

AL-KARAK RESOURCES PROJECT 1997: EXCAVATIONS AT KHIRBAT AL-MUḌAYBĪ'

by

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Introduction (J. Lawlor)

As a direct follow-up to the Miller-Pinkerton survey of the al-Karak Plateau (1978-1982) (Miller 1991), the al-Karak Resources Project began in 1995, with a selective, intensive surface survey and environmental study of the southern half of the al-Karak Plateau (Mattingly 1996; 1997). One goal of the pilot season was to select one of the 17 surveyed sites for excavation in future seasons. Khirbat al-Muḏaybi', located in the southeastern corner of the al-Karak Plateau—on the southeastern rim of the Fajj al-'Usaykir, was selected both because of its location and potential. This site's location on a trade route passing through Fajj al-'Usaykir between the "King's Highway" and the "Desert Highway," as well as its location in a transitional zone between the al-Karak Plateau and the desert, qualified it as an ideal site for examination of the region's environmental, historical, and cultural heritage. The site's well-preserved perimeter walls and striking architectural fragments, particularly several proto-aeolic capitals (Negueruela 1982), raised several questions, the answers to which could produce an increased understanding of the region's history and the ancient inhabitant's utilization of the region's natural resources. Who were those inhabitants? Would the site yield any significant data related to the origin of the Moabites (Mattingly 1992)?

As an extension of the project's overall agenda to research both the ancient and modern use of the natural resources of the region, the 1997 staff included a team of specialists, which devoted its energies to collecting a wide range of data that will provide a context in which the target site can be bet-

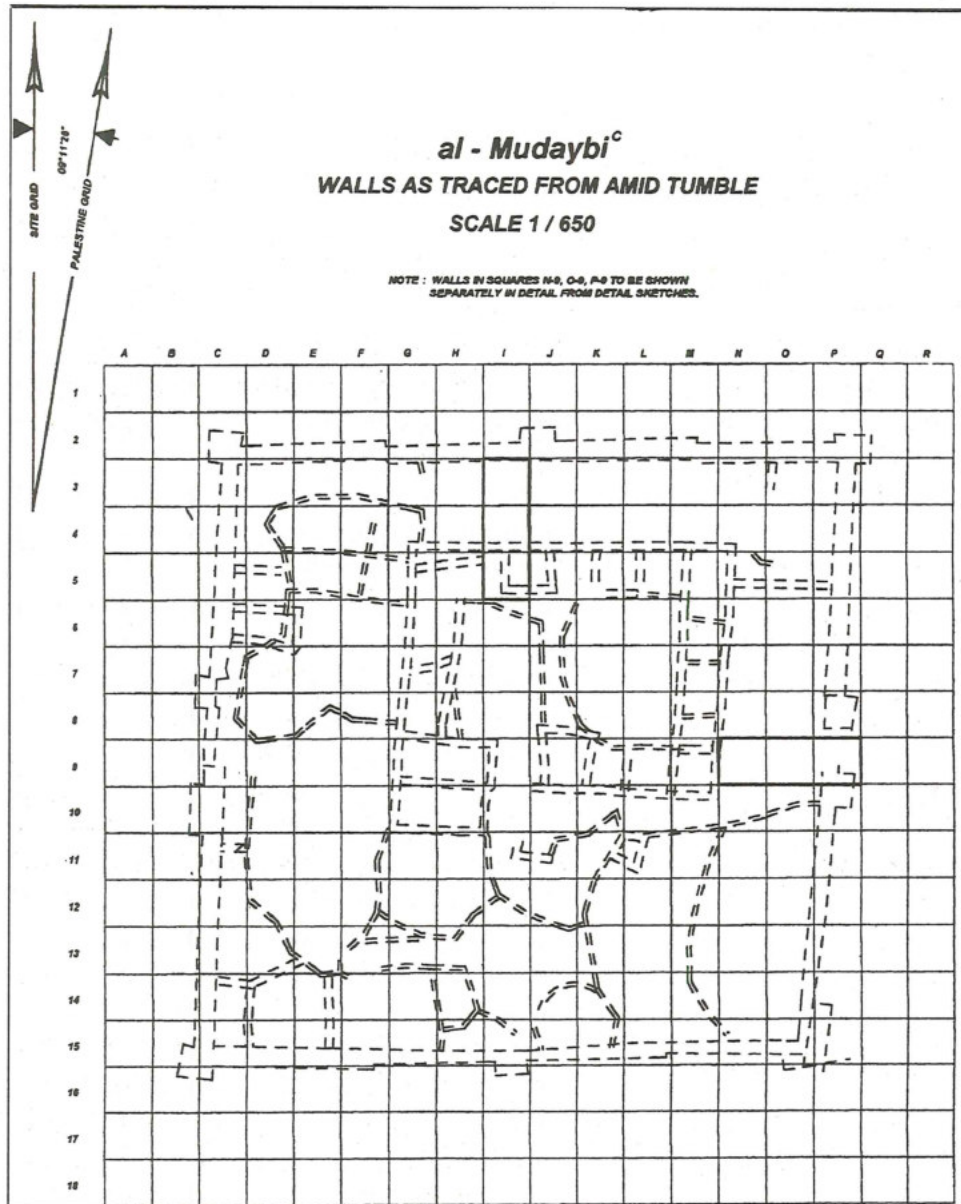
ter understood. Thirty-five individuals, representing 19 educational institutions, made up the 1997 staff. The present report focuses particularly on the 1997 excavation of Khirbat al-Muḏaybi'.

Based on his visits to the site, Glueck represents the perimeter walls as 80 m N-S x 82 m E-W and intersecting at 90° angles. His plan of the site shows four protruding corner towers, gates between paired towers on both east and west walls, and a protruding tower midway along both north and south walls (Glueck 1934). Among the priorities of the 1997 season was the plotting of the major walls at al-Muḏaybi'. The use of computerized technology demonstrated the exterior walls to be 83.5 m N-S x 88.75 m E-W (Fig. 1). Glueck dated the perimeter walls to the "Early Iron Age" and concluded that the interior acropolis walls were Nabataean in origin (Glueck 1934; 1939). Ceramic material retrieved from al-Muḏaybi' by Miller included Early and Late Bronze, Iron II, Hellenistic, Nabataean, Early and Late Roman, Early and Late Byzantine and Ayyubid/ Mamluk sherds (Miller 1991).

Another primary objective of the 1997 season was to clarify, stratigraphically, the founding dates of both the perimeter and acropolis walls. The ceramic data obtained from the 1997 field campaign indicates a seventh/sixth century BC date for the founding of the exterior wall; hopefully, subsequent excavations will more precisely date this structure.

