

**PRELIMINARY REPORT ON BRIGHAM YOUNG UNIVERSITY'S  
FIRST SEASON OF EXCAVATION AND SURVEY  
AT WĀDĪ AL-MAṬĀḤA, PETRA, JORDAN**

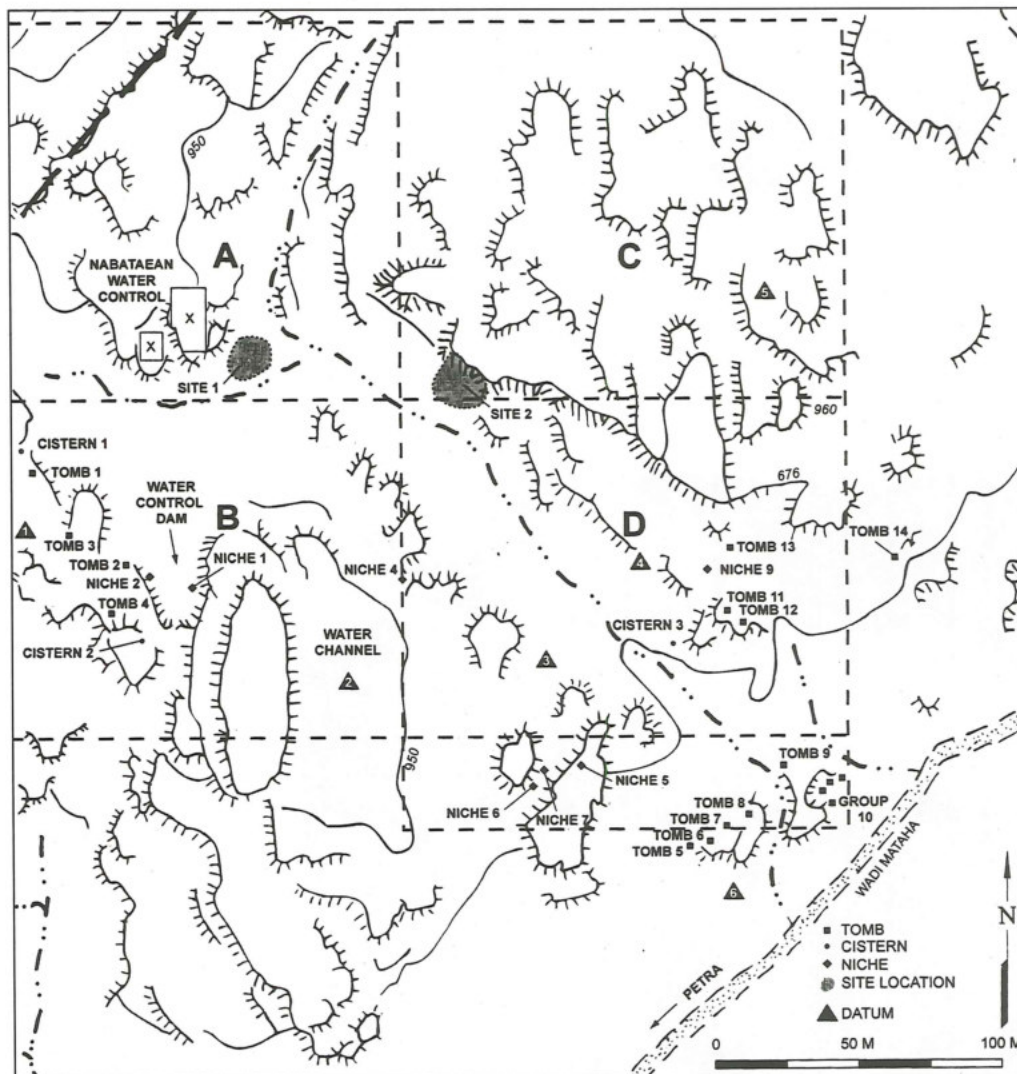
by

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**Introduction**

The first season of photo reconnaissance, survey and excavation at Wādī al-Maṭāḥa lasted for two weeks between June 28th and July 10th, 1997. The area of study consists of the drainage of a small wadi flowing into the main Wādī al-Maṭāḥa from the west, and the ridges of sandstone massif that separate it from the area of the Mughur an-Našāra on the south west and the area of

Mughur al-Maṭāḥa to the north east (Fig. 1). It is located at UTM coordinates 75600 East and 3358800 North. The area lies between the main Wādī al-Maṭāḥa and the Nabataean rock-cut road system running along Wādī Umm Ṣayḥūn (Figs. 2 and 3). The fringes of the area were briefly surveyed and reported on by Dentzer and Saulpin (1997). The three major goals of this initial season of work in the Wādī al-



