

THE EARLY BRONZE AGE SETTLEMENT ON UMM SAYSABĀN NORTH OF PETRA (JORDAN) AND ITS TOPOGRAPHICAL CONTEXT REPORT ON THE 1998/1999 SURVEY

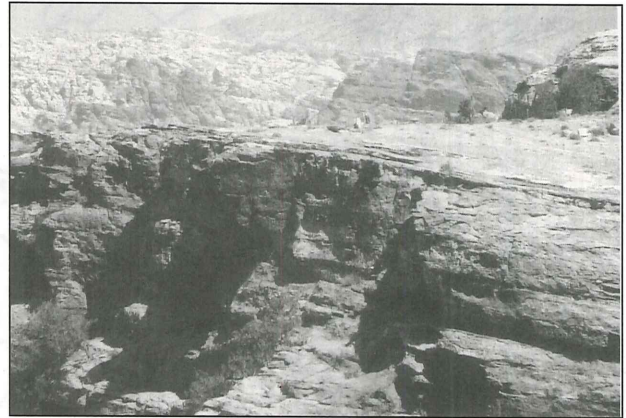
Manfred Lindner, Ulrich Hübner and Hermann Genz

Introduction

The plateau of Umm Saysabān (أم سيسبان; the Arabic name meaning *Colutea istria*, a plant according to I. Künne actually being found there today) extends between Jabal ad-Dayr جبل الدير (1163m), the ad-Dayr plateau (1060m) and Wādī Mirwān وادي مروان (1000-800m). It lies at 1120-1130m asl, with — in parts — perpendicular drops to Wādī Mirwān.¹ The plateau was examined during previous visits in 1983 (Lindner 1986: 98-101), 1996 and 1997 by small survey teams of the Naturhistorische Gesellschaft (NHG) Nürnberg and — since 1998 — the University of Kiel (Figs. 1, 2). Already in 1983, “standing stones” were identified as remnants of rectangular houses. Except for a sherd scatter of Nabataean-Roman origin and a few Late Islamic sherds, pottery finds of an earlier date indicated a village-like settlement of the Early Bronze Age. Our report on “Five Early Bronze Age Sites North of Petra” includes a preliminary description of Umm Saysabān (Lindner and Genz, in press). The date of the occupation was confirmed by soundings in 1996 and 1997 when Early Bronze Age pottery was revealed *in situ* at circa 15cm depth. The site was plotted and sounded in September/October 1998 and 1999. Members of the survey teams of NHG were Dr. Manfred Lindner (Director), Prof. Dr. Ulrich Hübner (Co-Director), Elisabeth Gun-sam (Architect), Ingrid Künne (Botanist), Antonie Schmid, Elisabeth Schreyer and Dakhlallah Qublan from Petra/ Umm Şayḥūn.

Mapping and Plotting

Mapping of the Umm Saysabān plateau (YU 338 599)² was accomplished in 1998 by U. Hübner and I. Künne with the assistance of a Jordanian sur-



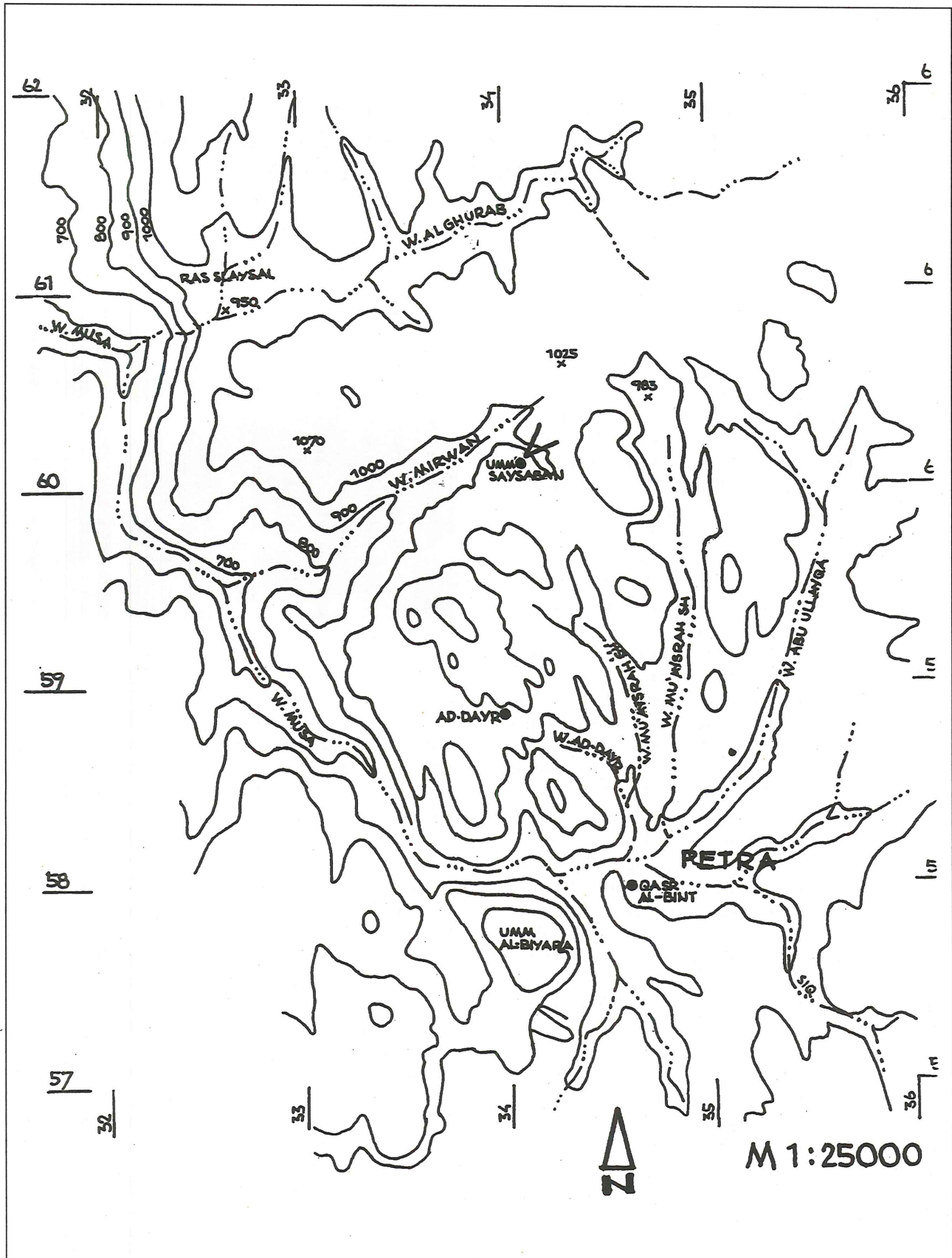
1. The plateau of Umm Saysabān seen from southwest.

veyor who used a laser-operated theodolite (Fig. 3). According to the map produced this way, the settlement extends between Jabal ad-Dayr and the erosion-indented edge of the Ordovician plateau, first in an easterly direction (Spurs I-III) for ca. 130m, then in a northerly direction (Spur IV) for ca. 170m. The remnants of around 15 rectangular structures were preliminarily identified as ruins of houses or parts of houses (rooms) with two concentrations on Spur II and around a rocky outcrop on Spur IV. A few structures may have abutted the rock wall. Several ruins especially those situated toward the north exhibit significantly sharper edges. In three places, staggered terraces where spates were (are) to be expected, and laid rocks channeling run-off water to the rim of the plateau do not reveal the date of origin or use. The same uncertainty applies to a mound of fieldstones on Spur III, possibly a field clearance pile to the west of an abri without archaeologically relevant traces. Terrace walls and a relatively large number of trees

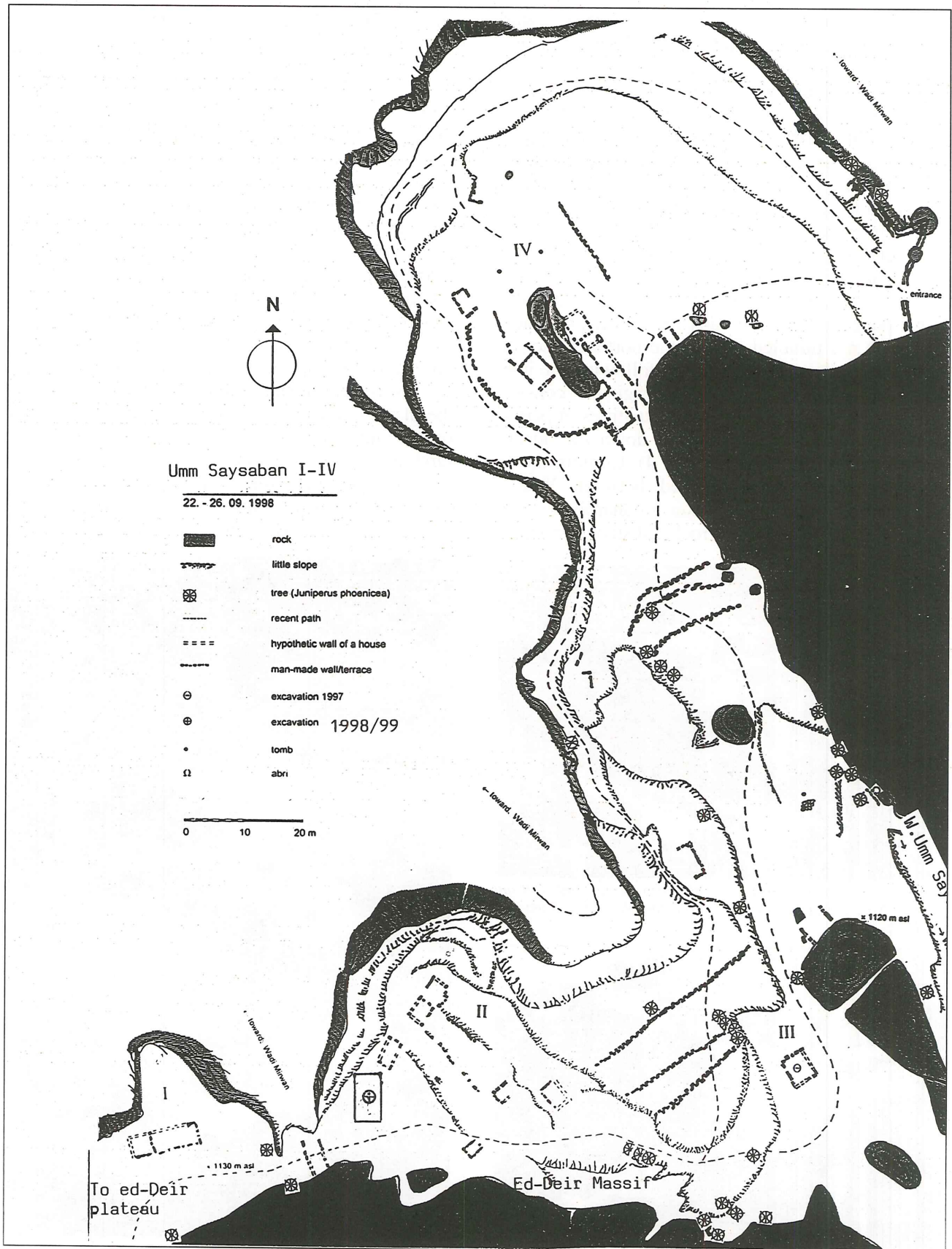
1. Umm es-Sēsabān in Canaan's “Studies” (p. 161) and his sketch map of Petra (1929). S. 'Abbud, G. Kampffmeyer and M. Thilo (eds.), *5000 arabische Sprichwörter aus Palästina* (MSOS an der Universität Berlin, Bei-band zu Jg. 40), Berlin 1937, S. 297: sēsēbān = “der gelbblühende Blasenstrauch, *Colutea halepica*”; Nr. 5058 (S. 262) “Oh ihr

Alten der früheren Zeit, o Eichenklötze. O Jungfrauen dieser Tage, o Sēsabānblüten ... Die alten Frauen der früheren Zeit sind stark wie Eichenklötze. Die Jungfrauen von heute sind zart, nicht abgehärtet, und achten viel auf Aussehen und Wohlgerüche”.

2. Map of Palestine 1: 50 000.



2. Location of Umm Saysabān. Sketch map 1:25,000 (E. Gunsam).



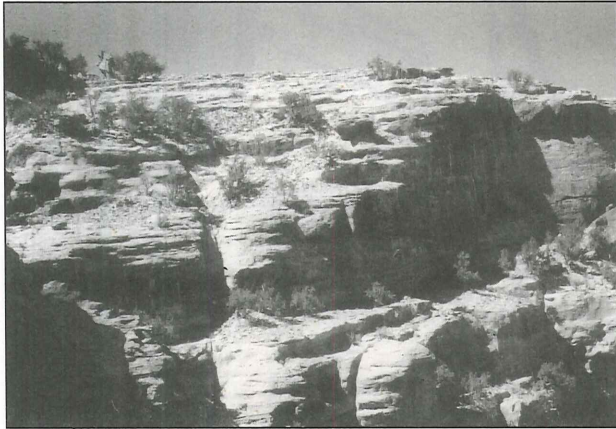
3. Umm Saysabān. Sketch map (U. Hübner, I. Künne).

