

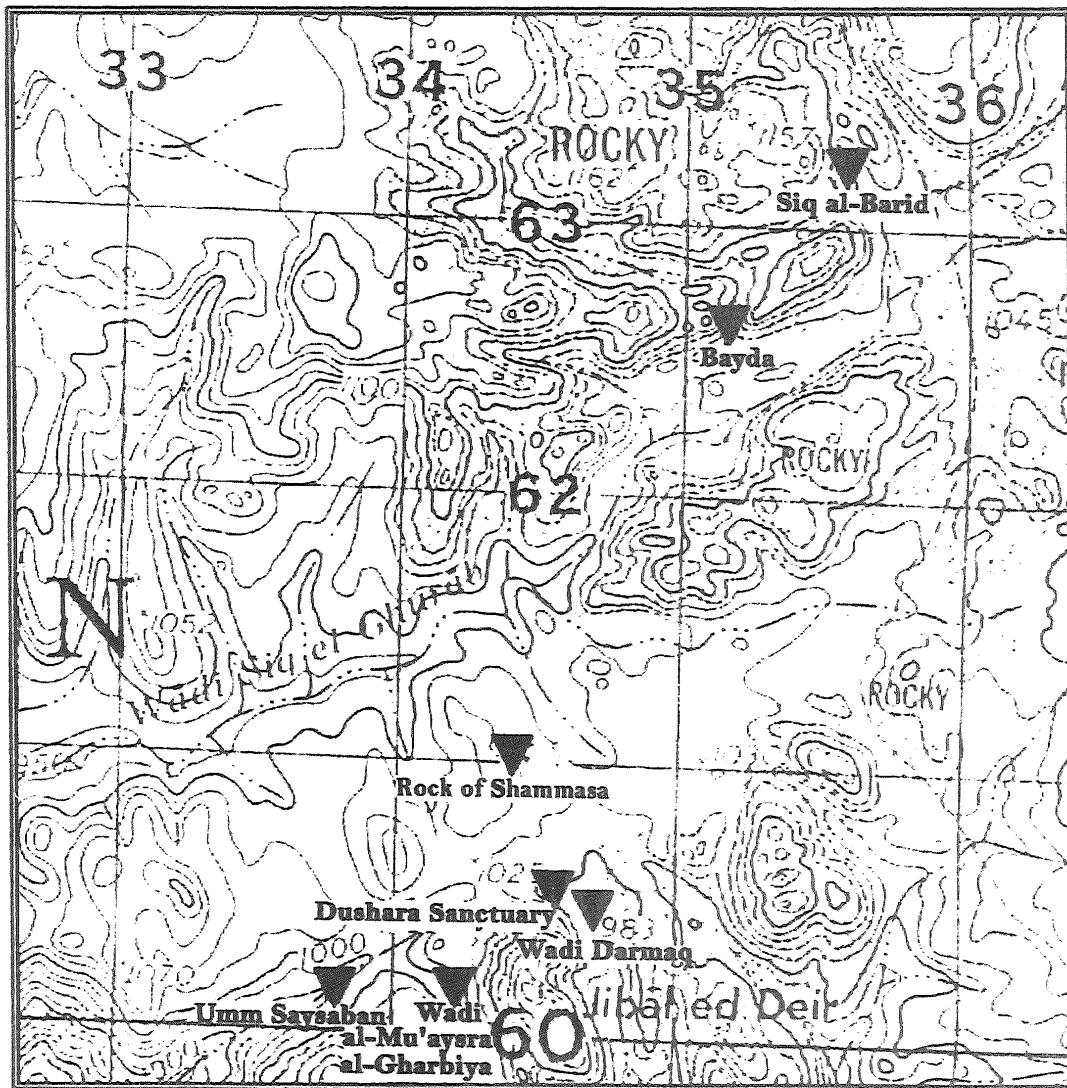
A FORTIFIED SUBURB OF ANCIENT PETRA: SHAMMĀSA

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Introduction

The area called Shammāsa (شماسة) (YU 341 613) by the local people extends over ca. 1x1.5km and is located less than 3km, as the crow flies, from and to the NNW of ancient Petra proper (Fig. 1). Underservedly neglected by surveyors and tourists alike,

it was explored and surveyed in September/October 1999/2000 and June 2001 by teams of the Naturhistorische Gesellschaft (NHG) Nürnberg under the direction of the authors, underlining thereby the need for further investigations of the neglected peripheries of Petra.¹



1. Location of Shammāsa between Bayḡā and Umm Saysabān.

1. Thanks are due to the Directors-General of the Department of Antiquities of Jordan; their local representatives; the Bedouins of the area; the members of the Naturhistorische Gesellschaft (NHG) Nürnberg who comprised the team: Ulrich Hübner, Antonie Schmid and Elisabeth Schreyer; Robert

Wenning, who read the manuscript and suggested improvements; last not least, to Dakhlallah Qublan from Petra-Umm Şayhūn and his family. Regrettably the sketches of cisterns and winepresses could not be done by professionals.

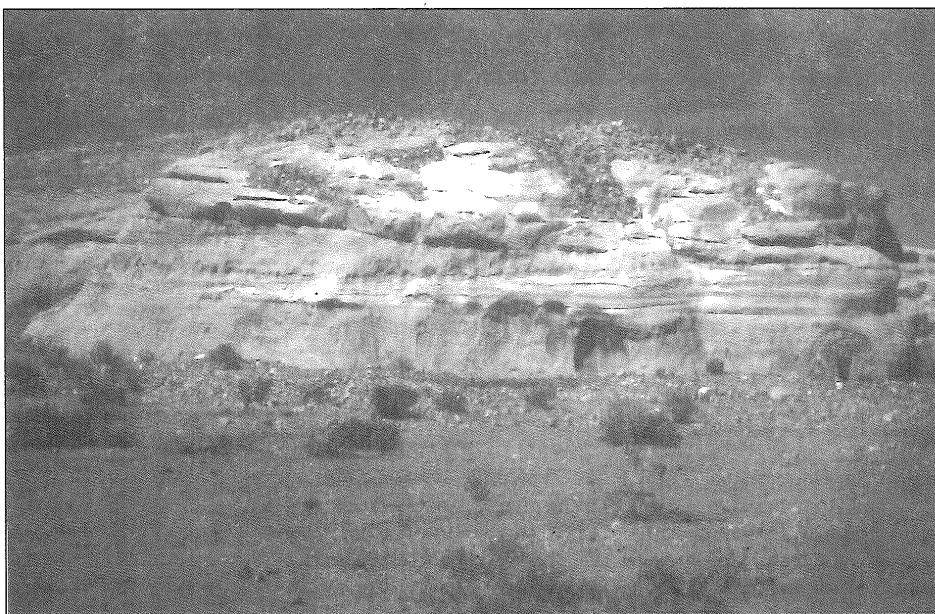
The “Rock” of Shammāsa

The (eccentrically located) center of the area, first noticed in 1997, is a huge rock outcrop, rising at ca. 1025m asl in an approximate N/S direction out of a plain to the east and a rocky slope to the northeast (Fig. 2). The almost perpendicular sides, in fact cliffs, make it difficult to believe this steepness to be entirely of natural origin. There are, however, no typical Nabataean or other pickaxe strokes and no typical quarry walls. Moreover, as is well known, the usually soft Ordovician Disi sandstone around Petra is very hard and durable in certain places, as attested by a few other rocky rises and quarries in the vicinity. The Rock is 42m long, on its summit less than 12m wide and ca. 15m

high, though less high from the ground on its western side. There, the adjoining rocky slope facilitated the access to the summit plateau both for defenders and aggressors (Figs. 3, 4). The summit was originally surrounded by a wall of carefully chosen, durable ashlar accurately set upon rock-hewn ledges. The latter are better preserved at the southwestern end. Whereas there are only traces of ledges left toward the east, the amount of building stones tumbled from the rim of the Rock at the southwestern edge, in fact on all sides, bears witness to the considerable size and height of the original wall. In the small space at the top, additional masonry between the exterior walls of not more than 300m² indicates the former existence of stone



2. *The Rock of Shammāsa in the morning, from northeast (1997).*

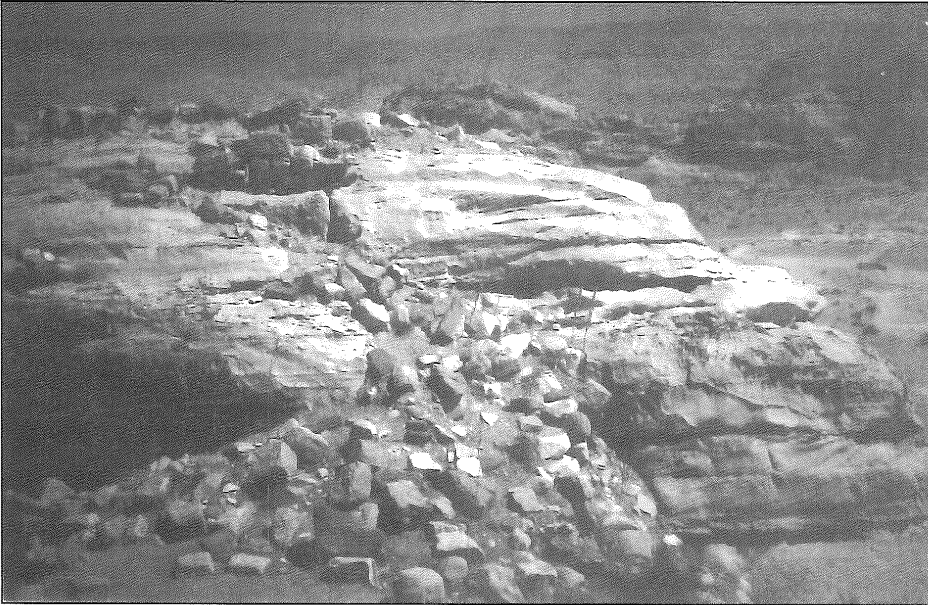


3. *The Rock at noon from the east. Note stone material fallen from the top (1998).*

huts or bulwarks against the shots of aggressors. One diagonally finished ashlar was noted among the masonry. The fallen ashlars and the visible line of ledges might even suggest that no mere enclosure walls but a massive structure was built, thereby enlarging the narrow top. The width (0.40m) of the still existing foundation ledges make the assumption

probable (Fig. 5).