Field A: The Northern Suburb (J. Lawlor)

Extensive preliminary examination of the terrain of Khirbat al-Muḏaybi' in 1995 and



1. Plan of the Perimeter and Acropolis Walls of Khirbat al-Muḏaybi'.

1996, led to the placement of Field A midway along the north perimeter wall on its south side (i.e. “inside”). Three 5 x 5 m squares not only facilitated the goal of establishing a stratigraphic connection between the external and the acropolis walls but also accommodated excavation south of (“inside”) the acropolis wall; both of these were high priorities for the initial season of excavation. Excavation between the site’s two wall systems on the north side and inside (south of) the interior wall would potentially provide data about the history and occupation of the site that excavating the

gate complex on the east side (Field B) would not necessarily obtain. Was Khirbat al-Muḏaybi' founded merely as a military outpost to guard a major trade route? What population size was supported at the site? Did the nature of the site change throughout its occupational history? What kinds of correlation might exist between the “official”/ “royal” architecture which, based on preserved architectural fragments, apparently characterized the initial construction, and the nature of the community that initially inhabited the site?

The entire site was put under a 6 x 6 m

grid, with the three squares of Field A situated along the west side of the site's north-south axis – north of the east-west axis (see Fig. 1). The surface contour of the area selected for Field A suggested that a substantive amount of overburden, occupational and abandonment in nature, would be encountered. The 1997 excavation in Field A yielded evidence for five distinct occupational phases. They are reported here in the sequence in which they were historically laid down.

Field Phase V (Byzantine: AD 325-640)
(Fig. 2)

The east-west oriented Wall 2 in Square I-4 represented Field Phase V in Field A.

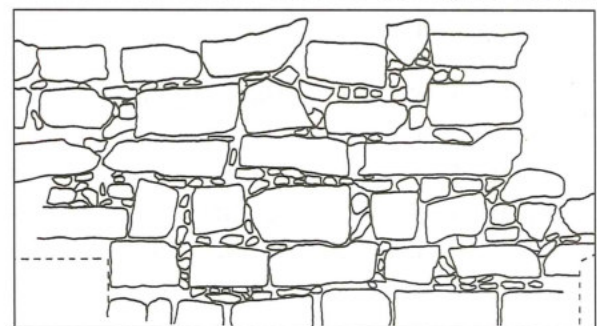


2. Plan of Field Phase V.

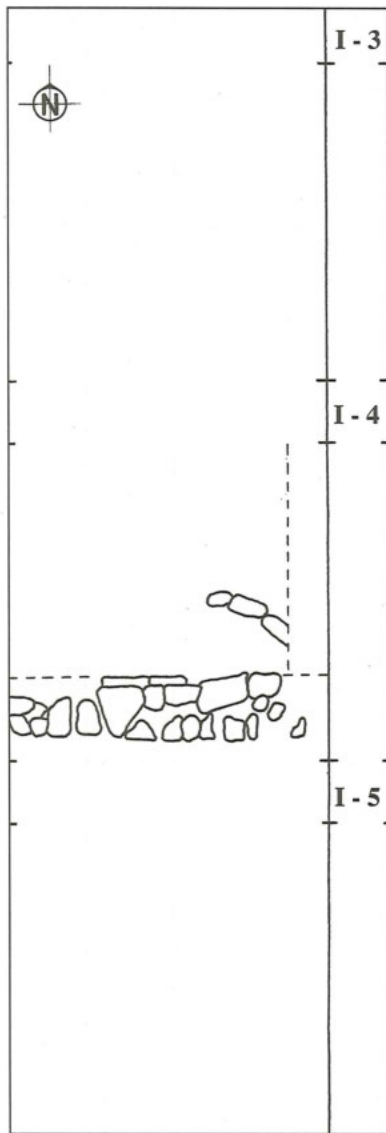
Wall 2 was a segment of the interior acropolis wall on the north side of Khirbat al-Muḍaybi'. Wall 2 was constructed on an 82° orientation, and ranged in width from 0.80 to 1.10 m. While there was some question about a possible Middle Islamic realignment of the upper three courses of Wall 2, the lower three excavated courses were preserved to a length of 5 m. The exposed height of Wall 2 was 2-2.20 m (six courses) (Fig. 3). Evidence that the wall originally stood several courses higher comes from Field Phase II, Earth Layer 5 of Square I-4, which contained extensive wall tumble from Wall 2. Based on the plan of the acropolis wall, Square N-9's Wall 1B (Field B) appeared to be the eastern counterpart of Square I-4's Wall 2 (see Fig. 1). Since the 1997 excavation did not expose the founding courses of Wall 2, the original date and level of construction cannot be determined yet.

Field Phase IV (Early Islamic/Late Byzantine: AD 640-1100) (Fig. 4)

Field Phase IV remains were limited to a series of surfaces which sealed against the north face of Wall 2 in Square I-4. These surfaces had their corollaries in Square I-3, immediately to the north of I-4. An ephemeral bin wall sat on the lower surface in the southeast quadrant of Square I-4. It was a one-row, one-course arrangement of three rectangular medium boulders set on edge in a slightly curved alignment. This installation's easternmost extent was not determined because a N-S subsidiary balk was maintained 0.70 m west of the square's east



3. North Elevation of Wall 2 in Square I-4.

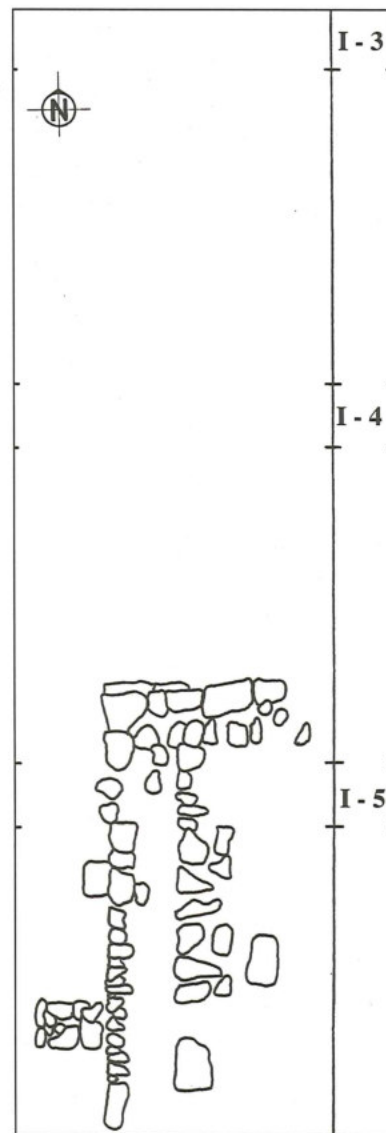


4. Plan of Field Phase IV.

balk. These surfaces covered an area which extended at least 6 m north of Wall 2. The upper surface, Surface 6, signaled the end of the Field Phase IV. A portion of Wall 2 collapsed onto this surface. On the basis of the ceramic remains, it dated to the Early Islamic/Late Byzantine period.

Field Phase III (Middle Islamic: AD 1100-1500) (Fig. 5)

Field Phase III was represented by significant coherent architecture in Squares I-4 and I-5. Subsequent to the collapse of the upper courses of Field Phase Wall 2 in I-4, which appears to have marked the end of Field Phase IV, construction of a series of



5. Plan of Field Phase III.

walls took place south of I-4's Wall 2 (i.e. "inside" the acropolis wall). A realignment of the west end of I-4's Wall 2 may have occurred in conjunction with that building activity.