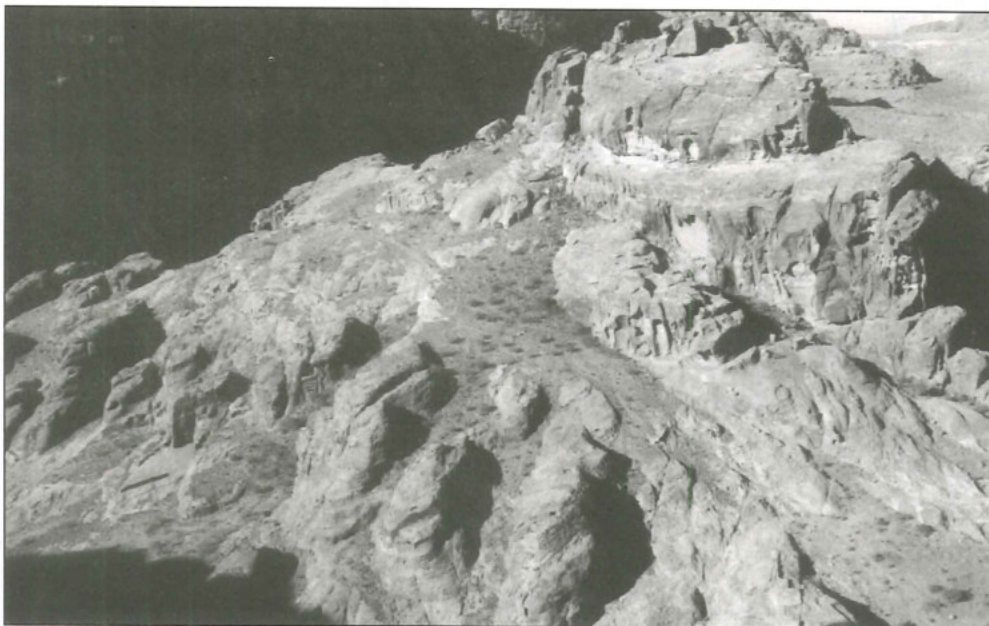
1. Feature Map of Wādī al-Maṭāḥa survey area.



2. Study area from Jabal al-Khubtha, looking west.

Maṭāḥa were to:-

- a. document photographically and visually all major Nabataean and other cultural features in the study area.



3. Southern half of study area looking south.

- b. determine the extent and date of the burial area at the western edge of the study area, designated Site 1.
- c. determine the nature of, date and extent of the cultural deposition next to the southern face of the northern ridge in the study area. This deposition, designated Site 2, was previously identified as early Natufian based on the presence of Helwan retouch in the lithic assemblage.

### Photographic Survey

The photographic survey was conducted in two phases. First of all, the study area was divided up into 100 m designated as A-F beginning in the NW corner of the area and running to the SE corner of the study area near the main Wādī al-Maṭāḥa. Each square was then systematically surveyed for cultural features and notes made of each feature's characteristics and location. Each feature was later photographed and roughly sketched.

### Mortuary Features

Two types of mortuary features were noted. These were rock cut tombs with façades and cist graves cut into the bedrock. Fourteen rock cut tombs were identified in the study area (Table 1).



**Table 1.** Rock cut tombs with façades from Wādi al-Maṭāḥa.

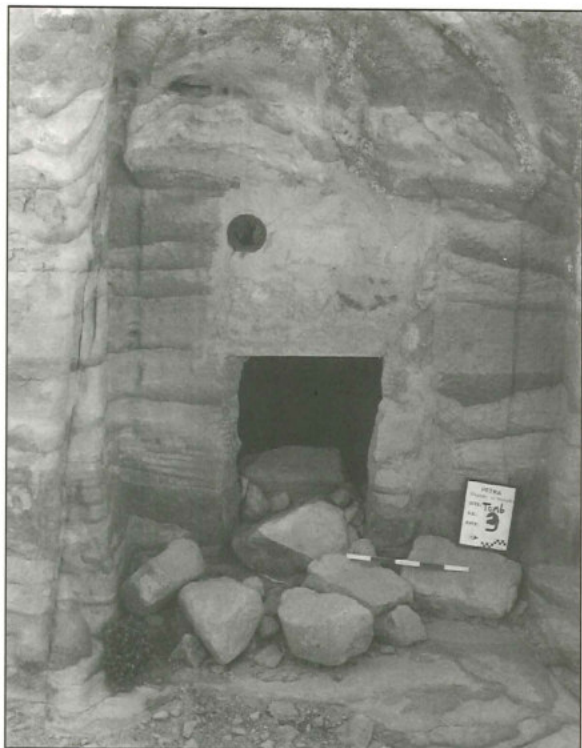
No.	Location	Direction	Façade	Chamber Type	Assoc.
1.	Area B	East	Extremely worn Pilaster	Square Triclinium No loculi Modern reuse	Nab. fine painted red orangeware
2.	Area B	East	Double crowstep Painted or plaster upper register Lintel, inscribed?	Square Triclinium Loculi, SE corner	Nab. fine painted red on orangeware
3.	Area B (Fig. 4)	S. West	Half-circle Pilasters	Small Square chamber	Modern reuse
4.	Area B	North	Plain façade	Step down	None
5.	Area D (B. D. 665)	South	Pillared Façade Inset Lintel Crowsteps on Side	Three loc. on N. side. Four Loc. W. side	None
6.	Area D (Fig. 5) (B.D. 666)	Southeast	Single crowstep	Square chamber	None
7.	Area D (B.D. 667)	Southeast	Double crowstep Dushara block? Square side pilasters	Four large loc. in western wall (Fig. 6)	None
8.	Area D (B.D. 668)	Southeast	Single Register Square side pilaster	Two large loc. West wall	None
9.	Area D (B.D. 669)	South	Circular Façade Register above lintel. 2nd façade in interior.	Large chamber with two loc. to the north Back chamber with roof hole	Nabataean letter <i>mim</i>
10.	Area D	N., E., S.	Group of 5 Tombs		Heavy deposition
11.	Area D	South	Collapsed façade	Square with niche and block in back.	Painted symbol
12.	Area D	South	Collapsed façade	Small square chamber	Nab. fine dark red painted ware
13.	Area D	South	Collapsed façade	Large square interior	Plastered cistern Grinding stone
14.	Area D (B.D. 671) (Fig. 7)	East	Tomb complex with ashlar wall enclosing tomb, cisterns and niche	Loculi in north south and west Covered opening in roof.	Exterior stairs leading to roof (Fig. 8)

A number of cist graves, many robbed out, lie along the western edge of the main Wādi al-Maṭāḥa in the study area.

