THE INTERNATIONAL WĀDĪ FARASA PROJECT (IWFP) PRELIMINARY REPORT ON THE 2002 SEASON

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Introduction

The field season 2002 of the International Wādī Farasa Project (IWFP) lasted from September first to September 26. The IWFP 2002 was carried out by the Association for the Understanding of Ancient Cultures (AUAC), based in Basel (Switzerland) and the Palestine Exploration Fund (PEF, London)[1] . We would like to thank the director general of the Department of Antiquities, Dr. Fawwaz Al-Khraysheh, for his support and for granting the working permit as well as Dr. Fawzi Zayadine (Amman) and Prof. David Graf (Miami) for their continuous interest in the project. The IWFP is grateful to Cyprus Airways (Larnaca) for assisting in transport.

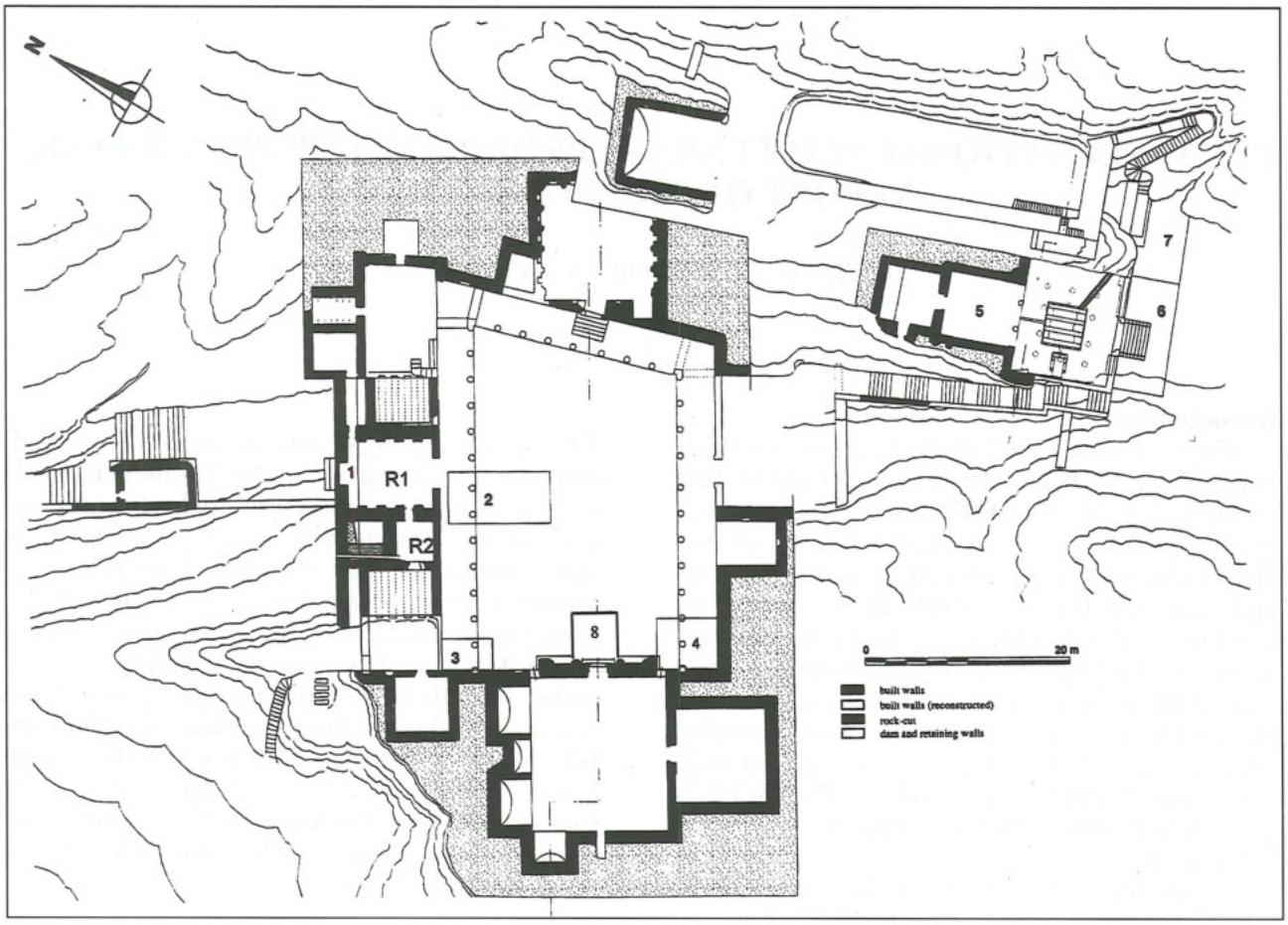
Beside the writer, the following persons participated in the 2002 season of the IWFP: Caroline Huguenot, MA (Lausanne), Isabelle Sachet, MA (Paris), Dr. Konstantinos Politis (PEF, London) and Khaled Ahmad Al-Houaura, MA (representative of the Department of Antiquities) whose help and advice were much appreciated. Dr. Jacqueline Studer (Geneva) examined the animal bones found in a Medieval context (see her report below). Dr. Markus Peter (Augst) analysed the coins found during the previous seasons. Sixteen workmen from the Bdūl and Sa'aydeen tribes were employed. Further, the IWFP 2002 season would not have been possible without the friendly cohabitation in the John Lewis Burckhardt Centre (Nazzal's Camp) with the team from Basel University carrying out the Swiss-Liechtenstein excavations at az-Zanṭūr; the practical advice of Dr. Bernhard Kolb (Basel) did much to advance our campaign. We would also like to thank IFAPO Amman for lodging the team during its stay at Amman.

Following the results of the previous seasons (cf. Schmid 2001; 2001a; 2002) work on the upper and lower terraces of the Wādī Farasa East continued with the following soundings and trenches (**Fig. 1**): on the upper terrace, work in trench 5, containing the so-called Garden Triclinium and the space in front of it, continued in order to completely clean the two cisterns partially excavated last year. Further, the first rock cut room of the triclinium itself was cleared from the remains of previous use as a stable for sheep and goats (trench 5 on **Fig. 1**). On the lower terrace sounding 1 was extended towards east, south and west and contains now almost all of the huge entrance complex (**Figs. 1-2**). In addition trench 8 in front of the Soldier Tomb was opened with the purpose to find the doorway leading to the tomb and to get a better picture about the supposed stairways leading to the courtyard.

