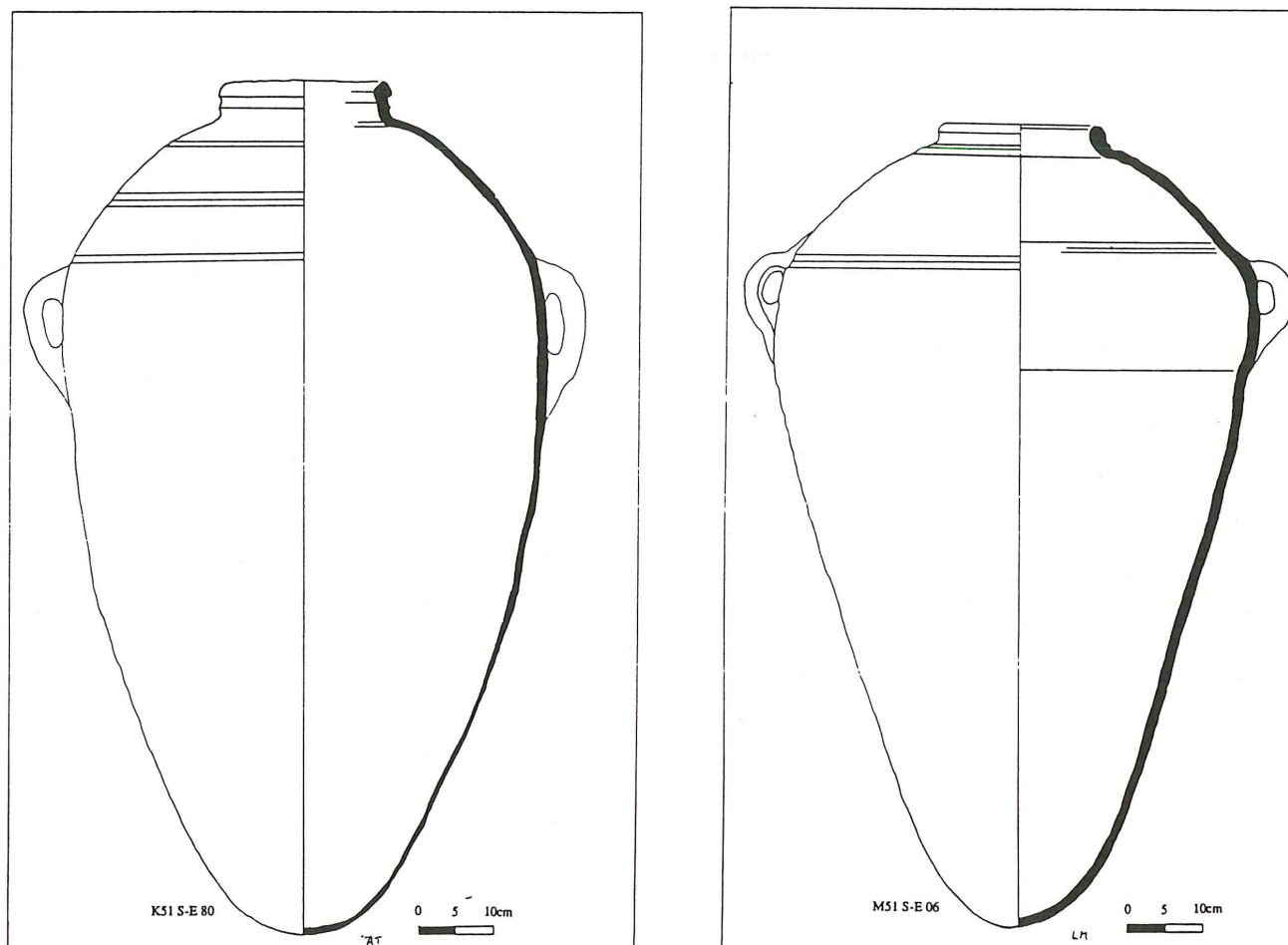


Fig. 4. Two "Collared-rim" storage jars from squares K51 S-E (left) and M51 S-E (right).

wares are brown or reddish/brown with limestone granular temper. Most are medium-fired. Several fragments are red-slipped, while more rare are fragments treated with the "slip and burnish" method.

