

Report of the Project "Wadi Abu Dom Itinerary"

Fourth Season, 14.1.-18.3.2012

(funded by the German Research Foundation, Germany, and
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1. Staff

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2. Realized work

We have been in the field from Jan. 14th to March 18th. We focused on three subprojects:

a) Geophysical prospection: Investigations with geo-magnetometer and ground penetrating radar (GPR) within the ruins of Umm Ruweim 1 & 2, Quweib and Umm Khafour, their vicinities, three camp sites (Sites 211, 345 and 346), and one site with both camp and habitation structures (Site 201).

b) Architectural documentation of the ruins of Quweib, Umm Ruweim 2 and Umm Khafour, accompanied by small-scale sondages. Detailed measuring and architectural description of the buildings, drawing of plans and sections, measuring with total station. Removal of sand as well as

the sondages should help to clarify the total preserved elevation of the buildings.

c) Survey on both banks of the Wadi Abu Dom. The pottery collected on the surface was washed and photographed, but the pottery documentation had to be postponed since our pottery specialist Jana Helmbold-Doyè could not join us this year.

3. Results

a) Geophysical Prospection (Responsible: Ercan Erkul, Tim Karberg)

The geomagnetic prospection was done by Christina Klein, Ali Ismaeil and Martin Proksch; the GPR prospection was done by Ercan Erkul, Ali Ismaeil and Martin Proksch with the help of Tim Eggert (Fig. 1). The preliminary evaluation of the data was done by Ercan Erkul, Harald Stümpel and Christina Klein.

In general, a combination of prospection by magnetometer and ground penetrating radar (GPR) was used, the magnetometer able to investigate larger areas, and the GPR used to prospect special spots turning out to be promising after processing the magnetic data. The magnetometer was mounted on a wheeled platform and was able to move over rocky terrain, while the GPR used a flat surface antenna which made it necessary to clear areas to be prospected by this device from stones and other surface structures.

Umm Ruweim 1

Within the ruin of Umm Ruweim 1, all parts of the lower courtyard and the central, western and eastern part of the upper courtyard were prospected by magnetic; additionally, the northern, western and southern lower courtyard and the central upper courtyard were investigated by GPR. Both methods showed remarkable results. In the southern and northern lower courtyard, rows of regularly distributed echoes were recorded, most probably to be interpreted as pits (interestingly in the northern court more clearly visible by magnetometer, in the southern court by radar). One of the pits within the southern courtyard shows a circular structure around it which could be a flat ring made of bricks (Fig. 2). Within the western courtyard some similar structures occurred, but not as regular in shape and distribution.

The immediate vicinity of the ruin to the south, west and north, and additionally a camp site recorded north of the ruin in 2011 were prospected by magnetometer, and, exemplarily, an area south of the ruin also by GPR. Those prospections showed clearly the structures visible with the unarmored eye like tumuli and donkey paths, but provided few additional information. Echoes not coinciding with obvious surface structures were so unstructured that it will need extensive data processing and further research, including test sondages, to evaluate the data – which has to be left over for future campaigns.

Umm Ruweim 2

Approx. 450 m east of the ruin of Umm Ruweim 1, which was documented last year, the *hosh* of Umm Ruweim 2 was located by H.N. Chittick.

The prospection of the central courtyard of the ruin of Umm Ruweim 2 showed the most remarkable results of the geophysical component of this year's campaign. Both the magnetometer and (more detailed) the GPR showed a large rectangular building structure within the courtyard, app. 12- 13 meter away from the enclosure walls, with rectangular rooms app. 4 m wide. Within the center of the structure, a building consisting of two round huts was visible, connected to the abovementioned rectangular structure by several smaller walls. These radar and magnetic echoes most probably show the remains of mud brick architecture (Fig. 3).

The timeslices and radargrams of the GPR indicated that only few centimeters of the mud brick construction may have survived in the ground until today. The area of the central round huts, where a significant magnetic echo was recorded, a hole hacked by toria was documented (see also § 5).

As in Umm Ruweim 1, the forecourt was prospected by magnetometer. Due to the similar results as there – beside some structures like tumuli, donkey paths and stone concentrations also visible with the unarm'd eye, only very unspecific echoes could be recorded – the GPR prospection concentrated at the enclosure itself (see above).

Quweib

The ruin of Quweib is situated on a terrace near a flat hill (Fig. 4). The ground elevates to the north. Several tombs are located in the area in front of it.

Unlike the situation at the ruins of Umm Ruweim, the results of the geophysical prospection in Quweib were somewhat disappointing. No traces of mud brick architecture or similar installations could be recorded within the enclosure or its forecourt. The only interesting feature recorded by the GPR prospection was a linear structure across the southern part of the courtyard, but its character didn't become clear. The magnetometer showed two small anomalies within the central part of the courtyard, but this might be most probably modern pieces of metal.

Like in Umm Ruweim 1 & 2, the magnetic prospection of the vicinity south and west of the ruin showed only details also visible with the unarm'd eye, so the GPR concentrated at the enclosure itself.

Umm Khafour

As Umm Ruweim 2, Umm Khafour is a square enclosure situated on a terrace, situated within an "island" formed by two large adjoining side khors south of the main Wadi.

After the results at Umm Ruweim 2, the investigation of the enclosure courtyard at the ruin um Umm Khafour was carried out very carefully. Unlike Umm Ruweim 2, the magnetic prospection

showed no comparable anomalies. Only the GPR showed after preliminary data processing some very weak structures probably similar to the rectangular mud brick walls from Umm Ruweim 2, but the results are still unclear. The data is at the moment subject to further processing at the Institute of Geosciences, CAU Kiel, which hopefully might clarify this record. Anyway, if the anomalies recorded at Umm Khafour turn out to be the remains of a similar mud brick building like in Umm Ruweim 2, only very few traces of the mud brick can be preserved until today (maybe less than one centimeter).