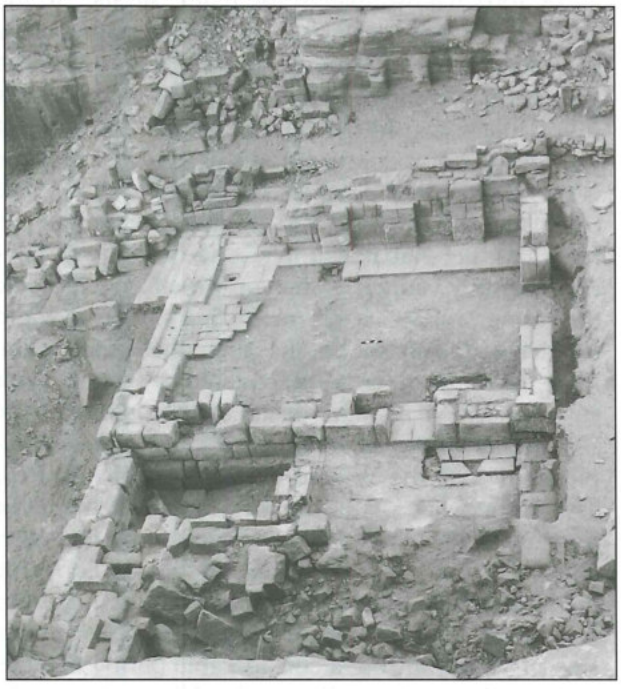
Lower Terrace

In 2001 we discovered the main entrance to the complex of the "Soldier Tomb", consisting of a huge entrance hall (room 1) immediately upon the huge terrace wall (**Figs. 1-5**). As only a part of this room, measuring roughly 10 x 9m was exposed last year, excavation continued at this spot. During the 2002 season we completely exposed the entire room that is built in a very accurate technique. In its initial, i.e. Nabataean, phase the room was covered by four vaulted arches of which on each side the pillars remain, each measuring 80cm in width (cf. **Figs. 2 and 4**). In the first phase, the room must have been entirely covered by huge floor slabs of which a single one remains *in situ* in the SW corner of the room and two more or less complete rows on the W side of the room (**Figs. 3-5**). The second one of these rows served at the same time as a water drainage, as suggested by the water channel leading into the room on the southern side (centre top on **Fig. 4**), by the slightly depressed middle part of the entire row of slabs due to the floating water during a considerable period of time, and finally by the gully on the NE corner of the

1. On these two institutions see also www.home.tiscalinet.ch/iwfp and www.pef.org.uk.



1. General plan of main installations in Wādī Farasa East, based on Bachmann, Watzinger and Wiegand 1921, digitalised and modified by S. Fachard (Lausanne).

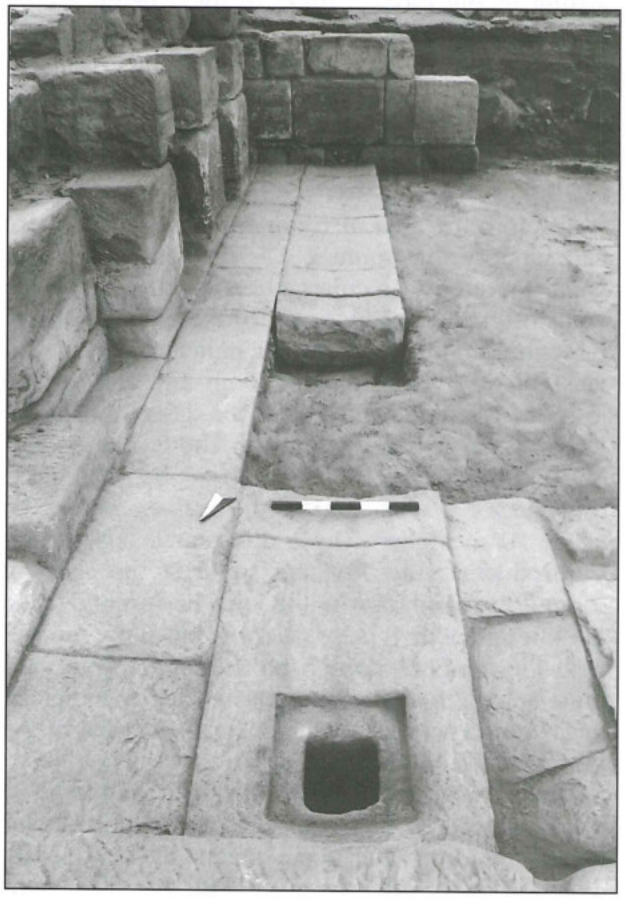


2. Wādī Farasa East. Lower terrace, Rooms 1 and 2 from W (Schmid).

room leading downwards (centre on **Fig. 5** and centre bottom on **Fig. 4**). Most probably the gully is connected to a rock cut water channel immediately outside the main terrace wall leading further down Wādī Farasa, that was discovered last year (cf. Schmid 2002). The careful installation of this water drainage system shows once again how perfectly organised the water management in the entire complex was. Not only the complete area above the rock cut installations was literarily covered with water channels and cisterns, but also the central part of the area, as is underlined by the newly discovered installation.

The above mentioned floor slabs measure usually about 40 x 80cm with the exception of the slabs forming the water drain that measure about 60 x 80cm. All the slabs are bedded into a foundation layer consisting of smaller and broken fragments of slabs and clay containing earth – the so called samaga (**Fig. 3**) – and, therefore, constructed in exactly the same way as we already observed on several occasions in the previous years (cf. Schmid 2001a; 2002). This year as well, a small sounding was carried out beneath the level of the floor slabs

3. Lower terrace, S-corner of room 1 with floor slabs and samaga-foundation (Schmid).



4. Room 1, floor slabs and water drain (Schmid).

and the few fragments of Nabataean pottery discovered give the same *terminus* for the construction of the huge entrance hall, as was established for the paving of the courtyard, i.e. the middle of the first century AD (Schmid 2001a; 2002).

The complete clearing of the huge entrance hall (room 1) revealed also a small door in its NE corner, obviously leading to a very small corridor or staircase (**bottom centre on Fig. 5**). However, as a modern wall is built over that spot, we decided not

5. Room 1, main entrance and small door in N-corner (Schmid).

6. Room 2 with mortar layer for floor slabs from SE (Schmid).

7. Room 2, E-corner with restored floor slabs indicating different levels (Schmid).

8. Room 2, E-corner with later constructed door to portico (Schmid).

9. Room 2, wall 7 with Nabataean phase (below) and Medieval phase (above) (Schmid).

10. Lower terrace, façade of "Soldier's Tomb" with sounding 8 in front of it (Schmid).

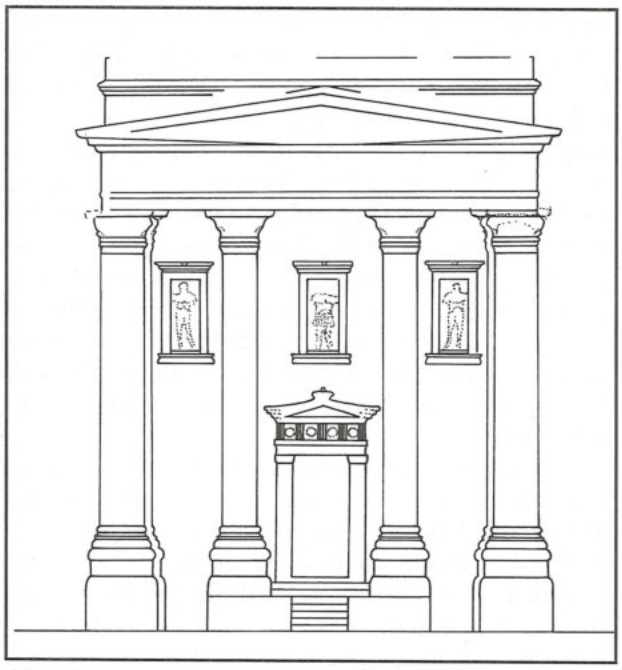
to proceed further during this season.