"Collared-rim" jars are the most common type at Um el-Hedamus. Two complete ones were found in squares K51 and M51 (Fig. 4), plus fragments of at least four others that are partially restorable and incomplete. A fragment of a collared-rim jar bearing a proto-Canaanite inscription was previously found by Mittmann at this site (Ibrahim 1978). Two main types of rims were recognised by Benedettucci (1992) among the assemblage, one characterized by a short neck and rounded rim (as the jar in Fig. 4, right), and the second by a tall neck with a ridge half-way between the rim and the base of the neck (Fig. 4, left). Parallels for the first type are found at Beth Shan IV (James 1966: fig. 70:6), Tell es-Sa'idiyeh VII (Pritchard

1985: fig. 4:23) and Nazareth (Bagatti 1967:214:6). The second type is paralleled at the Amman Citadel (Dornemann 1983: fig. 58:681), Hazor IX-X (Yadin 1961: fig. 211:9), Pella (Edwards *et al* 1990: fig. 4:2), Tell es-Sa'idiyeh VII (Pritchard 1985: fig. 4:17), and Hesbon (Lugenbeal and Sauer 1972: fig. 9:473).

The cooking pots and craters represent types common in Iron Age II assemblages of Palestine and Transjordan. The best parallels for the Hedamus types are found in Transjordan at Tell es-Sa'idiyeh IV and VII (Pritchard 1985: fig. 1:18; 2:13,16; 17:7), and Dhibon (Winnett and Reed 1964: fig. 76:1), and in Cisjordan at Ai (Amiran 1969: fig. 76:1), Beth Shemesh (Amiran 1969: fig. 76:8-10), Nazareth (Bagatti 1967: fig. 214:2), and Tell en-Nasbeh (Wampler 1947: fig. 25:416).

Bowls have rounded shapes and simple rims. Some fragments show a mid-body carination, while one single fragment was also

slipped and burnished, a decorative technique common since the Iron Age IIA. Parallels in Transjordan are found at Amman, Tomb C, Adoni Nur Tomb, and the Amman Citadel (Dornemann 1983: fig. 32:37-38, 41; 33:7; 54:502,504; 55:545), Dhibon (Winnett and Reed 1964: fig. 75:11), Hesbon (Lugenbeal and Sauer 1972: fig. 3:202, 206), Tell Nimrin (Dornemann 1990: fig. 4:11), and Tell es-Sa'idiyeh V and VII (Pritchard 1985: fig. 3:8; 10:6). Parallels in Cisjordan are found at Beth Shan IV (James 1966: fig. 67:23,24), Hazor VA and IX (Yadin 1960: fig. 80:29; 1961: fig. 208:13), and Tell Keisan (Briend and Humbert 1980: fig. 29:10).

In conclusion, this pottery assemblage fits well into an Iron Age IIB dating as supported by the C14 dates. The closest parallels are with sites in the Jordan Valley, mainly Beth Shan IV, Pella, Tell es-Sa'idiyeh IV-VII, but parallels with sites on the plateau to the South are also very common (Amman, Hesbon, Dhibon). Both the material culture found at the site and the C14 dates support the 9th century B.C. chronological position of the occupation of Khirbet Um el-Hedamus. The presence of the large storage jars and of an assemblage where "kitchen ware" prevails is also an indication of the domestic character of the occupation identified in the two test-trenches opened this year. Botanical and faunal analyses will add data to this interpretation and will help in outlining the economic foundations of this Iron Age community on the mountains of Jabal Ajlun.

Conclusions

The work at Khirbet Um el-Hedamus reached unexpected results for several reasons:

1. While the main period of occupation was expected to be Iron Age II on the basis of the surface pottery collection, the absence of Early Bronze Age I and Iron Age I strata, which could also be projected from the surface assemblage, can only be explained by an absence of such periods in the areas tested or by a "cleanup" of those same areas at the time of the Iron Age II settlement. The latter occupation left, at least on this upper terrace, only a few pottery sherds from the earliest occupations (EB I sherds were found in K51 unit only).
2. The preservation of the architectural remains is excellent, and the size of the walls, 1.5-2m. high, could not be predicted since no traces of walls were visible on the surface. This is probably due to the terracing of most of the site in relatively recent times.
3. The main questions that arise from these investigations are connected with 1) the extent and type of the Iron Age II settlement, 2) the presence of earlier occupations in stratigraphic context, and 3) the type of the Byzantine and Umayyad occupations. More soundings or full-scale excavations are necessary to answer these questions.