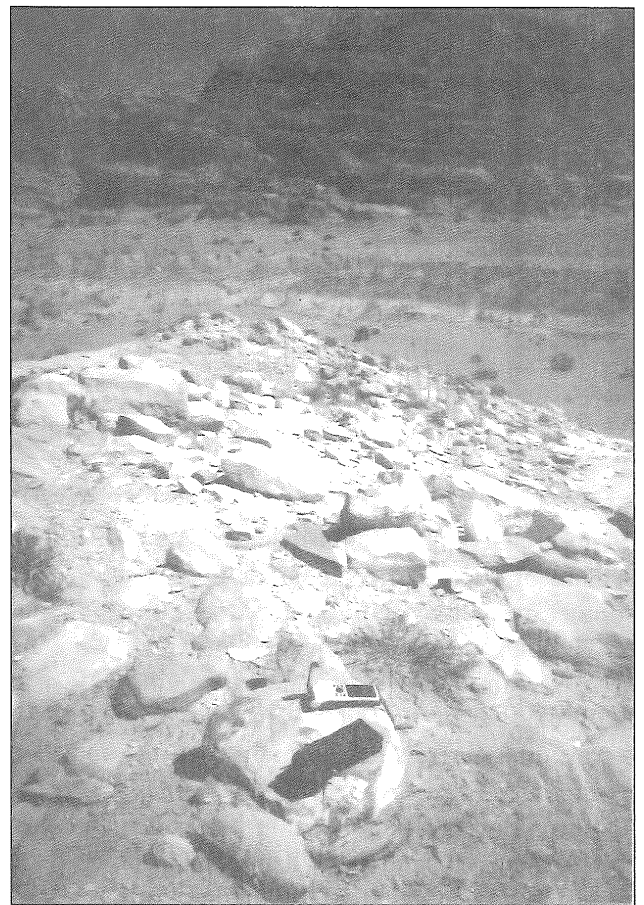
A rectangular excavation of 0.60x1.20m may have served as a child's grave. A deepening at the southeastern part of the top was additionally sub-structed. No means of storing water on the summit was noticed (Fig. 6). At the foot of the northern end, a small cave with an inexpressive opening is



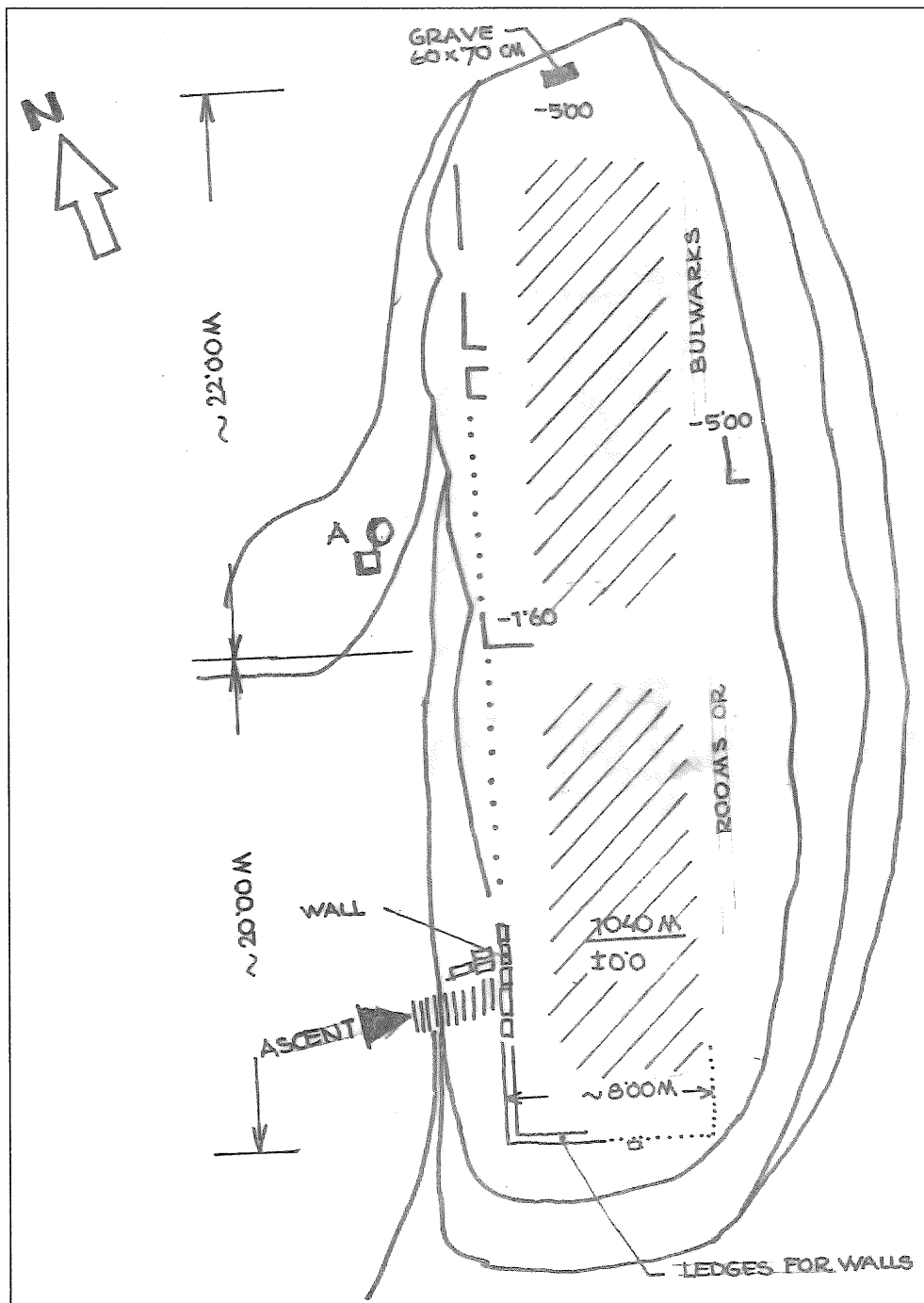
4. *Southwestern edge of the Rock with ashlars on ledges still in situ (1999).*



5. *Durable ashlars on ledge in situ.*



6. *Remnants of masonry on top of the Shammāsa Rock.*



7. Drawing of the top (E. Gun-sam).

of no archaeological significance. Much disturbed ashlar of supposed rectangular houses below the southeastern cliff seem to be mixed with stone material fallen or taken from above. There were no ashlar with oblique (diagonal) trimming (Figs. 7, 8, 9). Obviously, the Rock was used as a defensive tower. In emergencies it might have protected a community from invaders. Ruins of houses to the southwest of the Rock seem to have been added to the defense. An undatable ashlar, with holes for a game, laying at the foot of the rock shows how people at Shammāsa passed their time.

Winepresses

Viticulture played an important role at Shammāsa. In a rock-cut installation below the western cliff, some liquid ran through a pipe into a rectangular basin of 0.82x0.82m, and from there into a reservoir of 1.09m Ø (Fig. 10). First regarded as a water collecting device, it was probably a winepress (A) with the treading-floor hidden under an avalanche of debris and ashlar tumbled from the western cliff. At 220m to ESE, in the proper center of the plain, a second winepress (B) was found dug into an outcrop of almost white Ordovician rock (Fig. 11). Size and architecture of this in-



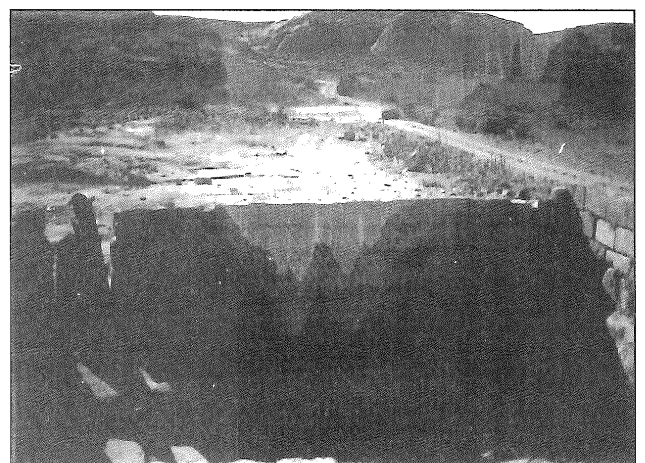
8. Originally substructed rim of the Rock.