(*Juniperus phoenicea*) indicate a moderate water supply and the corresponding agricultural and (up to this day) pastoral use of the plateau at different times. Without the regular herding of more than 20 goats every few days, the landscape may have looked quite different; yet there was too little fertile land on the plateau to maintain even a marginal existence. Below the plateau, however, there are fields, cultivated at present by Bdul Bedouin from Petra-Umm Şayhūn.

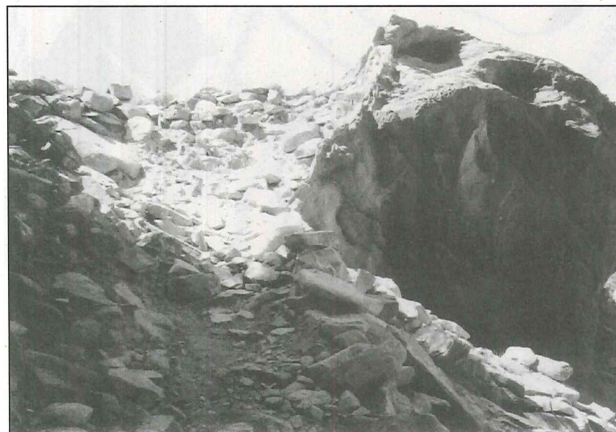
There are (were) two accesses; one, a narrowing of the path at Spur I marked by a *wasm* can be reached today by a defensible track from the ad-Dayr plateau; a second runs through a presumed gate within a tumbled wall to the northeast, set in parts upon an artificial ledge and following the line of the ridge for about 50m. Its originally considerable size is indicated by large quantities of partly dressed building stones tumbled down the northeastern face of the plateau (Fig. 4). Coming up to the gate from the water-shed between Wādī Mirwān and Wādī al-Mu‘ayşra al-Gharbiyya (وادي المعيصرة الغربية), a few worn rock-cut steps were not-

ed (Fig. 5). Boulders on a ledge high above the track were perhaps inserted by herders. The ascent to the massif above the village is alleviated by roughly hewn steps which may have been used for quarrying. A possible passage down from the plateau through Wādī Umm Saysabān and Sadd al-Kharrūba (سد الخروبة) was negotiated by slipping and skidding rather than hiking. The descent showing remnants of a little terracing and tillage up to the last decades is not recommendable today, yet was easy to defend in antiquity. It is not clear where residents of the plateau got their water from. With walls built around natural holes, run-off could have been collected in at least two places, one in the rock wall of the ad-Dayr massif to the south of Structures I/II, another at the northeastern rim of the second spur. The age-old mineral residue of a waterfall to the east of the plateau bears witness to a large catchment area on the mountain top with (natural) basins. Rocks tumbled into a large cavity below may indicate a reservoir, allowing for sufficient water-storage in the small settlement (Fig. 6).

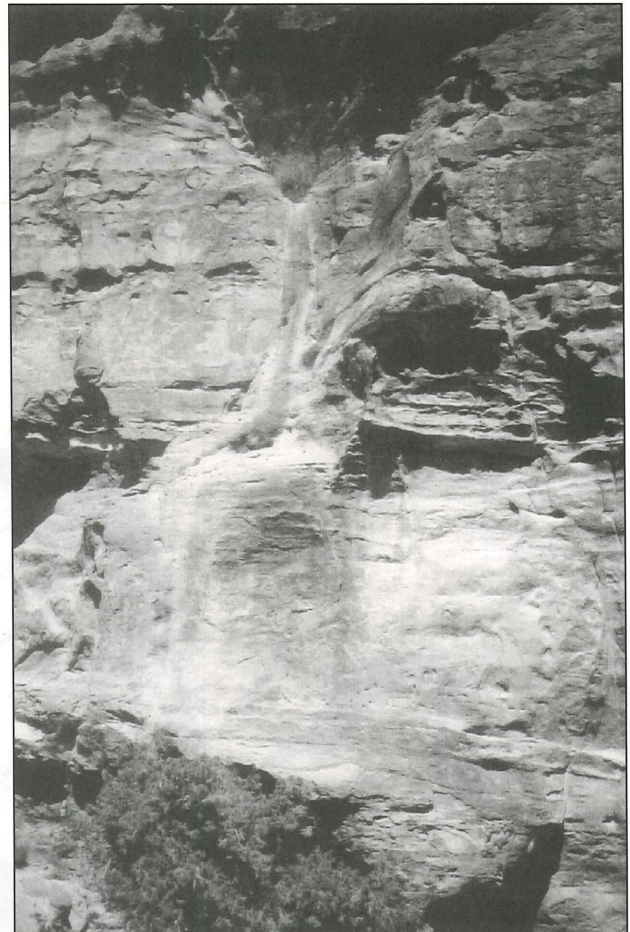
According to H. Pflüger's Geological Map



4. Northeast flank of Umm Saysabān with "gate" and wall on top. Note the ample stone material tumbled down from the wall.



5. Worked stone steps in front of the "gate".



6. Age-old mineral residue of a seasonal waterfall leading to a presumed reservoir.

(1990; 1995), Bender (1968: fig. 39) and Abu Safat (1986: 309) it appears that in the Saysabān area, in fact a terrace in the northwestern face of the ad-Dayr massif, the Quartz-Porphry masses of Wādi Mirwān are followed by almost white-colored lower Ordovician Ram or Disi Sandstone,³ topped by 'Siyagh Sandstone' and eventually by Cambrian 'Deir Sandstone' in the ad-Dayr massif proper. The main characteristic of the plateau seems to be a whitish tabular sandstone with remarkable bluish (iron-rich) layers of in places up to 15cm thickness and iron-concretions. There are a few outcrops of Quartz-Porphry, used by herders to scratch "feet" in, and to write modern Arabic names on. Tabular sandstone as noted at the northeastern entrance and above the settlement may have supplied the wall slabs of the houses, durable specimens furnished the cornerstones. The hand mills were made of a yellowish quartzite.

Surface Finds

During the 1996-1998 investigations of Umm Saysabān the surface finds consisted of:

1. Scatter of tabular (fan) scrapers (unfortunately lost during restoration work).
2. Scatter of undetermined flints and chips (no tabular material).
3. Early Bronze Age ceramic fragments of thick-walled pithoi, one with a ledge handle, two (less thick-walled) with dainty knobs and a red slip. All bottom fragments of pithoi showed rope impressions (Fig. 7).
4. Two Late Iron Age (Edomite) body sherds from storage jars, one with interrupted double grooves on the inside.
5. Nabataean-Roman-Byzantine scatter of 30 pieces, mostly cooking pots (first/second and fourth/fifth centuries AD; Fig. 8), in addition to fine ware, including one painted fourth century AD sherd.
6. Twelve Late Islamic sherds
7. Gaming stone with three parallel rows of 10 circular impressions each, i.e. of a type found at Arad (Amiran 1992: 76, 77; Hübner 1992: 67-71) (Fig. 9).
8. Fragments of querns with rounded corners (ca. 0.30m length), one of the saddle quern type (ca. 0.30 x 0.10 x 0.10m) of local quartzite (Fig. 10).
9. Two picking-hammering stones (quartz pebbles) with significant traces of use, one rubbing stone.

Petroglyphs

Petroglyphs at the site consisted of "feet" and

recent Arabic inscriptions on an exposed patinated rock.

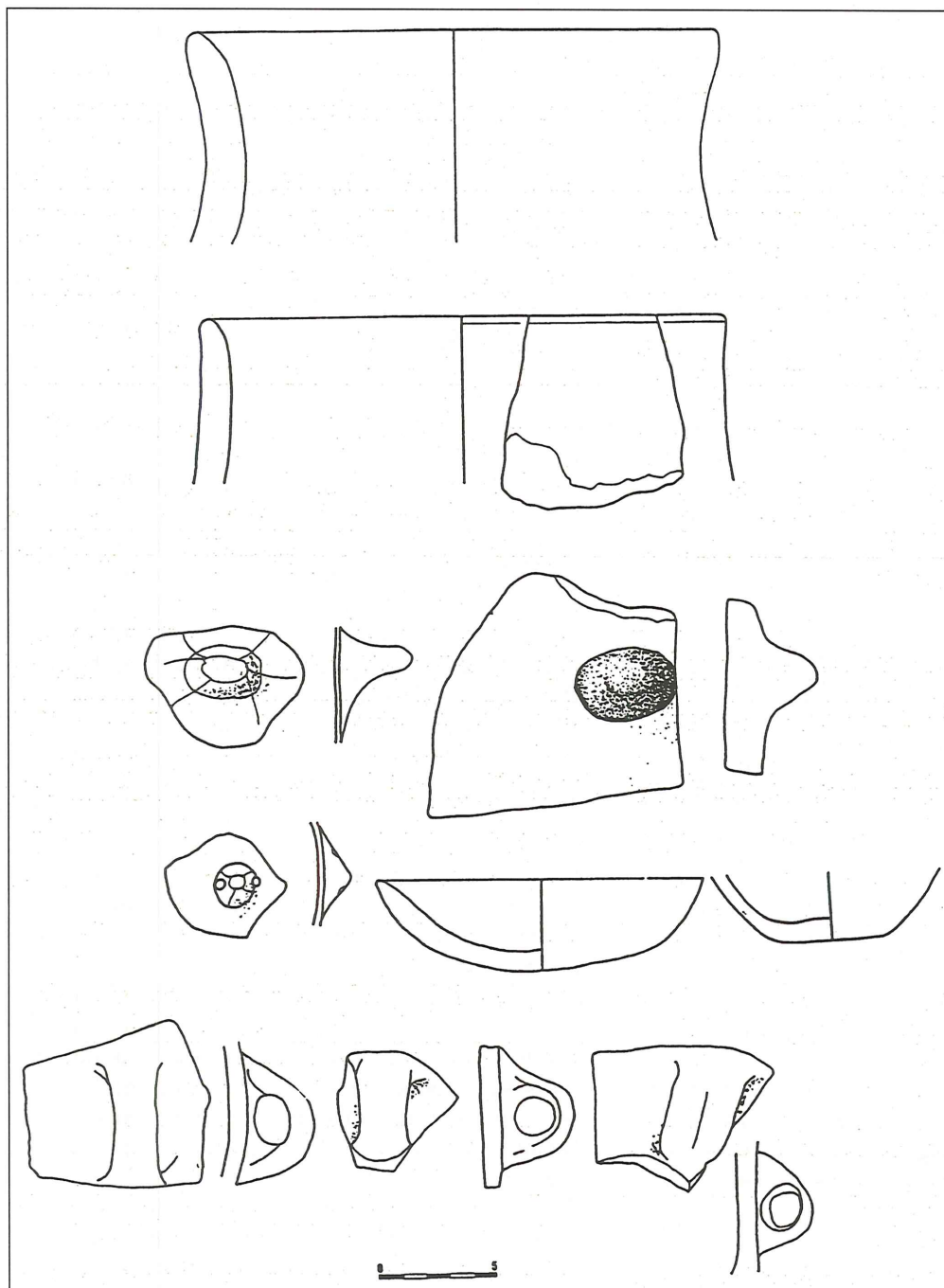
From Sounding to Excavation (1998)

Looking across the Wādi Mirwān to the bosom-shaped Jabal Ḥadrā (جبل حدرآ), plutonic Jabal 'Atūd (جبل عتود) and to Wādi 'Arabah, the ruin of Structure I built in a N/S direction on the second spur to the northeast and right at the plateau's edge (or was it not so close more than 4000 years ago?) was chosen for a sounding (Figs. 11, 12). Partly exposed thick slabs of Disi Sandstone set on the ground formed an oblong room of 4.80 x 4.00m externally (Fig. 13). Traces of another structure or a second part of the same house were noted toward the south. The sounding revealed a cracked but almost complete necked jar (pithos) at 0.25m depth, two others were also broken but seemingly complete (Fig. 14). The initial trench was enlarged and eventually the whole rectangle excavated. The procedure corresponded with the circumstances and the possibilities of the survey. As the first three and the following jars were set on the floor of what was to be revealed as one room within the walls, a complicated stratigraphy was not expected nor found.

Within the walls of crudely cut standing sandstone slabs of varying thickness and 0.50-1.0m height, the benches were ca. 0.40m wide and ca. 0.35m high, resulting in a sunken floor. The wall slabs may have been originally higher but are considerably abraded due to exposure to the elements, people and animals (Fig. 15).