The magnetic prospection of the vicinity north, south and west of the ruin showed even less details than those done before in Umm Ruweim and Quweib.

Camp sites 211, 345 and 346, and habitation site 201

According to one of the primary aims of the project, to reconstruct the ancient traffic routes within the Wadi Abu Dom, camp sites as one of the main archaeological features connected with mobility infrastructure were a fourth focus of the geophysical prospection. For their geomagnetic investigations there were some expectations, because at other archaeological sites ancient camp features, especially fire places, turned out to be clearly identifiable from the geomagnetic record. At the other hand, those investigations were carried out under completely different geological and pedological circumstances, and so magnetic prospection at the rubble terraces of the side khors of the Wadi Abu Dom had absolutely an experimental character.

To have a broad variety of features and soil structure, three quite different camp sites were chosen for geophysical prospection: Site 211 at one of the northern side khors (with several different camp features), 345 at the banks of one of the largest khors to the south (also including sub-recent camp features), and, most important, 346 located just 200 m to the south (where fireplaces dominate the camp features). Additionally, habitation site 201 was chosen for prospection because there a broad variety of habitation, funeral and camp structures could be investigated together.

Unfortunately, the soil conditions at the khor banks turned out to be too less claylike to preserve fire spots in the magnetic record. The experiment, whether ancient camp structures within the Abu Dom region could be identified and recorded by magnetometer, has to be estimated as a failure.

Beside the lack of fire-records within the geomagnetic data, the prospection showed several structures also visible with the unarmed eye and some unshaped anomalies which most probable might be of geological origin. So, in general, the geophysical data of the camp and habitation sites are quite similar to those of the vicinities of the great ruins.

General conclusions

The experiment to deploy geomagnetic and GPR-methods under the specific conditions of the Wadi Abu Dom was in parts very successful, in other parts it turned out that the geological circumstances

did not support those methods. Within areas of sufficient soil accumulation during historical periods - like at the great ruins of Umm Ruweim, Quweib and Umm Khafour - both geomagnetic and GPR investigations showed remarkable results, which significantly improved our knowledge about the sites. On the other hand, in every case where the geophysical prospection was carried out directly at a rubble terrace, the results turned out to be quite poor. According to Harald Stümpel, the concentration of rubble and lack of sufficient amounts of clay at the terraced khor banks obstruct the geomagnetic prospection carried out during this campaign; the GPR, on the other hand, was only deployable at surfaces plane enough (or, at least, easily cleanable from rocks and rubbles) for the flat antenna.

b) Architectural documentation of the ruins of Quweib, Umm Ruweim 2 and Umm Khafour

(Responsible: Dieter Eigner, Tim Karberg)

For the removal of sand we hired three workers of the people living nearby, who were trained and supervised by Mohammed Toum. The archaeological documentation of the sondages was done by Tim Karberg with the help of Laura Haupt.

Quweib

The ruin of Quweib is a rectangle, with the measurements 50 x 80m. The enclosure consists of 16 rooms, arranged in a rectangle around a free courtyard (Fig. 5). Today, the walls are visible up to 1.7m, but a sondage revealed that the complete surviving height is about 2.2m. The western front is best preserved, although both corners are destroyed. The corners of the eastern wall are in situ, nevertheless it is more severely damaged. The south wall is also severely damaged, while the northern wall is better preserved.

Walls: The complex is built in dry stone masonry, the joins and hollow spaces are filled with pieces of stone partly mixed with clay, but not with mortar (Fig. 6). The used dry stones are flat pieces of gneiss (less than in Umm Ruweim 1), as well as cubic red stones (more than in Umm Ruweim 1). The outer walls have a thickness of 1.2-1.4m, the inner walls 1.0-1.2m. The walls lean in to one side, the outer walls 1:10 and the inner walls 1:20. The walls in the rooms are still in their original, vertical position. The sondage showed that they were covered with plaster (Fig. 7). A first layer of rough plaster covered the stones to fill the hollows, a second layer, finer and lighter, was added above the first.

The only entrance to the enclosure is located on the east side (Fig. 8). It consists of one room and a kind of a niche, formed by a second open room. In the front room two windows are visible on the southern wall as well as one window on the northern wall, a second window can, hypothetically, be reconstructed here as well. The door itself has a width of 2m and was blocked in antiquity on a higher level. Thus we suggest that it was blocked after having been used for a long time, for a

considerable sedimentation took place in the entrance area. After removing the sand from the surface, it seems that the door was originally less than 2m wide, approx. 1m. An additional sondage, which had to be postponed, will be necessary to solve this question.

Courtyard: In the north-western part there are three graves (with scattered pieces of bones). Due to sedimentation the level of the court is (about) 50 cm above the outer surrounding. The only building within the court is a platform, situated in the middle of the western wall (Fig. 9). The platform measures 2.7 x 3.2m, the edges of the feature are clearly visible. As far as we can see without further excavations, the platform is built of massive stones. The surviving height is about 1.2m.

Windows: There are several windows (small openings about 20 by 20 cm) in the outer walls, but only one remaining in the inner wall (Room 15, Fig. 10). The windows in the outer wall are placed a good deal lower than the one in the inner wall. The height of this one remaining window, which is facing the court, is approx. 2m above floor level, - no other walls are preserved up to that height – therefore we suggest that it was only needed for ventilation and light, but not for sight. In the western front of the building there are several windows close to each other, especially room 11 contains many windows (Fig. 11).