Apparently, room 1 underwent several rearrangements. First of all, the different styles of masonry within the upper layers of the wall show that it must have been partially rebuilt, probably after destruction. Some glass and pottery fragments belonging to the fourth century AD could give a first chronological indication for one of the later phases. A very late reuse is indicated by Medieval pottery that was found only a few centimetres above the Nabataean floor slabs (on the Medieval period in the Wādī Farasa see also below).

The area immediately to the W of room 1 room 2 was excavated (**Figs. 1, 2** and **6-9**). Here too, a level of floor slabs became quickly apparent, however, only in the shape of the negative impressions of the slabs into a thick layer of white mortar, the actual slabs having disappeared (**Fig. 6**). The technique of bedding floor slabs into mortar seems rather unusual for the Nabataean period and this raises the question whether the installation of room 2 indeed goes back to the first building phase of the complex. Under the layer of mortar a fill consisting of big blocks, some of them being reused architectural elements, was found, yet another reason to suppose a later installation of this room. In fact, as the construction technique of the walls is for sure Nabataean in origin and as we realised during last year_s season that the main terrace wall (wall 1) originally was returning in a right angle just before the area of room 2 (Schmid 2002), we can suppose that room 2 was installed only later, when the area was enlarged, using the Nabataean walls originally forming part of the outer façade of the entire complex. A further indication for a _ at least slightly _ later date of room 2 in comparison to room 1 is the level of the floor slabs. In fact, the level of the mortar bedding in room 2 does correspond to the level of the floor slabs in room 1; this means that the slabs themselves would be about 10cm higher. These different levels are visualised on figure 7 where some of the slabs in room 2 were put back to the level corresponding to the one in room 1. Also, a door that links room 2 with the northern portico of the central courtyard must belong to a later phase, as is clearly indicated by its construction that made some changes in the joining walls necessary (**Fig. 8**)

To the west, room 2 is limited by a wall (wall 7) that seems to be of Nabataean origin in its lower layers. However, the upper layers show a clearly distinguishable later remake (**Fig. 9**). The poor quality of the masonry style and the pottery associated with these later levels indicate a date in the Medieval period. This points once again to the conclusion that apparently wider parts of the installation in the Wādī Farasa East were reused in the period from the 11th to the 13th century AD (see also below).

As tourism during the 2002 campaign was far from its usual peaks in other years, we decided to open a small sounding (SO 8) immediately in front of the "Soldier Tomb" (**Figs. 10-18**). The main goal of this trench was to find out the exact level of



11. Lower terrace, tentative reconstruction of the façade of the "Soldier's Tomb" (Schmid).

12. Sounding 8, rock cut foundations, floor slabs and steps in front of "Soldier's Tomb" from NE (Schmid).

13. Sounding 8, rock cut foundations, floor slabs and steps in front of "Soldier's Tomb" from SW (Schmid).

the tomb's doorway and in which way it is related to the courtyard. The discovery of the doorway with the rock cut threshold still *in situ* allows calculate the original dimensions of the door leading to the "Soldier Tomb" (**Figs. 10** and **11**). Therefore, the entrance measures only 1.60m in width and 3.60m in height; after all, a very narrow door for such a monumental installation. Two steps lead to a level of huge and well set floor slabs, directly put onto the rock (**Figs. 12** and **13**). However, the level of the rock as well as the level of the floor slabs is exactly one meter higher than in all the other soundings carried out so far in the courtyard and in the colonnade (Schmid 2001a; 2002). This means that the access to the "Soldier Tomb" was constructed as a kind of podium, underlining its monumental aspect. This was confirmed by the discovery of the angle of that podium just towards the limits of our sounding (top right on **Fig. 13**). At the space behind the rock cut threshold, where originally either a stone slab or a wooden beam must have been set, a fill of samaga containing charcoal fragments was excavated, maybe the decomposed remains of a wooden threshold. The pottery from that very small area was exclusively Nabataean.

The entrance to the tomb was later blocked with a massive wall, including some reused column drums (**Fig. 14**). The pottery related to these constructions points to a Medieval date. Surprisingly, for the construction of these later installations, some fragments belonging to the three statues in high relief upon the doorway of the tomb (**Figs. 15a-c**; cf. **Fig. 10**) were reused. So far, we were able to identify three shanks and one thigh, while a second thigh was found in the dump of what must be the remains of the cleaning of the "Soldier Tomb" in the 1930s (**Figs. 16-18**). The two shanks on figure 16 belong both to a left leg as is indicated by the modelling of the muscles and, therefore, they must belong to two different statues. The three statues are constructed from six different blocs of limestone each that were set into the three niches carved into the tomb's façade (**Fig. 15a-c**). The two shanks on figure 16 do almost completely conserve the upper and lower limits of such a bloc measuring ca. 30cm in height. This means that when holding these upper and lower limits in a horizontal position (**Fig. 17**) one should obtain the original positioning of the shanks. According to this, the leg on the right of figures. 16 and 17 must have shown a rather bent position while the one on the left was in a straight position. Indeed, the two statues on the left and on the right of the Soldier Tomb show a clearly developed *kontrapost*, i.e. they put their weight on one leg while the other

14. Medieval wall in front of "Soldier's Tomb" built with reused architectural members (Schmid).

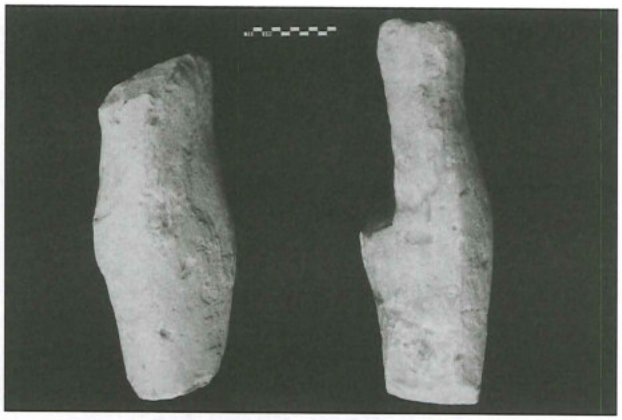
one is bent (**Figs. 11** and **15a** and **c**) (in general see Berger 1990). The statue on the right (**Fig. 15a**) has its left leg straight and the right one bent, the one to the left (**Fig. 15c**) shows the right leg straight and the left one bent. Consequently, the bent shank (right on **Figs. 16** and **17**) must belong to the left statue (**Fig. 15a**) while the other one probably belongs to the right statue. With a ladder measuring 5m it was possible to reach the left statue and indeed, the shank on the right of figures 16 and 17 fits exactly to its left leg. Further measuring on the statues and the members found so far will hopefully provide more information as for their reconstruction.