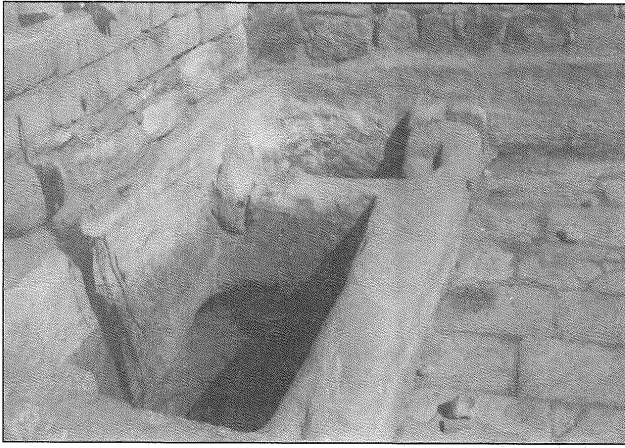
9. Southwestern edge of the Rock. Location of modern reservoir in center (arrow).



10. Supposed small winepress (A) at the western foot of the Rock.



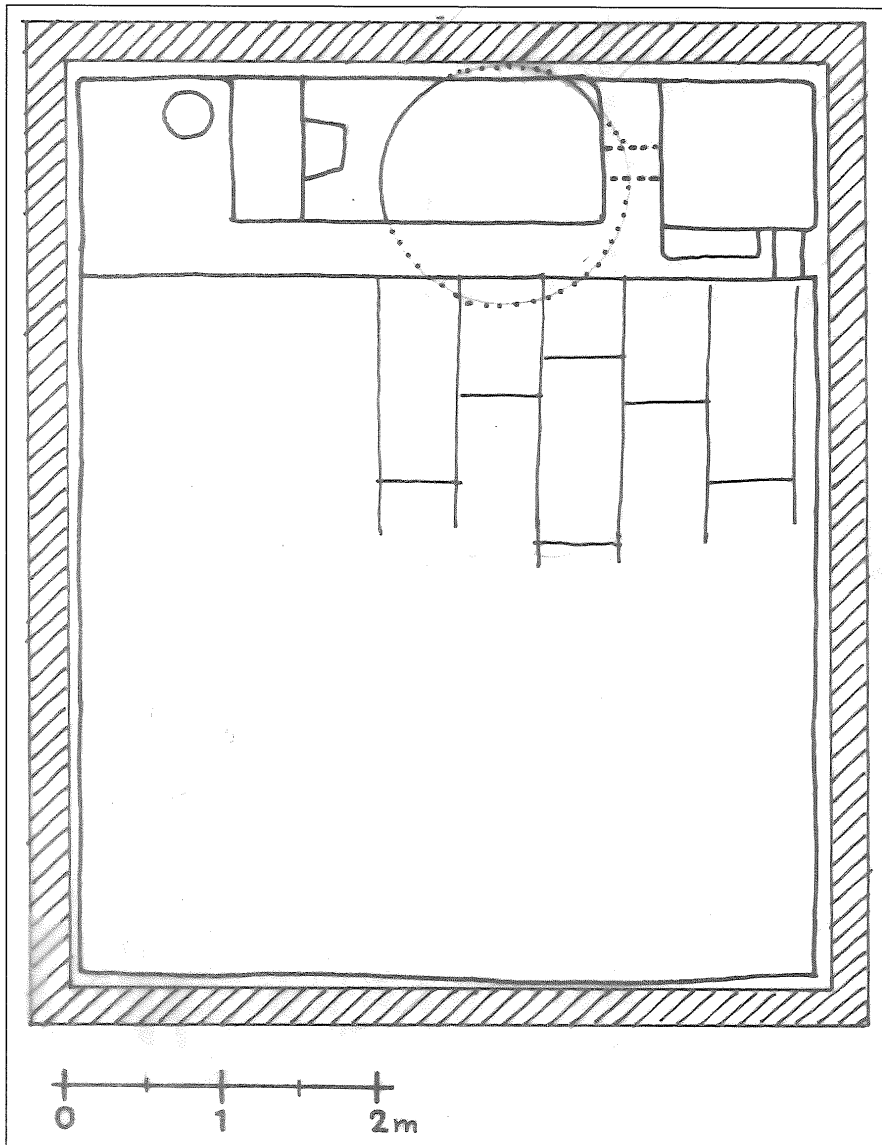
11. Large winepress (B) of Shammāsa.



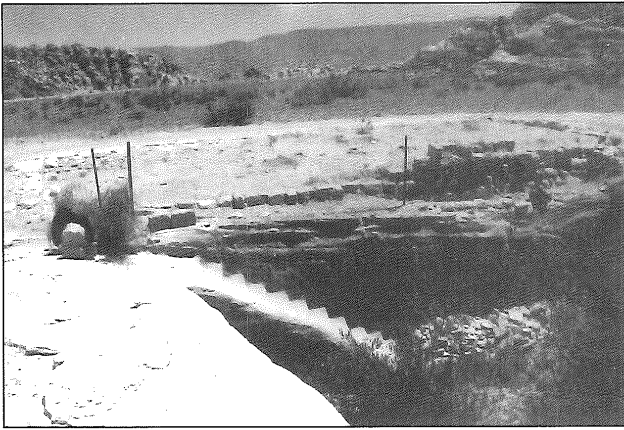
12. Detail of large winepress with vat and clearing basin.

stallation are outstanding among the many others in the Petra region. The treading-floor of 4.55x4.70m is paved with seven rows of carefully hewn rectangular limestone slabs of up to 1.30x0.51m and a thickness of 0.10m. The durable whitish stone ma-

terial was probably not quarried and finished on site, but rather taken from a quarry working for temples, roads or a temenos in antiquity (Fig. 12). Out of the treading-floor, the grape-juice ran through a large hole into a clearing basin of 1x1m and a depth of 0.84m. From there it was conducted into a rectangular bed-rock opening of ca. 2x1m. Into the latter, ca. 0.50m deeper, a fermenting vat of 1.60m Ø was hewn. The depth between limestone slabs and the fermenting vat was covered with rough hydraulic mortar. Two roughly hewn narrow steps allow one to reach the bottom of the vat. For setting down a jar, another circular flat hole was cut where the steps begin (Fig. 13). In 2000, the winepress was surrounded by ancient ashlar underneath modern building stones and was used for storing fodder sacks. Clotted blood at the inner rock wall bears witness to slaughtering. A third winepress (C) was discovered ca. 300m to the west of the ridge above the "Cow shed" (see be-



13. Winepress B (E. Gunsam).



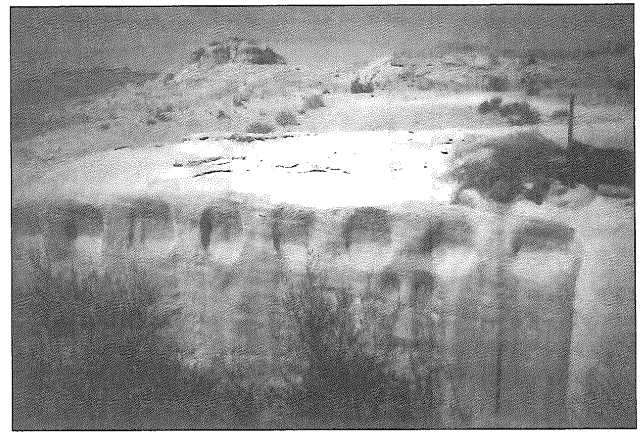
14. Large cistern (1) with steps and remnants of a building in the background.

low): Treading floor 2.80x3.10m, clearing basin 0.90x1.20m, vat 1.60x1.60m. Four steps lead to the bottom.

Cisterns

It was easy to find out where the inhabitants got their drinking water from. At 165m to the east of the large winepress, trees and bushes (peach trees, olives and grapevine) betray the activities of a Bedouin of today who uses a large Nabataean-style rock-cut cistern (1) as an orchard (Figs. 14, 15). The same use of an ancient cistern was noted at Khirbat an-Nawāfla (خربة النوافلة) ('Amr *et al.* 2000: 234, 238). In Shammāsa anchorage cuts show that eleven arches originally covered the reservoir of 13.50x10.0m, installed in an east-western direction. Its size is only paralleled by the cave cistern of Baydā (بيضا) and the arched-over cisterns on Jabal Hārūn (جبل هارون) and Jabal al-Khubtha (جبل الخبثة). Over a nicely made (and preserved) flight of 16 steps, the cistern could be entered to a current depth of 3m at the staircase and 1.80m deeper beyond it. A building originally adjoined the cistern on its eastern side. To the west, a fourth winepress (D) was carved out of the same rock as the cistern. The treading-floor of 2.60x2.80m may have been used for producing smaller quantities of wine. The combination of cistern and winepress on the same rock is unique in the Petra region (Figs. 16, 17).