Rooms: the rooms are elongated (length 14-15m, width 2.8-3m), they all show one door in one corner, apart from the rooms 7 and 12, where the doors are situated in the center. The rooms are arranged around the court very regularly. In some rooms there are little installations, but it is not clear whether or not they are original.

Room 9 behind the platform is divided in two parts (N and S) with a central passing. Room 9-N is the only one without access to the court.

All in all there are clear similarities to Umm Ruweim 1, especially when the results of the geophysical survey are also taken into account. In distinction to Umm Ruweim 1, we lack traces of mud bricks (this could be clarified through further sondages) as well as ramps and staircases.

Umm Ruweim 2

This ruin is situated on a terrace which slopes a little bit to the south. Today there is a square enclosure of 66 by 66 m visible (Fig. 12). The walls have fallen apart to both sides, as a result the sections of the walls look like a dam with a slope of 3m on both sides. The edges of the walls are clearly visible in the dam-like appearance, but max. one layer above the debris.

The preserved heights of the walls differ strongly on all sides, with a max. of 80cm. The south wall is only 45cm high. Directly in front of that wall there is a cemetery of 45 box graves, the building material for these graves was taken from the walls of the ruin.

The enclosure has two entrances (east and west), both of them are shifted to the south, instead of being placed in the center. It is not clear whether the access was blocked. There is quite huge debris

which leads us to believe that the height of the entrance buildings had approx. 2m, there might even have been a roof.

Western entrance: L-form (change of direction), width 1.2 m.

Eastern entrance: Entrance room with axial access, width 1.2 m. The entrance room is placed in the center of the wall, thus one part of the room extends into the court, while the other part extends to the outer surrounding. At the outer door a threshold was found. Up to now, we cannot reconstruct a (possibly wooden) door.

Walls: The complex is built in dry stone masonry, the joins and hollow spaces are filled with pieces of stone. There is only a low percentage of gneiss, most of the building material is cubic red and dark basalt. There is a high percentage of blocks of white quartz, which were taken from a near dyke.

The entrances are built in a thorough manner with bigger stones.

The width of the walls is 0.9-1.05m. As a result of the sondage we can state that the max. height of the remaining walls are at about 80cm today, and with respect of the debris the ancient height cannot have reached 2m. It is possible that there were superstructures of mud brick, but up to now we lack positive evidence for that.

Plaster: In sondage A there are traces of plaster in the foundation, and in one hollow space in the eastern entrance there are also some traces of a first layer of rough plaster (see Quweib).

Courtyard: Due to sedimentation, the elevation of the court is 15-30 cm higher than on the outside. There are no visible installations to be seen today. But according to the geophysical prospection, there were elongated rooms like in Quweib, but of mud brick, around the inner side of the wall. In the free area of the court, two round structures are visible in the GPR and magnetometer.

Umm Khafour

The ruin of Umm Khafour is slightly smaller than the similar structure of Umm Ruweim 2, 56 x 56 m. There are two box grave cemeteries nearby, one directly at the western entrance (40 graves) and another to the south-west (50 graves) (Fig. 13). The building material of the box graves at the entrance was taken from the western wall of the enclosure, therefore this wall is least preserved. The height of the walls is at a max. of 1.3m today. Estimated by the masses of debris, they might have had a height of up to 2m in antiquity. As well as in Umm Ruweim 2, the walls have fallen apart to both sides, thus the section shows a dam-like profile (Fig. 14). The slope extends to 4m on both sides, this is due to more sand than in Umm Ruweim 2. The walls are around 1.2m thick, sometimes up to 1.4m. There are no windows.

The walls were built in the same technique like those in Umm Ruweim 2, but the material consists of less gneiss and quartz but mostly red and dark basalt. The stones are smaller than in Umm Ruweim 2. We did not find any traces of chiseling, the stones were simply hammered with a stone

hammer.

There are no visible traces of plaster, and none was found in the sondage. Although this could simply be coincidence.

There are two entrances:

Western entrance: L-shaped, access 1.25-1.3m, no blocking.

Eastern entrance: axial access (1.2m wide) with an entrance room, in contrary to Umm Ruweim 2 it is positioned in front of the building. There seems to be no blocking. On the southern wall of the entrance there is a tumulus (grave?) piled up, which is 4m in diameter (Fig. 15).

Courtyard: There are some stone installations (graves?) as well as some ditches.

c) Survey (Responsible: Tim Karberg, Angelika Lohwasser)

This year our survey covered the length of 7,9 km along the southern bank Wadi Abu Dom, and 6,2 km along the northern bank respectively. The survey reached a point N 18° 24' 15.3" E 32° 2' 52,9" (Fig. 16) There is a small gap on the northern bank which we could not cover since the time ran out, but we will do so next year.

For logistical reasons, the survey during this year's campaign was split into three phases: First, a stretch along the southern bank was surveyed proceeding mainly from our turning point in 2010, to get the southern bank investigation up to the region of Umm Ruweim till the northern bank turning point from 2011. Afterwards, during the time of architectural documentation, survey was mainly based at and conducted from the sites of Umm Ruweim, Quweib and Umm Khafour (corresponding to the progress of the architectural survey). After closing the architectural sub-project, the gaps between the survey areas done so far were filled.