In the same later walls, the fragment of a stone "furniture", maybe a bench, was discovered showing a carved bovid foot. Although its initial position and function cannot be revealed, it shall be remembered that the interior of the Soldier Tomb shows a large podium where such elements could have been installed (McKenzie 1990: pls. 100 and 101).

Upper Terrace

This year's activities were focused on the area of the so-called Garden Triclinium (Sounding 5 on **Fig. 1**; **Figs. 19-29**). After last year_s discovery of a big cistern, measuring 4 x 4m, we first concentrated on a complete cleaning of the cistern that turned out to be 2.40m deep (**Fig. 19**). The material from the fill contained much of the stone blocks

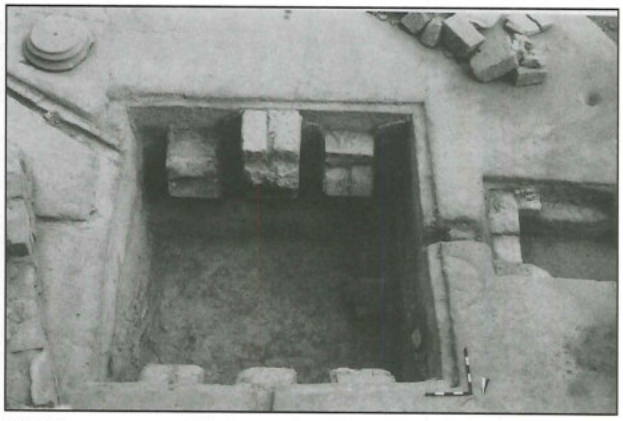
15a-c. Three statues in high relief in the attica zone of the "Soldier's Tomb" (Schmid).



16. Two shanks (front view) from Medieval wall in front of the "Soldier's Tomb" (Schmid).

17. Two shanks (side view) from Medieval wall in front of the "Soldier's Tomb" (Schmid).

18. Two thighs (front view) from Medieval wall in front of the "Soldier's Tomb" (left) and from modern dump on the lower terrace (right) (Schmid).



19. Upper terrace, big (centre) and small (right) cisterns in front of "Garden Triclinium" (Schmid).

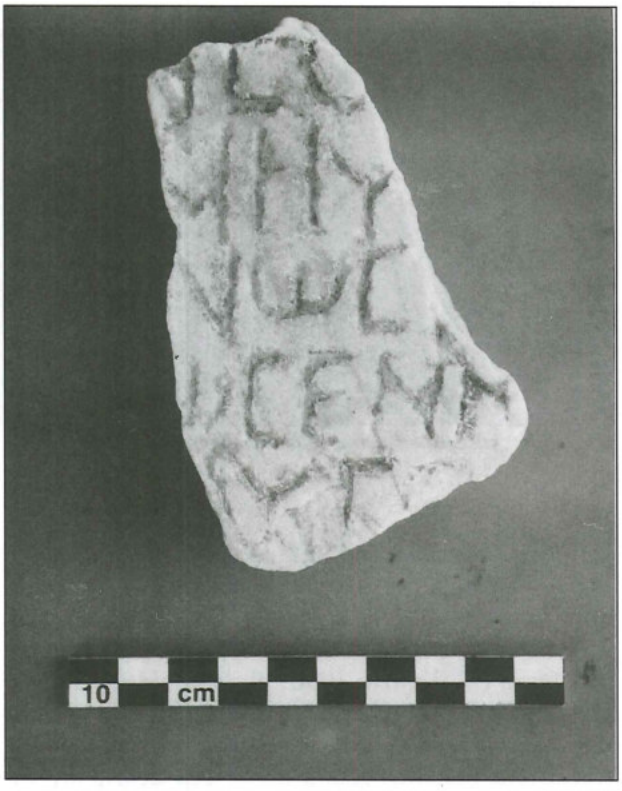
20. Upper terrace, remains of vaults in the big cistern (Schmid).

21. Column base fallen in big cistern (Schmid).

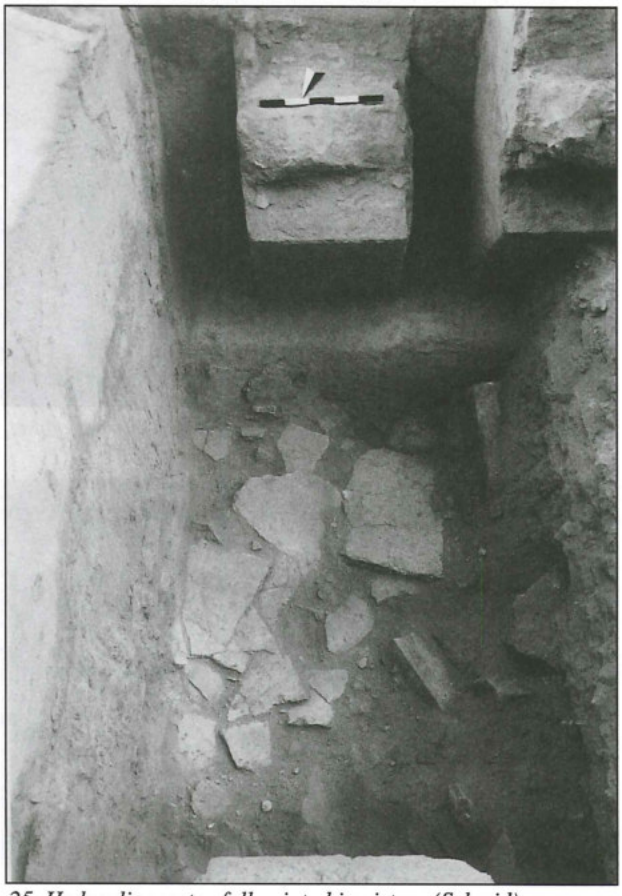
that originally were used in order to build the three massive vaults that covered the cistern (**Figs. 19** and **20**). This massive destruction debris probably explains why the big cistern was not reused in the Medieval period, contrary to the small cistern near by (see below). The fill of the bigger cistern contained in its upper part some Medieval pottery (cf. Schmid 2002), in the middle late Roman and Byzantine elements, including a fragmentary Greek inscription (**Fig. 23**), and in the lower part exclusively Nabataean pottery. In the lower fill also two column bases of attic type were found (**Figs. 21** and **22**), belonging to a common type in first century AD Petra (McKenzie 1990: pl. 50e and g). To the Greek inscription mentioned above (**Fig. 23**) a similar one can be added, showing even remains of the red colour that was found in surface debris on the lower terrace (**Fig. 24**). Towards the bottom of the