Ten flaring rim jars (pithoi) with knob, loop or ledge handles, some with mat-impressions on the flat bases, others (smaller ones) with rounded bottoms were found standing or lying on the floor, all of them in fragments, in the inner space of the broad-room. In order to give a first impression of the ceramic material, the aperture of Jar I was 22.5cm, the neck of another 18cm, the body of a third one had a diameter of more than 50cm. According to partly restored vessels, they vary in height between 0.70 and 0.90m (Fig. 16). It was argued whether the jars were standing on the benches originally, and fell down during a catastrophe. The position of one jar, which was found tumbled on its opening, indicates that it had been standing on the bench, while the others were definitely not. Several sherds belonged to smaller vessels, e.g. a small globular jar with lug handles and a lamp-bowl. Fourteen round lids of worked (quartzite?) slate with diameters of 9-29cm, beside a few broken ones, were found between and under

3. Probably identical with Bender's "massige, weißverwitternde Sandsteine des Unteren Ordoviziums".

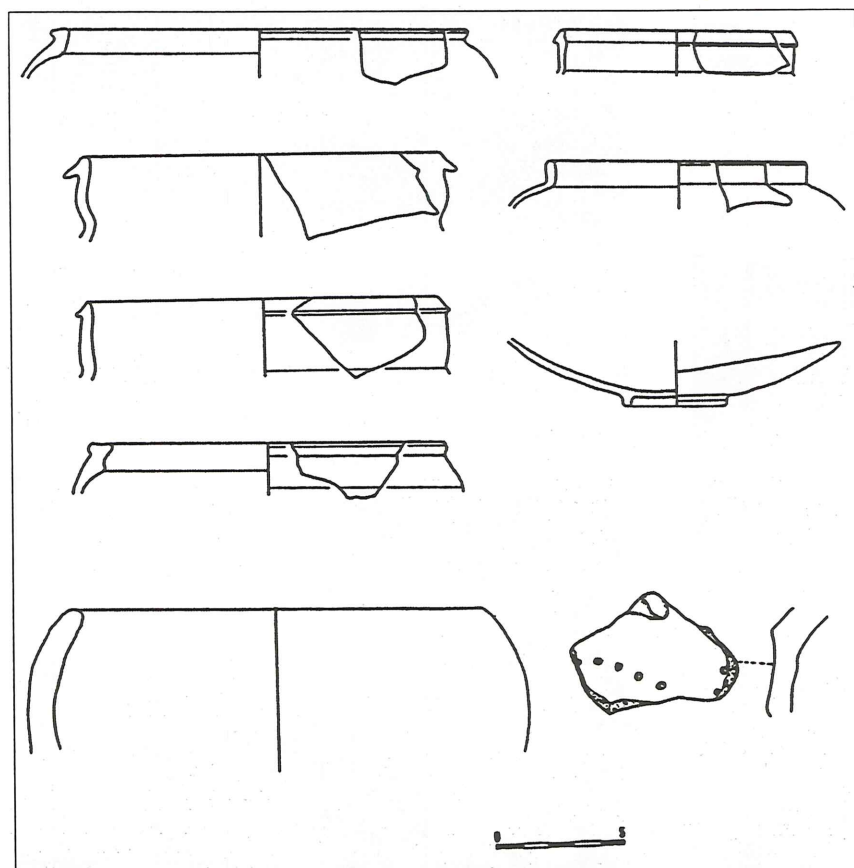


7. Surface pottery finds from Umm Saysabān (1997/98).

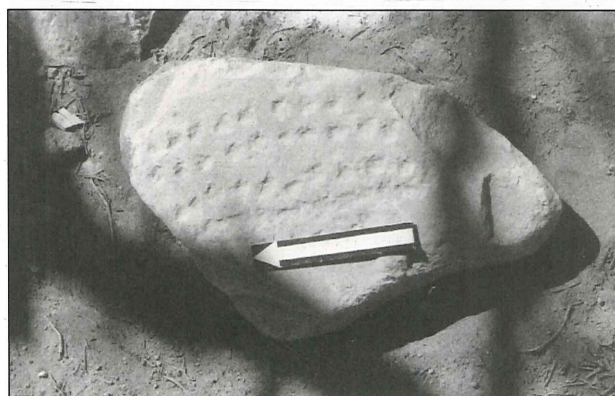
the jar fragments. Five lids had diameters of 25cm, two were larger, and seven remarkably smaller (Fig. 17).

In the southeastern corner, grains were ground in a sophisticated way: framed by stone slabs on a stone-built box-like quadrilateral setting (ca. 0.70 x 0.70m), a large hand mill or grinding stone of 0.80m length with rounded ends, slightly sagged and broken in the middle, was found otherwise undamaged, as if it had been used the other day (Fig. 18). Another smaller quern, oblong and similar to others found on the general surface of Umm Say-

sabān was covered by a broken jar. Beside lids, a few manos for pecking and rubbing and four small milk quartz pebbles of unknown significance, if of significance at all, were lying beside the larger quern. The distribution of finds is shown on a schematic sketch map (Fig. 19). Between the grinding installation and the southeastern bench, a rectangular stove-like fire place (to cook the grains?) was filled with black ashes and charcoal. Blackened remnants of fireplaces were noted in the northeastern corner of the room. A socket was found almost in situ where a door pivoted inwards



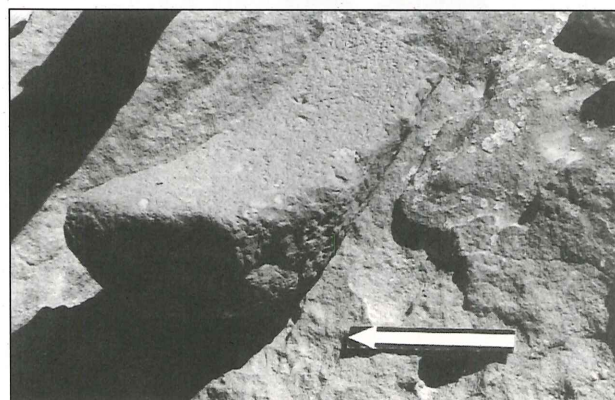
8. Nabataean-Roman and Late Islamic surface pottery from Umm Saysabān.



9. Umm Saysabān surface: game stone with 3 x 10 holes.



11. Location of excavation above Wādī Mirwān, looking toward Jabal 'Atūd and Wādī 'Arabah.



10. Saddle quern from Umm Saysabān.

(Fig. 20).

A few slabs ca. 1cm thick of hard grey stone were lying on the floor without any order. They may have been standing places for jars, workplaces or fragments of a floor. Samples of charcoal and of the contents of jars were examined. The brownish granular material found in and between the storage vessels consisted of small particles of hardened clay, loam, unidentifiable traces of crystalline quartzite, blackened wood and cellulose structures from cereals. The 14C analysis of charcoal from the stove revealed calibrated date of 805-



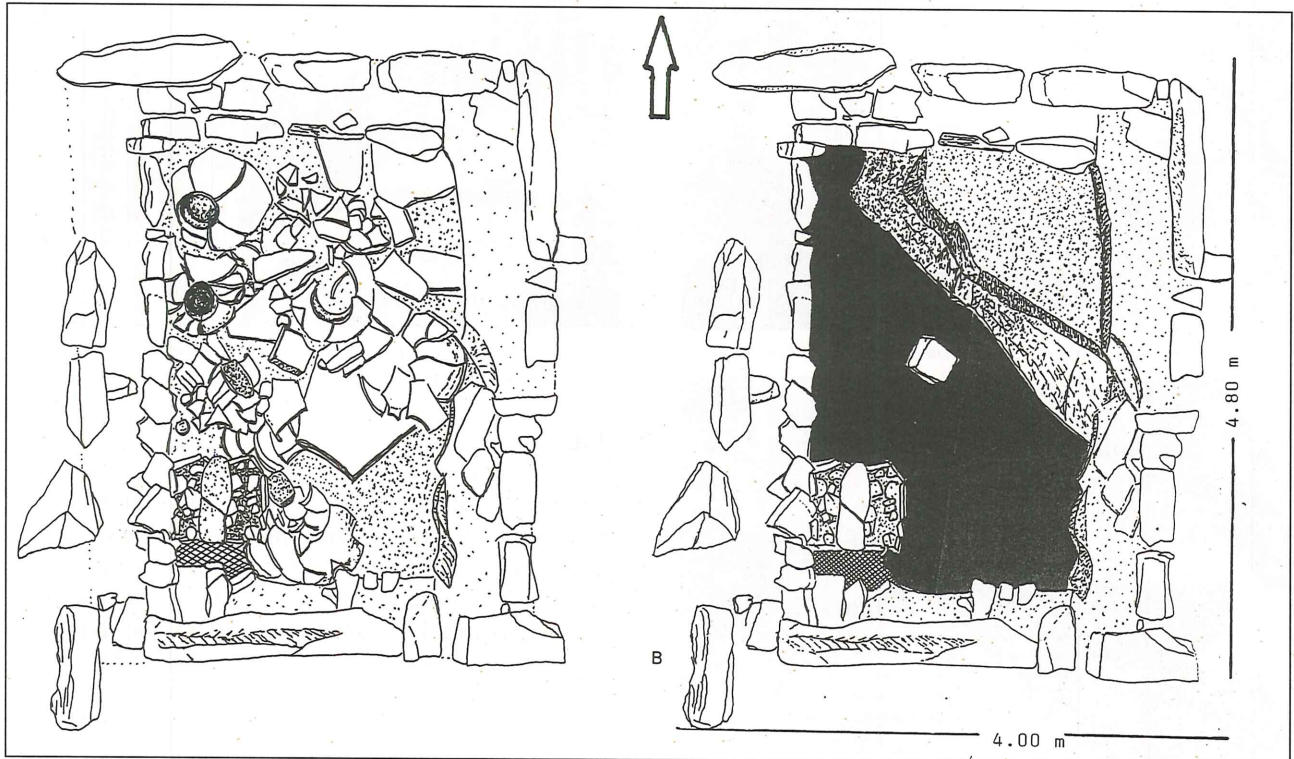
12. Location of excavation looking toward Wādī Mirwān and Jabal Qārūn.



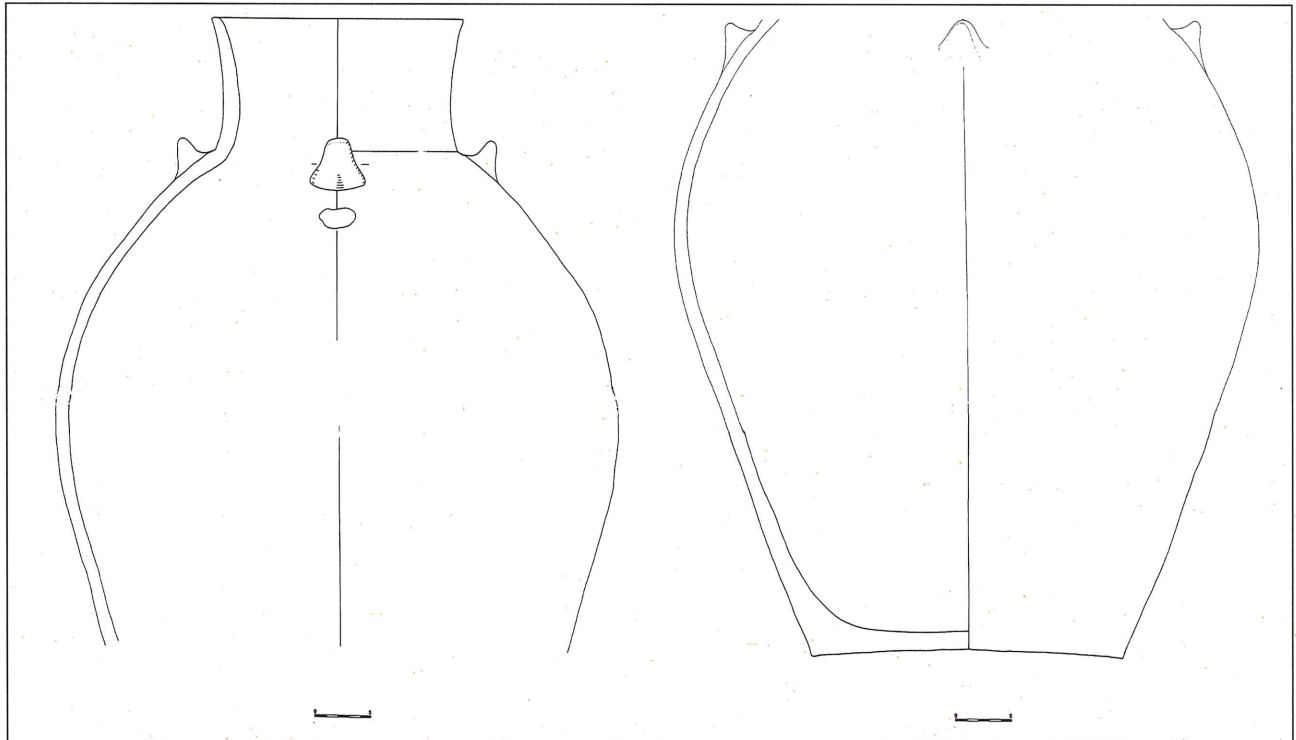
13. Structure I before sounding (1996).



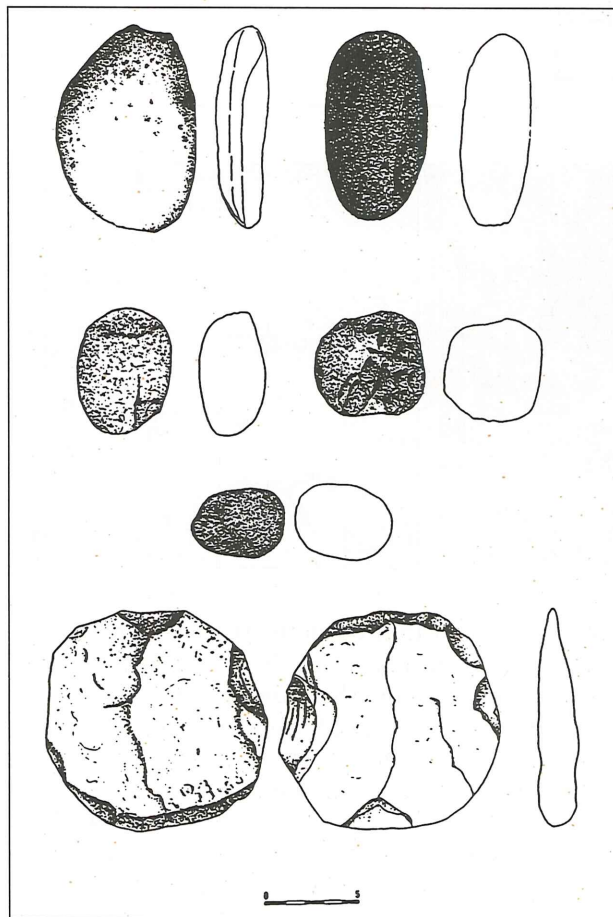
14. Storage jar of Structure I in situ.