Another rock-cut cistern (2) of 3.70x4m, its inside covered with rough hydraulic mortar, was found at 44m to the southeast of the 11-arches-cistern. The cavity stretches with an upper opening of 4x3.30m widening into an ca. 5.5x5m excavation (in total) in the rock (Figs. 18, 19). Thus, in spite of its size, according to its anchorage cuts, it needed only three covering arches. Rock-cut grooves at the side show the cistern was entirely covered with slabs laid upon the arches. Through a channel of 1.20m length, water ran from a settling



15. Buttresses of arches in the large cistern (1).

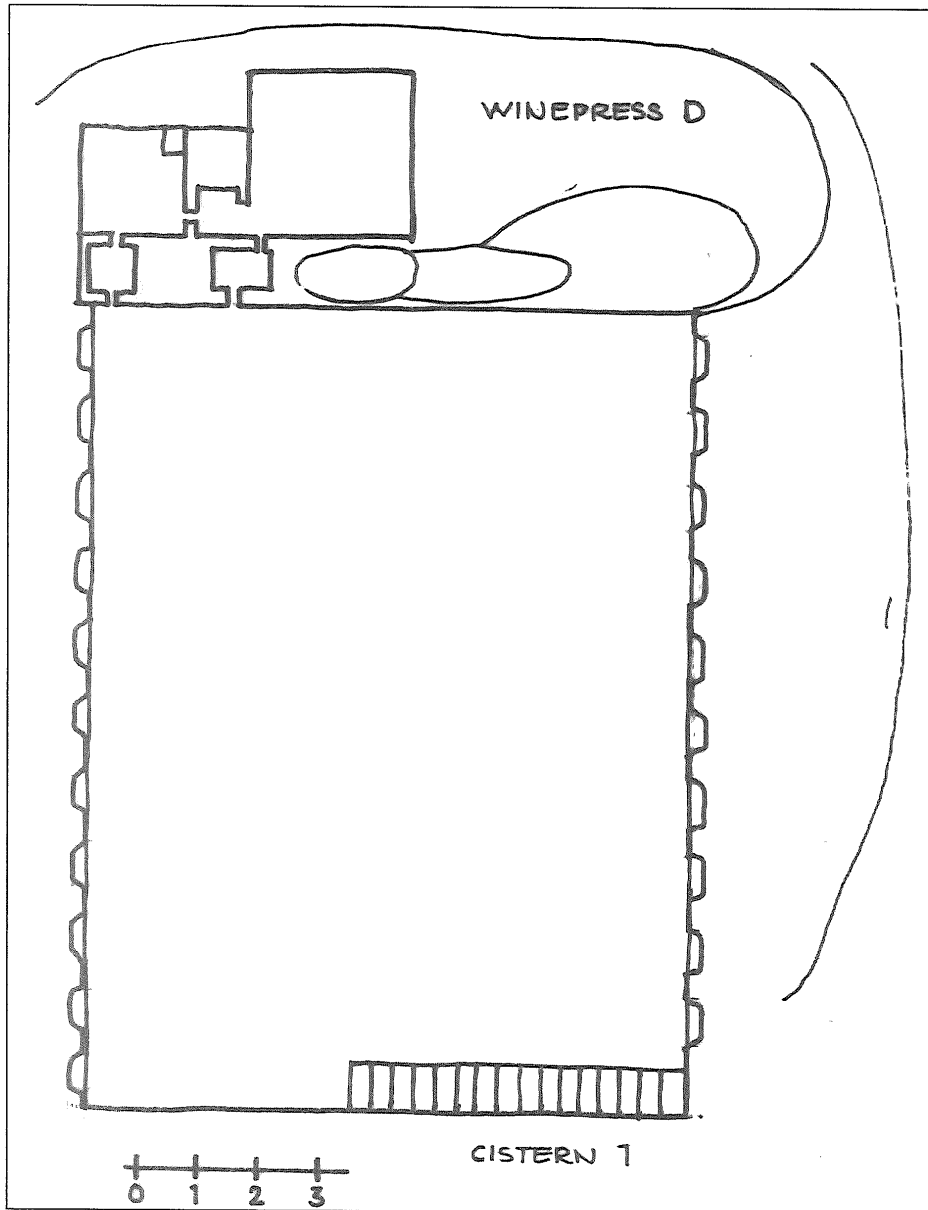
basin of 3.50x2.10m into the cistern. Both cisterns, now dry, were filled with rainwater from a run-off field in antiquity (and in June 2001) through now hardly noticeable flat gutters with minute differences of depth.

A "Cow Shed"

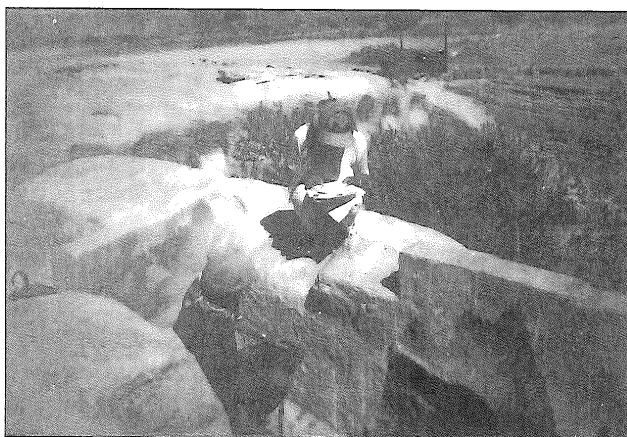
In the shelter of a rocky Ordovician outcrop, a cave room of 3.50x3.50m and a height of (now) 1.80m was lately inhabited and its entrance opening toward the southeast partly walled up. The inner walls show rough pickaxe strokes. Four double holes in the ceiling were perhaps used for hanging a protective cloth. The right wall has been worked into two niche-like excavations, one of them equipped with a bench of 0.40m (Fig. 20). One of the surveyors had the idea that two calves or small cows could have been held in this shed, and there would have been room for a cowhand. A rounded water basin and a double hole for tethering an animal mark the entrance. A rhombus (*wasm?*) is inscribed to the right of the entrance. Nearby, a circular flat basin was cut into the rock floor. A smaller hole in the centre made it possible to also collect the rest of the liquid fill. Located in front of a rock wall with a flat niche-like though conical recess, it might have been used to water animals, unless somebody insists on explaining it as a cultic font.

A "Dushara" Sanctuary

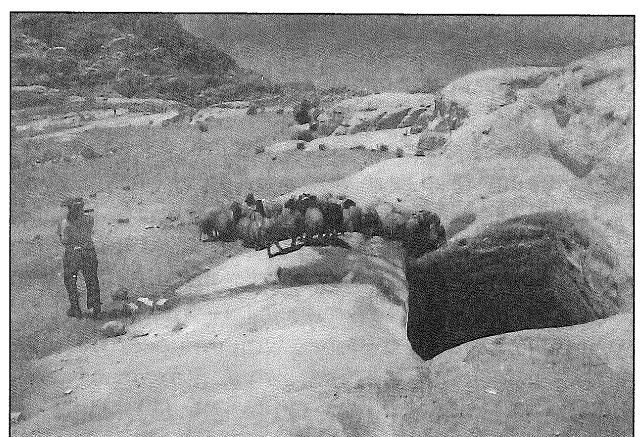
At 400m to the SSE of the southwestern corner of the Rock and orientated roughly to the east, a sophisticated niche for a (missing) betyl is hewn from a grey sandstone wall of Rās Darmaq (راس درمق). Two rounded boulders of 14m and respectively 34m length, the right one with steps leading to the top, and a few steps between them allow and enhance an entrance to the sanctuary of 4.50x14m. An old well-trodden path leads from Shammāsa to the sanctuary and from there into uninviting Wādī Darmaq (وادي درمق) (Figs. 21, 22). In 1998, a group



16. Cistern 1, winepress D (E. Gun-sam).



17. Small winepress (D) attached to the large cistern (I).

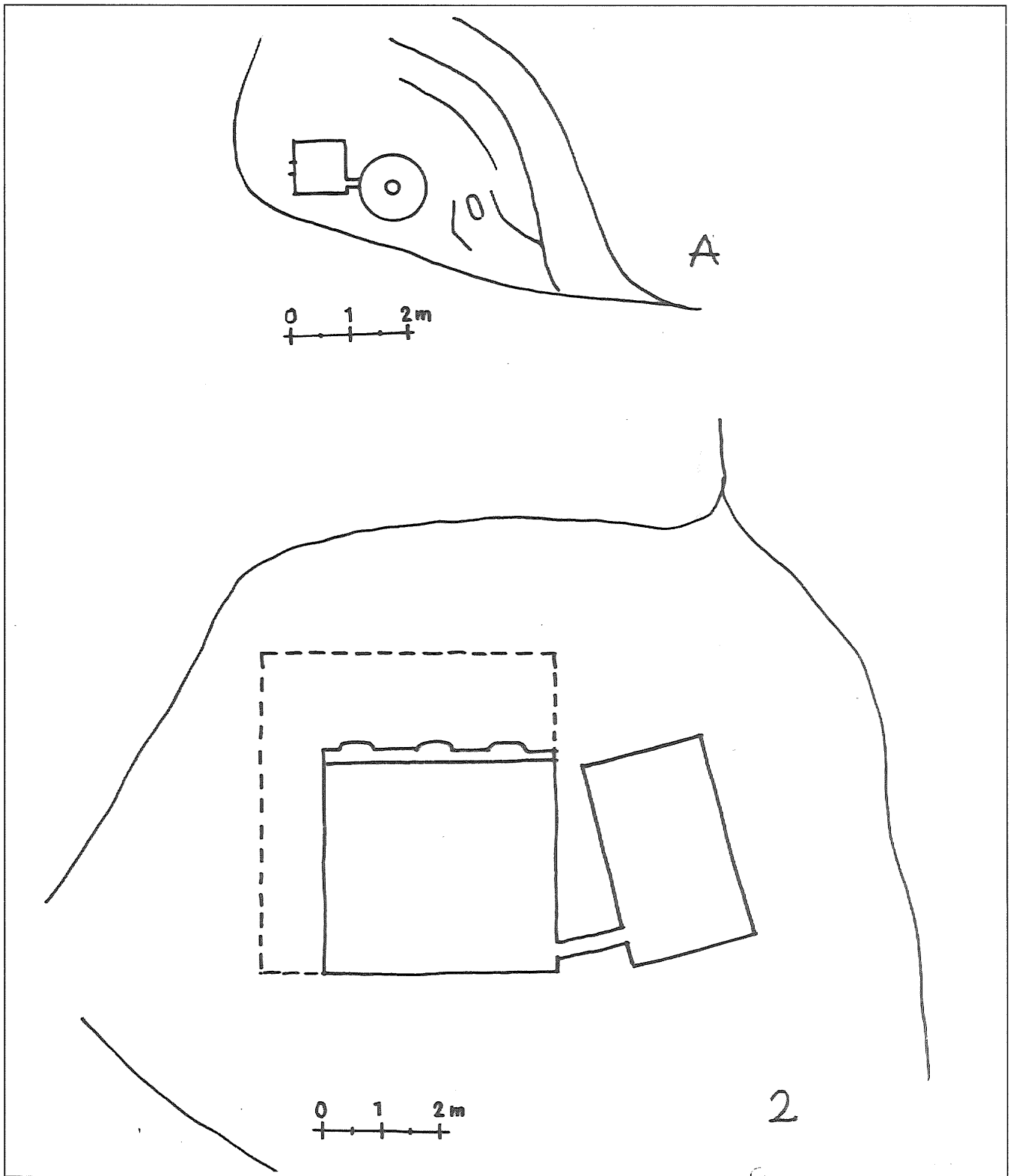


18. Cistern 2 with three arches. Note grooves for the covering slabs.

of NHG led by an intrepid young Bedouin had literally stumbled into the sanctuary on their (bad) way, and after passing it had detected the front of a

huge rock with steps and a worn triclinium on its top.