22. Attic column base from big cistern (Schmid).

23. Greek inscription found in big cistern (Schmid).



24. Greek inscription found on lower terrace (Schmid).

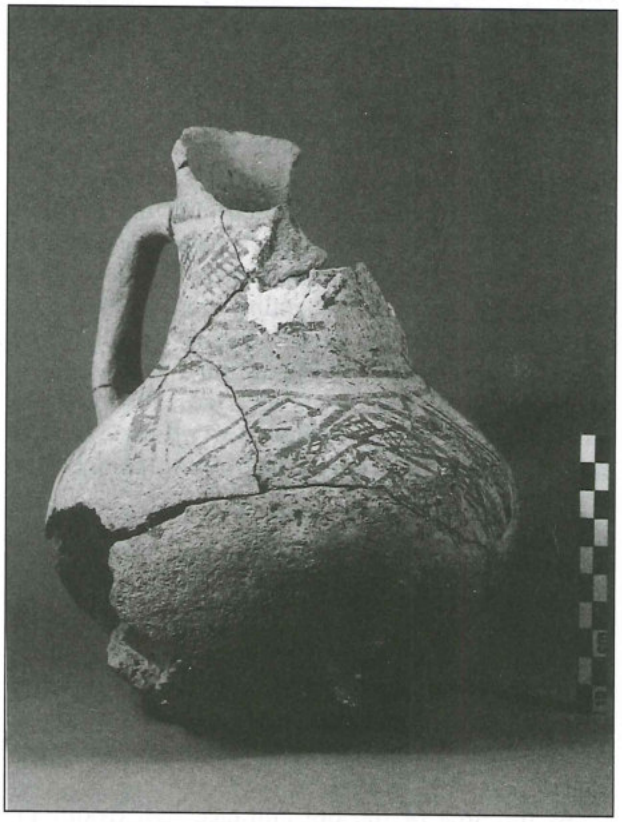


25. Hydraulic mortar fallen into big cistern (Schmid).

big cistern considerable amounts of plaster that originally covered the walls of the cistern were found that must have fallen into it when it was destroyed (**Fig. 25**). These plaster remains were used in order to get a precise dating for the construction of the cistern: as is well known, the Nabataeans did add small fragments of broken pottery to there hydraulic mortar in order to increase its hydraulic qualities. Therefore, all fragments of destroyed plaster were collected and carefully smashed in order to collect the pottery that it contains (**Fig. 26**). Several dozens of small and smallest pottery fragments were found, including some rims shards and some painted fragments. All of them do belong to phase 3a of Nabataean pottery (Schmid 2000). We therefore get the same terminus ad quem of the second and third quarter of the first century AD for the construction of this cistern as we already got for the water basin next to it (Schmid 2000a) and for the installations of the lower terrace (Schmid 2000a; 2002). The covering of the cistern and its considerable depth show that drinking water in big quantities was needed for the "Garden Triclinium". The used water later reached again the cistern using a rock cut channel starting immediately in front

26. Fragments of hydraulic mortar from big cistern (Schmid).

28. Medieval pottery from small cistern (Schmid).



27. Medieval pottery from small cistern (Schmid).

of the rock cut façade in the middle between the two columns (**Fig. 19** bottom centre). The clearly indicated use of big quantities of drinkable water strongly points to a rather profane use of the entire complex and against a cultic or funeral aspect. Since the work of Bachmann, Wiegand and Watzinger it is known that the area of trench 5 once was at least partially covered by a roof in the manner of a peristyle courtyard, indicated by similar rock cuttings as on the lower terrace (Bachmann *et al.* 1921: 85-87). Furthermore, steps leading from above, i.e. the upper level of the huge cistern, towards the area once covered by a roof, as well as a door with a joining doorway that shows rock cuttings for a roof too, connecting the area of the roofed peristyle with the zone of the basins in front of the big cistern, show that we probably have to imagine an entire first floor above the small peristyle with the rock cut cistern. This can now be supported by the two column bases found into the cistern (**Figs. 21** and **22**), as well as by the massive vaulting (**Fig. 20**) that would not be necessary if there was no additional weight put on the covered surface. With the first floor, the peristyle courtyard, the cistern hewn into the rock and the additional two rock cut rooms, the entire installation becomes a very good parallel for rich Hellenistic

houses like the ones known from Delos or for Roman villas as seen in Pompeii (for the Delian houses see e.g. Kreeb 1988; Trümper 1998; on Pompeii see Zanker 1995 and generally on Italian houses Clarke 1991). More specifically, a type of Roman house prominent in the western empire shows a strong axial alignment (Meyer 1999; Kreeb 1988: 99), that in our case, however, may be due rather to the specific circumstances of the partially rock cut installation. The profane aspect of our complex is further supported by its opening towards south. Such an orientation, combined with the courtyard in front of it, guarantees less heat in summer and less cold in winter. Therefore, according to Vitruvius, such was the location of the most important rooms in the Greek house, the *triclinia* or *androne*s (Vitr., *de archit.* VII 149, 3f.). Indeed, similar arrangements were identified within rich houses and palaces of the late Classical and Hellenistic periods in Greece (Reber 1998: 166-169; Zoppi 1991-92).

The overflow from the big cistern was led into smaller cistern that probably served in order to get the water for the daily needs of the population of the upper terrace of the Wādī Farasa East (right on **Fig. 19**). Such an arrangement seems all the more logical as the big cistern probably was covered as pointed out above. How complete it must have been covered is further underlined by the fact that no steps or other forms of access to the big cistern were found and, therefore, it was not supposed even to be cleaned on a regular base. Excavation of the small cistern revealed that is shows almost exactly the same depth as the big cistern, i.e. roughly 2.40m, while its length is 1.45m and its width measures 1.00m. Contrary to the big cistern next to it, the small one apparently was reused during a long period of time, as it contained big amounts of Medieval pottery, some of it lavishly painted (**Figs. 27** and **28**). This pottery can be dated to the eleventh to thirteenth century AD and is usually called Ayyubid-Mamluk pottery (for similar pottery see Walmsley and Grey 2001: 153-159; Tonghini and Vanni Desideri 2001; Pringle 1984; 1985; on local aspects of Late Islamic pottery in central and southern Jordan see Brown 1987; 1988, 1991: 232-241; in general terms on that period in Jordan see Walmsley 2001). More neutrally that painted pottery can be called *Middle Islamic Hand-Made Geometrically Painted Ware* (Johns 1998). Beside the painted pottery big quantities of plain hand made pottery were found, including a pottery lamp. So far no wheel thrown and no glazed pottery was found. As previously suggested (Johns 1998) this could point to a rather local aspect of that Medieval occupation. So far, all of the motives of the hand-made painted pottery seem to fit the known repertoire previously attested for Jordan (Homès-Fredericq and Franken 1986: 242f.).