The survey records were documented mainly using *Trimble Juno* PDA as field computer, running a specialized version of the geographical mapping software ArcPAD 10 (customized to meet the specific needs of the Wadi Abu Dom Itinerary archaeological project). After having tested and improved this customization in 2011, this year we took the soft- and hardware into regular service to replace the Garmin GPSmap 60 CSx handhelds as data recording equipment (which are, anyway, still used by the survey teams for navigation purposes).

One of the main results of this year's survey campaign is a significant density of sites at the southern bank in the direct vicinity of the ruins of Umm Ruweim. Among those sites are 3 large post-(or rural-)Meroitic tumulus cemeteries which belong to the largest cemeteries recorded during our project so far (Figs. 17-19). Most probably these cemeteries are chronologically and functionally connected to the late- to Post-Meroitic center of Umm Ruweim.

Other large cemeteries are located mainly at the southern, but – much more loosely occupied – also at the northern bank of the Wadi at the mouth of two larger side khors, halfway between Umm Ruweim and Quweib/Umm Khafour, beside an area of the main Wadi bed which is until today one

of the most densely populated and most intensively cultivated within the lower Wadi Abu Dom. It can be stated that not only the spectacular large ruins, but also most of the largest cemeteries recorded so far are concentrated around that landscape strip to be seen as a place favored by micro-climate and eco-topography – obviously not only in recent times, but also in (at least late) antiquity. Another site of significance recorded during this year's campaign is a medieval settlement structure embedded between two ridges at the bank of a smaller side khor (Fig. 20). It only consists of two huts accompanied by several stone concentrations, but the huts are made of relatively elaborated stone walls with a regular ground plan (one rectangular, one angle-shaped – Fig. 21), and the site is covered with large amounts of high quality Christian pottery. This might lead to the assumption that the site – disregarding its small size and somewhat hidden location – must have been of some importance.

As in 2010 and 2011, also this year one of the side khors was chosen to be followed over a longer distance: the eastern one of the two connected khors forming the “island” of Umm Khafour at their confluence. Along the banks of the khor, several smaller camp sites were recorded (as expected after the experiences from 2010 and 2011), but also some habitation sites at plateaus of some ridges were found, probably dating to quite early periods. Interestingly, the trend from 2011 seems to continue that the density of rock art, especially from pre-medieval periods, declines significantly while advancing Wadi-upwards, even in the vicinity of these habitation sites.

4. Trips

We did a trip on Friday, 2.3.12, to a ruin which we found in Google Earth (E 32° 8' 31.9", N 18° 33' 35.0") (Fig. 22). Since it is outside of our concession, we visited it as tourists. Although the region is totally barren of people, we recognized several tracks of cars. It seems that this ruin is visited sometimes by tourists. Moreover, a big track with traces of heavy vehicles (tins of oil etc.) passes by several hundred meters apart. As far as we know, this ruin is never mentioned on maps or in descriptions. Dieter Eigner made a sketch drawing (Fig. 23). The building technique as well as the few sherds we found around let us suggest to date this ruin in the same period as the ruins of Umm Ruweim and Quweib (3.-5. cent. AD).

This year we decided to go back to Khartoum via the Bayuda-road to Atbara. which runs in some parts through the Wadi Abu Dom. Our main aims were to visit some sites we have detected by Google Earth and to get an impression of our future challenges. The sites we visited were mostly huge postmeroitic tumuli, some of them seem to be intact yet (Fig. 24). Furthermore there are several box graves as well as traces of huts (Fig. 25).

To our surprise we found one more ruin (at UTM 36 Q 04538354/1997117). As far as we could see it is a rectangle with a big court on the south side and several long narrow rooms on the north side

(Fig. 26). The building method seems to be the same as at the ruins we investigated in the lower Wadi Abu Dom. Also some pottery we found hint to the postmeroitic period.

5. Endangered sites

We recognized many people looking for gold in the Wadi Abu Dom, especially near the ruin of Umm Khafour. They are equipped with a metal detector and cars as well as tools to break hard stones. As far as we have seen they did not harm ancient sites but look for gold in quartz dykes. Most of the tumuli we recorded were disturbed, but the destruction was not recently done.

A small hole within the enclosure of Umm Ruweim 2 seemed not to be a great problem itself, but the fact that it was dug directly at the place of a significant geomagnetic anomaly leads to the conclusion that also within those ruins metal detectors are used by illegal diggers.

The new ruin in the south, which we found when going back to Khartoum, is heavily destroyed by diggings between the walls. Huge piles of stones, earth, pottery and bones are near the deep holes (Fig. 27). Lots of archaeological informations are already gone now.

Living in Karima next to the Jebel Barkal, we noticed that the famous meroitic base with the relief of bound captives is now positioned in an open area near the B 500. It is obvious that every visitor will step on the base and the faint relief will be damaged in short time. Therefore we suggested to bring this stone into the Barkal Museum. Before removal, the relief was drawn by Laura Haupt, who has long experience in copying rock drawings. With the organisational help of Ahmed Moussa and Hatim the base could be removed on March 13th 2012 to the gate of the museum (Fig. 28). We hope that this exceptional monument will be safe now.

6. Proposal for future activities

In 2013, we hope to continue the survey in our established form (intensive by foot), supported by PDAs running the ArcPad 10 software. As we will reach a region of many wells, we plan to make soil drillings as well as drillings in (dry) wells to discover if they have been in use already in ancient times. Additionally we hope to proceed with the pottery analysis.

After the survey, at the moment we estimate in year 2015, we would start to excavate Umm Ruweim 1. If we get the funding we would try to document the endangered ruin in the south and if it can be arranged with NCAM and the Polish colleagues, also the ruin in the north (which is not in our concession).