THE SURVEY

One week of survey was carried out in the Wadi el-Yabis after the work at Khirbet Um el-Hedamus. The aim of this short survey was to visit sites known from previous explorations, mainly by Glueck (1951) and Mittmann (1970) that had not yet been rechecked for their periods of occupation by the present survey. A total of 20 sites were visited, but as a result of both purposive visits to possible site locations and casual discoveries, 20 new sites also were added to the list of archaeological remains known in the Wadi el-Yabis area for a current total of 184 sites.

At 9 of the 20 previously known sites visited, one or two new periods of occupation were identified, providing a better understanding of their settlement history. Some of the sites visited were modern villages. In most of these, surface remains indicate that occupation started at those sites in the Roman or Byzantine periods, and spanned all of the Islamic periods. Traditional architecture is also a characteristic feature of most of these villages, but unfortunately a pattern of abandonment and destruction is extremely common. Only in a few cases, as at Kufr Awan (WY88, Pal. grid 214.8 203.6), is the original urban plan still recognisable, with many houses still intact. The rate of destruction of these significant structures

is so high, however, that in a few years there may be nothing left to attest to this aspect of Jordan's recent history. During this phase of the survey, we found that the bulldozing of a section of Khirbet Samta (site WY92, Pal. grid 227.9 199.4) was under way to open a new road on its western side. The bulldozing was stopped by our representative, Mohammed Abu Abileh, and the Ajlun office of the Department of Antiquities was informed. The bulldozer cut, 2-3 meters high and about 40 meters long, revealed stone walls and associated floors together with pottery dating from the Late Byzantine to the Ottoman periods. A well-preserved cistern with a water conduit leading into it was also visible in this cut. The work was stopped before it reached a well-preserved rock-cut birket and a cemetery of possible Byzantine date in its vicinity.

The 20 new sites recorded this year range in date from the Middle Paleolithic to the Ottoman period. The most important include a Middle Paleolithic calcified deposit found in front of a collapsed cave to the west of 'Iraq ed-Dubb (Palestine grid coordinates 216.8 199.7 - Site WY183), A Kebaran site to the west of Tell Maqlub (site WY164 at P.g. 214.1 200.7), a PPNB site (the first found in the Wadi el-Yabis Survey area) near the village of 'Irjan (er-Rahib, site WY180 at P.g. 218.1 200.2, see below), and a complex site including a flint scatter, a dolmen field, and a series of cisterns and agricultural installations to the west of Kufr Abil (site WY181 at P.G. 211.6 202.8).

The Kebaran site at Tell Maqlub West and the PPNB site at er-Rahib deserve special attention, and will be tested by one or more soundings in order to define the depths and types of cultural deposits.

Er-Rahib: a PPNB site in northern Jordan

Er-Rahib is one of the northernmost PPNB site now known in Jordan. It is located on the middle slopes and terraces of a hill to the west of the village of 'Irjan, at an elevation of 520 metres, approximately 50 meters above a perennial-flowing reach of Wadi el-Yabis. The area

(at P.G. coordinates 218.1 200.2) is occupied today by an olive grove. The site is characterized by *terra rossa* soils which assume a grayish color in the central areas of the site where archaeological deposits are preserved on the surface. Limestone bedrock is exposed on the slopes, but flint nodules are rare. The area covered by the artifact scatter is between 4-6 hectares, which places this site among the "medium-sized" settlements of the Late PPNB that are often larger than 10 hectares ('Ain Ghazal, Basta, Beisamoun, Kharaysin, Khirbet Sheikh 'Ali, and Wadi Shu'eib). In addition to the PPNB material, clearly dominant at the site, a number of other periods are represented: Late Chalcolithic, EB IV, MB IIB, Iron II, Late Hellenistic, Early and Late Byzantine, Umayyad and Mamluk. all of these are represented by only a handful of sherds, and may well attest to a long history of the agricultural use of this area, as soundings at Jelmet esh-Shariyeh (site WY120) proved for that nearby site (Palumbo, Mabry and Kuijt 1990). The Chalcolithic pottery poses a problem, however, since some of the fragments belong to large storage jars similar to those found at Abu Hamid in the Jordan Valley, and which are usually associated with a permanent settlement considering their size and weight (Dollfus *et al* 1988:584, fig. 10:19-20). A similar rim was also found at a site in the Wadi el-Yabis in the previous survey season (at el-Khawarij, site WY116) (Palumbo, Mabry and Kuijt 1990).