Walls 3 and 4 in Square I-5 were laid side-by-side on a 352° orientation, and the north end of each abutted the south face of I-4's Wall 2; Wall 3 was situated to the east of Wall 4. This arrangement created "room-like" features to the west of Wall 4 as well as to the east of Wall 3 (Fig. 5). The westernmost wall, Wall 4, was exposed to a height ranging from 1-1.30 m (4-5 courses); its counterpart to the east, Wall 3, was exposed to a height ranging from 0.80-1.35 m

(4-5 courses). The foundations of neither wall were reached. Based on the present stratigraphic evidence, it is impossible to determine which wall was constructed first. No associated surfaces were identified for either wall. Although it was not definite, Wall 3 appeared to be joined, at its southern end, by an east-west oriented wall, Wall 5, which extended from the east face of Wall 3 into the eastern balk of the square.

Abutting the west face of Wall 4, 1.90 m south of the intersection of I-4's Wall 2 and I-5's Wall 4 was a well-built 0.60 (N-S) x 0.40 (E-W) m pedestal (Fig. 6). Its five exposed courses stood 1.10 m high. The function of this pedestal was not determined. Also abutting the west face of Wall 4, 4.10m south of its intersection with I-4's Wall 2, was east-west oriented (260°) Wall 8 (Fig. 6). Wall 8 extended 1.10 m west of Wall 4's west face and was 0.75 m (2-3 rows) wide. It was exposed to a height of 0.75 m (3-4 courses). No surfaces associated with this architecture were found.

Close examination of the north face of I-4's Wall 2, as well as its plan, suggested the possibility that it was altered to accommodate the plan of the architecture associated with its south face. The upper three courses of the easternmost 1.40 m of Wall 2 appeared to have been dismantled in order to create access through the wall to the



6. I-4, E-W Wall 2 corners with I-5, N-S Wall 4; Pedestal 7 and Wall 8 abut the west face of I-5, Wall 4; view toward the east.

structure to the south. The alignment of the western face of I-5's Wall 4 with the west end of the upper three courses of I-4's Wall 2 created a "cornering" of the two walls (Fig. 6). Small boulder tumble, found to be a part of I-5's Earth Layer 6, appeared to have created subsequent blockage of this "passageway."

Pedestal 11 abutted I-5's Wall 2, 1.70 m south of the intersection of I-4's Wall 2 and I-5's Wall 3 (Fig. 7). Its 2-3 courses stood to a height of 0.50 m. No surfaces were identified in the area east of I-5 Wall 3 and south of I-4 Wall 2.

Earth Layer 12 was a 0.04-0.10 m thick layer of black ash. It appeared to have at one time sealed against the south face of I-4's Wall 2, but because of the wall's upper courses "slumping" to the north, wind blown debris filled in a void between the wall's face and the ash remains. Sparse ceramic material (2/31) dated this ash to the Middle Islamic era also.

Seismic activity sometime subsequent to AD 640, appears to have caused the collapse of Wall 2 in Square I-4 onto the exposed surface of Earth Layer 6 of Field Phase IV. Amiran catalogues a total of 19 earthquakes for the Early Islamic period, 20 for the Middle Islamic period and 40 for the Late Islamic period (Amiran 1994: 266-277; see also Russell 1985: 46-49). The presence of Early, Middle and Late Islamic ceramic materi-



7. West face of I-5 Wall 3 with the exposed course of Pedestal 11; view toward the west.

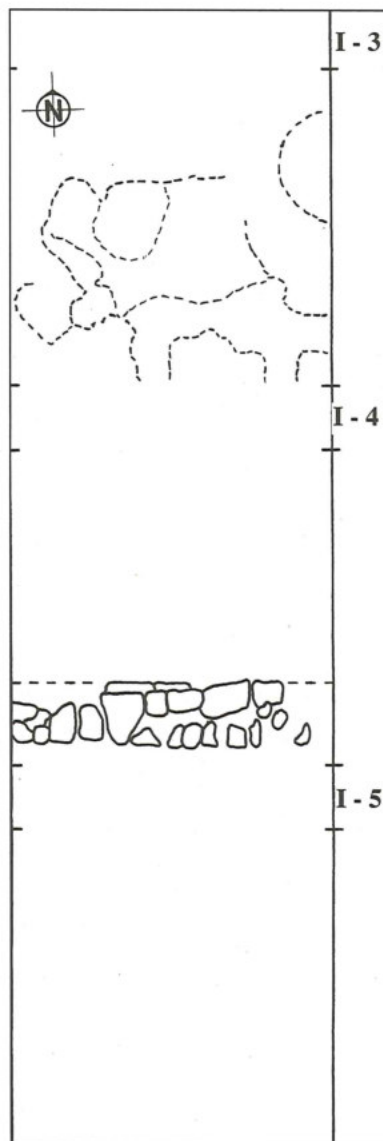
al in the matrix of the wall – collapse – with some Late Islamic deep in the layer – suggests that the Middle or Late Islamic periods are the more likely candidates for the time of the seismic activity responsible for the destruction. More specifically, Amiran's catalogue shows three Middle Islamic earthquakes which had particularly devastating effects on the al-Karak region: AD 1212, 1293 and 1456/7. One of these Middle Islamic dates seems to correlate best with all the available data, including the Middle Islamic occupation as well as the later Late Islamic activity.

Field Phase II (Late Islamic: AD 1500-1900) (Fig. 8)

The Late Islamic period was represented in Field A by a series of debris layers in the respective squares, an ephemeral wall in Square I-4, and by a "plaster dump" in Square I-3. In Square I-3 Earth Locus 17, a 1 (E/W) x 2 (N/S) m, 0.17 m deep area of very pebbly material, mixed with grey ash contained pottery, bones, straw material, eggshell, charred barley, and wheat. The full exposure of this locus was not possible since it entered the square's east balk, but its contents suggest that it was a camping site.

I-4's Wall 3 was a three-course wall (1.21 m) which abutted the west end of I-4's Wall 2 and ran into the square's west balk. It was essentially a one-row wall, the south face of which was aligned with the south face of Wall 2 to the east. It appeared to re-establish the south face of the Field Phase V wall which had been realigned in Field Phase III.

Square I-4's Earth Layer 5 was a 0.53-0.73 m deep mixture of large boulder tumble and earth which covered a 4 x 5 m area north of Wall 2. The large boulder material represented displaced components from Wall 2 from the time of its collapse. The ceramic material recovered from this earth layer clearly dated it to the Late Islamic period.