15. Umm Saysabān excavation: Structure I, Stratum I, III (I. Künne).



16. Partly restored storage jars from Structure I.



17. Manos and lid.



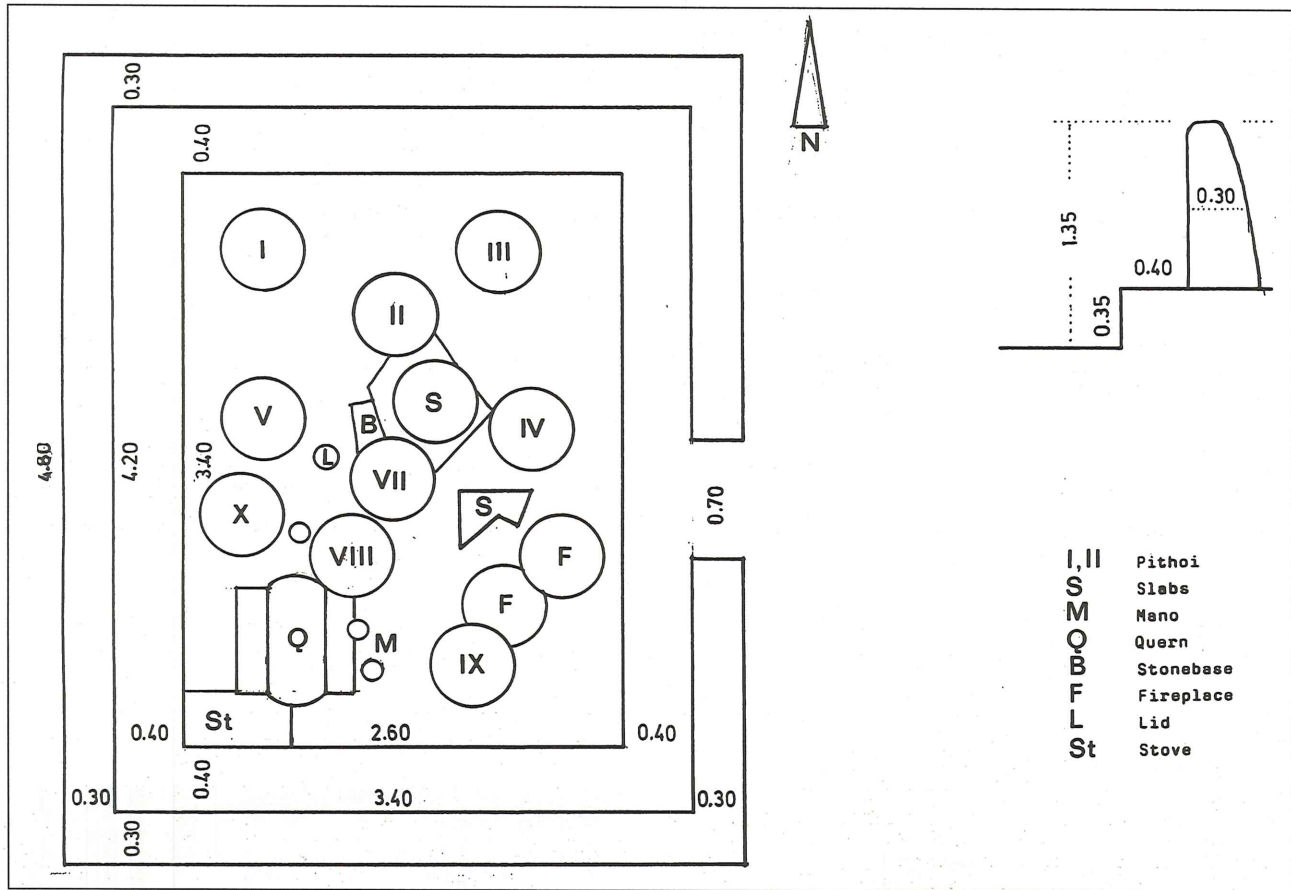
18. Hand mill on a stone-built setting at Umm Saysabān (Structure I).

405 BC.

No bones were found in the room. Except for a few hammering stones, one thin piece of brown flint of 12 x 6.5cm with a little cortex on one side and a knife-like thin edge was the only sophisticated implement (Fig. 21). It could be used for cutting meat. Outside the excavated room directly above the rim of the plateau, an oblong hole may have served as a larder.

The Adjoining Structure II (1999)

In order to complete the survey of 1998, Structure II, adjoining Structure I to the south, was excavated in 1999 (Figs. 22, 23). The fragment of a hand mill of a highly crystallized quartzite was found on the surface. Stratum I reached down to



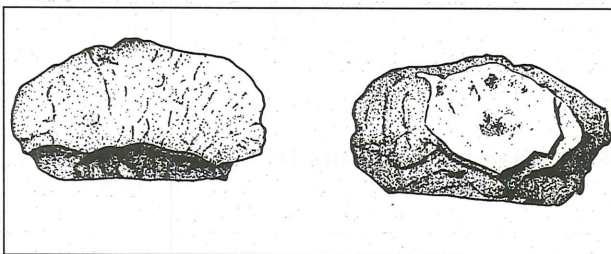
19. Schematic plan of Structure I, Umm Saysabān (E. Gunsam).



20. Presumed door opening of Structure I with socket.



22. Umm Saysabān structures before excavation.



21. Cutting implement of red flint with a very fine edge from Structure I.

not more than 0.15m when the first standing or fallen vessels were made out. In Stratum II (0.53m) the remnants of more than ten mostly storage vessels, all of them cracked but seemingly complete were first isolated and later taken out. A balk (C), 0.40m high, was left standing dividing the excavated rectangle into Areas A and B (Figs. 24, 25). Only a few vessels had exactly retained their original positions, and due to their falling into pieces in the dry loamy soil none could be recaptured *in toto*. Thick slabs of a floor in Area A were broken,



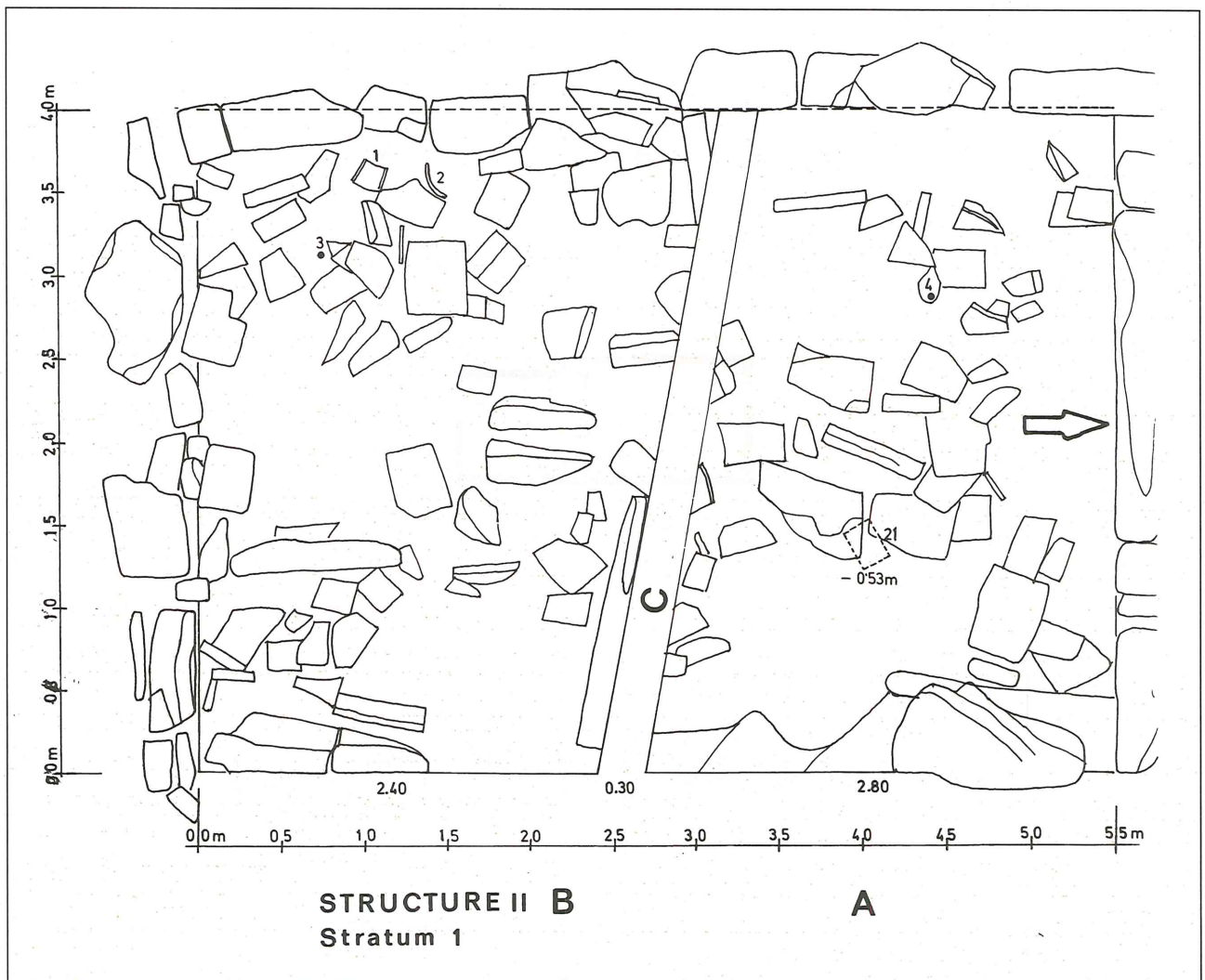
23. Umm Saysabān structures after excavation.

the vessels shoved together and difficult to disentangle. There were a few indistinct sherds under these slabs (Stratum III to 0.80m). It could not be decided whether the damage was due to ransacking

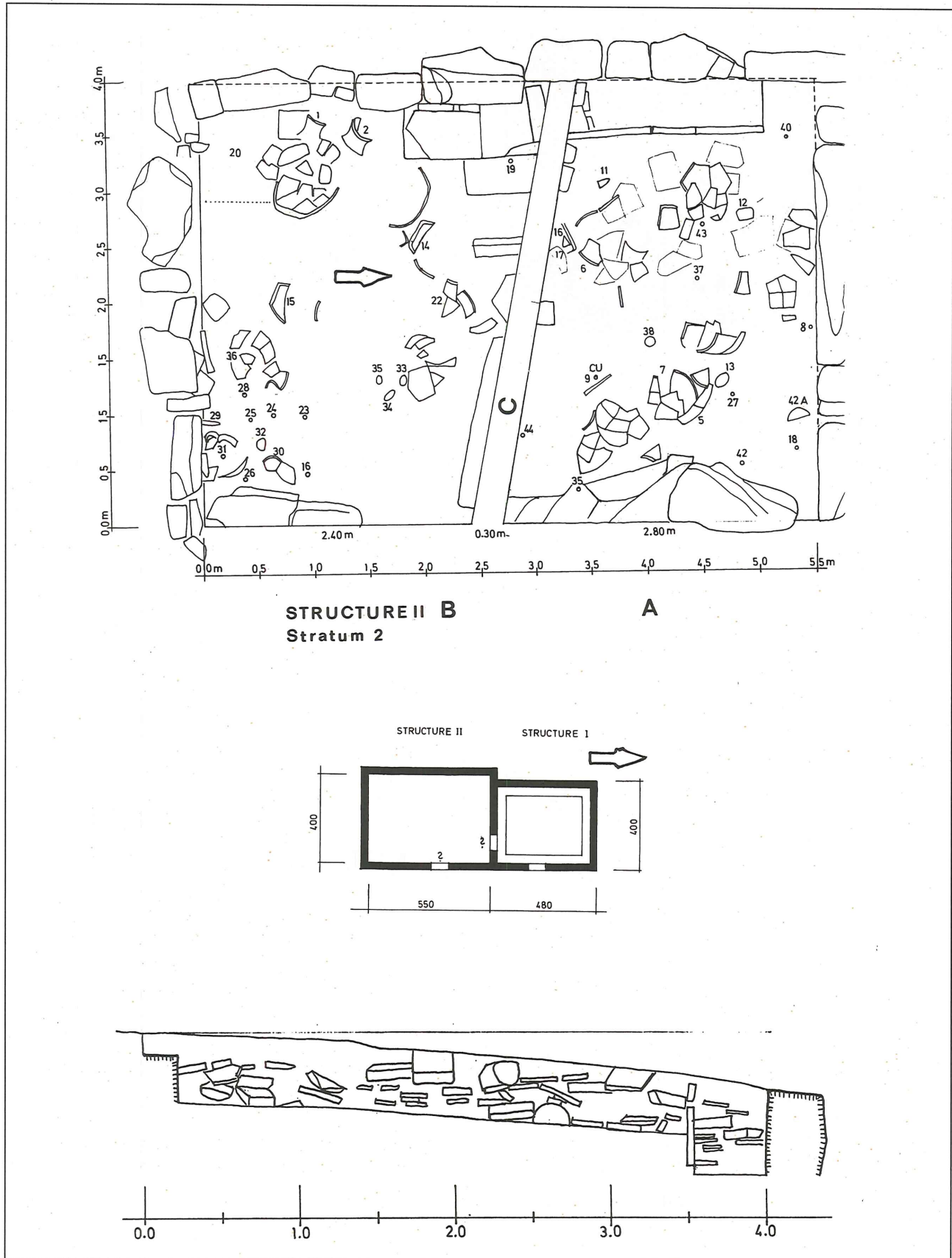
or, more plausibly, to earthquakes which apparently also damaged the whole house and its contents. Nothing new was learned from the architecture of Structure II. There were no benches, but there was also a tabular piece of stone in the center which, as in Structure I, may have been the base for a roof-carrying wooden pole. One feature that had not been seen before: in the western part of Area A was a rectangular compartment of 1.7 x 0.4m, formed by relatively thick slabs of hard grey sandstone (Fig. 26). Generally more vessels were obviously broken under the weight of stones tumbled either from walls or from inside compartments. There were a few fireplaces without accessories, but no indication of a disastrous fire.