A Medieval occupation of that part of Petra was supposed since Brünnow and von Domaszewski found what they believed to be a crusader tomb stone inside the "Garden Triclinium" (Brünnow and Domaskewski 1904: 275, fig. 307; Dalman 1908: 196 fig. 117; Brünnow 1909: 249f.; Lindner 1997: 104 with n. 10). After three seasons of the International Wādī Farasa Project we collected an impressive amount of new data on the Medieval period occupation that needs some explanation. For the time being, it seems very tempting to connect these observations with a supposed crusader fortress on top of Jabal al-Madbah (Vannini and Vanni Desideri 1995: 512). The fact that the Medieval Wādī Farasa community apparently put considerable efforts in the restoration and even extension of the main terracing wall, could indeed point to a military character of this occupation.

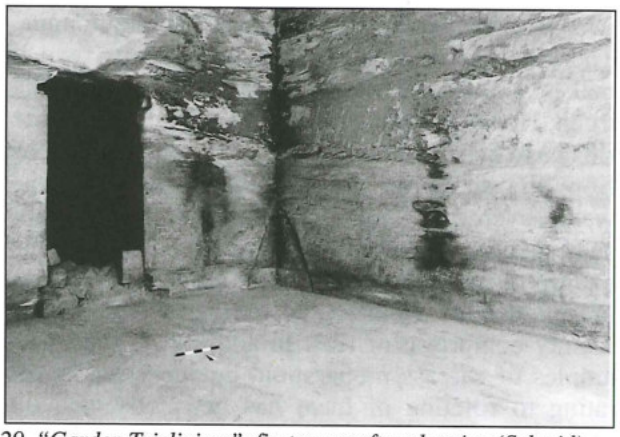
The intense sieving of the contents of the small cistern by Dr. Politis revealed big amounts of bones. This will be of particular interest as they can be surely connected to the eating habits of the mentioned above Medieval community. The preliminary study of these remains by Dr. Jacqueline Studer already led to some interesting results (see her report below). In conclusion, the small cistern seems to have served as a kind of rubbish-pit during the Medieval period.

In order to find out more about the original function of the two rock cut rooms belonging to the "Garden Triclinium", we started cleaning the first one (**Fig. 29**). Due to its use as stable, it contained 30 to 40cm of sheep and goat dung that developed considerable dust when cleaning started. Therefore, a small sprinkler was used reducing the dust. The room did not contain any additional rock cut features (**Fig. 29**); if there is any indication for the functioning of the two rooms, we will have to wait until the cleaning of the second room, planned for 2003.

Restoration

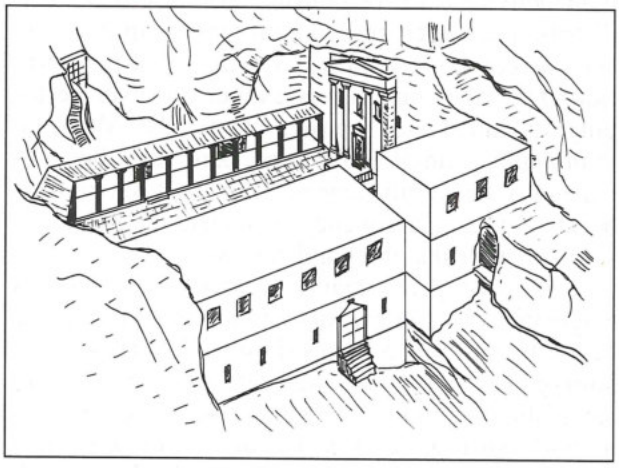
The above mentioned badly weathered entrance to the Soldier Tomb as well as the location of sounding 8 forced us to refill that sounding. Once the clearing of the entire complex has proceed enough, it will be possible to re-open it and to use the appropriate measures in order to save that eroded parts.

At the area of the big entrance hall (room 1), some reparation of the walls was carried out using



29. "Garden Triclinium", first room after cleaning (Schmid).

30. Wādī Farasa. Lower terrace, general view from N



31. Wādī Farasa, tentative reconstruction of lower terrace (Schmid).

an elastic mortar as described in last year_s report (Schmid 2002). Some of the original floor slabs that were found in the debris were put back and fixed with mortar so that the entrance hall can be visited now.

Perspectives

While the first two years of the IWFP_s field seasons, i.e. 2000 and 2001 were used in order to carry out some small soundings with the goal to understand the organisation of the ancient installations, starting with the 2002 field season we proceeded to a next phase. Systematic cleaning of the lower terrace started from the north that is from the main retaining wall (**Figs. 1** and **2**). Therefore, in some years from now, the lower terrace will be completely cleared from the dumped sand. This will allow a much better control of the water being carried on by the flash floods in winter and therefore also a much better prevention against erosion of the rock cut monuments. Already by now, the different elements discovered so far, the exact dimensions of the porticoes and their columns, the construction of the courtyard, the arrangement of the rooms south of the courtyard and others more, allow to propose a preliminary reconstruction of the entire complex (**Figs. 30** and **31**). Although many aspects of that reconstruction must remain open for the moment, it is very clear that the complex of the "Soldier Tomb" is directly inspired by luxury architecture such as displayed in Hellenistic and Roman palaces. The hypothesis expressed about the complex of the "Soldier Tomb" on earlier occasions (Schmid 2000a; 2001) are, therefore, increasingly reinforced.

On the upper terrace we still have to clean the second room of the "Garden Triclinium", so that these monuments will be completely cleared from the remains of its former use as a stable.

Animal Remains from a Medieval Rubbish-Pit

The bone sample examined here originated from a closed structure, namely the filling of a small cistern cut into the bedrock by the Nabataeans. It is located next to the big cistern and in front of the so-called "Garden Triclinium" (see above and **Fig. 19**). The small cistern is 1.00m wide, 1.45m long and 2.40m deep, and contains some 3.48m^3 of sediment. The excavation of this small structure was carefully executed, and included sieving all of the sediment (mesh 0.5cm). The sediment was arbitrarily divided into three layers; FK 101 (top of the basin), FK 102 (middle) and FK 103 (bottom). All produced a similar corpus of pottery dating to the eleventh to thirteenth centuries AD (see above) and led to the interpretation that the small cistern was used as a rubbish-pit in the Medieval period. The bone assemblage can therefore be considered as a single homogeneous unit. In figure 32 the distribution of species by FK is given which permits discussion of the particularities of each of these deposits.