8. Plan of Field Phase II.

A series of seven plaster-like layers, located 5-8 m north of I-4's Wall 2 appeared to have constituted a Late Islamic "plaster dump" in Square I-3 (Fig. 9). Some of these layers of plaster were separated by a thin lensing of earth – apparently wind blown material that accumulated between the deposition of the plaster layers. Although the size of the plastered area varied, the largest was 3.90 m (N-S) x 4.10 m (E-W). Situated in the southern four meters of Square I-3, it extended into the square's southern balk. Evidence of the dump was also seen in the north balk of I-4, but no sustained plaster layers were found. The layers were extremely uneven and badly eroded. Not the



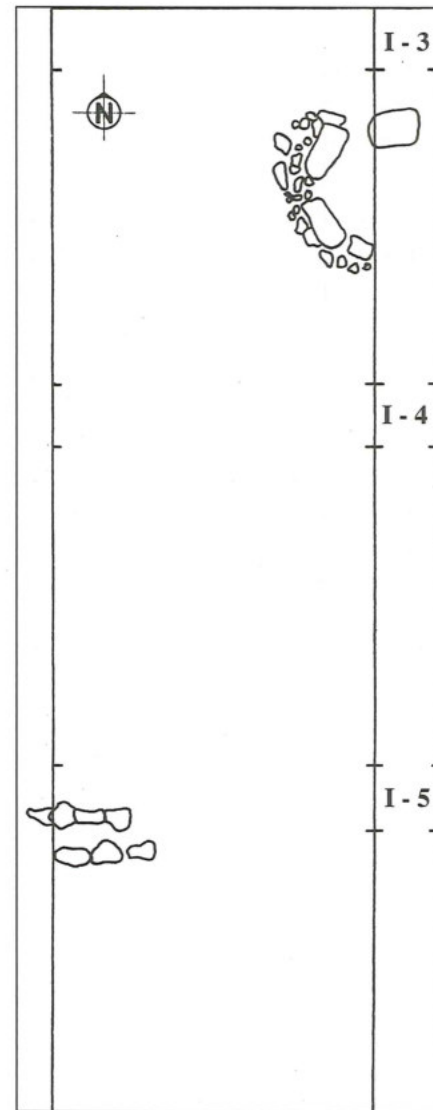
9. Superimposed plaster layers in Square I-3; view toward the east.

remains of a plaster floor, this accretion of plaster appeared to have been a place where either excess plaster was deposited or where plaster was mixed – perhaps for use in the facing of walls. No plaster-faced walls, however, were encountered anywhere in Field A.

Field Phase I (Modern: AD 1900-present) (Fig. 10)

Two features in Field A appeared to be the remains of modern bedouin activity on the north side of the site. Installation 4 in Square I-3 was a bin wall created by a semi-circular alignment of four large boulders, two of which were set on edge. The height of two of the boulders ranged between 0.90-1 m. This arrangement was supported at its base on the west side by buttressing of a few small boulders and cobble material. That the installation of this bin wall occurred subsequent to the accumulation of the Late Islamic plaster layers was apparent from the fact that both the boulders of the bin wall and the buttressing at its western base cut through the eastern edge of the plaster material.

In Square I-5, an ephemeral one-course, two-row wall was located in the extreme northwest corner of the square. Wall 2 was 1.65 m long and oriented at 256°. Made of medium sized boulders, it was 0.92 m wide and stood only 0.55 m high. Based on the



10. Plan of Field Phase I.

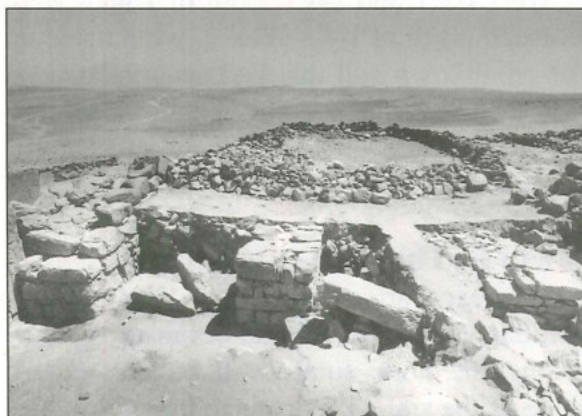
apparent alignment of surface boulders in the area, it appeared that this wall might have been part of a larger plan. Earth Layers I-3:1 and I-4:1, both of which were located north of I-4's Wall 2, were made up of windblown soil that had accumulated on the surface of the site throughout the twentieth century. These created the present exposure surface.

Field B: The Gate (J. Wineland)

Pre-excavation study of Khirbat al-Muḍaybi' revealed a gate complex midway along the north-south wall on the eastern side of the site. This gate complex provides a commanding view of the Fajj al-'Usaykir.

Also visible on the surface near this gate was a large proto-Aeolic capital and smaller capital fragments. Surveys by Glueck and Miller-Pinkerton noted these architectural features (Glueck 1934; Miller 1992). Negueruela studied the capitals and fragments and removed some soil so he could better draw and photograph them (Negueruela 1982). The al-Karak Resources Project re-examined this gate complex during its pilot season in 1995 (Mattingly 1996; 1997).

After reviewing the data mentioned above, it was determined that Field B should examine the eastern gate complex. Three 5 x 5 m squares would establish a stratigraphic connection between the inner "acropolis" wall and the eastern gate complex. The excavation team placed three squares along the east-west axis of the 6 x 6 site grid (Fig. 11). These squares roughly bisect the gate opening as it appeared on the surface. This type of placement will allow for further excavation in the gate complex if needed. The excavation season began with several questions in mind. What was the date of the construction of the gate complex? How long was the gate used? What led to its demise? What is the significance of the proto-Aeolic capitals at a seemingly remote site like Khirbat al-Muḍaybi? What was the date of the construction of the "acropolis" wall? What was the relationship, if any, of the inner "acropolis" wall to the outer walls and gate complex?



11. N-9, O-9, and P-9; view toward south.

A complete proto-Aeolic capital and proto-Aeolic capital fragments, large cut stones (possible lintels), a massive perimeter wall, a smaller "acropolis" wall, and remnants of modern sheep folds covered the surface of Field B at the beginning of excavation. Clearly these large architectural features would pose some concerns as excavation continued. Some architectural remains visible on the surface were moved during the early stages of excavation in order to facilitate safety and progress of excavation. Negueruela's earlier pitting activity complicated the excavation process. The excavation team worked carefully to determine the limits of his pitting activity in order to maintain stratigraphic control. The 1997 excavation yielded evidence for four distinct occupational phases. They are reported here in the sequence in which they were historically laid down.

Field Phase IV (Iron II: ca. 920-539 BC)

Field Phase IV can be subdivided into two distinct phases IVA and IVB. Several features relate to the Field Phase IVB in Field B. Architectural features of the gate complex were evident on the surface as well as in each of the three squares (P-9, O-9, N-9). Evidence indicates that this gate complex had a wooden beam superstructure with large limestone lintels spanning piers which supported the proto-Aeolic capital. It is possible that the roof of this gate complex was covered with reed and mud. This gate probably had four or possibly six chambers.