The Finds

Nothing definite can yet be said about whole storage jars from Structure II as they were all found broken and are pending restoration. As far as



24. Excavation of Structure II at Umm Saysabān: Stratum I (E. Gunsam).



25. Structures I and II. Excavation of Structure II and balk (C) (E. Gunsam).



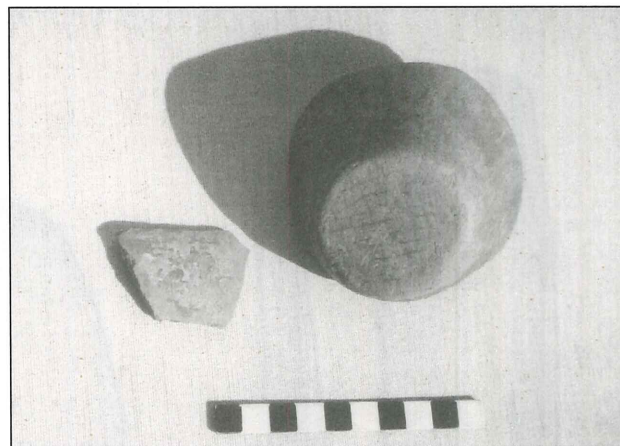
26. Balk (C) and slab-covered Area A with rectangular compartment.

can be seen, they do not differ greatly from the vessels revealed in Structure I and may have been around 0.70-0.80m high. Upturned knobs, ledge handles (one of them cut or degenerated) and loop handles were noted. One vessel showed a rope decoration descending from a loop handle (Fig. 27). As to the wares, the pottery of the 1999 excavation — in total more than ten jars — they are the same as found in Structure I in 1998. The ceramic material had to remain in 'Ammān after relevant pieces were drawn in the field. A special find was the lower part of a fine wheel-thrown juglet of grey-brown clay with a yellow-brown burnished slip and fine stripes (Fig. 28). The underside of the base shows a lattice pattern gleaming as of graphite. Unexpectedly, no special results were obtained the electron microscopes images. As in Structure I there was again a number of lids of different sizes.

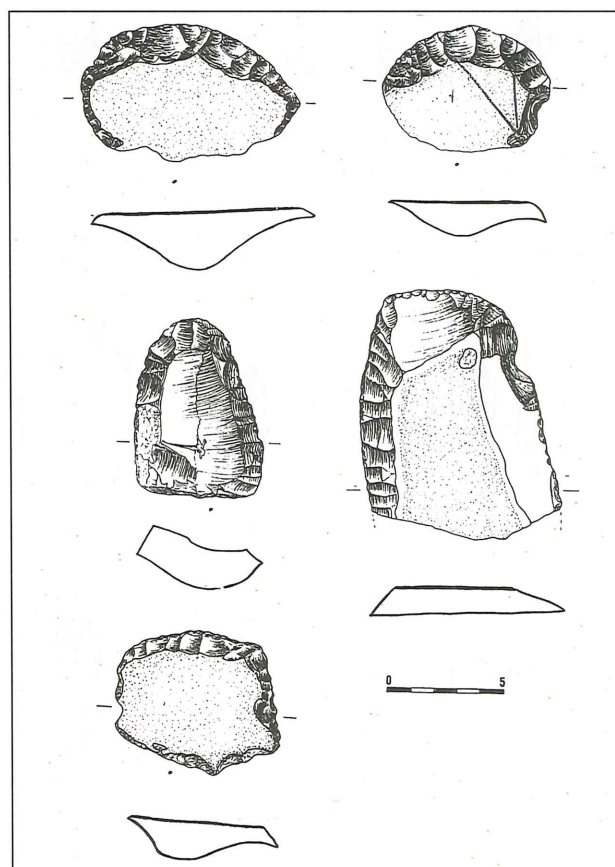
Among several fan-scrapers one was marked with incisions (as described by Amiran 1978: plate 84, 3-8) (Fig. 29). Several implements were rolled pebbles of yellowish quartz with traces of working at the ends. Others consisted of a hard fine-grained



27. Early Bronze Age pottery from Umm Saysabān Structure II.



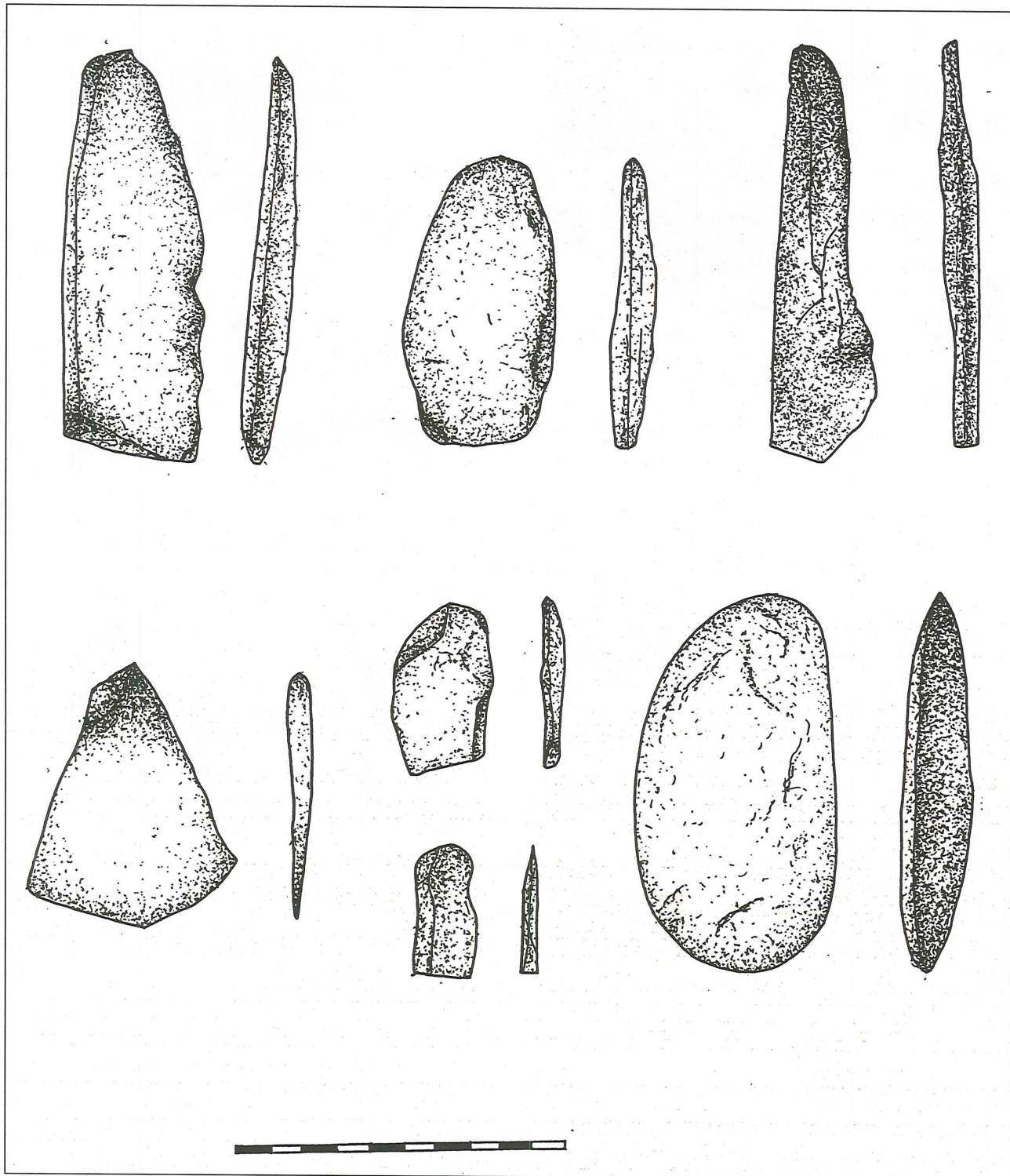
28. Lower part of a juglet from Structure II, Umm Saysabān.



29. Fan scrapers from Structure II, Stratum II, Umm Saysabān.

iron-rich quartzite; this stone was even for making a knife and other cutting implements (Fig. 30). To get an edge, several layers of the stone were obliquely chipped off. In order to prove its usefulness as a cutting implement, one "knife" was experimentally ground to a fine edge. It was found usable for cutting even modern paper.

In the excavated room, six almost transparent flint chips, two halves of marine shells and two small fragments of a marine snail (*Dosinia* sp. *Gly-*



30. Cutting implements and fragments from Umm Saysabān.

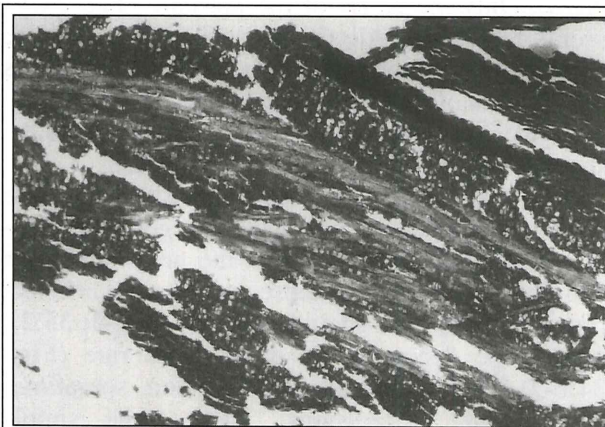
cymmeridia and *Conus/Strombus sp.*) were noted between the storage vessels. Land snail shells (*Trochoidea seetzenii*) (H.G.K. Gebel personal comm.) were found at different depths down to 0.80m (Fig. 31). A wire of 5.5cm length and a thickness of ca. 1.5mm was spliced on one end. It consists of cop-

per with only a trace of arsenic. Due to their greater durability, more fine chips of ferrous than white sandstone were seen in the finely-grained, deep red-brown loam of the excavation. The results of morphological examinations were about the same as of Structure I: "Very few organoid structures

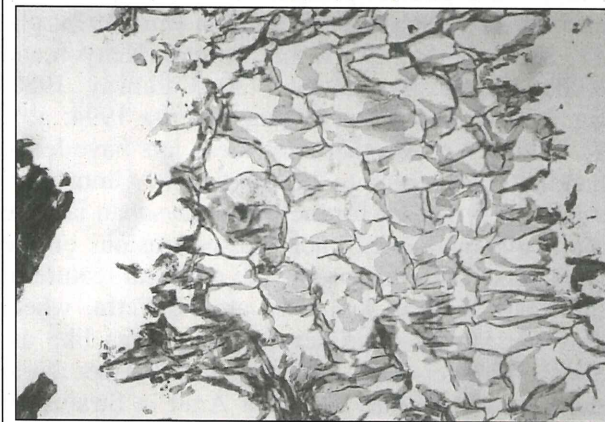


31. 1: Marine shell; 2: marine snail; 3: land snail; 4: unidentified objects, from Structure II at Umm Saysabān.

(possibly of cereals), quartzite deposits, no microbes". Short pieces, almost as fine as bristle, were detected by carefully washing the soil. The microscope revealed "cubical plant cells probably of cereals, regressively changed with precipitated calcium compounds" (Fig. 32). The 14C analysis



a.



b.