### Cultic Features

Cultic features functioned in a ritual way in the worship of the supernatural. Main fea-

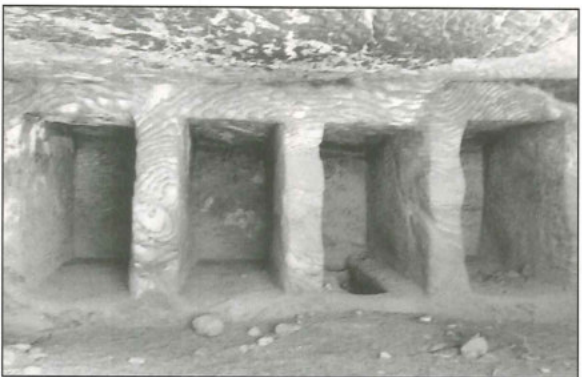
tures are altars, niches, blocks, shrines and associated triclinium. Niche 1 is located in area B about four meters above the ground surface facing west. It is a rectangular niche 60x 30 cm in size, 50 cm deep reached by a set of small rough cut steps in front. There is a shallow depression or trough cut into the



4. Tomb 3 façade.



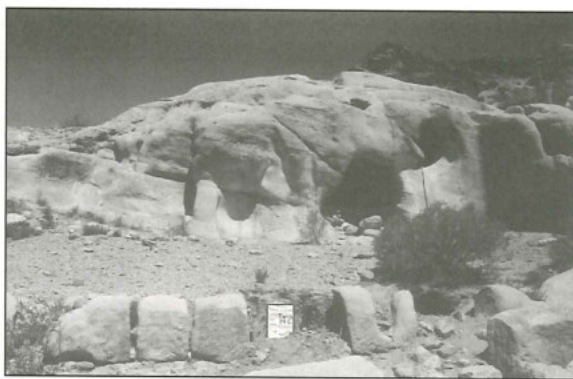
5. Tombs 6,7,8,9.



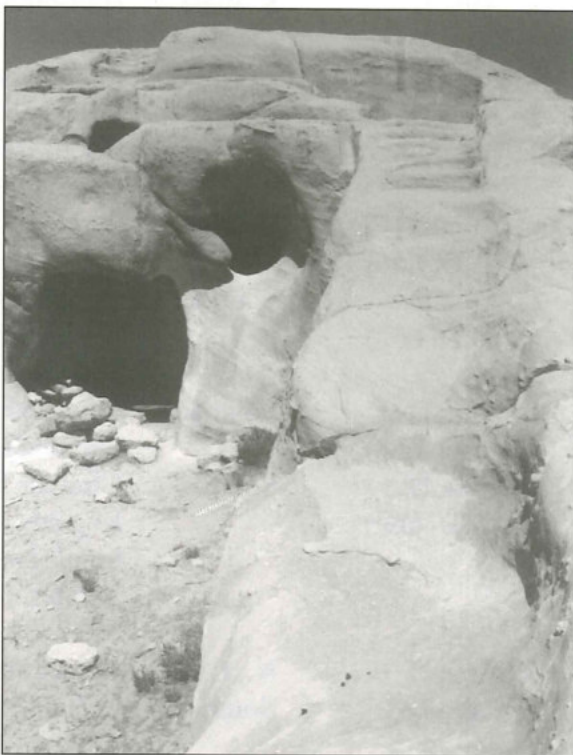
6. Tomb 7, interior.

floor of the niche.

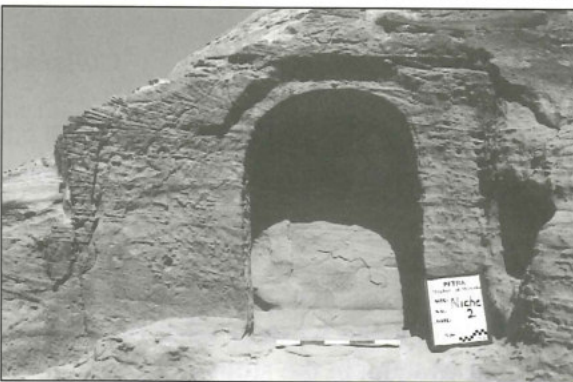
Niche 2 (Fig. 9) is located above and to the south of Tomb 2, and is reached by a