Of the 936 bones recovered from the basin, 573

(63%) represent mammals and 359 (39%) are fish remains (**Fig. 32**). Shells are also present, with only 4 pieces (3 unidentified snails and a fragment of a mother-of-pearl). This marine bivalve may have been traded for non-food uses, for example as a vessel or an ornament.

The Mammals

The mammalian assemblage almost exclusively comprises remains of sheep and goat (99% of the NISP- Number of Identified Specimens). A third domestic species, cattle, has also been identified, but is represented by only one piece – a fragment of a radius. It belongs to a calf of less than one year old. A wild carnivore, probably a beech marten or marbled polecat is represented by a fragment of a canine which will not to be considered as food remain.

It was possible to identify 18 species of the 316 caprine remains: 13 belong to sheep and 5 to goat. Mixed herds of sheep and goat are the traditional mainstay of Near Eastern societies, and the predominance of sheep in the city of Petra has already been documented for the Nabataean and Late Roman periods (sheep: goat ratio 2:1, Studer 1996). For the Medieval sample discussed here, a minimum number of 8 individuals was obtained on the mandible and tibia. Following the codes given in Grant (1982) for tooth eruption and wear, and the age of death table from Habermehl (1975), the Medieval caprines from our assemblage are distributed into two age groups: 6 individuals aged less than two years (MWS = <3, 14, 14, >20, 22, 25-30) and 2 very old animals (MWS = 48). Although much less precise, age evaluation from bone fusion does not contradict these results. The slaughter of relatively young animals reflects an exploitation of caprines primarily for meat, although some exploitation of milk (wool perhaps too) may also to be considered.

Butchery marks have been observed on 18 caprine bones (6% of sheep and goat NISP) and on 6 fragments of unidentified shafts. With the exception of several chop marks found on ribs, all of them are fine incisions made by a knife. This sample of butchered bones is too small to facilitate a complete description of carcass processing, but reveals some interesting points. The majority of cut marks affect the articular portion of the bone element, especially the acetabulum (for dismembering the hindlegs), and the proximal end of the radius (for dismembering the forearm). Separation of the head and the lower jaw is also attested to by incisions on the occipital condyles and on the branch of the mandible. The presence of fine cut marks on two hyoids proves consumption of the tongue. There are many fresh breaks on the ribs, which makes it difficult to describe the processing of the trunk. However, half of the 12 proximal ends of the ribs have been severed, in order to separate the ribs from the vertebrae. In addition, 4 rib fragments were severed at both extremities, leaving a rib-shaft length ranging from 31mm to 85mm. This pattern of damage, and the low frequency of vertebrae, indicates a portion of the trunk, which was mainly comprised of ribs. In addition to these examples of carcass preparation, butchery marks relating to filleting of meat has been observed on several long bone shafts. In these instances, the incisions are short, superficial and perpendicular to the long axis of the bone.

Body part distribution offers some indication as to the origin of the bone deposit (**Fig. 33**). Long bones and mandibles composed the majority of the mammalian sample. Ribs are also present but in lower frequencies. Foot bones (phalanges) are poorly represented comprising only 2.5% of the caprine sample. In comparison, in the Late Roman houses at Petra where whole carcasses were prepared, foot bones comprise 10% of the remains. Similarly, vertebrae are poorly represented in the Medieval rubbish-pit (3%), but are frequent at Petra (13%). The low frequency of vertebrae coupled with that of the limb extremities suggests that human activities are responsible for this body part distribution rather than natural taphonomic factors such as carnivore damage or differential preservation. The latter parameters cannot however be totally excluded (see below). Thus, the Medieval mammalian sample discussed here may be considered as primarily representing food remains, as it lacks the high frequency of skeletal elements associated with slaughter and carcass preparation.

Carnivore gnaw marks were observed on 28 fragments (5%) of the mammalian remains in the basin. In addition, 3 bones show typical erosion resulting from carnivore ingestion. It is difficult to say if the carnivores responsible were dogs or wild animals, such as red fox, jackal or even wolf, that were attracted by the meat refuse. Both possibilities have to be considered.

The mammal remains are characterised by an unusual pattern of fragmentation. Long bones are mainly represented by shaft fragments, which comprise 93 % of the humerus, radius, femur and tibia; 90 caprine and 160 unidentified mammalian shafts versus 18 caprine and 2 unidentified mammalian epiphyses. Certainly, butchery methods are not responsible for this distribution, nor the age of death, while culinary preparation is unlikely to account

		FK101		FK102		FK103		TOTAL	
		NISP	%	NISP	%	NISP	%	NISP	%
MAMMAL		41	22%	532	80%			573	61%
sheep	*Ovis aries*	2	11%	11	44%			13	34%
goat	*Capra hircus*			5				5	
sheep or goat		20		279				299	
cattle	*Bos taurus*			1				1	
?marter or marble polecat	Mustelidae			1				1	
unidentified		19	11%	235	44%			254	27%
FISH		147	78%	130	19%	82	100%	359	38%
parrotfish	*Scarus* sp.	80	43%	75	11%	62	76%	217	23%
wrasses	Labridae	1						1	
unidentified		66	35%	55	8%	20	24%	141	15%
MOLLUSC		1		3	1%			4	1%
mother-of-pearl	*Pinctada margaritifera*	1						1	
unidentified				3				3	
TOTAL		189	100%	665	100%	82	100%	936	100%

32. Wādī Farasa. Upper terrace, table of faunal remains from Medieval rubbish pit (Studer).

SHEEP+GOAT	NISP		%
cranium	36	95	30%
mandible	21		
hyoid	2		
teeth	36		
scapula	14	74	23%
humerus	24		
radius	28		
ulna	8		
pelvis+sacrum	17+6	78	25%
femur	20		
patella	1		
tibia	34		
vertebra	10	37	12%
rib	27		
metapodial	20		6%
carpal+tarsal	3+2	13	4%
phalanx	8		
TOTAL	317		100%

33. Wādī Farasa. Upper terrace, frequency distribution of caprine skeletal elements from Medieval rubbish-pit (Studer).

for this pattern. The absence of epiphyses is more likely to be due to carnivore damage although environmental factors (i.e. sand and water) may also be responsible for splitting the bone shafts and destroying the more fragile and spongy epiphyses. In order to answer this question an in depth taphonomic analysis of the assemblage is required that will include comparison with other bones samples from the same area.