The niche of the Shammāsa sanctuary of

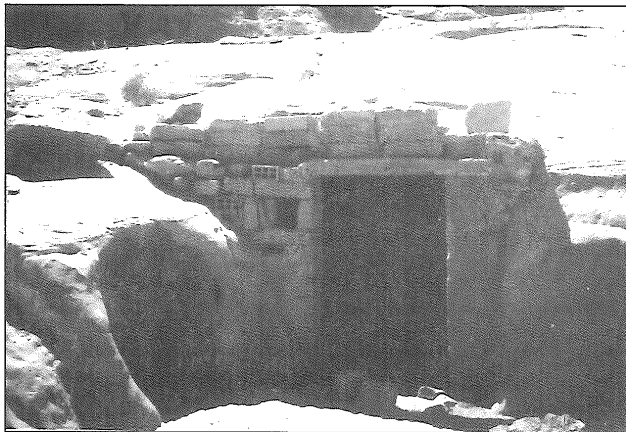


19. Winepress A and Cistern 2 (E. Gunsam, E. Schreyer).

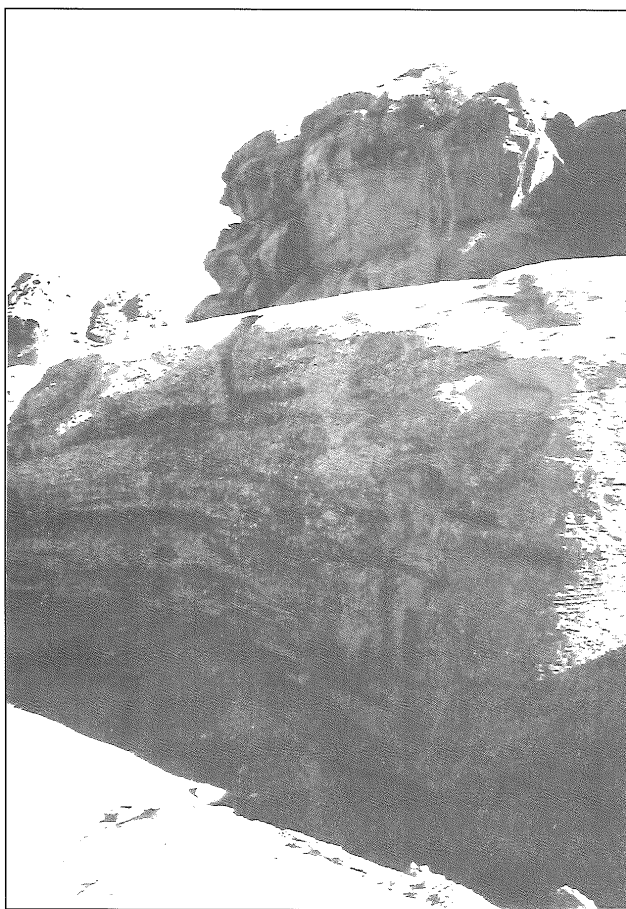
1.03x1.20m in the finely worked rockwall is, together with a rock-cut basin to its right, the center of a smoothed rockwall of 1.75x3.23m. The betyl could have measured 0.45x0.75m but was probably smaller (Figs. 23, 24). Following the superstition that treasures are buried by *nefesh* and niches,

some treasure hunter might have half-heartedly and unsuccessfully tried to excavate in front of the niche, unless it was an archaeologist who tried to measure the exact height of the sanctuary.

What the sanctuary actually meant, at different times, for the people of Shammāsa can only be



20. "Cow shed" with newly developed entrance and large basin.



21. "Dushara" sanctuary of Shammāsa.

conjectured. Located at a pathway it may have been a station in a cultic passage. With quarries nearby and on the way to additional quarries, it may have had more meaning for the stone masons and stonecutters than for settled people. On the other hand it was perhaps a place for regular "Services" or for seasonal offerings. It has also to be thought of that it was perhaps the sanctuary for/of a



22. Entrance to the sanctuary.

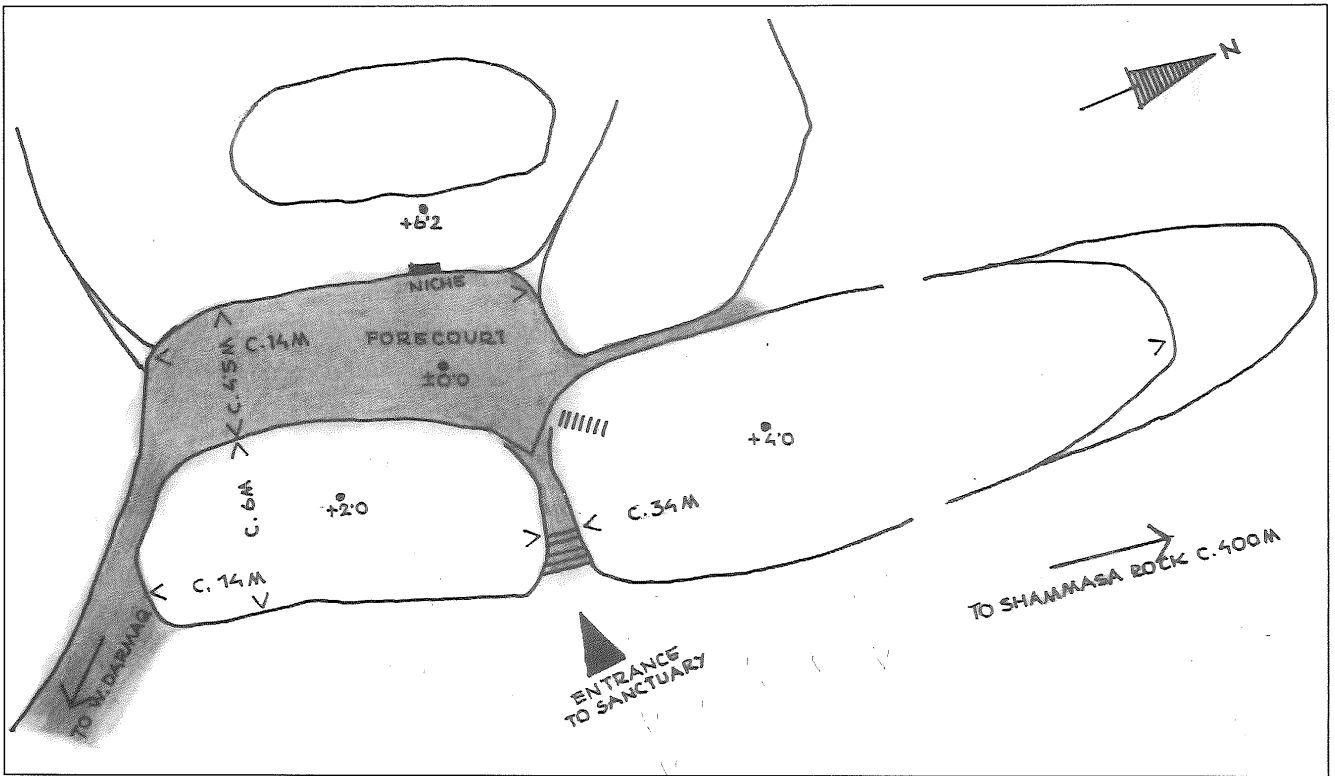
family or clan living outside Petra proper, and being visited at certain times (Knauf 1998: 93; Lindner 1990/91: 145-155; Wenning 1997; Dalman 1908: 62). In an adequate illumination, a cross becomes visible where the betyl used to be. Either the cross was only to "depaganize" the heathen idol or it allowed a use for Christian services.²