7. Tomb 14 exterior.



8. Tomb 14, stairway to west leading to top of tomb.



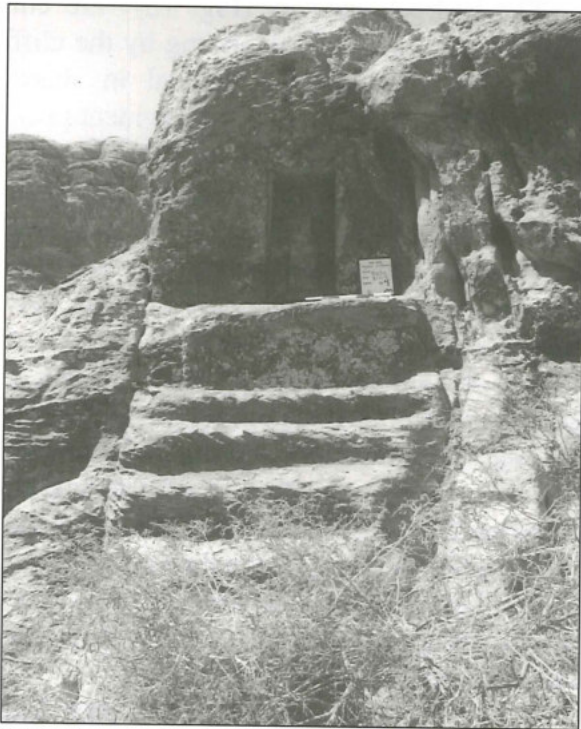
9. Niche No. 2, circular top.

well cut access stairway. It is rectangular, 104 x 75 cm, 39 cm deep with a circular top as well as a rectangular trough in the front. It



faces east. Niche 3 is located immediately to the north of Niche 2 and is rectangular in shape, 117 cm x 90 cm, 32 cm deep but very well worn. It also faces east but no trough was visible.

Niche and Block 4 (Fig. 10) consists of a shrine with a stairway leading up to a platform and deep niche with a rectangular block in it. There is a faint inscription directly above the block, possibly reading DSHR. The shrine faces north and is 90 x 45 cm in size, 20 cm deep while the block 35 x 18 cm with a trapezoidal support below it. No trough is visible. In shape and form, this niche and block are similar to blocks with trapezoidal bases catalogued by (Roche 1988) at Petra from the Theater area ( XI 8, Pl. 51), Sadd al-Ma'āgin ( XXX 55, Pl. 118), al-Khubtha (XXXII 18, Pl. 131) , al-Madras (IV.33,35,53, Pl. 16,17,25) and at Bostra (242, Pl. 159). Roche identifies the rectangular blocks with a trapezoidal base as representing Dhushares (107, 219,220). This is also suggested by the faint inscription in this niche as well as by a similar niche and block found at the



10. Niche and Block # 4.

Temple of the Winged Lion on the exterior of the cella wall, directly in line with the altar platform. This block would have paralleled the built niche in the interior that contained the eye idol representing the goddess of the Temple, either Allat or al-'Uzza and probably should be associated with her consort, Dhushares.

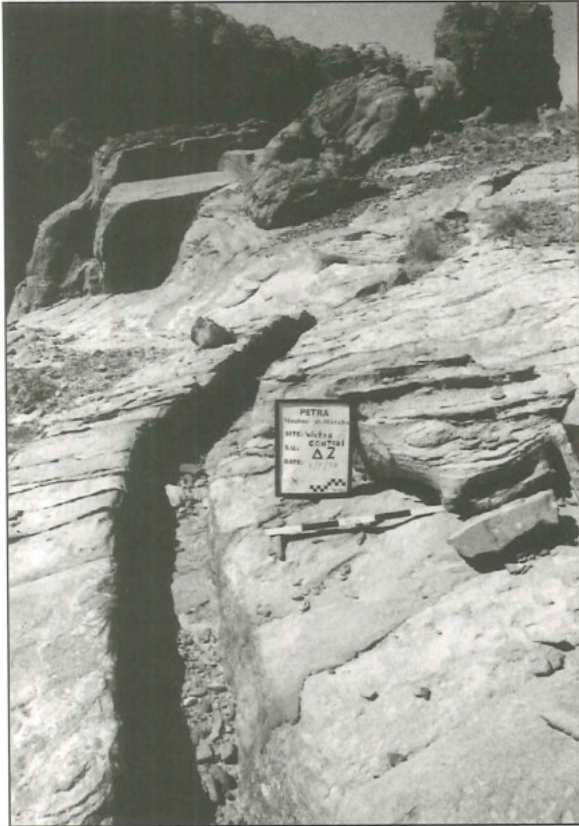
Niche 5 faces west, with side pillars, 65 x 60 cm in size, 9 cm deep with a larger and smaller trough at its base. Niche 6 also faces east, is rectangular in shape, 62 x 49 cm in size, 12 cm deep with a well worn trough. Niche 7 also faces east, is rectangular in shape, 65 x 40 cm in size, 40 cm deep without a trough. Significantly, most of the niches without actual carved blocks contain troughs or depressions that probably held portable cultic blocks, most being with a single block but some with double blocks.

### Water Control Features

Three water collection and control systems were surveyed in the study area. System D1 is made up of a collection channel directly behind the Mughar an-Našāra, running south to north and sloping gradually into a rock cut cistern No. 1, cut into the southern sandstone massif at the western end of the small drainage near Tomb 1.