The Fish

The ichthyofauna is represented by 359 bones and comprises 39% of the total bone sample. In archaeological contexts, fish remains have less chance of surviving compared to mammal bones due to their small size and fragility. Given this density and size-mediated bias in preservation, 39% may be considered as a high percentage. Although sieving of the sediment (0.5cm mesh) permits maximum collection of small bones, the abundance of fish in this assemblage is largely due to its importance in the diet of the people living in Wādī Farasa during the Medieval period.

A majority of the fish sample (60%) could be identified to Family (**Fig. 32**). Except for one pharyngeal bone, representing wrasses (Lethrinidae), all recognisable fish remains belonged to parrotfish (NISP 217). Following the morphological characteristics of parrotfish bones published by D. Bellwood (1994), and with reference to the comparative fish collection of the Museum of Geneva, it has been possible to verify that all dental, premaxillar and hyomandibular elements are derived

from one genus, *Scarus* sp. A minimum number of 4 different species are probably present.

If we consider the basin sample as a whole, it contains one very large wrasses and a minimum of 10 parrotfish, the latter ranging in length from 20cm to at least 50cm: (1 = 20cm; 3 = 25-30cm; 3 = 30-35cm, 1 = _40cm; 2 = > 50cm: counts on the hyomandibular). As expected, vertebrae are the most common skeleton elements (46% of all skeletal elements). Among the other recognisable fish remains, the largest and strongest body parts are the most abundant. They are represented in similar quantities: 13 hyomandibulars, 11 premaxillae,10 opercles, 10 upper pharyngeal bones and 10 dentaries. As a single bone, the lower pharyngeal bone (7 pieces) is also well represented. It is important to note that despite sieving of the sediment, the smallest elements, even thick and strong ones like the articulars, are under-represented. They were probably too small to be retained in the sieve. Based on the skeletal element distribution it appears that complete fish were consumed at the site.

Parrotfish are common in the Red Sea, and inhabit the coastal waters feeding on the coral reefs. They have to be especially prepared, by salting or drying, before being transported (see discussion below). During the Nabataean and late Roman periods, other fish species were also exported inland to sites such as Petra (Desse and Studer 1996). However, already during the Byzantine period, parrotfish became the most common species traded in the area (Studer 2001).

The Bone Deposit in the Small Cistern

It is interesting to note that the bottom layer of the basin (FK 103) exclusively contained fish bones, while mammalian remains together with fish bones are present in the overlying levels (**Fig. 32**). The ichthyofauna of FK 103 represent the same species as those observed in the levels above, as well as the same distribution of skeletal elements. Size and fragmentation are also similar. The absence of mammals in the lower section of the basin may be explained by a process of filtration. Here, smaller and lighter bone elements with "aerated" forms, like fish vertebrae, have a better chance of moving in the sandy sediment than even small fragments of compact mammal bone. Factors such as water permeation, weight, earthquakes, etc. could generate movement of fish vertebrae.

This phenomenon would also explain the presence in FK 103 of a higher percentage of fine Nabataean ceramics underneath the large Medieval pot fragments (see above). This may also be understood as reflecting mixing of material from both periods in the basin. However, this interpretation is not supported by the bone analysis. As already mentioned above, the same fish species, parrotfish, are found in all three FK corresponding to the different levels of the basin. In contrast, in the Nabataean faunal assemblage from the city of Petra, parrotfish comprise only 4% of the fish remains, indicating that this species was not commonly available in the city market (Desse-Berset and Studer 1991). Indeed, fish species commonly consumed by the Nabateans were Bonito (36% of Scombridae) and Emperors (30% of Lethrinidae). However, as far as we can tell, fish was not a staple food in the Nabataean period, constituting at most 4% of the bones at Petra. During this period, animal protein was mainly obtained from sheep and goat (86%). Birds are also well represented, comprising as much as 36% of bone remains in the private houses of the wealthy inhabitants (Studer 2002). Under these conditions, a bone assemblage representing only fish, especially parrotfish, cannot be considered as representing characteristic Nabataean refuse. We are then confident that all the bones from the basin represent Medieval remains.

Discussion

As we have seen above, the small cistern was used as a rubbish-pit for food remains by the population established in Wādī Farasa during the eleventh to thirteenth centuries AD. Their presence in the wadi is already attested to by a huge retaining wall discovered during the first excavation campaign and other finds which appear to correspond to a guard post controlling the way to the top of Jabal al-Madhbah where a Medieval castle may have stood (Schmid 2001; 2001a; 2002). That interpretation, even though not confirmed, would explain the particularities of this archaeozoological assemblage.

The food remains found in the rubbish-pit show a different range of species than expected based on work that has been carried out to date in the region. First of all, the high proportion of fish remains is surprising. It is possible that in the past, parrotfish were caught in the Red Sea and especially prepared for trade, probably dried and salted, according to techniques still used today by Egyptian fisherman (dried fillets-boneless!- of parrotfish, Hamilton-Dyer 1994). Once conserved, the fish could easily be transported and stored until required for consumption. A comparison with other Medieval, especially Crusader bone samples in the Levant shows that fish seems not to have served as an essential component of the diet. At Belmont Castle, near Jerusalem, the culinary remains of the Crusad-

ers include only 2.4% fish bone (Croft 2000). No fish bones were recovered from the Medieval levels at the village of Sumaqa on Mount Carmel despite the proximity of this site to the Mediterranean Sea (Horwitz *et al.* 1990, Horwitz 1999). Likewise, no fish remains were found at either of the Crusader sites of "al-Burg al-Aḥmar" (the Red Tower), in the north of Israel (Cartledge 1986), or at the administrative and judicial center of Yoqne'am (Horwitz and Dahan 1996). The fact that only limited sieving was carried out at these sites may partly account for this bias.

Another characteristic of the Wādī Farasa bone sample is the lack of bird remains, especially chicken, despite the fact that all the sediment was sieved. In addition, no eggshell was found. Chicken are not only easy to transport and raise, but they provide eggs in addition to meat. At Belmont Castle (Croft 2000), birds, mainly chicken, represent 22.5 % of the bones, while more than half of the bone sample from the Red Tower is made up of bird remains – in this case goose as well as chicken (Cartledge 1986).

In conclusion, the particularities of the bone assemblage from the site in Wādī Farasa indicate a limited diet composed only of caprine meat and fish. This could well reflect the menu of soldiers garrisoned in a guard post and fed ratios brought in from elsewhere. The high frequency of fish remains, as well as the preferential selection of meat-rich limb bones for sheep and goat, may be understand as representing food that can be easily stored or prepared. This initial archaeozoological analysis has left many questions open, which we hope will be answered on the basis of further studies of fauna collected from other Medieval sites in the area.

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