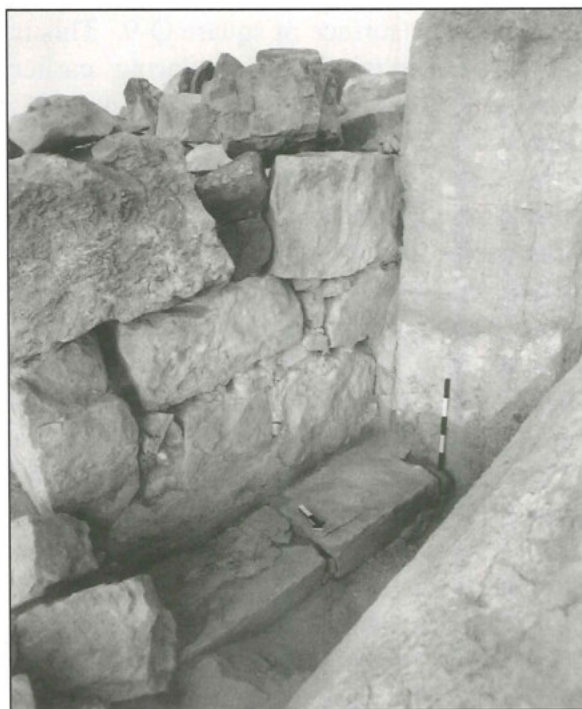
Square P-9 revealed the opening of the gate structure with a massive upright monolith (BP-9:001) still *in situ* adjacent to a large tower on the south side of the gate opening (Fig. 12). This monolithic pillar is composed of fossiliferous limestone and stands 2.88 m high. A similar monolith was found broken (BP-9:013 and BP-9:014) in square P-9 which presumably once stood next to the tower to the north of the gate opening. Excavation revealed that the gate



12. Overview of Eastern gate; view toward west.

had a hard limestone bench (BP-9:015) plastered into the corner formed by the tower and the upright monolith to the east of the gate opening. This bench measured 1.88 m long and 0.48 m wide. The location of this bench to the east (“outside”) the gate opening suggests that the gate complex may extend further to the east and include some type of defensive “entranceway” (Fig. 13). A large charred limestone threshold (BP-9:017) spans the gate opening in P-9. It is 0.88 m wide and it runs 2.5 m long from the upright monolith to the north balk. This threshold extends into the balk towards the north tower. Directly to the west of the threshold a section of several limestones and chert flagstones (BP-9:024) were found in situ. They covered an area of roughly 2 x 1 m. A hard packed earth surface (BP-9:025) extended to the east of the flagstones (Fig. 14).

This hard-packed surface extended into square 0-9 and abutted a pier wall (BO-9:005). This north-south pier wall measures 1.61 to 1.65 m in width and it stands 1.5 m above the beaten earth surface. It is of boulder



13. Plastered bench in P-9, view toward southwest.



14. Overview of gate area with threshold and flagstones; view looking south.

and chink construction being composed primarily of limestone. The pier wall in O-9 measures 2.9 m in length and continues into the south balk. A similar pier wall (BN-9:010) was uncovered in square N-9 which measures 1.6-1.65 m in length and runs 3.45 m into the south balk. Both of these pier walls are oriented slightly west of north (170°). The similarity in construction and orientation indicates that these pier walls form the chambers of a four or possibly a six chambered gate.

A proto-Aeolic capital (BO-9:001) was

visible on the surface of square O-9. This is the same capital recorded during earlier work at Khirbat al-Muḏaybi' (Glueck 1934; Miller 1992; Negueruela 1982; Mattingly 1996, 1997) and mentioned in one comparative study of similar capitals (Shiloh 1979). This capital is 1.88 m long, 0.78-0.92 m in height, and 0.48-0.51 m thick. Two other proto-Aeolic capital fragments were found in square O-9. This capital and capital fragments were probably the same ones previously recorded by Negueruela (Negueruela 1982), however another intact proto-Aeolic capital (BN-9:009) was unearthed in square N-9. This proto-Aeolic capital was found *in situ* just to the north of the pier wall in square N-9 (Fig. 15). It measures 1.9 m in length, 0.95-1.0 m in height, and 0.48-0.52 m in thickness. The base measurements of this capital (1.65 m) matches the width of the pier wall (1.65 m) (Fig. 16). Its position at the time of discovery suggests that it once stood atop the pier wall. These capitals will be examined in more detail in a forthcoming article by Joel Drinkard.

Intact limestone monoliths and some fragmented pieces of monoliths were found during excavation. The position and design of these monoliths suggests that they served as lintels for the gate complex. A well preserved example was found on the surface of square O-9 (BO-9:002). It measures 3.05 m in length, 0.68-0.77 m in width, and 0.45-0.48 m in height. A second example of sim-



15. Proto-Aeolic capital; view toward southeast.



16. Proto-Aeolic capital *in situ*; view toward east.

ilar design and size extended from square O-9 into the western balk. Two monolithic fragments of similar design (BO-9:016) were found on top of the beaten earth surface in O-9 to the east of the pier wall.

Field Phase IVB was located immediately above the hard-beaten surface used in association with the gate complex. IVB was an extensive layer of burned and charred material. Four carbonized beams were found in square O-9; these beams have been identified as cypress. The carbonized remains of these beams measured 0.20 m in length and 0.15 m in diameter (Fig. 17). They were sampled for possible carbon-dating and dendrochronological studies. These carbonized beams were found in a layer of highly oxidized soil which extended throughout squares O-9 and P-9. A charred ram's horn was found within this layer of oxidized soil (BP-9:020) in square P-9. Also in square P-9, several aggregates of



17. Carbonized timber in O-9; view toward west.

baked earth with reed impressions were found. Samples of this material were taken for further study. They suggest that the earth was baked during the fire which destroyed the wooden beams.

The date of construction of the gate can not be determined at this time since the founding levels of the gate have not yet been excavated. However, the ceramic material found within the gate complex dates to the Iron II period. The design of the gate complex and the style of the proto-Aeolic capitals also strongly suggest an Iron II construction.

Field Phase III (Period of Abandonment from Iron II to Late Byzantine Period)

Above this layer of charred material and oxidized soil (Field Phase IVB) was an extensive layer of tumbled hewn and semi-hewn boulders in a matrix of wind-blown soil. There is no discernable pattern to the tumble of boulders. Pottery and other artifacts were extremely rare in this layer. In square O-9, for example 658 guffah-loads of soil yielded only nine sherds (with 1 diagnostic sherd) during the shifting process. These sherds were dated to the Late Byzantine/Early Islamic period. It appears from the size and arrangement of the tumble that this strata consists of tumbled stones deposited during or shortly after the fire in the gate area. The exact method of deposition is unclear. It is likely that the tumble was caused by seismic activity which occurred close to the time of the fire in the gate. The wind-blown soil accumulated subsequent to the rapid tumble. The sparse ceramic material in this tumble indicates that the gate area was abandoned from the Iron II period to the Late Byzantine/Early Islamic period.