Quarries at Shammāsa

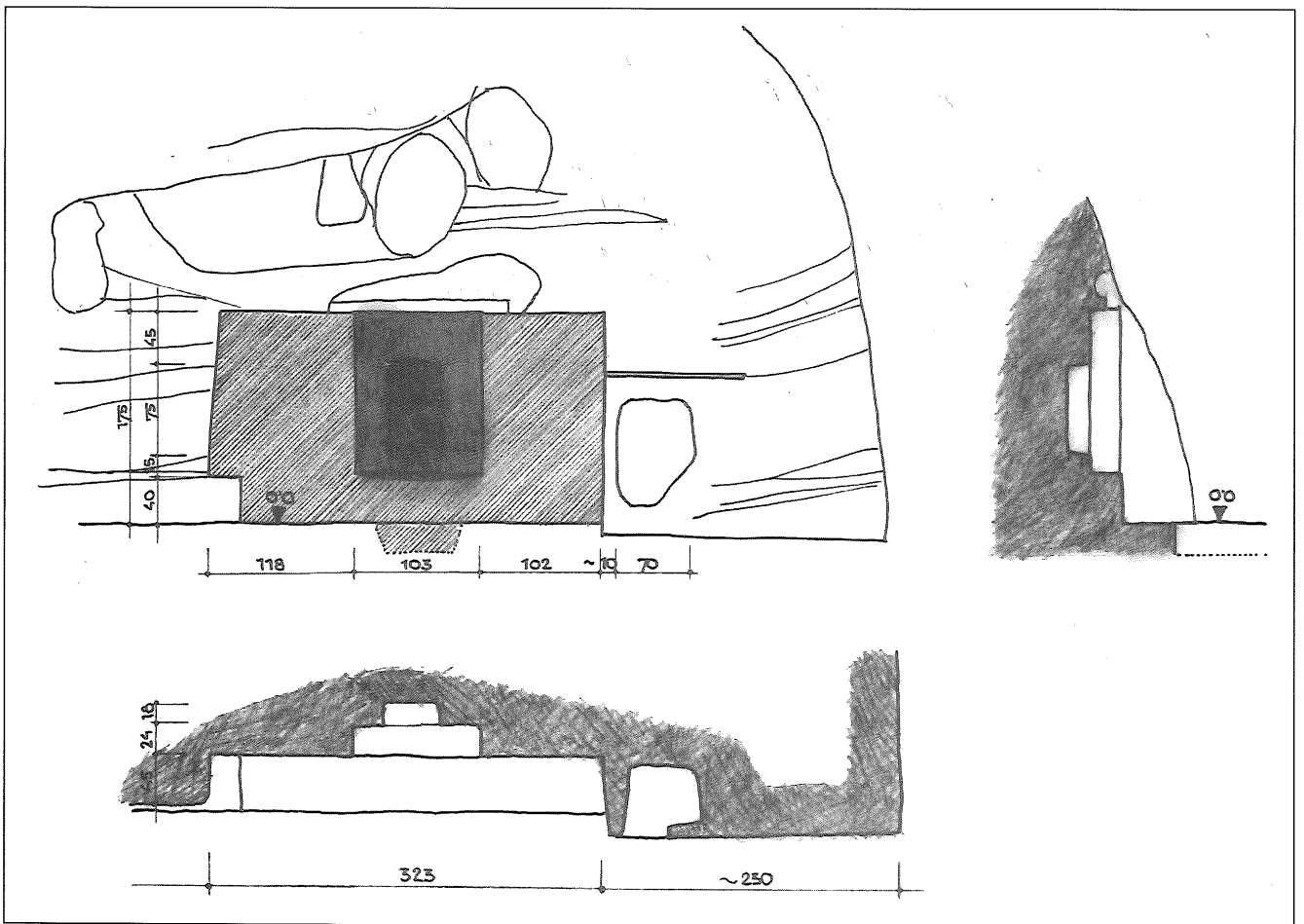
Other ancient activities left conspicuous traces in the surrounding mountains to the southeast of the Rock. At different elevations and in three different ways, i.e. in steps, from walls and in slabs from the ground, mostly whitish-yellowish Ordovician sandstone was quarried in antiquity. Four step-shaped working places in the Disi formation are all that is left of Quarry I. After an ascent of 200m at the second quarry (II), the beginning of the Cambrian sandstone is marked by a worked rock-wall of ca. 10m height. The herring-bone pattern shows how always a single worker alternated his strokes with the double-ended pickaxe. As noted similarly before at the road from Umm Ṣayḥūn (أم صيحون) to Mughur an-Naṣārā (مغر النصارى) in Petra, the stone at Shammāsa was taken in steps of 0.45-0.75m height and 1.50m width (Fig. 25). Further on toward Wādī Darmaq, the biggest of the Shammāsa quarries (III) can be climbed. There, Disi sandstone was quarried in large slabs from the ground. With grooves separating them, they were prepared for being splitted by water-soaked wedges (Fig. 26). Beside them, others were apparently quarried in smaller sizes. There, they look like steps for the workers or like a stone not yet taken away. Similar to other quarries, e.g. by the road from Umm Ṣayḥūn to the north, the unfinished quarries might give the impression of High Places,

2. About inscribed crosses at Nabataean sanctuaries see Lindner (1976: 99) and "Von Isis zu Aaron" (in preparation).

For R. Wenning, it can only be supposed that the sanctuary was dedicated to Dushara (pers. comm.).



23. Ground plan of the sanctuary (E. Günsam).



24. Overall view of the sanctuary (E. Günsam).



25. Detail of the Shammāsa quarries (photo U. Hübner). Note three different ways of producing ash-lars.



26. Quarrying of large slabs on top (photo E. Schreyer).

yet that was never proved.³

However, around a rocky knoll in Quarry III, rock-cut steps are running spirally to the top where no quarrying was possible. A warder or guard might have used the place on top as well as a praying stonemason (Fig. 27). The cross on another worked boulder is no cultic sign. For some unknown reason, it was prepared for the water-soaked wedges, but never splitted (Fig. 28). Where the stone material had been taken in 11 steps, sherds of a thin, painted bowl (first century AD) were found. Similar unexpected fine ware was seen before in the quarries of Ṣabrā (صبرا) (Lindner 1992: 196, fig. 3). A column fragment, found nearby by U. Hübner

3. Nothing much seems to have been published on the technique used in the sandstone quarries of Southern Jordan. A few comparisons can be made with the Ṣabrā quarries (Lindner 1992: 196). "Informations on the used technology from scholars are very sparse", admits the hand-book *Paulys Realencyklopädie der Altertumswissenschaft*. Stuttgart 1929 (Spalte 2288). Shortly before finishing this article, a paper from Abdel Sami Abu Dayyah (2001) came to my at-

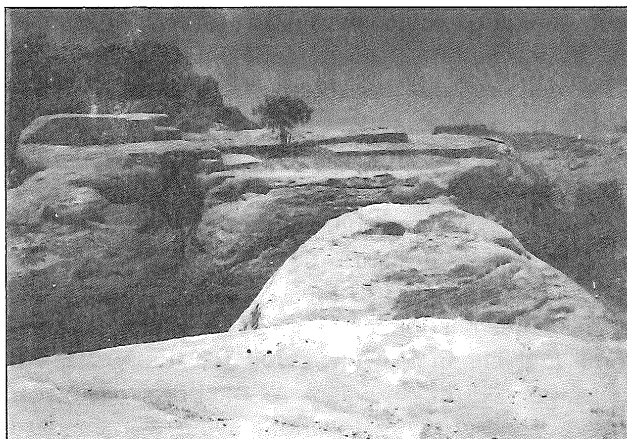
seems to indicate that architectural pieces were worked on the spot. The sheer side of an abandoned quarry (IV), 200m to the southwest of the rock on the way to Umm Saysabān (أم سيسبان) symbolizes a deity, this time as a "horned" stylized altar of 0.43x0.45m incised at ca. 3.20m above ground (Dalman 1908: 56, 83) (Figs. 29, 30). A show of reverence or of an expiatory dedication may be seen in the petroglyph (pers. comm. R. Wenning). After all, tons of stones had been removed from the substantial outcrop. What was definitely not found at Shammāsa were inscriptions and burials. Apparently the place was not worthy enough to write on its rock walls that this or that man had been here and wanted to recommend himself to a deity. The lack of burials may be explained by the nearness of Petra where it was customary to be interred. A layer of almost purely white stone was recently exploited by two enterprising Bedouins.

Pottery

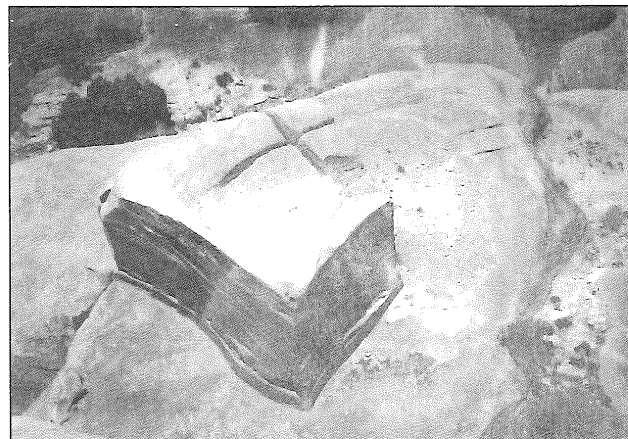
The collected surface pottery from the area of the Rock:

- From the top of the Rock: 5 Nabataean-Roman sherds with the fragments of a fine base and one (1) thin piece of a bowl or platter with an eye design (first/second century AD).
- From the top of the Rock: 55 body sherds from

tention. Unfortunately the author deals only with limestone quarries, omitting thereby the subtleness of sandstone work as e.g. at Ṣabrā and Shammāsa. Muhammad Murshed Khadija, former Inspector of the Petra region, has been working on the sandstone quarries of the Petra region, however his thesis has not been published yet (pers. comm.). See also Shaer and Aslan 1997: 219-229.