The PPNB lithic assemblage (Fig. 5) is well-defined by the term "Late PPNB" (ca. 8500-8200 b.p.), characterized by a blade industry (Fig. 5:1-4). Backed blades and long, retouched blades are common. Tools such as bores, awls, and burins are also frequent in this assemblage (Fig. 5:2-4). Projectile points are all of the Byblos type (Fig. 5:1), with the exception of a few tangs which may belong to Amuq-type points. Bipolar naviform cores are common (Fig. 5:5), as well as smaller pyramidal cores. The association of these types of cores, a developed blade industry, and Byblos/Amuq-type points is an indicator, according to Gopher (1989:49-51), of

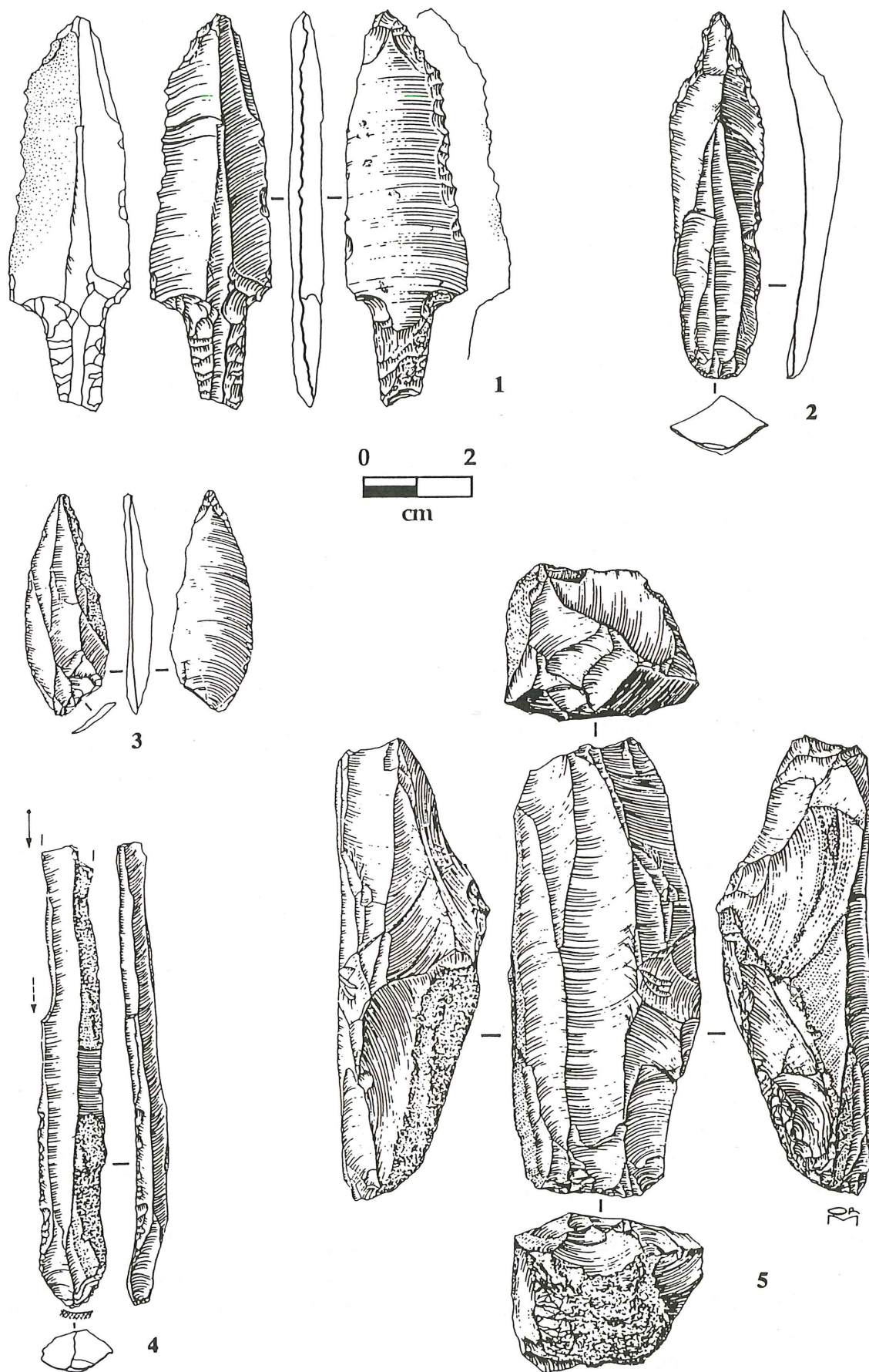


Fig. 5. Chipped stone tools from er-Rahib (WY180). 1-Byblos point; 2-borer; 3-awl/borer; 4-retouched blade/burin; 5-bipolar naviform core.