Field Phase II (Early Islamic/Late Byzantine: AD 640-1100)

Field Phase II remains were limited to a secondary north-south wall (BP-9:004) in square P-9 and a larger north-south wall

(BN-9:001) in square N-9 which has two distinct building phases (1A and 1B). The secondary wall in P-9 blocked the opening of the gate complex. This was a hastily constructed rubble-filled wall composed primarily of limestone boulders with the remainder being basalt. This north-south wall was built on top of the tumble of Field Level IV and it abutted the large upright monolith of the gate structure and continued northward into the balk. Several pieces of a large Late Byzantine pithos were found in association with this wall, however, no foundation trench was evident.

In square N-9 a north-south wall, the so called "acropolis" wall, was examined. It is clear from the construction of the wall that it was built in two distinct phases (Fig. 18). In preparation for the initial construction (BN-9:001B) a foundation trench was cut into the tumble and debris of Field Level III. Wall BN-9:001B was constructed in level rows of almost rectangular blocks (50-75 cm) and was chinked mostly with pebbles and a few cobbles. Three courses of the wall are extant which reaches a height of 1.0-1.1 m. The founding course tends to be wider and less rectangular than the rest of the wall. The width of the wall could not be determined because it was in the west balk of N-9. The fill in the foundation trench of the wall contained only a few small body sherds so the construction can only be ten-



18. Wall in N-9 showing secondary rebuild; view toward west.

tatively dated to the Late Byzantine/Early Islamic period. The surface associated with the wall was difficult to detect and yielded no artifacts. It appears that this surface was outside the "structure" which incorporated wall BN-9:001B. There is no indication of the cause of the destruction/abandonment of this wall. The three remaining courses are intact. The surface associated with the next phase of the wall is level with the top of the three courses of wall BN-9:001B. This suggests that wall BN-9:001B was leveled in preparation for the next phase of the wall BN-9:001A.

The second phase of the wall BN-9:001A is constructed on top of BN-9:001B. This wall is composed of two-thirds limestone and the remainder being mostly basalt with a few pieces of chert. The wall is of irregular construction and it utilizes irregular rather than rectangular blocks. This suggests that the wall was constructed with stones that were most readily available. Large stones are used in the founding courses but since the stones are of irregular size the wall becomes more uneven with each course. The wall extends for three courses with part of an uneven fourth course apparent. No mortar was used in the construction of the wall. A reddish-yellow (5YR6/6) material was found in the upper courses which Negueruela interpreted as clay mortar (Negueruela 1982). John Foss, soil scientist, confirmed in the field that this was soil (loam to silt loam) and not mortar.

A surface associated with the wall BN-9:001A had a few small sherds dating to the Late Byzantine/Early Islamic period. Two pits were found in association with this surface. The fill of pit BN-9:007 during flotation yielded a few lentils and barley grains. While pit BN-9:007 was filled with an ash layer of multiple fires and flotation of the contents yielded shrubby, twiggy wood, some barley grains, wheat, chaff, lentils, and a date stone. This ash was apparently the accumulation of several campfires

which utilized the wall as a windbreak. On top of the ash layers were two stones used to buttress wall BN-9:001A once it began to slump. There is no evidence to indicate when or why the wall collapsed and went out of use.

It appears from the botanical remains, hearths, and basalt grinders found in this phase that limited domestic activity took place during this period. The material remains are consistent with domestic activities of campsites. The positioning of the hearths adjacent to existing walls on the east would have allowed the walls to block the prevailing western winds of the area.

Field Phase I (Modern: AD 1900-present)

The current usage of the site as an area for sheep folds suggests that the current surface exposure was created by similar activities which utilized the remaining walls as sheep folds. Fragments of basalt grinding stones found in the topsoil suggests some limited domestic activity in the area which would be consistent with pastoral campsites.

Negueruela, who examined the site in 1982, left a pit which was identified in square N-9 and O-9 (Negueruela 1982). The contents of this pit were removed as well as the dump material from his pitting activity found in square N-9.

A Selection of Iron II/Early Persian Pottery from Fields A and B (J. Pace)

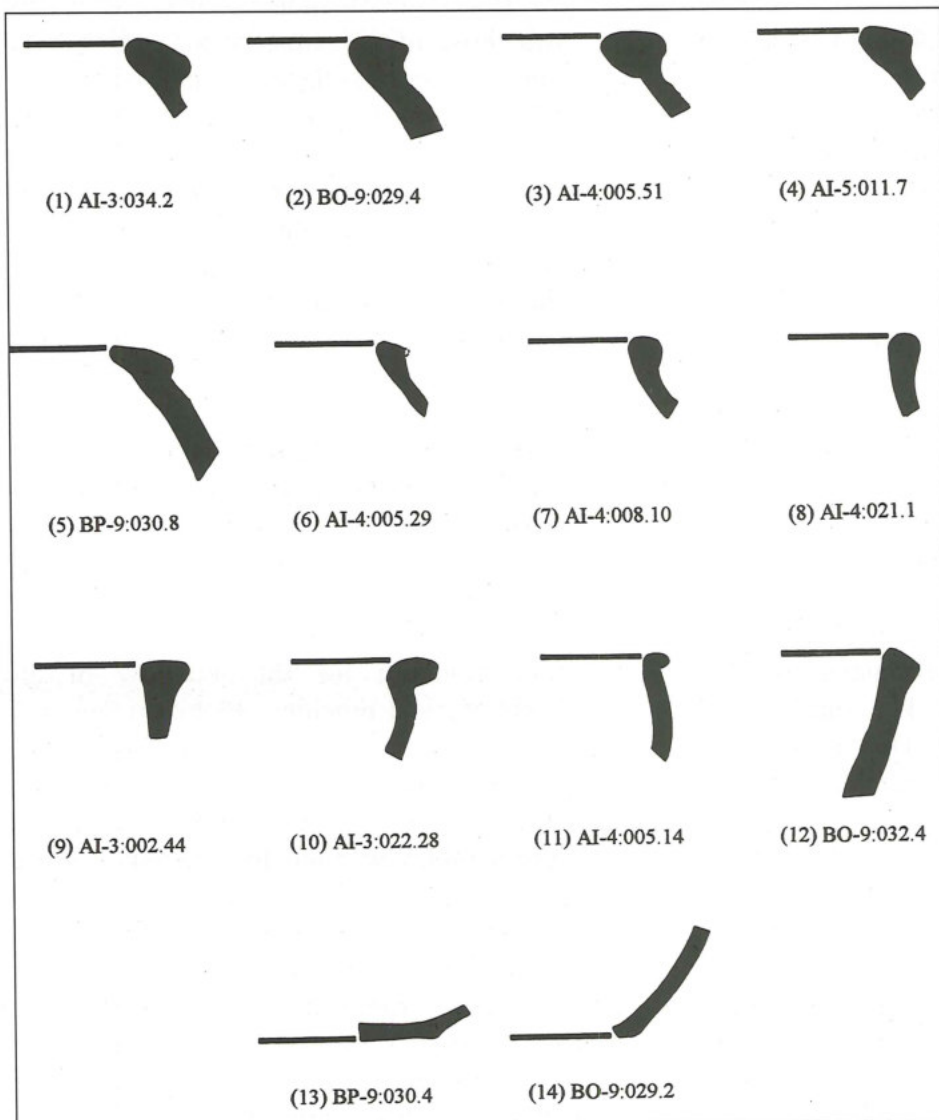
The two fields excavated in 1997 yielded a total of 7533 sherds, 1189 of which were diagnostic pieces. The vast majority of these diagnostic sherds, 1102 out of a total of 6388 sherds, came from Field A, inside the north wall. Only 87 diagnostics from a total of 1145 sherds were found in Field B. This is logical expectation considering that this was the gateway, which as a thoroughfare would necessarily contain less debris. No whole vessels were found, and none could be reconstructed. Information about

al-Mudaybi' provided by the initial season's pottery was therefore limited to establishing preliminary dates for field phases.