System D2 collects runoff water from the high sandstone ridge to the south of the small drainage and opposite the Natufian Site 2. It is made up of a complex system of channels and cisterns. Channel A (Fig. 11) is a narrow 40 cm wide and 25 cm deep channel running along the north face of the ridge at an upper level in a western direction that drops into a middle system at the western edge of the sandstone massif. It then flows south down slope towards a square Cistern No. 4 at the tip of the western edge. Channel B is on south face of the ridge and slopes west directly into Cistern 4. Channel A seems to drop directly near Cistern 4 into the lower larger Cistern No.2 but may overflow into Cistern 4, if water pressure is sufficient. Wa-





11. D2 Channel A.

ter from both these systems ends up in Cistern 2, an almost completely covered facility cut into the edge of the eastern face of the sandstone ridge. A secondary Cistern near it provides additional overflow capacity at a lower level than Cistern 2.

System D3 collects runoff water from the sandstone ridge north of the drainage system and directs it downslope in a west to east direction into a large bell shaped Cistern No. 3 near the eastern edge of the study area above the Wādī al-Maṭāḥa. In this small area, the water systems collect water from all of the ridges framing the side wadi, and direct it to storage facilities.

### Excavation Results

Two areas were selected for excavation. Site 1 was 2x2m<sup>2</sup>, excavated into the red sand mound to the west of the intersection of two small wadis that join to form the main wadi in the study area. This area was selected for excavation because of the pres-

ence of human bone eroding out of the surface of the area and above ground rock alignments. It was hoped that this might prove to be a Natufian burial area, but excavation revealed only shallow one coarse rock alignments without any skeletal material in association except at the surface level. Excavation was carried out to a depth of 2m through sterile sand to bedrock. One red ware sherd, inscribed in Late Nabataean was found near the surface in this square. Site 1 was backfilled to ground level at the end of the season.

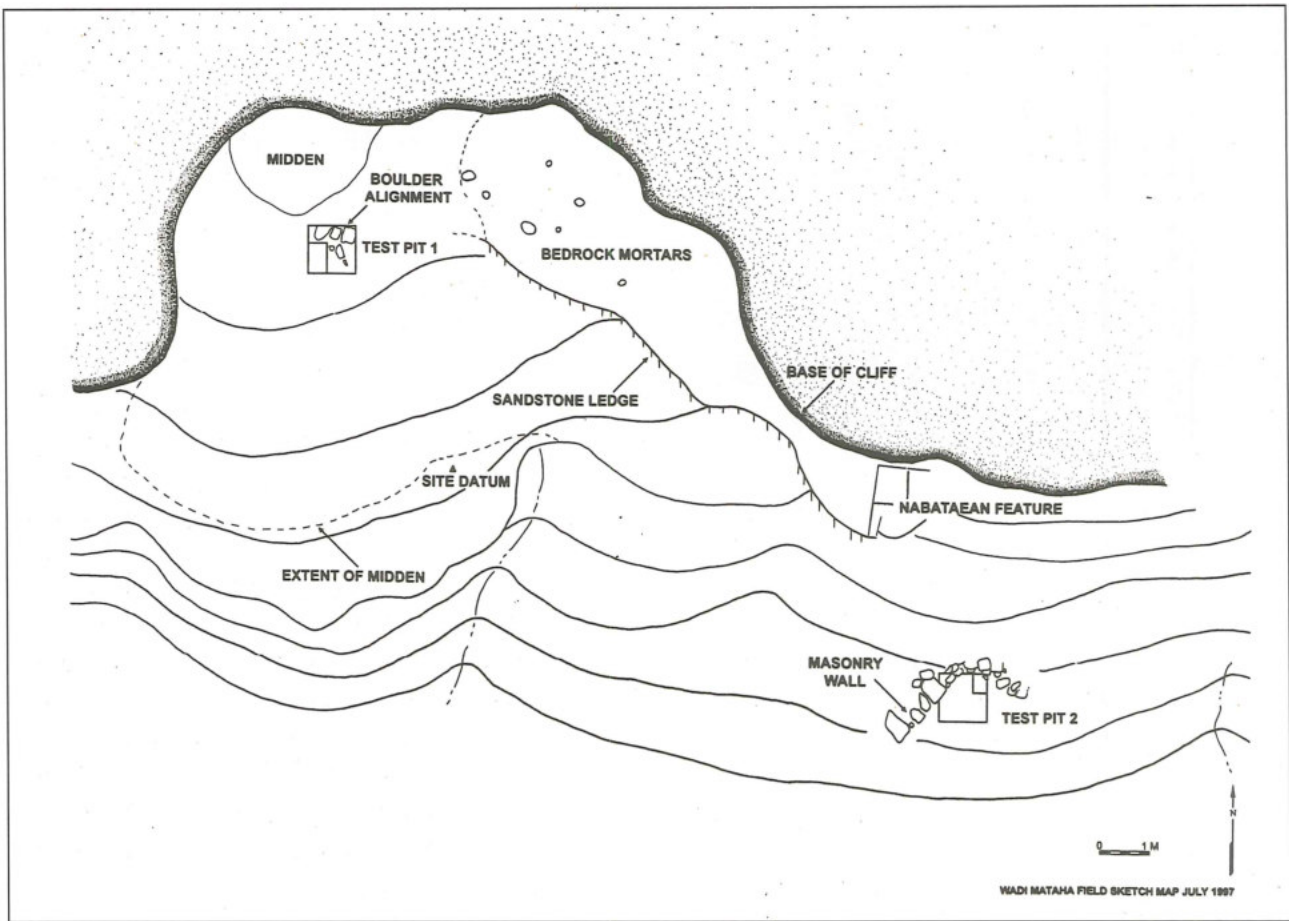
### Site 2

Site 2 (Fig. 12) is located north of the wadi channel up against the southern face of the sandstone cliffs of Mughur al-Maṭāḥa. It consists of a cobble covered slope leading up to a recessed alcove against the cliff face. The slope is covered with lithic debris in an area of 1600 sq. meters. Excavation was carried out in three areas, two 1x1 m test pits, and a series of seven bedrock mortars at the top of the slope at the western edge of the site.