27. Rock-cut steps spiraling to the top of a rounded hill (photo E. Schreyer).



28. Grooves waiting to be spliced by water-soaked wedges (photo E. Schreyer).



29. Sheer wall of an abandoned quarry. Herring bone patterned finish where a stylized altar was incised.

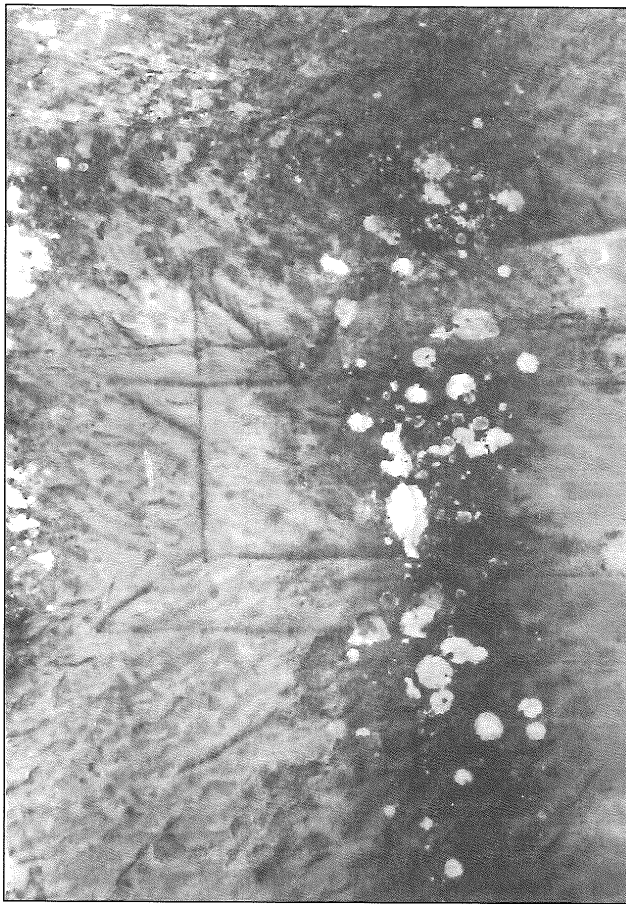
wheel-turned large storage jars, some of them almost flat, one with wave decoration, clay deep-red, generally ca. 1.5cm thick, extremely homogenous and hard, with grey slip on a few of them. 16 body sherds, probably of one (1) water jug with handle, wheel-turned, rills interior and exterior, one piece with an incised notch.

- From the top of the Rock :11 Late Islamic body sherds, coarse, hand-made, with one ledge handle and a base fragment. 1 piece of modern tile or pipe.
- At the foot of the Rock, among ruined houses and ashlar tumbled from the Rock: 1 very thin bowl fragment, 7 deep-red body sherds of the same kind as collected on the top, and 1 Late Islamic body sherd.
- Where the rocky slope behind and to the southeast of the Shammāsa rock reaches its summit, the foundation of a house or of two houses re-

vealed 7 body sherds of Late Roman type and 5 Late Islamic sherds.

- Where someone had illegally excavated in front of the “Dushara” sanctuary, in the excavated rubble, a few painted sherds (first century AD) and a couple of Byzantine body sherds of a large vessel were found.
- During the inspection of the quarry to the southwest of the Rock: 5 thin sherds of bowls (1 base, 2 painted first/second century AD) were found. They remind the authors of similar fine Nabataean ware from the ground of quarries at Šabrā (Lindner 1992: 196).

The generally meagre yield of surface pottery at Shammāsa attests to a first occupation or use in the first/second century AD. The dating is confirmed by the “Dushara” sanctuary, and by the altar engraved in the abandoned quarry to the southwest of the Rock. The Late Roman-Byzantine period is represented by fragments of a water jug and of large

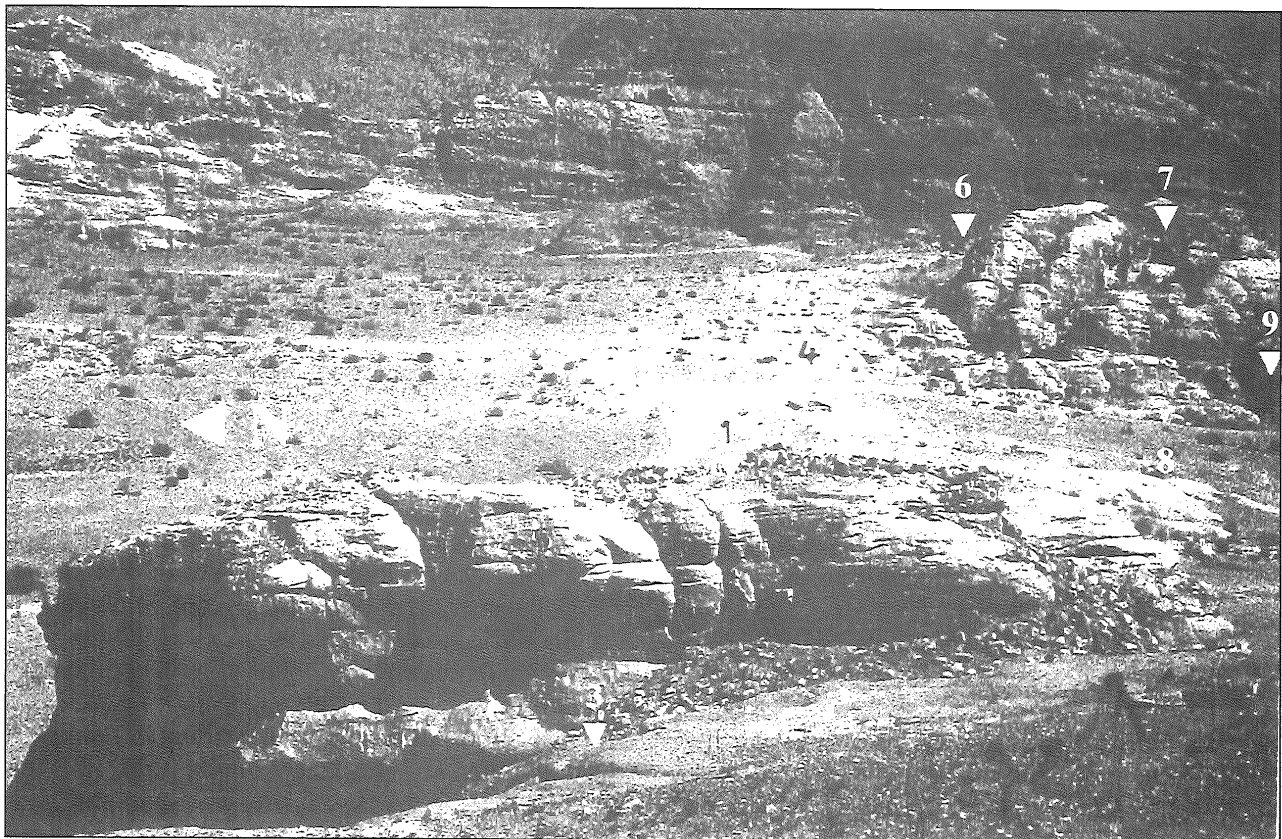


30. The incised altar.

storage and/or water jars on top of and at the foot of the Rock. From the Late Islamic period (11th/12th century and later) are the fragments of a coarse hand-made pottery.

Shammāsa: Past and Present

Shammāsa as a thriving suburb of ancient Petra was, at least at certain times, inhabited by settlers from the Nabataean to the Byzantine period, perhaps somewhat longer (Fig. 31). As long as cisterns and channels were cared for, there was no shortage of drinking water. As the presses show, it was a wine-growing location, using the standard techniques and procedures of the Nabataean-Roman-Byzantine viticulture around Petra. There, with a few exceptions, the presses have a quadrilateral treading-floor, a quadrangular clearing basin and a round pylon shaft or vat coated with hydraulic mortar. Warm fermentation (“Warmgärung”) was possible in the sun-heated Ordovician installations. “In the Middle East heat” (but comparable to conditions around Petra), “juice slowly pressed from grapes would have begun to ferment before the jar was filled” (McGovern 1996: 30). Supposedly, the lower temperature during the night stopped the fermentation (Irmscher and Johns 1971/77: 609/10; Forbes 1956: 135).



31. Panoramic view of Shammāsa toward the east: 1. fortified rock; 2. ruins of houses; 3. supposed wine press; 4. large wine press; 5. cistern-wine press; 6. three-arches cistern; 7. quarries; 8. new reservoir; 9. “Dushara” niche Rās Darmaq.



32. Remaining crop and chaff were filled in sacks after threshing (photo K. Hofmann).



33. Steps leading to a look-out at the road to Shammāsa (1992).

No sherds of vessels usable for storing wine were found around any of the presses. For carrying wine away, skins may have been used; but experts state that skins “do the wine no good”. It is said the islanders in the Levant pour it into leathern budgets and from there in caskets or earthen jars (Seltman 1957: 77). As soon as the wine was drinkable and

before it turned into vinegar, it may partly have been consumed during communal, cultic or profane, drinking sprees.⁴ The area to the east of the Rock, partially submerged now by sand, though virtually extending almost on a watershed level, is now mostly fissured by uncontrolled floods. Using local run-off water there might have been corn fields, vineyards, olive and fruit gardens in antiquity. Areas to the east, north and west are being tilled even now. In June 2001 threshing machines were seen working after the corn had been manually taken in bushels and cut with sickles. Crop and remaining chaff were carried away in sacks (Fig. 32). Areas with a meager yield were fed to horses and donkeys tethered to stakes. Taking into account the numerous remnants of expert water management in the Petra region, it has to be surmised that much more land was tilled and harvested in antiquity than today.