The pottery of all three squares of Field A was mixed and represented all periods from Iron II through Late Islamic. Only I-5 indicated any substantial evidence of occupation for any extended length of time, and the pottery was so mixed that nothing certain about dates of habitation can be concluded. The sherds of I-3 and I-4 were embedded in rock tumble and wind-blown loess that covered the surface between the acropolis and the northern wall. Hearths and bins in these two squares indicate sporadic, rather than long-term occupation. The plas-

ter-like layers in I-3 contained Late Islamic pottery. The stone tumble of Wall 2 in I-4 sealed a deposit containing Byzantine and Early Islamic sherds.

Most of the sherds from Field A represented the typical Middle Islamic painted ware found throughout Transjordan and were decorated with geometric designs in monochrome black or bichrome red and black (Brown 1991: 234; 278-79, Nos. 464-75). Several Iron II rims from Field A add to the growing corpus of pottery from that period on the al-Karak plateau. Most of these were thickened inverted rims of kraters or large storage jars (Fig. 19: 1-5). However, there were examples of smaller



19. Late Iron II/Early Persian sherds from al-Mudaybi'.

jars, jugs, and bowls (Fig. 19: 6-14). Of particular note is the bowl with the everted rim and grooved sidewall (Fig. 19: 10) attributed to the Late Iron II-Persian period of Tall al-'Umayri (Herr 1997:245; 37, Fig. 3.16:15-16).

While the pottery of Field B was much sparser than that of Field A, there was a clearer delineation between the mixed Byzantine through Late Islamic pottery of the upper layer and the distinctly Iron II sherds beneath the debris of the destroyed gate. Most remarkable were the painted body sherds found in O-9, which were decorated with horizontal bands of red, white, and black. This is a pattern which is becoming increasingly familiar in central and southern Transjordan. Albright (1924: 11) first identified it as "Moabite" when he collected numerous pieces of it at al-Karak in 1924. Glueck observed the same design at Khirbat al-Mdaynah (Mdeinet al Mu'rrajeh), Qaṣr Saliyeh, Qaṣr Za'feran I, Khirbat al-Bālū', Khirbat al-Jemeil, and Zobayir al-Qaṣṭal (Glueck 1934: 14-22, Pls. 22-23). Since then, examples have been found on the al-Karak plateau at Mihna (Brown 1991: 260; 275, No. 280), Khirbat al-Bālū' (Brown 1991: 260; 275, No. 281; Worshech 1990: 82, Fig. 25:56-59), ad-Dayr (Brown 1991: 260, 275, Nos. 282-84), ath-Thaniyyah (Brown 1991: 20; 275, No. 285), Rujm al-Hleileh (Brown 1991: 260; 275, Nos. 280-87), Qaṣr Saliyeh (Parker 1986: 189, Nos. 152-54), and Khirbat ath-Thamāyil (Routledge 1995: 138, 10:14). The same decorative pattern has been found to the north of the al-Karak plateau, at Ḥisbān (Lugenbeal and Sauer 1972: Plate IV: 244) and al-'Umayri (Herr 1989: 323, Fig. 19.6:17-8; 335, Fig. 19.12:25; 337, Fig. 19.13:10; 339, Fig. 19.14:12). Examples of this pattern come from south of the al-Karak plateau at Ṭawilān (Hart 1995:53) and Buseira (Blenkowski 1992: 7). A parallel from Tall as-Sa'idiyya attests to its presence in the Jordan Valley (Pritchard 1985, Fig. 5:1). It seems

clear, therefore, that descriptive terminology linking this style of decoration to a particular ethnic group such as Ammonites, Moabites, or Edomites is misleading and should be abandoned.

Two interesting Iron II bases were found in the gate. One is a thin, flat juglet base from P-9 (Fig. 19:13); the other is a similar small bowl or juglet base found in O-9 (Fig. 19:14). This sort of flat base is unusual and may represent a local tradition.

In short, a preliminary analysis of the pottery recovered from the six squares opened at al-Muḍaybi' indicates that the first season did not make a major contribution to the study of pottery in Transjordan. The Iron II sherds indicate strong similarity with those of the same period which have been uncovered to the north and south of the al-Karak plateau. The fragmentary condition of the sherds and mixed nature of the deposits excavated in the initial season limit what can be said at this time. More definite conclusions must await the discovery of whole forms or larger diagnostics in the sealed strata anticipated in the excavation of the 1999 season.