32. Microscopic enlargement of bristle-like material from Structure II, Umm Saysabān: 150x and 375x.

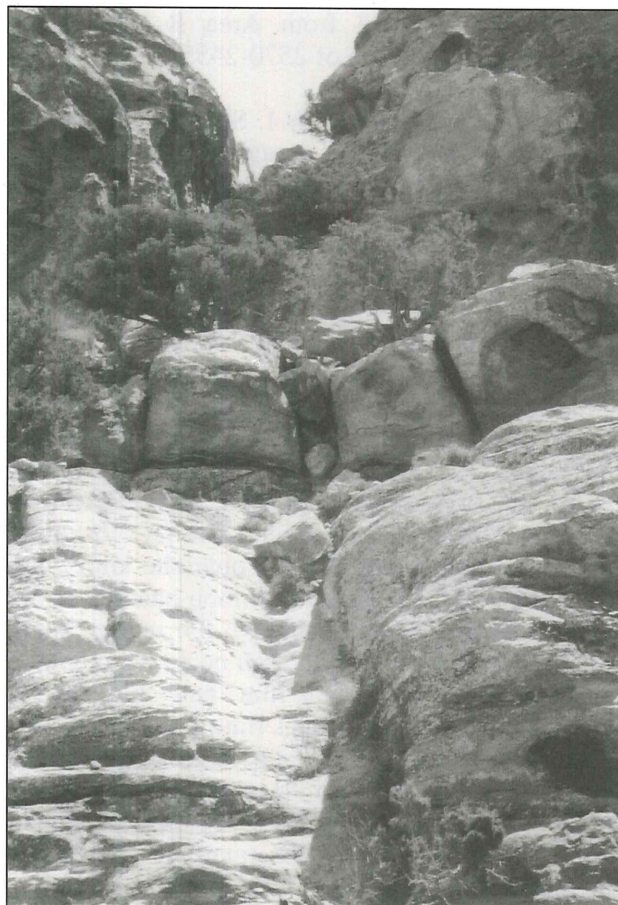
of fireplace material from Area B, Stratum II showed calibrated date of 2570-2455 BC.

List of finds in Structure II: 1. Storage jar with up-turned ledge handles; 2. storage jar with rope decoration; 3. picking stone (quartz pebble); 4. storage jar and picking stone; 5. storage jar and scraper; 6. storage jar; 7. storage jar and fine pottery; 8. snail fragment; 9. copper wire; 10. undetermined; 11. scraper; 12. undetermined; 13. scraper with incision; 14. cutting implement; 15. storage jar; 16. scraper, grey, big; 17. cutting implement (A) (= Area A); 18. thin pottery fragment (A); 19. fireplace; 20. undetermined; 21. tent stone; 22. quartzite knife; 23. marine shell, round; 24. grinding stone; 25. stone "ortsfremd"; 26. rounded chip in form of a breast; 27. quartzite knife (A); 28. picking stone (quartz pebble); 29. quartzite knife, big; 30. storage jar; 31. juglet with loop handle; 32-34. picking stones (quartz pebbles); 35. marine shell, round; 36. storage jar with high neck; 37. quartzite scraper (B) (= Area B); 38. flint "ball", big (A); 39. storage jar; 40. 2 scrapers, 1 flint, 1 land snail; 41. storage jar with "knife"; 42. bracelet fragment, stone; 43. lids (altogether 10 in different sizes); 44. picking stone (quartz pebble); 45. juglet fragment with patterned base (A); 46. quartzite cutting implement (A).

Architecture

Speaking of architecture, it may be argued whether the rectangular "structures" should be called rooms or — together — a house. At any rate, the architecture became partly clear in the course of the excavation. Large slabs of Ordovician sandstone were crudely dressed and positioned above adjoining benches along the walls. Directly above Spur II where eroded steps alleviated climbing to the top, stone blocks in a natural formation may have been split and taken down as wall slabs (Fig. 33). Two thirds of the benches of Structure I were cut from bedrock, roughly quarried and worked tabular ashlar were used in the other places. In Structure II benches were missing, and the wall slabs did not reach the height of those in Structure I. Generally the wall slabs rested on the plateau surface by their own weight. The floor consisted of stone slabs upon stamped clay deposits without chalk. Slabs covering part of the ground were thicker in Structure II than in Structure I. Bedrock was reached in several places. There was no indication of how the habitat was roofed.

How the rooms or houses had been built was easy to reconstruct. First an oblong was cut from



33. Ordovician Sandstone formation on the slope above Umm Saysabān, possibly the origin of the wall slabs used for houses. Note rock-cut, worn steps in centre.

bedrock or deposits and excavated down to the planned floor level. Where needed, adjoining benches were either cut or laid on all four sides of the pit. Eventually the crudely dressed slabs of stone were put up and especially massive and durable (iron-rich) cornerstones erected. Smaller stones were wedged into the gaps. Probably provided with steps, the entrance into Structure I was sensibly (and traditionally) located around the middle of the eastern broad wall directed toward the plateau. As evidenced by a socket, the supposed door pivoted to the left and was opened inward. Unimaginable *sine tectu* and in order to allow a man of average size to stand upright on floor level, the stone slabs were originally higher, or they were strengthened with frameworks and sealed perhaps with mudbricks or mud plaster. In any case, a flat roof of a few beams and layers of branches, loam, clay or mud was necessary. Finely-grained loam was found and verified by washing excavated soil

in different loci of Structures I and II. In the centre of each room, a fragment of almost white stone (ca. 15 x 15 x 10cm) had been taken out of a tabular stratum of Disi Sandstone. They may have been stone-built bases for wooden posts (tree trunks) supporting the roof. A connection between the two Structures was supposed, but could not be confirmed.

The Pottery of Umm Saysabān (Hermann Genz)

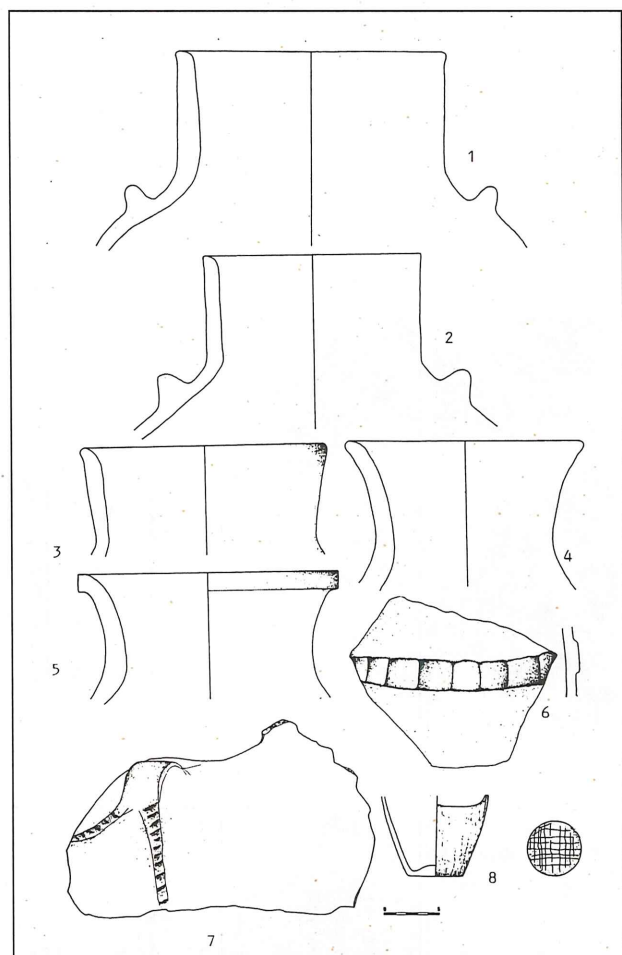
During the soundings conducted in Structures I and II in the years 1998 and 1999, a large number of complete vessels was added to the corpus of Early Bronze Age material that previously consisted only of sherd material from surface collections (Lindner and Genz, in press). The find situation as well as the typology of the vessels themselves indicate that the assemblages from the two structures should be contemporaneous.

The fabric of the vessels in general is the same as described in the original report for the surface finds: a reddish clay with fine to medium angular whitish grits, well fired (Lindner and Genz, in press). Only the fabric of the jug-base (Fig. 34:8) seems to differ.⁴ All the vessels examined were handmade. In most cases the exterior surface is simply smoothed, only two loop-handles (Fig. 35:9-10) and the base of the jug (Fig. 34:8) showed traces of a red slip and burnishing.

The majority of the vessels consists of medium sized to large necked jars. Rims are generally simple and slightly flaring, while the necks are often cylindrical. Several of these jars show knob-like protrusions on their shoulders (Figs. 34:1-2; 35:2), while rope decoration is much more rare (Fig. 34:6-7). Flat bases are most common, sometimes bearing mat impressions. These quite simple shapes have general parallels at a number of sites, such as Arad, Strata II-III (Amiran *et al.* 1978: pls. 12, 15-17, 31-36, 40-41, 53), Jericho (Kenyon and Holland 1982: figs. 59-61), 'Ai (Callaway 1980: fig. 93:1-4) and Barqa al-Ḥaṭiya (Fritz 1994: abb. 7). While at most other sites these jars have ledge handles, they seem to be missing at Umm Saysabān. Very typical for the Umm Saysabān jars are the above-mentioned knob-like protrusions on the shoulders. These knobs may be a typical feature of the Early Bronze Age sites around Petra, where they are known from several other sites like as-Sādah (Lindner *et al.* 1990: fig. 7:3). Farther afield these knobs are only found at Arad in Stratum II (Amiran *et al.* 1978: pls. 34:1-6; 40:8). In the same

4. Since only a part of the material was available for visual inspection during my visit in Nürnberg in January 2001, no

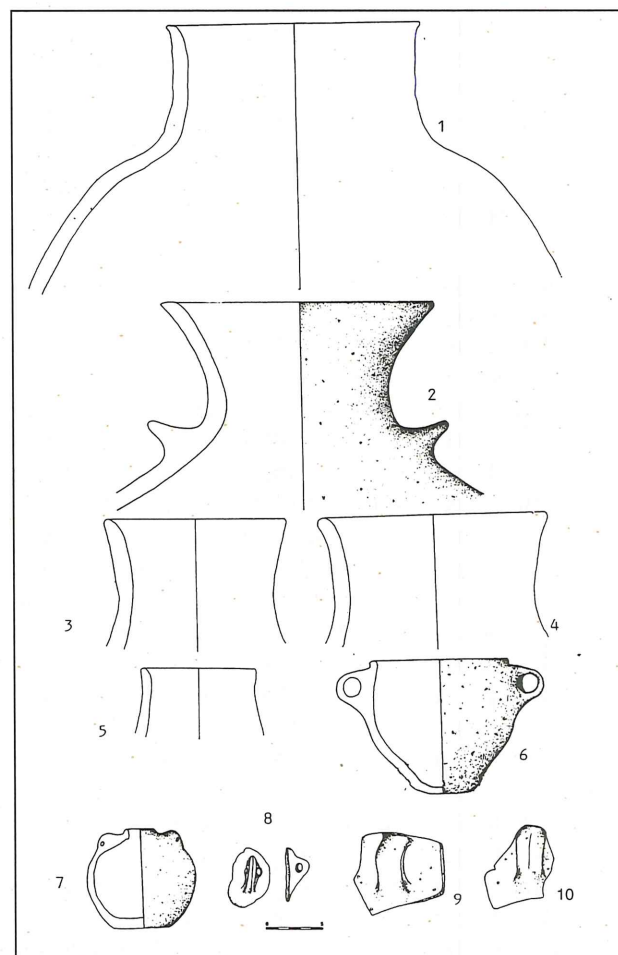
detailed description of all the illustrated vessels can be provided.



34. Pottery from Structure II.

contexts at Arad rope decorations occur on large jars (Amiran *et al.* 1978: pls. 39:1-3; 41:19-22.28). For the rope decoration extending from the handle (Fig. 34:7) no parallels are known so far. Several small lug and loop handles (Fig. 35:8-10) belong to smaller jars, jugs or amphoriskoi. The base of one jug with red burnished surface shows a net-like pattern burnish on the bottom of the base (Fig. 34:8). Pattern burnished decorations on the bases of jugs are known from several sites such as Arad (Amiran *et al.* 1978: pl. 25:21) and Khirbat az-Zayraqūn (Genz, in press). Two vessels from Umm Saysabān are quite unusual among the Early Bronze Age pottery repertoire of the Southern Levant: while no precise parallels are known for an amphoriskos with a very short neck and two lug handles (Fig. 35:7), a deep bowl with two loop handles (Fig. 35:6) can be compared to similar vessels from Barqa al-Ḥaṭiya (Fritz 1994: abb. 3:5) and Jericho (Kenyon and Holland 1982: fig. 80:5).

The most convincing parallels for the pottery from Umm Saysabān are found in Stratum II at Arad, and would thus indicate a date within the



35. Pottery from Structure I.

Early Bronze Age II (3100-2700 BC). One 14C-date from Structure II, however, gave a result of 2570-2455 BC calibrated, which rather suggests an Early Bronze Age III date (2700-2300 BC). While not too much evidence should be put on a single radiocarbon date, recent research shows that often no clear distinction between EB II and EB III ceramic ensembles can be made. Rather than a sharp break between the two periods, there is much more evidence for a continuous development of the pottery, especially for the simpler forms (Genz, in press). One also should bear in mind that, compared to the urban centres to the north and northwest, the area around Petra during the Early Bronze Age was very likely a peripheral region, thus the development of new pottery forms may have been much slower. Consequently, rather than assigning the Umm Saysabān material exclusively to EB II, a more general dating within EB II/III is preferred here.

The occurrence of pottery types comparable to those from Arad was often interpreted as a sign of Aradian control over parts of Southern Jordan, es-

pecially of the copper bearing region at Faynān (Knauf 1994). Apart from the fact that there is no evidence of Arad ever actively controlling the copper bearing regions of Faynān and Timnā' during the Early Bronze Age (Genz 2000: 57), the occurrence of pottery similar to that from Arad in the Edomite Highlands does in no way imply Aradian control over this region (Genz 2000: 57; Lindner and Genz, in press).