Where a dirt road turns away from the ancient and new road between Wādī Mūsā (وادي موسى) and Namala (نملة) toward Shammāsa, a steep conical rock is equipped with a steep flight of more than a hundred steps. On the summit, a large and deep depression shelters a number of ‘ar‘ar (juniper) trees and a lookout (Fig. 33). A few unidentified ceramic sherds were found there by two fearless NHG surveyors who suggested the steps might have also conducted water to an (undetected) cistern at the foot of the rock. Such lookout control added to the protection through the fortified Rock was putatively necessary from the Late Roman time to the Islamic periods. In fact, raids and lootings by nomadic tribes, as stressed again lately by Parker (2000: 383), constantly threatened the settlers since the Iron Age.

In view of the great significance attributed to the Crusader works around Petra by Vanini and Desideri (1995), Crusader presence might also be revealed at Shammāsa. Specifically, it is reported that Queen Melisandis enfeoffed the Viscount of Nablus with al-Wu‘ayra and the surrounding country in 1150 (Mayer 1990: 189/90). The identification of an-Naq‘a II (النقعة) as another Crusader installation (Hormuz), far away from the generally accepted Crusader forts at al-Ḥabīs الحبيس, al-Wu‘ayra الوعيرة and possibly Zibb‘Aṭūf عمود عطوف (?) (Lindner 1999), was a special incentive. However, nothing tangible was found at Shammāsa.

The people of today are probably of Bedouin stock. They are living in the ‘Ammārīn عمارين (Baydā) and Bdūl بدول (Umm Ṣayḥūn) “housings”, and use the winepresses occasionally as cisterns,

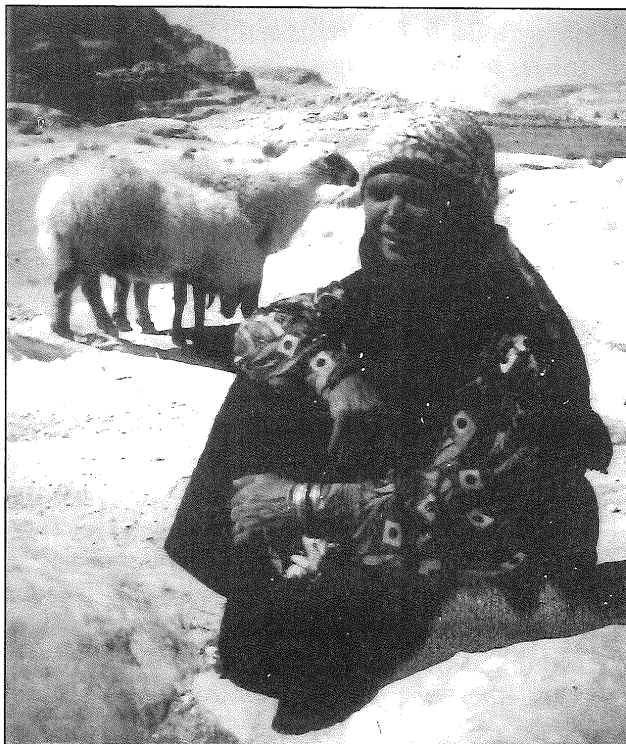
very much in contrast with the idea of “drinking sprees”.

4. Forbes (1956: 137) suggests the possibility that “every Christian parish tried to produce its ritual wine”, a view

when they are filled during the winter. The cave in the Rock and the “cow shed” are right now being developed for storing and shelter as they were similarly used by settlers in antiquity. The large cistern-winepress shows development by using modern artificial ashlar. The fields are sown with wheat or barley; the crops, however, are totally dependent on winter rainfall. Between Shammāsa and Umm Saysabān, an olive garden was installed a few years ago. A man who lives in the Bdūl Housing at Umm Şayhūn and drives a four-wheel Toyota, has a newly made reservoir to the southeast of the Rock at the site of an ancient cistern filled from a tank in order to water a herd of sheep which are fed from fodder sacks. As in most cases of Bdūl “property” the ownership is not entirely clear. The “owner’s” wife was met near the “Dushara” niche, sitting under a wind-blown tent (“the children are at school”) with a few goats, two sheep, four hens, a cock and two puppy-dogs. She changed her dress before offering freshly made tea (Fig. 34).

Summary and Conclusions

The area called Shammāsa by the local people is a site less than three kilometres distant from and to the NNW of central Petra. It was explored by teams of the Naturhistorische Gesellschaft (NHG) Nürnberg (Germany) in 1999, 2000 and 2001. Its eccentrically located center is a fortified Ordovician range of ca. 40x15m thrusting out of a plain ringed by Cambrian sandstone mountains. The par-



34. The “owner’s” wife was met near the sanctuary (2000).

ticularities of Shammāsa are, beside the fortified Rock, a large arable and even now partly cultivated extent of good land, four winepresses, two cisterns, four quarries combining three different methods of producing building stones, a sophisticated “Dushara” sanctuary, an incised altar at the rock face of a closed-down quarry, and a cluster of house ruins protected by the fortified Rock, which might have been used as a castle tower in periods of distress. Through architecture and ceramics, four occupational phases were ascertained: Nabataean (-Roman), Late Roman-Byzantine, medieval and recent Bedouin. As a thriving suburb of ancient Petra, Shammāsa was in antiquity a composite apt to meet, with different strategies, the exigencies of a large freeholding family or of a wealthy landowner. In later centuries it was possibly owned by a member of the curial class. On the other hand, the economy of Shammāsa might have been diversified with the returns of the quarries belonging to one owner and the agricultural yield to another. The standard procedures of Petraean wine-making were also observed at Shammāsa. As generally no sherds of vessels for storing wine are being found by the Petraean presses, it is suggested that wine was additionally consumed during communal, profane or cultic drinking sprees as soon as it was drinkable.

Obviously, protection by fortification was not necessary during the floruit of Nabataea but rather toward or after the end of the Roman-Byzantine era when nomadic tribes increasingly harassed the sown land. There was nothing seen at Shammāsa that could be traced back to the Crusader period. The present populace have been settled lately by governmental order, and they stay in their “housings” most of the year, preferring to their previous life the beatitudes of roads, running water, electricity and the advantage to own the land. With its variety of subsites Shammāsa should be regarded as an interesting archaeological composite to be seen and assessed as a whole, notwithstanding the probability that parts of it were previously reported on.

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Bibliography

- Abu Dayyah, A.S.
2001 Selected Roman Stone Quarries in Central Jordan: A Cultural Resource. Pp. 521-530 in *SHAJ* 7. Amman.

- 'Amr, K., al-Momani, A., Al-Nawafleh, N. and Al-Nawafleh, S.
 2000 Summary Results of the Archaeological Project at Khirbat an-Nawafila/Wadi Musa. *ADAJ* 44: 231-255.
- Bignasea, A. et al.
 1996 *Petra. Ez-Zantur I. Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen 1988-1992*. Mainz.
- Dalman, G.
 1908 *Petra und seine Felsheiligtümer*. Leipzig.
- Forbes, R.J.
 1956 Food and Drink. In C. Singer et al., *A History of Technology*. Vol. II. Oxford.
- Hübner, U., Knauf, E.A. and Wenning, R. (eds.)
 1998 *Nach Petra und ins Königreich der Nabatäer. Notizen von Reisegefährten. Für Manfred Lindner zum 80. Geburtstag*. Bonner Biblische Beiträge Bd. 118 (PHILO). Bodenheim: Philo Verlagsgesellschaft.
- Irmscher, J. and Johns, R. (eds.)
 1971/77 *Lexikon der Antike*. Wiesbaden.
- Knauf, E.A.
 1998 Götter nach Petra tragen. Pp. 93-101 in Hübner, Knauf and Wenning (eds.) 1998.
- Lindner, M.
 1990/91 Ein nabatäisches Heiligtum oberhalb der Nischenklamm (Sidd el-Ma'agin) von Petra (Jordanien). *ZDPV* 106: 145-155.
 1992 Survey of Sabra (Jordan) 1990. Preliminary Report. *ADAJ* 26: 193-216.
 1999 Late Islamic Villages in the Greater Petra Region and Medieval "Hormuz". *ADAJ* 43: 479-500.
- Mayer, E.
 1990 *Die Kreuzfahrerherrschaft Montred (Sôbak). Jordanien im 12. Jahrhundert*. Abhandlungen des Deutschen Palästinavereins. Bd 14. Wiesbaden.
- McGovern, P.E.
 1996 Vin Extraordinaire. Archaeochemists sniff out the oldest wine in the world. *The Sciences* Nov./Dec.
- Parker, S.T.
 2000 The Defense of Palestine and Transjordan from Diocletian to Heraclius. In: *The Archaeology of Jordan and Beyond. Essays in Honor of James A. Sauer*. Winona Lake, Indiana.
- Seltman, Ch.
 1957 *Wine in the Ancient World*. London.
- Shaer, M. and Aslan, Z.
 1997 Architectural Investigation on the Building Techniques of the Nabataeans with Reference to Tomb 824. *ADAJ* 41: 219-229.
- Vanini, G. and Desideri, A. V.
 1995 Archaeological Research on Medieval Petra: A Preliminary Report. *ADAJ* 39: 509-540.
- Wenning, R.
 1997 Bemerkungen zu Gesellschaft und Religion der Nabatäer. Pp. 177-201 in R. Albertz (ed.), *Religion und Gesellschaft* AOAT 248. Neukirchen.