7. Final remarks

We would like to thank Mr. Mohammed Toum very much for all his indispensable help and smooth organisation! He has acted as archaeologist as well as a mediator to the people in the Wadi Abu Dom and especially as a good friend to us! After his leave to Roseires, Mr. Abdel Rauf acted as inspector for the last five days.

Moreover, we want to thank Ahmed Moussa, in whose house we lived and who helped us in many situations in Karima.

Khartoum, 20.3.2012

Angelika Lohwasser



Fig. 1:
Geophysicists during
prospection

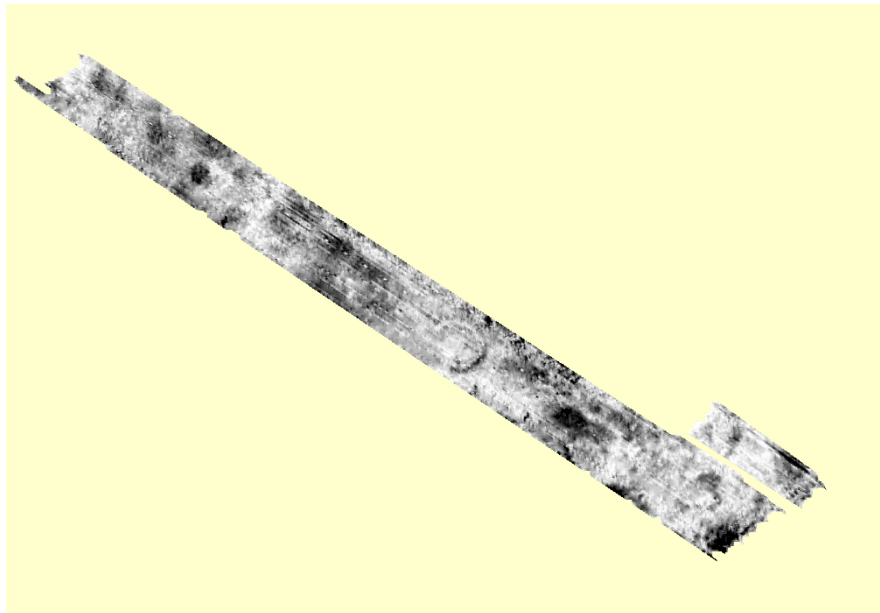


Fig. 2:
GPR data from the southern
lower courtyard at Umm
Ruweim I

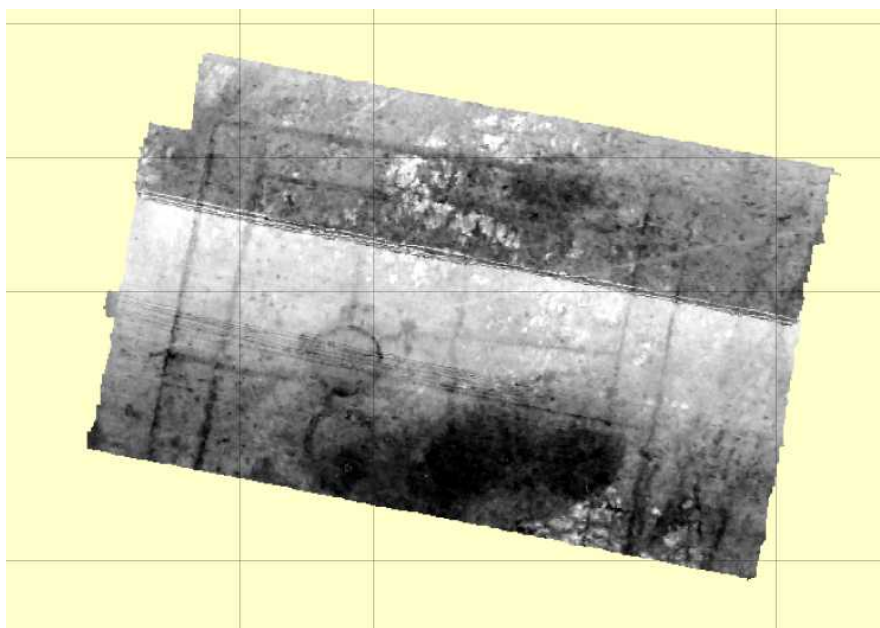


Fig. 3:
GPR data from the enclosure
of Umm Ruweim II



Fig. 4: The ruin of Quweib

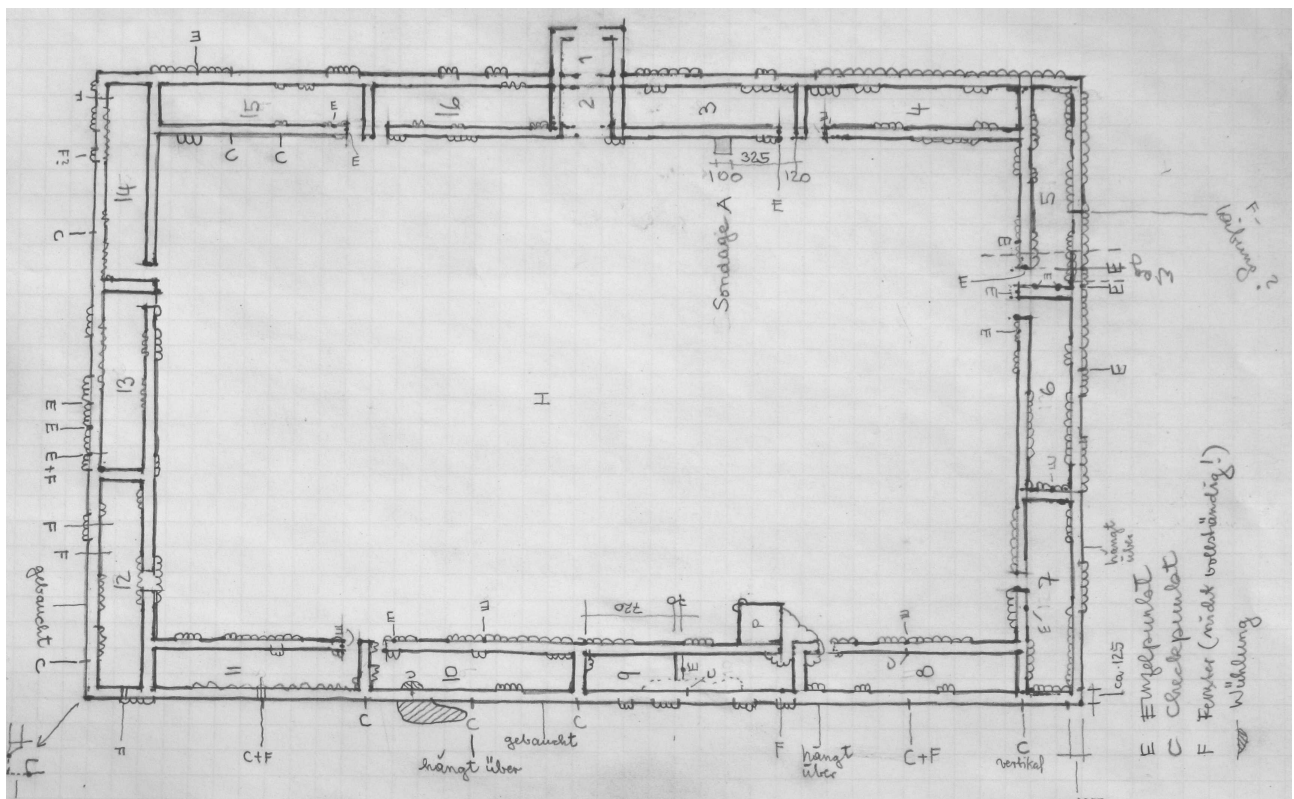


Fig. 5: Sketch plan of Quweib (by Dieter Eigner)