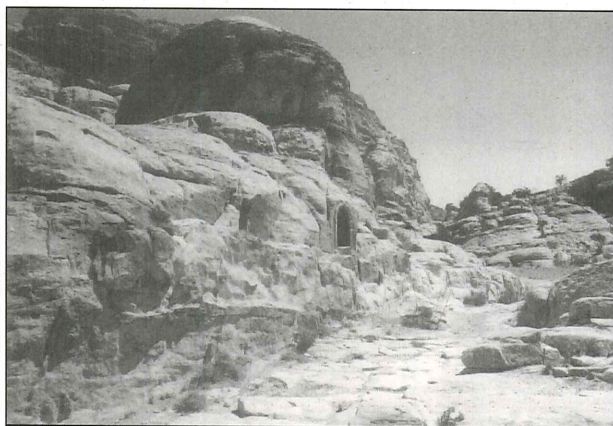
The pottery from Structures I and II at Umm Saysabān consists of a very limited range of forms. Middle- and large-sized storage jars clearly predominate, while smaller closed vessels like jugs and amphoriskoi are less often encountered. The absence of cooking pots and vessels for serving and eating like bowls and platters is striking.⁵ Although a grinding installation and remains of several fire places within the rooms suggest that food preparation activities took place there as well, the pottery assemblage testifies only to storage activities. The two rooms were almost completely filled with storage vessels (Fig. 19), so that there was hardly any room left for other activities, let alone for the proper use of the above-mentioned grinding installation and the fireplaces. Very likely this evidence reflects a seasonal use of the site. Since the winters in the Edomite Highlands can be quite harsh, the site must have only been used during the summer months. So either the buildings were mainly used for storage, whereas all the other activities took place outdoors, or the excavation found the site in its winter stage, when only the large vessels, which were difficult to transport, were stored inside the buildings, whereas all the smaller vessels were taken by the inhabitants to the winter quarters somewhere in the lowlands.

The Surrounding Area (Ulrich Hübner)

In 1998 and 1999, the area surrounding Umm Saysabān was surveyed by U. Hübner from the beginning of Wādi Mirwān (Rās Mirwān راس مروان) in the east to its mouth and confluence with Wādi Mūsā (aṣ-Ṣiyyagh الوادي موسى/الصبيغ). The latter was negotiated as far as the Pond Temple ruins (Sahīr al-Baqar سهير البقر), the climb to Jabal Slaysil (جبل سلايسل) and through Wādi Siq al-Ghurāb (وادي سيق الغراب) back to Umm Saysabān.

Rās Mirwān is the watershed between Wādi Mirwān and Wādi al-Mu'ayṣra ash-Sharqiyya (وادي المعيصرة الشرقية). About 300m after Rās Mirwān the wadi is crossed by an ancient road, coming from the north, precisely from the area of Sayl 'Aqlāt (سيل عقلات) and Shammāsa (شماسة). A tributary of

Wādi Mirwān leads to the latter places, and after crossing Wādi Mirwān again through a tributary (used for agriculture in these days) upward to Wādi al-Mu'ayṣra al-Gharbiyya (وادي المعيصرة الغربية). From here it is (and always was) easy to reach the Petra basin. On the southern bank of the Wādi Mirwān the road is hewn out of the rock for ca. 30m (Fig. 36). A well-preserved aedicula is oriented toward the east. A Thamudic(?) inscription of



36. Ancient road above Wādi Mirwān with aedicula niche (U. Hübner).

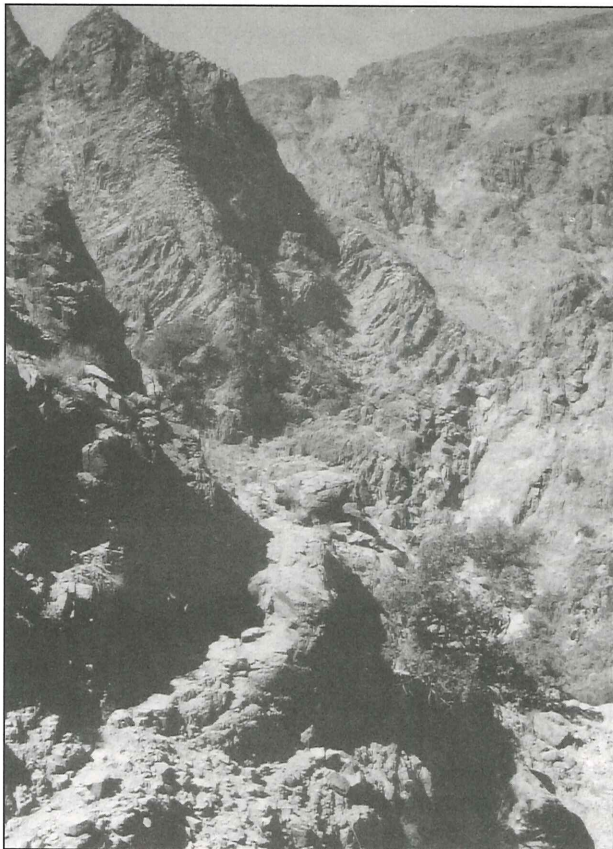


37. Aedicula niche by the ancient road (U. Hübner).

5. The previous survey provided only one sherd of a holemouth jar and no bowls and platters (Lindner and Genz 2000).

three or four letters is engraved to the left of it (Fig. 37).

In the Wādī Mirwān proper, a very bad pathway, almost never rock-cut and very seldom sub-structured with retaining walls has to be carefully negotiated (Fig. 38). In the upper reaches the pathway changes on both sides, in the middle almost exclusively on the northern, in the lower reaches on the southern bank. On the northern steep escarpment stone was worked for sheltering goats under an overhang (Fig. 39). The primitive accommoda-



38. Sub-structured pathway in the Wādī Mirwān (U. Hübner).

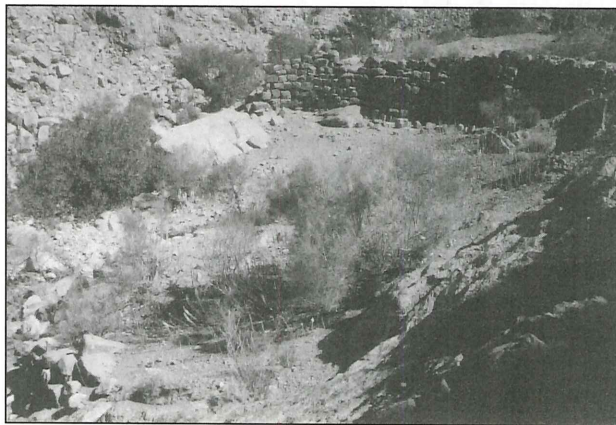


39. Recently built shelters for animals in the northern slope of the Wādī Mirwān (U. Hübner).

tions for animals are being used at present, and were probably already used in the Middle Ages; at least a meager scatter of pottery points to that possibility. An excavation in the rock wall collected water for the goats from the surrounding slopes. Deeply embedded in the sandstone outcrop the upper and middle reaches of the Wādī Mirwān were used as fields and as a pasture for goats, demonstrated by regular terraces running at right angles to the course of the wadi. The lower reaches are deeply carved into the Pre-Cambrian formation and are usable only as pasture for goats. Further down the wadi, the steep slopes are terraced though obviously not in order to retain fertile soil and water for agricultural use but solely for slowing down rock-fall and flash floods in winter, for the protection of the lower valley area.

The largest barrage, in fact a dam, is preserved below Umm Saysabān where the middle reaches of the Wādī Mirwān change from sandstone to the plutonic formation of the lower reaches. From its abutment at the southern precipice it is 25m long and still 5.5m high (Fig. 40). Its inward curvature (toward the east) and a slight incline backwards (toward the east) allowed for its preservation. At the northern slope the dam has been washed away. Altogether originally ca. 35m long, it is set on the rock bottom, tapers upward and consists of reddish sandstone ashlar (ca. 40 x 60 x 110cm). The ashlars are inserted lengthwise into the wall, and only the small sides (40 x 60cm) can be seen at the western facade. A joint in the upper quarter of the wall indicates a secondary repair. According to the ashlar tumbled from the coping, the dam was originally still higher.

Behind the preserved part of the dam, soil has accumulated several meters high where numerous plants are thriving even in late summer. In order to protect the dam from rock-fall in the rainy season,

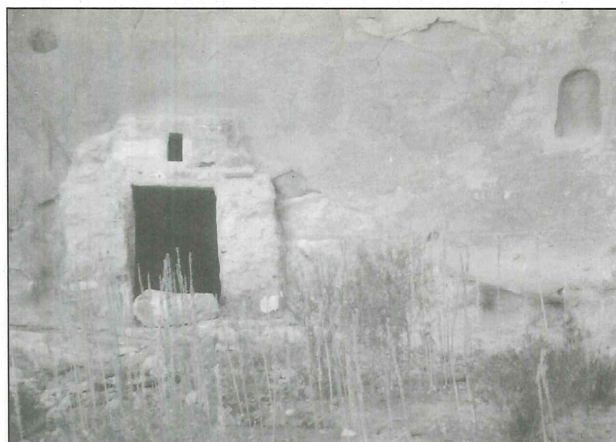


40. Barrage (dam) of originally 35m length in the Wādī Mirwān (U. Hübner).

staggered terraces were built up to the plateau on both sides of the steep escarpments. A scatter of Nabataean-Roman sherds was noted around the dam. A few Early Bronze Age fragments were probably washed down from Umm Saysabān. At 30m to the west of the large dam and parallel to it lies a last smaller and badly preserved dam built for agricultural usage. From now on the wadi runs steeply into its plutonic lower reaches. Terraces get fewer in number. Without an agricultural function they further the protection from flash floods and indirectly also protect Wādī Mūsā (aṣ-Ṣiyyagh), where the Wādī Mirwān ends. The way through the lower reaches is laborious and difficult. It could not have been easier in antiquity.

Generally, due to its difficult passage the Wādī Mirwān was never an easy traffic route in an east-west direction. However, it was crossed by an ancient built road in a north-south direction. The wadi was important because it allowed agricultural and pastoral use in its upper and middle reaches in Nabataean-Roman times. It belongs to Bayḍā, Sayl 'Aqlāt, Shammāsa, Rās Darmaq (راس درمق), Wādī al-Ghurāb and Slaysil, areas that by their sizes and agricultural usefulness may be called the "granary" of Petra. In fact, these areas were easily reached from Petra through Wādī al-Mu'ayṣra al-Gharbiyya and ash-Sharqiyya.

At the western escarpment of Jabal al-Mu'ayṣra al-Gharbiyya, an ancient rock chamber of 3 x 3.5m and a height of 1.9m with a recently developed rectangular entrance was noted (Fig. 41). Lately, the chamber served as a pen for goats. An aedicula oriented toward the east (60 x 80cm) is cut into the rock ca. 3m south of the chamber. There was a scatter of Nabataean-Roman sherds. A (pilfered) rectangular tomb of 2.30 x 0.60m and an unknown depth was cut from the rocky ground ca. 120m



41. Recently developed entrance to an ancient cave room with a cultic niche at the western escarpment of Jabal al-Mu'ayṣra al-Gharbiyya (U. Hübner).

southwest of the aedicula. About 60m further on in a southerly direction from the aedicula, nine steps lead 8m up to an overhang of Jabal al-Mu'ayṣra al-Gharbiyya with an open cistern of 3 x 2.5m and a depth of ca. 4m. There are traces of plaster at the interior. The cistern gets water from the perpendicular rock face above and is being used up to this day. It was dry in October 1999. At 2.5m to the south of the cistern an artificial hole or basin (ca. 60 x 30 x 25cm) is cut into the rock, quite probably to water animals. It is possible to walk from the cistern through a small tributary from Wādī al-Mu'ayṣra al-Gharbiyya into Wādī al-Mu'ayṣra ash-Sharqiyya. Passing through the middle reaches of the former wadi, a valley was noted connecting it with Wādī al-Kharrūba. Beside staircases and other stone work, an isosceles cross was engraved into a large boulder.

More about the Environs of Umm Saysabān (M. Lindner)

The descent from the ad-Dayr plateau roughly toward the north had not been described and (archaeologically) explored previous to 1986 (Lindner 1986: 111). Musil turned back "am Rande der furchtbaren Schlucht" (at the rim of the dreadful gorge) closing the plateau in the north) (1907: 149). Dalman and Horsfield supposed the ad-Dayr plateau had to be defended against aggressions out of the Wādī Mirwān, a theory which prompted the interpretation of the installation opposite the ad-Dayr as a fortress (Dalman 1908: 35, 277; 1912: 15; Horsfield 1938: 11). In fact, there are at least two ancient pathways from the ad-Dayr plateau down to the Wādī Mirwān. The "dreadful gorge" begins between Bayḍā and the northern end of Umm Saysabān, circling the latter and eventually ending in Wādī Mūsā/aṣ-Ṣiyyagh. As found out later, even the Pond Temple in the Wādī Mūsā below Rās Slaysil could be reached from the ad-Dayr plateau — another indication of an incredibly dense traffic system in the Petra region (Lindner 1991: 51-56; Lindner and Gunsam 1986: 68-111).