a late phase within the PPNB period; parallels are mainly with late PPNB assemblages of central and northern Jordan. Since no intensive surface collections have been made at the site to-date, no frequency studies on tool types are presented here. During the next season of fieldwork in the Wadi el-Yabis, soundings will be conducted at er-Rahib in order to identify the stratigraphic sequence and to recover economic and environmental information on this early period of sedentary farming-herding exploitation of Wadi el-Yabis. Currently, all of our information on this period in the Southern Levant derives from excavations conducted at sites in the Jordan Valley, the Amman plateau, and the Petra area, all in environmental zones radically different from the Mediterranean-type area of the Wadi el-Yabis. Hopefully, the soundings will contribute to a better understanding of the evolution and adaptation of PPNB population to different ecological niches.

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Appendix: Skeletal Remains from a Disturbed Tomb at Khirbet Mahrama
(by Katherine Gruspier and Grant Mullen)

Introduction

In the 1990 field season of the Wadi el-Yabis Survey Project, a recently-looted Byzantine tomb was salvaged under the direction of Dr. Gaetano Palumbo. A small quantity of human skeletal material was recovered. None of the material was discovered *in situ*, therefore this analysis treats the sample as an ossuary, and presents information by bone rather than by individual. In general, the preservation of the material was excellent, but the activity of looters had reduced all bones to fragments.

Methodology

The bones were washed and allowed to dry. Specimens were sorted by anatomical region and reconstructed where possible. A detailed inventory was prepared for the entire collection, but only a summary is presented here. Analysis was performed by anatomical region, noting numbers of individuals present and their age and sex if possible. Metrical, morphological, and pathological information was also recorded.

Results

The minimum number of individuals represented by this sample is seven. Four of these are adults (greater than 18 to 20 years) based upon the presence of four left first metatarsal. The three remaining individuals are subadults. The presence of these juveniles was determined by different skeletal elements representing three discrete age groups. Ages could be specified for some of the individuals, and these are discussed below.

Discussion

The adults comprise one large individual, possibly male, one older individual (based on osteoporotic changes), and two which can only be called adult. All of these individuals were greater than 18 to 20 years of age based upon the fusion of the proximal epiphysis of the first metatarsal (Williams and Warwick 1980:415).

The juveniles comprise: one subadult aged 11 to 18 years, based upon the nonfusion of the distal epiphyses of a right 4th metatarsal and 3rd right metacarpal (Williams and Warwick 1980, Gruelich and Pyle 1959); one subadult aged 2 to 4 years, based upon diaphyseal length of the femur (Ubelaker 1989); one subadult aged 8 years \pm 24 months, based upon calcification of teeth from x-rays of a mandible fragment (Ubelaker 1989; Moorrees, Fanning and Hunt 1963a, 1963b).

Some of the bones displayed pathological changes. These changes took the form of a slight osteoarthritic changes to joint surfaces and periostitis of some of the long bone fragments. Both of these pathologies are very commonly seen on skeletal remains, the osteoarthritis reflecting age or stress, and the periostitis indicating non-specific inflammation or infection. A portion of juvenile eye orbit displays healed cribra orbitalia. This pathological process has been indicated in iron deficiency anemia arising from infection, parasitism and stress brought by an insufficient diet.