Fig. 6: Building technique in Quweib Fig. 7: Plaster

visible in the sondage



Fig. 8:
Entrance of Quweib



Fig. 9:
Platform in the courtyard of Quweib



Fig. 10: Window to the court in Room 15 Fig. 11: Four Windows in room 11



Fig. 12: The *hosh* of Umm Ruweim 2

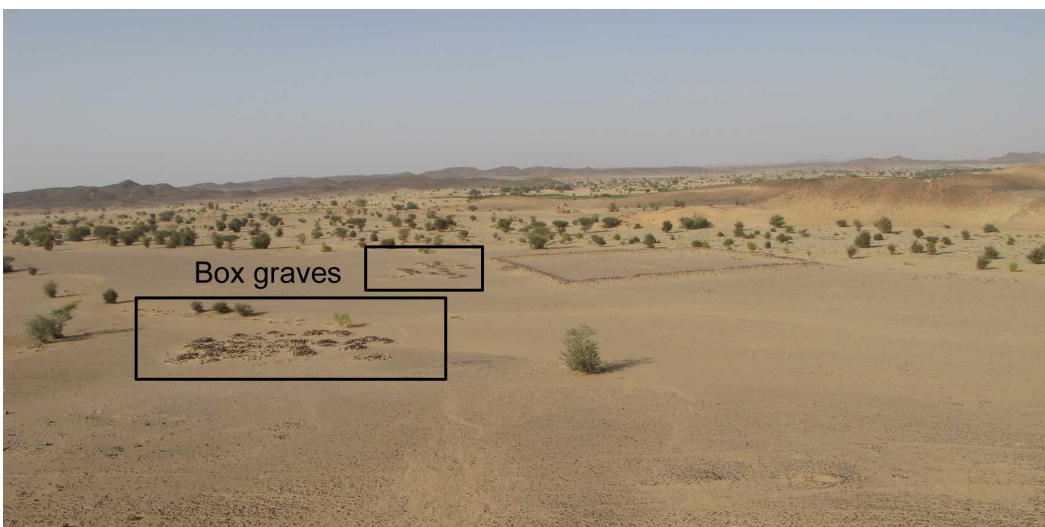