One of the two pathways runs over a rock-cut ramp above several rock-cut graves at the slope of the ad-Dayr massif (Lindner *et al.* 1984: 163-181). It was originally sub-structured in places, but is passable only for pedestrians in these days. Where the path turns toward the south, an inscription of Nabataean letters (8-10cm high; Fig. 42) is very carefully engraved in a smoothed spot of the rock wall (Lindner 1986: 100). It has the name of a certain AṢLAḤ (pers. comm. F. Zayadine), obviously of a man in ancient Petra who was or wanted to be remembered after his death. Not far from it, a rock

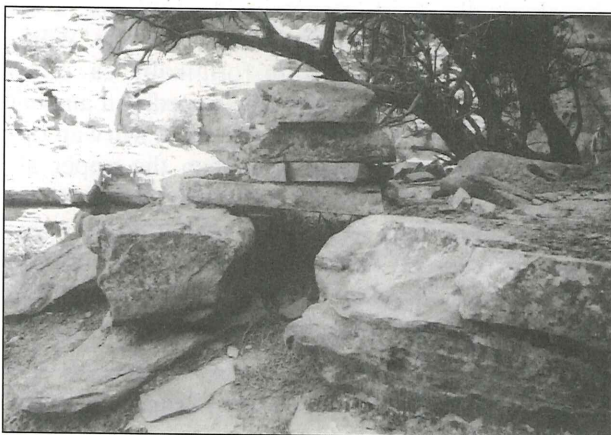


42. Nabataean inscription on the pathway from the ad-Dayr plateau to Umm Saysabān.

installation of thick slabs was recognized as an animal trap. Similar ones had previously been seen, e.g. on the slope of Ba'ja III and near at-Ṭayyiba (Fig. 43). In the gorges and defiles of the northeastern flank of the ad-Dayr massif, the original substructures and terraces have deteriorated. "Blockschutthalden" in these places are possibly the result of working stone for the pathway (Pflüger, pers. comm.). A large blue-yellow-striped gecko was seen there in 1990.

A second pathway running below toward the Wādī Mirwān is virtually no path at all. It was negotiated in parts crawling and balancing on narrow ledges. At a precipice, a saluting(?) human figure, many "feet" or "sandals" and a rectangle with an inscribed cross(?) are engraved in a patinated rock. The upper reaches of the Wādī Mirwān were passed from here during a short survey in 1983.

To the northeast of Umm Saysabān, additional foundations of houses were noted by M. Lindner, according to their dimensions and to corresponding surface pottery, also as Early Bronze Age structures. These remnants of a more ancient past end with Rās al-Mu'ayşra al-Gharbiyya and a unique

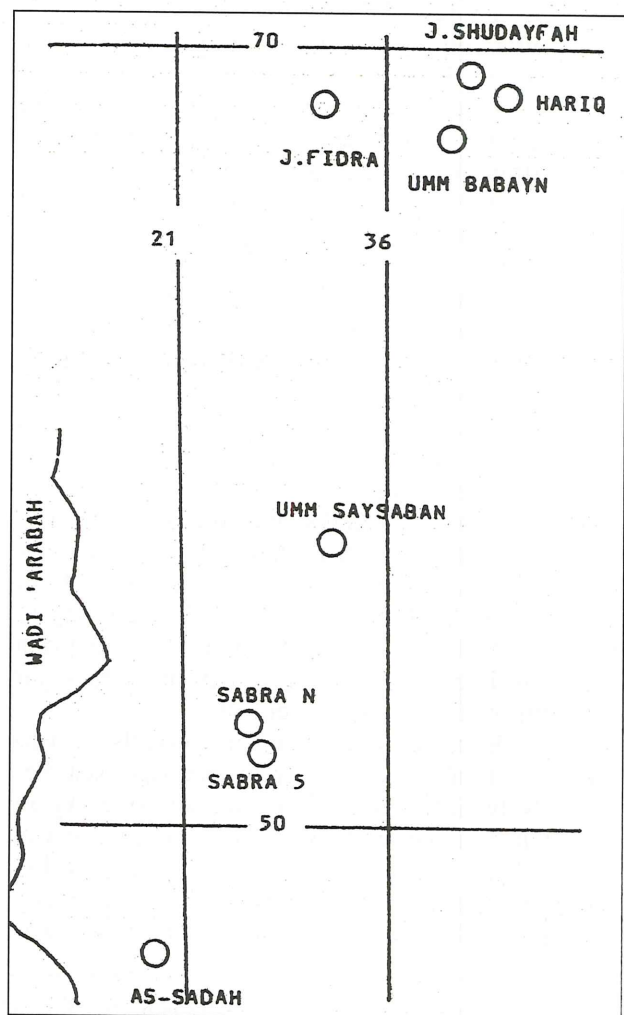


43. Stone trap on the way to Umm Saysabān.

Nabataean semicircular sitting place (Ø 3.5 m). A well-trodden path leads through a Nabataean-Roman rock-cut road (150m long and 3m wide) to an imposing rock wall of ca. 9m height, the remnant of a quarry. When work stopped in antiquity, an altar was engraved. From the quarry which is currently exploited again for its fine white stone material by two enterprising Bedouins, by hiking across a small hill with a house ruin, the fortified ridge of Shammāsa cannot be missed. It protected a village below and fertile land with a Dushara shrine, two large cisterns and three wine presses, one of them perhaps the largest and most sophisticated of the Petra region (Lindner in preparation).

Umm Saysabān and other EB Sites in the Greater Petra Area (M. Lindner) (Fig. 44)

Enumerating well-known Chalcolithic-Early Bronze sites south and east of the Dead Sea, T. Raikes predicted that contemporary sites south of



44. Early Bronze Age sites discovered by Naturhistorische Gesellschaft Nürnberg in southern Jordan.

Faynān were to be discovered (1965: 159). In fact, indications of an EB occupation were discovered on *Jabal Khubtha* (جبل خبثه) towering above Petra (Lindner *et al.* 1997: 178; Zeitler 1998). *EB Sabra V*, located above the Wādī Ṣabrā (وادي صبرا) was discovered and identified in 1983 (Lindner 1986: 157). It was subsequently examined by Zeitler, who confirmed the dating and found groundplans of four houses hidden in mounds of tumbled stone (Lindner and Zeitler 1997/98: 538-543). *Sabra N (Rās Dakhllallah)* may have had architecture, but despite two intensive soundings — beside EB pottery and hand-mills — no remnants of dwellings were revealed on the small plateau high above Wādī Ṣabrā (Lindner 1986: 157; 1992: 201). The EB site of *Jabal Fidra* (جبل فدره), actually its saddle between three tops, seemed to be a (watch-) station, and not even traces of architecture were seen during the admittedly cursory examination (Lindner and Genz, in press). *Halayil* (حلييل) is a ruin field between the ash-Sharāh road and *Jabal Shudayfa* (جبل شديفة). In an opened grave an arm-ring was found, but no built structures were visible (Lindner and Genz, in press).

The plateau of *Jabal Shudayfa (sdêfe)* is covered with standing and fallen stones and boulders of quite different sizes and arrangements. According to the surface pottery, the main occupation should be dated to the Early Bronze Age, and most of the stone work may or may not be the heavily eroded remnants of house walls like the ones on Umm SAYSABĀN. The archaeologically promising site with an additional large Iron II structure merits examination and excavation far more intensive (and expensive) than what the NHG was or would be able to accomplish even with repeated visits to the site (Lindner and Genz, in press). Above the *valley of as-Sādah* (الساده) the NHG discovered an Early Bronze Age settlement larger than that of Umm SAYSABĀN (Lindner *et al.* 1990: 195-204). It was possible to identify, date (and even link to Arad according to E.A. Knauf) the site by a sounding in the corner of a double-walled house where a typical storage jar with upturned knobs was taken out.

Umm BĀBAYN (ام بابين) in the foothills of ash-Sharāh certainly has an Early Bronze Age past, beside a Nabataean and a recent Bedouin one. Again no pertinent architecture was found during a survey and an aerial inspection (Lindner and Genz 2000). The pottery taken from the ground (and previously playfully collected by Bedouin children) was

household and storage ware, comparable with what had been collected on *Jabal Fidra* (Lindner and Genz, in press).

Generally, the EB sites in the Greater Petra area at elevations of 800-1280m asl were chosen for defense and for protection from flash floods.⁶ *Umm SAYSABĀN* reveals how people of the Early Bronze Age built and dwelled (or at least worked and stored their stocks) in the Greater Petra area. The relatively high elevation of the settlements or stations combined with the restricted activities (mainly storage) as recorded at Umm SAYSABĀN may indicate that they were only used temporarily, mainly during the summer months. If one tries to explain the widespread but putatively short settlement in the Early Bronze Age of southern Jordan, one of E.A. Knauf's hypotheses should be recalled. He regards the town of Arad in the Negev as the central place of a region comprising villages, hamlets and seasonal camps reaching as far as into the Sinai and Transjordan. The inhabitants of Umm SAYSABĀN (as of the other small settlements) may have left their homes not primarily due to a seismic catastrophe. When the chieftains of Arad lost their profitable copper trade with Egypt, their far-flung enterprise may have collapsed and Arad deserted together with "our" EB sites in southern Jordan (Knauf 1994: 46-48; Knauf in Lindner *et al.* 1990: 199-204). U. Hübner judges the situation differently. He thinks Arad is being massively overestimated by E.A. Knauf, and the importance of other EB towns like Bāb adh-Dhrā' and an-Numayra in southern Jordan underrated.

Summary and Conclusion

Before and during the survey of Umm SAYSABĀN, the surrounding area of the terrace in the northwest face of the ad-Dayr plateau was explored. Difficult accesses to Umm SAYSABĀN and the Wādī Mirwān were surveyed as well as the archaeologically void mountainside towering over the plateau. In the middle reaches of the Wādī Mirwān, a dam of now 25m (originally ca. 35m) length and 5.5m height was discovered. An ancient built road crossed the area above Wādī Mirwān opposite to Umm SAYSABĀN. Between the upper al-Mu'ayṣra wadis and Umm SAYSABĀN, remnants of dwelling and tillage were found adding to the "granary" of ancient Petra. On the plateau proper, around 15 rectangular structures were identified. Together with several others on the way to Bayḏā,

6. The approximate elevations above sea level of the EB sites mentioned in this context are: Ṣabrā V 800m; as-Sādah 820m; Ṣabrā N (Rās Dakhllallah) 950m; Umm SAYSABĀN

1130m; J. Fidra 1200m; Umm Bābayn 1260m; J. Shudayfa 1280m.

they formed a small village-like settlement in an easily defensible location, additionally protected by a wall at the most accessible section of the plateau edge.

The two rectangular structures sounded and partly excavated on the Umm Saysabān plateau north of Petra in 1998 and 1999 were (broad-) room affairs, yet hardly living rooms. For Structure I a subsidiary activity and storage room (kitchen-storeroom) has to be assumed. Structure II without a notable direct connection with Structure I was no living room either. The greater number of flint and quartzite implements points to its use as a working and storage accommodation. Where the people lived (and slept), cannot be stated at the moment. Modified according to the stone material of the plateau, the excavated rooms are of the Early Bronze "Arad house" type as described by Amiran *et al.* (1978: 14-17). The result of a 14C examination (805-405 BC) points either to a later temporary use of the stove-fireplace or is due to the near-surface location of the locus, whereas the pottery is clearly of the Early Bronze Age, probably EB II. This date is attested by a second 14C Analysis of fireplace material from Area B, i.e. cal. BC 2570-2455. The site may have been evacuated after a severe earthquake. Perhaps the collapse of the chieftainship of Arad combined with other economical changes, deforestation, leaching of the soil or epidemics added to the misery.

However, there are different opinions about the role of Arad and its influence on Umm Saysabān. According to U. Hübner and H. Genz, the archaeological evidence does not entirely support any of them. The fortified location is reminiscent of possible raids. Umm Saysabān may have been destroyed *after* it had been evacuated. Perhaps the ruins were partly ransacked or disturbed already in antiquity, by Edomites, Nabataeans and in the Late Islamic period, attested by scarce pottery finds, though outside the "house", and lately by latter-day Bedouin herders and occasional agriculturists as shown by a *wasm* at Spur II. The plateau is very much exposed to the weather. Yet compared with other Early Bronze Age settlements in the Greater Petra area, at Umm Saysabān the first to some extent complete structures, dwellings or storage rooms could be presented.

Acknowledgments

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The heavily sintered ceramic material of the 1998 sounding is being cleaned in the workshop of NHG, hopefully pending complete restoration. Prof. Dr. P. Wunsch (Institute of Pathology Nürnberg) and J.P. Zeitler M.A. (NHG), have to be thanked for examining specimens of soil and content of vessels in Structures I and II; Prof. Dr. Ing. H. Mughrabi (Univ. of Erlangen-Nürnberg) for having the copper wire and the burnished juglet of Structure II analyzed; H.G.K. Gebel for scientific information on snails and shells. The ceramics were drawn by E. Schreyer, G. Vorndran and M. Lindner, fan scrapers by Norbert Graf (NHG). For the computer work A.E. Lindner was responsible.

M. Lindner
Naturhistorische Gesellschaft Nürnberg
Germany

U. Hübner
University of Kiel
Germany

H. Genz
Deutsches Archäologisches Institut
Germany

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