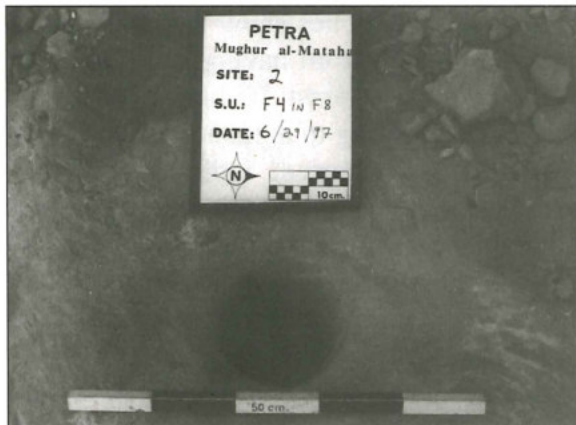
The bedrock mortars (Fig. 13) are cut into a sandstone ledge overhung by the cliff face. Two of them are conical in shape about 20 cm in depth, one with evident peck marks while the other had been ground smooth. Three are incipient mortars with evident peck marks that have sometimes been referred to as cup marks. Two are tube shaped with side fluting and conical bottoms, over 72 cm in depth. One of these was used as a cache for a basalt grinder, a quartzite hammerstone, a set of shells including four dentalium and one Nerite bead, a basalt pestle and a pecked sandstone ball. A ground sandstone discoid found on the slope below the mortars may have been used as a cover on one of the mortars. Soil samples were taken from two of the mortars for botanical analysis.

Test Pit 1 was opened in the stratified midden deposit to the west of the bedrock





12. Wādi al-Maṭāḥa, Site 2.



13. Bedrock mortar.

mortars. The midden contained abundant chipped stone artifacts and animal bone in a context of coarse sand and sandstone rubble. At about 30 cm below ground surface, excavators encountered several flat sandstone slabs and an apparent alignment of large rounded sandstone boulders. Associated with the slabs were two ovicaprid horn

cores. A sounding in the southwest corner found an additional 70 cm of cultural deposits below the slab layer. The sediments below the slabs were markedly different from the overlying deposits in that the sandstone rubble was nearly absent, giving way to a homogenous gray-brown sand. Animal bone, chipped stone tools and debitage as well as occasional marine shell continued. This lower level contained tools characteristic of the Late Mushabian period. The maximum depth of culturally stained deposits in Test Area I is about 1 m.

Test Pit 2 (Fig. 14) investigated a gently curving alignment of stone masonry on a steep slope near the top of the talus but below the sandstone ledge containing the mortars. The alignment ended abruptly at about 30 cm below current ground surface, clearly demonstrating that it had been purposely laid. Sediments above the bottom of the ba-





14. Test Pit 2 .

sal stones contained abundant sandstone rubble, chipped stone tools and flaking debris, animal bone, and an occasional marine shell. Included among the chipped stone tools was a unifacially flaked borer, end scrapers on blades, and lunates with Helwan retouch. The latter argues that this deposit was Early Natufian. Deposits below the stone foundation were essentially sterile, although they continued for an additional 75 cm before bedrock was encountered. No compacted use surface was detected. It is likely that any such surface had eroded downslope, a probability borne out by the sloping nature of the cultural sediments. The bone from this test was heavily encrusted with carbonates. Both test trenches as well as the seven bedrock mortars were backfilled to prevent erosion and vandalism at the end of the season.

### Site Age

Chipped stone tools recovered from the two test pits provide the only chronometric data available at this time for Wādī al-Maṭāḥa. Preliminary sorting by Michael Chazan of the University of Toronto has identified three periods of occupation: 1) Pre-Natufian or Ramonian at the base of Test Area 1, marked by the presence of Ramon points and some Helwan retouch; 2) Early Natufian in Test Area 2, characterized by lunates with Helwan retouch; and 3) Late Natufian in the upper levels of Test Area 1, which contained steeply backed

small lunates and no Helwan retouch. Estimated ages for these cultural periods are 15,400-12,500 BP for the Late pre-Natufian, 13,000-11,000 BP for the Early Natufian, and 11,000-10,00 BP for the Late Natufian (Fig. 15).