Fig. 13: The *hosh* of Umm Khafour with the two box grave cemeteries



Fig. 14: Wall in Umm Khafour



Fig. 15: Secondary tumulus in Umm Khafour

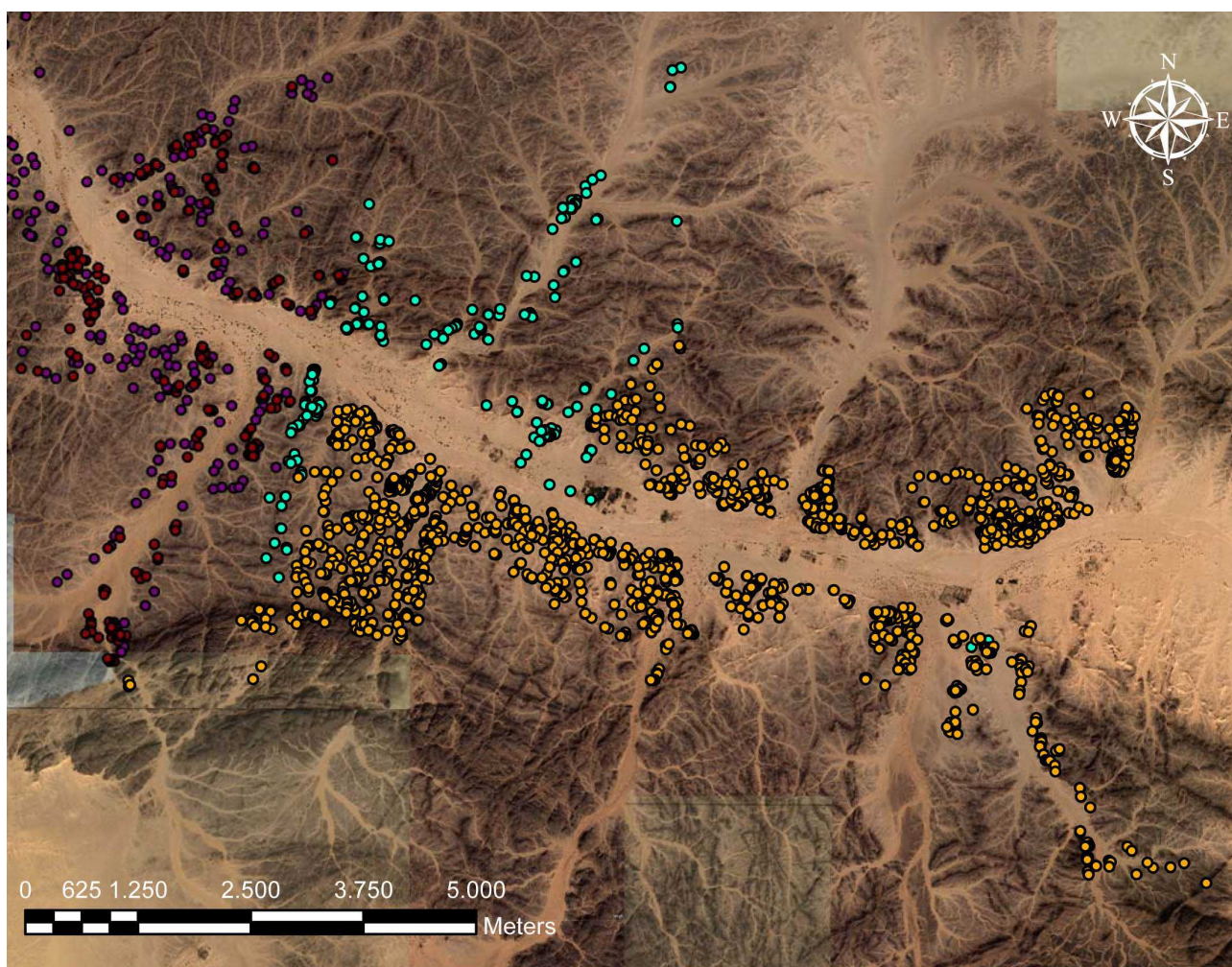


Fig. 16: The survey area of the WADI 2012 campaign

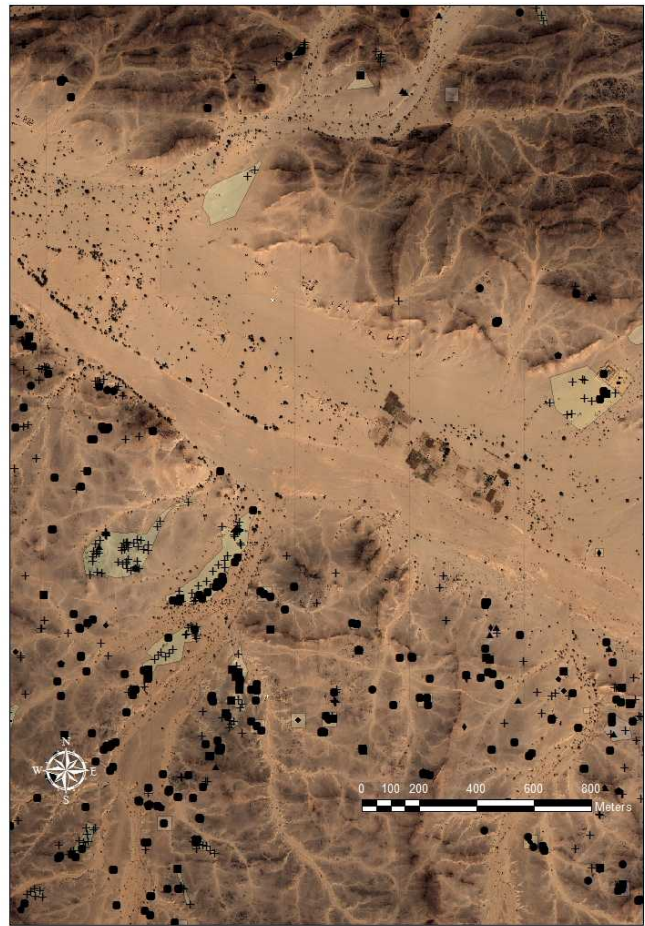
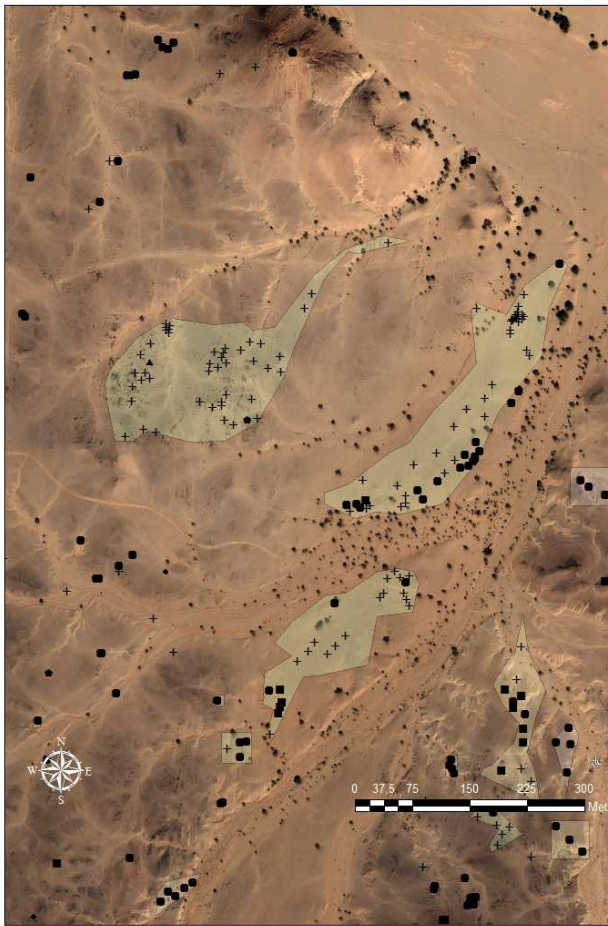