An accessory epiphysis was found on the styloid process of the proximal end of two 5th metatarsals. On one of the bones the anomaly was partially fused, while on the other it was unfused. The age of these individuals could not be determined due to the post mortem loss of the distal ends of the bones. A literature search revealed this morphological variation to be a "scale epiphysis" (Keats 1988:734-739). To date, no information on heritability or incidence can be located. If this epiphysis is a genetically determined trait, it may suggest that the individuals in

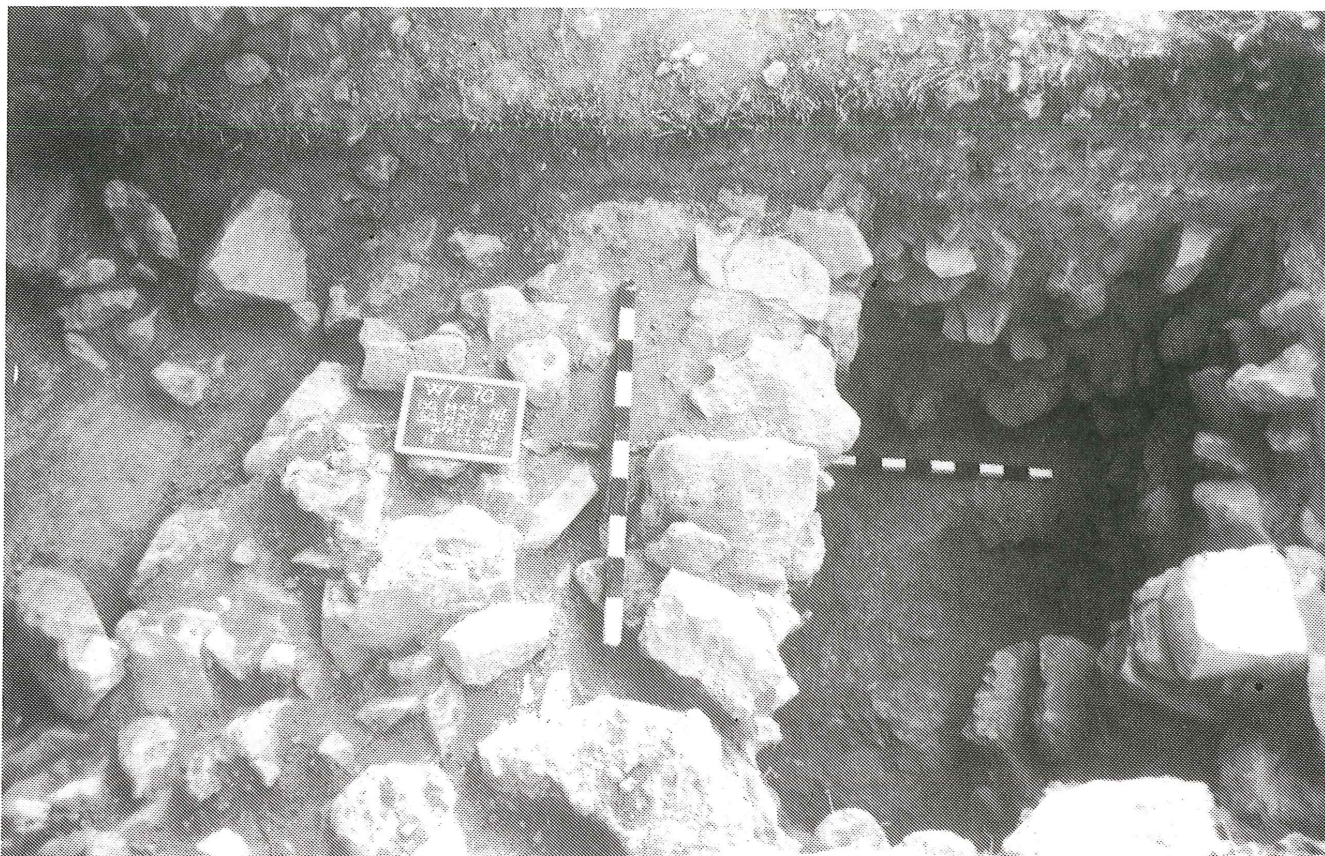
this tomb were related.

Obvious post-depositional activity by humans was seen in the form of looting of this tomb. Post-depositional activity caused by animals was also seen on the remains; a number of bone fragments displayed carnivore tooth marks and a blackening and eroding of the cortical surface of the bone. These erosive and colour changes are effected when bone passes through the digestive system of an animal.

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1. Khirbet Um el-Hedamus: squares M52 N-E and M51 S-E looking East. Wall 005 crosses the area.



2. Khirbet Um el-Hedamus: square K51 S-E looking South. Wall 008 runs from the upper right to lower left corner of photo. The vertical meter stick rests on bedrock.