### Faunal Analysis

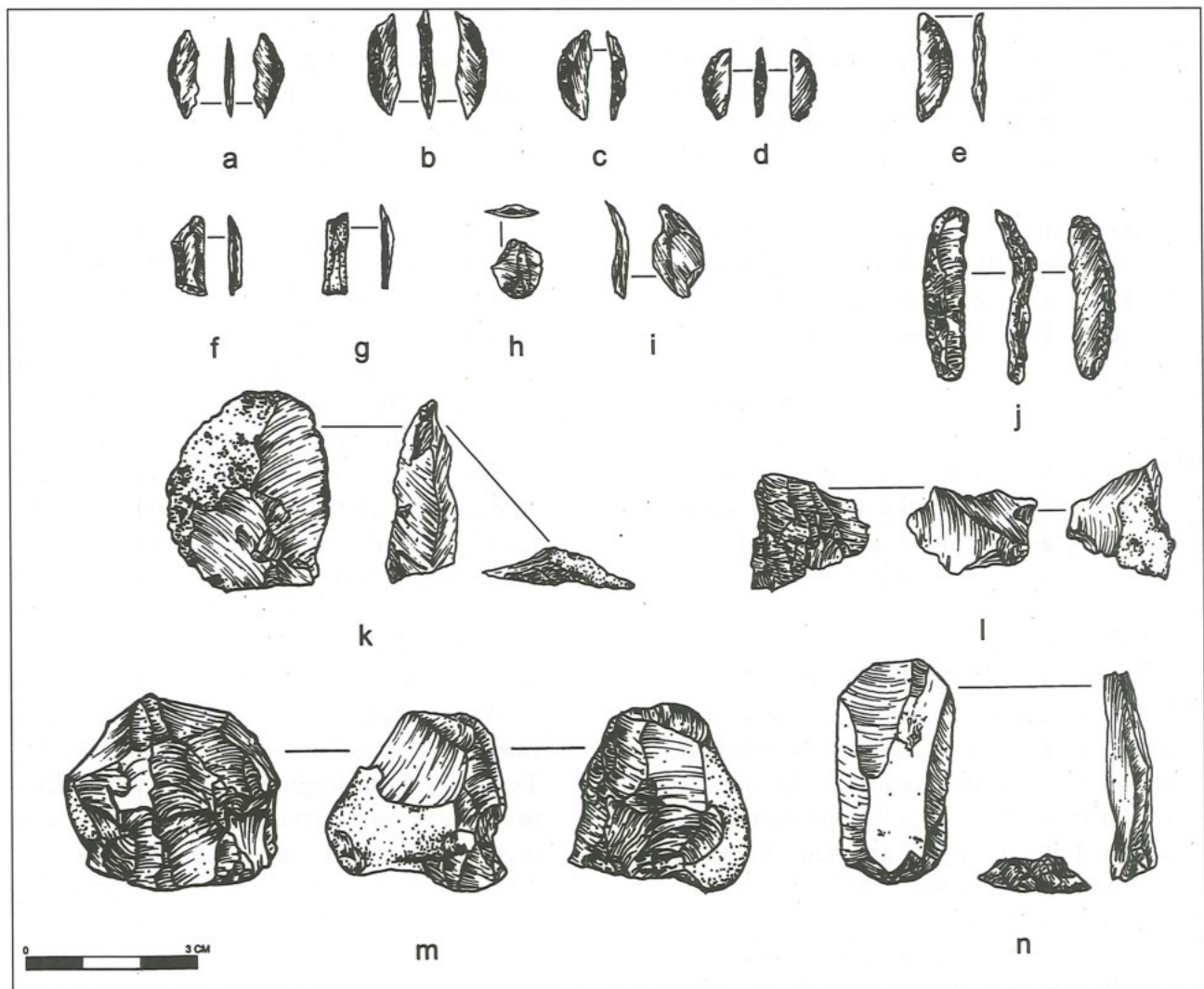
Of the 1339 animal bones recovered from the test excavations at Wādī al-Maṭāḥa, 108 were identified both to taxon and to element. Caprine bones dominate the assemblage at over 40% of the total identified specimens. The next most common taxa is gazelle at 28%. The predominance of caprines at a site situated as Wādī al-Maṭāḥa is not unexpected. While gazelle bones often comprise over 80% of assemblages at forest and coastal sites, they are less frequent than caprines in steppe and desert sites (Byrd 1990:176). The remainder of the fragments identified by taxon is made up of birds and land tortoises, which are represented by 11 bones each, dog, fallow deer, hare, and equid represented by one bone each, and rodents represented by two bones.

While a few bones show signs of gnawing, and erosion from having been ingested by carnivores, at least 10 bones have tool cut marks, attesting to human activity. Some specimens are charred, indicating contact with elevated heat, although there is no direct evidence, such as "spit marks" for cooking over the open fire.

### Caprines

Of the 50 caprine bones from Wādī al-Maṭāḥa, 35 are determined to be from goats. Whether these are the bones of *Capra aegragrus* or *Capra ibex* remains unclear. Wādī al-Maṭāḥa lies within the known ancient range of both species of wild goat. While Wādī al-Maṭāḥa is situated within the southernmost extent of the range of *C. aegragrus*, it lies much more comfortably within the range of *C. ibex* (Uerpmann 1987: 118-121).





15. Lithics: a-e= lunates; f,g,h,i= microburins; j= archbacked blade; k= Ramon point; l,m= bladelet cores; n= end-scaper .

Two well-preserved horn cores were also recovered in the excavations, one of which provided a clear cross-section. The anterior margin is rounded and lacks the characteristic keel of *C. aegragus* horn cores and its oval cross section is typical of *C. ibex* (Meadow 1986: Fig 2).