Fig. 17: The large Tumulus cemeteries 514 and 515/531 opposite of Umm Ruweim



Fig. 18: Tumulus from cemetery 514



Fig. 19: Tumulus from cemetery 515



Fig. 20:
Christian habitation site 468



Fig. 21:
The angle-shaped ruin from
site 468



Fig. 22: Ruin in the north of the Wadi Abu Dom

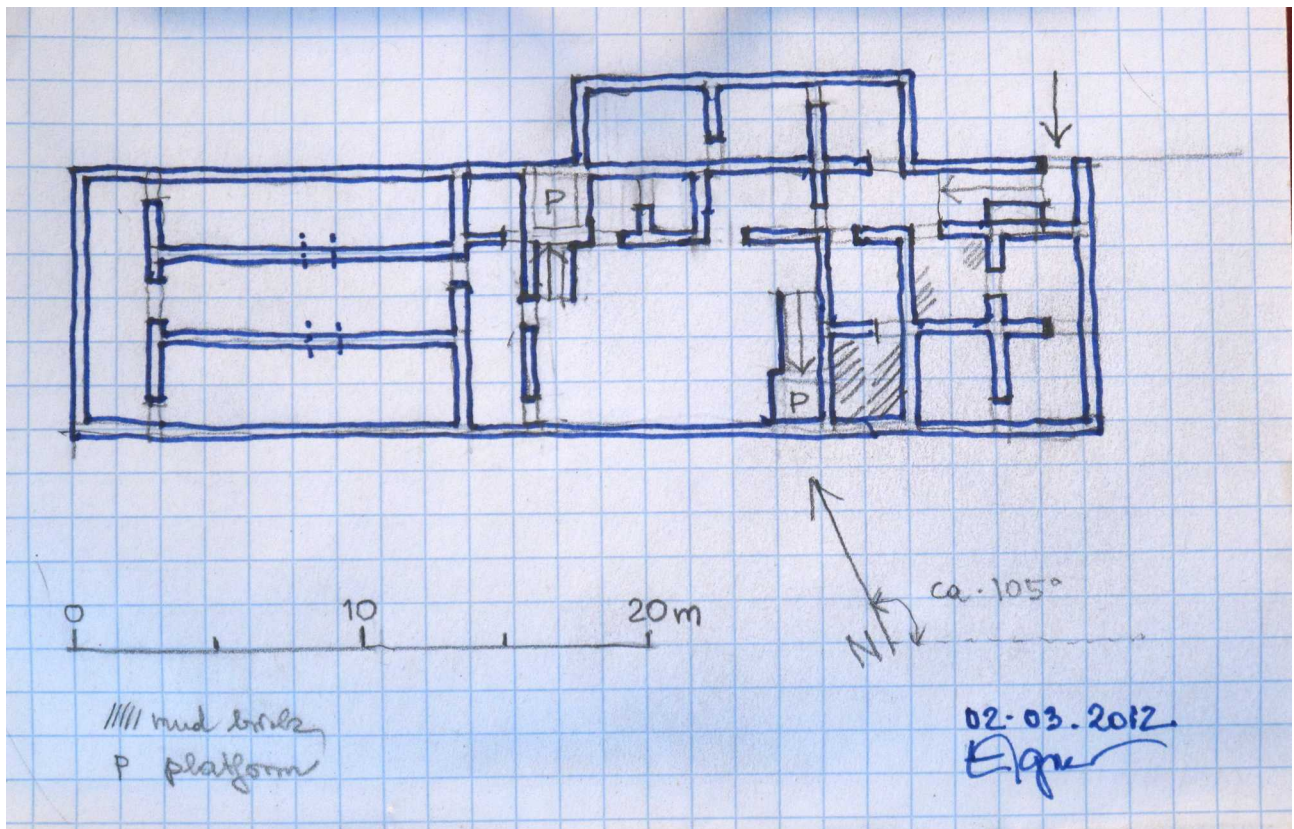


Fig. 23: Sketch plan of the ruin (by Dieter Eigner)



Fig. 24: postmeroitic tumulus in the Upper Wadi Abu Dom



Fig. 25: Traces of huts in the Upper Wadi Abu Dom



Fig. 26: Rooms in the new ruin in the south



Fig. 27:
Unauthorised digging in the rooms of the new ruin in
the south



Fig. 28: Rescue of the Meroitic throne base