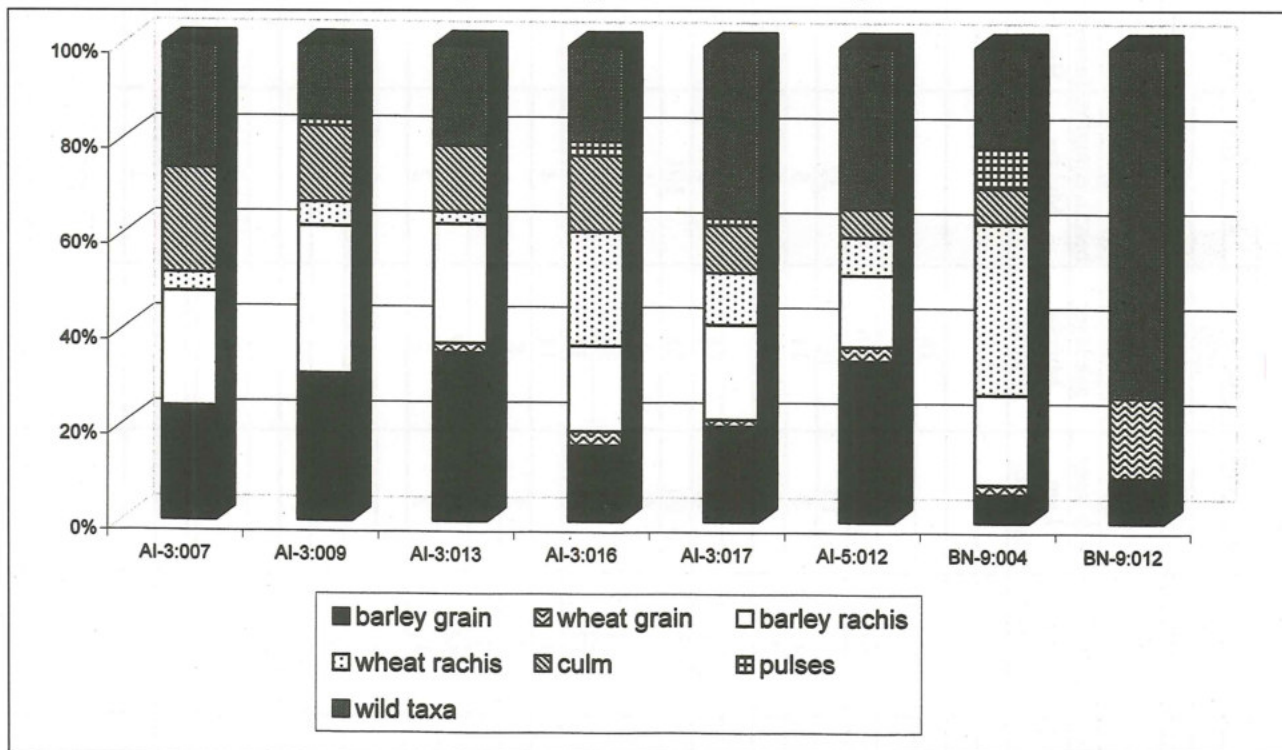
Addendum: Summary of Archaeobotanical Work at al-Muḍaybi' (Tables 1 and 2) (Amy Bogaard and Michael Charles)

In 1997, 18 soil samples from well-stratified contexts were processed by machine flotation for the recovery of archaeobotanical remains. Flotation was carried out by John Meadows. All of the flots (floating material from each soil sample) were subsequently scanned and the richest eight samples selected for analysis. These eight samples were estimated to contain at least 50 identifiable seed/chaff items. So far the coarse (>1mm) flots of these samples have been sorted (after subsampling in two cases) using a low power (x7-40) stereoscopic incident microscope and the crop material has been fully identified. The fine

Table 1. Composition of the eight rich samples (coarse fractions only).

	AI-3-007	AI-3-009	AI-3-013	AI-3-016	AI-3-017	AI-5-012	BN-9-004	BN-9-012
Sub-sampling of coarse fraction						25%		
Total items (excluding dung)	350	151	214	330	553	762	595	44
Soil volume (litres)	48	40	40	40	20	68	32	40
Density of items per litre	7	4	5	33	28	45	19	1
Context type	midden	midden	(undefined)	(undefined)	ash layer	ash layer	hearth/campfire	(undefined)
Date	Middle Islamic	Middle Islamic	Middle Islamic	Late Islamic?	Late Islamic?	Middle Islamic	Middle Islamic?	Byzantine
Cereal grain								
Hulled Hordeum sativum, straight	5		3	5		16		
Hulled H. sativum, twisted	1							
Hulled H. sativum indet.	63	21	60	50	102	146	8	2
H. sativum indet.	13	26	15		10	101	32	2
T. durum/aestivum	1		2	6	3	11	5	
Cereal indet grain				1		2	3	2
Cereal chaff								
Hulled Hordeum sativum var. distichum rachis	24	22	19	25	46	56	9	
Hulled H. sativum indet. rachis	53	20	23	23	60	55	101	
Basal Hordeum rachis	9	5	12	12	5	4	4	
Triticum durum rachis	14	2	6	47	50	36	206	
T. aestivum rachis		6		17	10	11	6	
T. durum/aestivum rachis				8		11	4	
Basal Triticum rachis				5	3	8		
Basal cereal rachis				4	4	5		
Culm nodes	67	19	26	42	53	37	44	
Culm bases	9	6	3	11	2	2	2	
Pulses								
Lens culinaris						1	36	5
Vicia ervilia				5			1	
Vicia cf. faba								1
Pisum cf. sativum								1
Large legume indet.		1		1	3	2	9	
Other								
Phoenix dactylifera							1	
Vitis vinifera	1						1	
Prosopis cf. farcta	1					2		
Seeds of other wild taxa	89	23	45	68	202	256	123	31
Wood charcoal (x=present, xx=abundant)	x	x	x	x	x	x	xx	x
Total dung volume (millilitres)			2.5	2	2	18		

Table 2. Percentage composition of the eight rich samples (coarse fractions only).



fractions (>300 um) have not yet been sorted, and the identification of seeds of wild taxa has yet to be completed.

All of the plant material identified so far was preserved by charring and is generally in good condition. With the exception of one (relatively poor) Byzantine sample, the samples analyzed date to the Middle-Late Islamic periods and are dominated by the remains of two free-threshing cereal crops – hulled barley (*Hordeum sativum*) and free-threshing wheat (*Triticum durum/aestivum*). In most samples barley is more abundant than wheat.

The barley material consists of grain and rachis and appears to be mainly or entirely the two-rowed form (*Hordeum sativum* var. *distichon*). Free-threshing wheat grains are not identifiable to species but the morphology of the rachis internodes indicates that both macaroni wheat (*Triticum durum*) and bread wheat (*Triticum aestivum*) are present. A high ratio of wheat rachis to grain suggests that this crop has been processed and some grain removed, whereas the barley rachis to grain occur in an approximately equal ratio

(as in two-rowed barley ears) and may be largely unprocessed. In any case, the different proportions of grain and chaff for the two crops suggest that they were processed – and grown – separately. The mixing of the two crops in the samples must, therefore, have taken place after processing.

Pulse seeds, mainly lentil (*Lens culinaris*) and bitter vetch (*Vicia ervilia*), generally occur in small numbers. Other crops identified in the samples include date (*Phoenix dactylifera*) and cultivated grape (*Vitis vinifera*). Charred sheep/goat pellets and dung fragments were also observed in some samples.

Little archaeobotanical work has been carried out at contemporary sites in the region or elsewhere in the Near East (Miller 1991). Thus, the discovery of significant quantities of well-preserved plant remains from al-Mudaybi' are very promising for study of plant use at this time. In both the relative abundance of free-threshing cereal material (particularly hulled barley) and the 'mixed' nature of the samples, the al-Mudaybi' material is similar to that from

the two other Roman-Islamic sites in the al-Karak region where archaeobotanical studies have been carried out – Khirbat Fāris (Hoppe 1998) and al-Lajjun (Crawford 1987). The degree to which this reflects uniformity in arable agriculture through time and space in the al-Karak region remains to be determined. At both of the other sites, dung fuel has been noted as a possible source of at least some of the charred remains though, interestingly, for rather different reasons. If dung is the primary source of archaeobotanical material at any of the sites, the material will reflect animal feeding regimes more directly than overall trends in agricultural production. Further work on the archaeobotanical remains and the present-day al-Muḍaybi‘ area is planned to address this issue.

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