### Gazelle

The size of the gazelle bones from Wādī al-Maṭāḥa suggest that they are from the larger species *Gazelle gazella*, the mountain gazelle, rather than *G. dorcas*. Differences between the two species are size, horn core shape, and certain cranial features (Tchernov *et al.* 1986) of which the first two are

relevant to the collection.

The Wādī al-Maṭāḥa assemblage includes one gazelle horn core from a young individual. In general the *G. gazella* horn core is elliptical in cross-section, while that of *G. dorcas* is egg-shaped with a wider posterior margin (Tchernov *et al.* 1986). This horn core is elliptical in shape, and its shape and size index falls well within the range of *G. gazella*.

### Other Animal Bones

Like those of caprines during the Natufian, equid bones occur more frequently in steppe and desert sites. At Wādī al-Maṭāḥa, only a single bone could be identified as



equid- a left central tarsal. It is too small to be *Equus ferus*, but might be from one of the other three species of equids known from the Southern Levant, namely, *Equus africanus*, *Equus hydruntinus*, or *Equus hemious*.

One metatarsal fragment was determined to be from a small member of the genus *Canis*. This single canid specimen comes from a context which has been attributed to the Late Natufian.

Seven of the eleven bird bones were from a species of partridge (*Alceatoris sp.*). The chukar (*Alceatoris chukar*) is common in this area, on dry rocky mountain slopes with or without scrub vegetation. It breeds and is present year round in this area.

#### *Temporal Variation*

The greatest change seen in the Wādī al-Maṭāḥa bone assemblage is in the relative proportions of gazelle and goat between the pre-Natufian and the Natufian. In the Late pre-Natufian, the gazelle predominates, while in both the early and late Natufian, goats, are more common. Although this observation is based on a small number of animal bones, it may represent a significant shift in exploitation practices in the Natufian. Within the Natufian itself, it is intriguing that there appears to be a broader spectrum of exploitation in the Late Natufian than in the Early Natufian. These apparent differences, however, need to be evaluated when a larger assemblage is available.

#### **Preliminary Analysis of Shell**

A total of 35 whole and fragmented shells were recovered from the 1997 test excavations in Site 2, representing a minimum of nine taxa. Shell was not concentrated in any one context but was found throughout the deposits. The largest amount of shell came from the middle stratum in Test Pit 2, which yielded nine shells, mostly *Dentalium* sp. The shell remains are described below

by taxonomic category.

*Dentalium* spp. (n=19) or tusk shells were the most abundant type recovered. All consist of rather short sections of shell that were likely broken segments for use as beads. Only five exhibited a degree of polish and only one appeared to be smoothed on one end. At least two, and perhaps three, species of dentalia are present: a smooth surfaced tusk, a thin ribbed tusk and a more thickly ribbed tusk. The smooth and thin ribbed specimens most closely resemble *Dentalium vulgare* and *Dentalium Octangulatum* respectively (Abbot and Dance 1982:283). It is possible that the thickly ribbed tusk is *D. elephantinum* as these were found in the natufian levels at Bayḍa (Reese 1991:619). These beads and shell fragments varied in length from just under 5mm to nearly 20 mm in length.

Worm shell (cf. *Vermitedae*) fragments (n=5) were the next most common shells. Typically these fragments were short, small in diameter, and curving. The longest measured 15 mm and was 2 mm in diameter. These may have been used for beads but none showed polish or other evidence of use.

*Nerita* spp. (n=3) shells represented at least two species. The largest specimen (15 mm across the aperture) was quite polished and eroded, presumably from wave action, but otherwise unworked. The smaller specimens (11mm across the aperture) both had been punched on the top of the whorl, presumably for stringing. The often distinctive columellar teeth were quite eroded on these specimens and the whorls are somewhat eroded making species identification difficult.

One *Olivella* sp. fragment was found. It consisted of only a portion of the lower or body whorl and aperture. Also, two small whorl fragments of marine gastropods and one very small complete gastropod were recovered from the excavations. These fragments are eroded but one could be a frag-



ment of *Nassariidae*. The complete gastropod is enigmatic and no similar types were found (Abbot and Dance 1982). The thinness of the outer lip could suggest an immature shell. At least three bivalve taxa are represented in the assemblage. All are small fragments. One with a strongly ribbed outer surface may be a cockle or scallop shell but the fragment is too small for certain identification. A very small fragment (9 mm by 9 mm) has a distinctively pearly or iridescent interior. The third fragment, although clearly a marine bivalve, is too small to identify further.

One disk bead was found in Test Pit 2. It measures 7 mm in diameter and is 2 mm thick. It is dark gray in color, presumably from burning, and is slightly cupped, suggesting it was made from a whorl of a gastropod. The perforation is conically drilled from the inside of the whorl.

Marine shells occur throughout the sequence at Wādī al-Maṭāḥa i.e. from pre-Natufian levels as well as early and late Natufian. This reinforces Reese's (1991) findings that marine shell, although an important commodity during the Natufian period, was also being procured during the earlier Epipaleolithic periods. Additionally, the as-

semblage is diverse with at least nine taxa represented from the two test pits excavated in 1997. The source of the shell, according to the identifications made to date, tend to favor the Red Sea. According to Reese (1991:613), for example, *Nerita* shells do not occur in the Mediterranean and *D. Elephantinum* is from the Red Sea. These findings foreshadow a rich shell assemblage at Wādī al-Maṭāḥa.

### Acknowledgments

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