

**REPORT to the SUPREME COUNCIL OF ANTIQUITIES
on the 2000/2001 FIELD ACTIVITIES OF THE
DAKHLEH OASIS PROJECT.**

INTRODUCTION

The 2000-2001 season of the Dakhleh Oasis Project began on 4th November, 2000, with the arrival in Cairo of team members. From 12th November until 15th March, 2001, we worked in the oasis without interruption. Our quarters were in the usual accommodation at Ezbet Bashendi. A total of 57 project members joined the camp from time to time, although there were never more than 30 at any one time. One SCA representative, for Pharaonic and Roman Antiquities, accompanied the project this season.

Our field work encompassed most of our various interests, including the physical anthropology of the human remains from Ismant el-Kharab, linguistic studies of the Bashendi dialect, studies of Pleistocene sites and collected materials, and of Holocene living sites, particularly those of the Sheikh Muftah Culture Unit. Historical archaeological studies were concentrated on the Old Kingdom, where surveying of watch-posts and excavations at Ein el-Gezaren were conducted, and Roman research at Ismant el-Kharab, Mut el-Kharab, and Amheida was carried forward. The epigraphic survey at Deir el-Hagar temple was continued towards the end of the season.

Various team members have reported to me on their individual activities and I take pleasure in passing them on to you in the following pages.

ENVIRONMENTAL STUDIES

1. Archaeozoology & Palaeontology.

Professor C. S. Churcher reports,

As faunal analyst, during the 2001 field season, I performed faunal identification for the historic archaeologists, who were excavating midden and refuse from the Romano-Byzantine sites of Kellis and Mothis, and the Old Kingdom site of Ein el-Gezaren, respectively. I also identified animal remains obtained from two Sheikh Muftah cultural unit sites (Locs. 105 and 136).

My field work involved re-examination of the hyaena dens located in the eastern part of the oasis, revisiting and surface studies of the 'Iron Balls' faunal sites on top of the gebels to the southeast of the oasis, and fieldwork on two Cretaceous sites north of Bashendi in the piedmont of the Libyan Escarpment.

There was also a visit by Dr. Robert Giegengack and a party from the University of Pennsylvania to be shown some of the Cretaceous exposures. This took place between Feb 22 and 24 February, 2001.

Archaeological Work.

1. Old Kingdom site of Ein el-Gezareen.

Remains obtained from Ein el-Gezareen only began to be available after Feb. 10th and these consisted mainly of surface materials involving specimens of mixed ages. The materials examined by Feb 20th comprised cow and goat in the main, with occasional Dorcas gazelle, ass, possible pig, and the molluscs *Melanoides tuberculata*, *Pila ovata*, and *Etheria elliptica*. Ostrich egg-shell was also present. As this is a surface sample, it cannot be considered representative or complete.

2. Romano-Byzantine sites.

Materials from Ismant el-Kharab (ancient *Kellis*) available for identification were chiefly excavated in 2000 and 2001, but other materials excavated between 1989 and 1999 were also examined. The fauna identified was that found in earlier years, with mainly cow, goat, and pig as the prevalent animals, but pieces of ass, Dorcas gazelle, rabbit, chicken, duck, goose and other small birds (?pigeon) represented.

A sondage at Mut el-Kharab (ancient *Mothis*) yielded a small sample of bones and shells. The animals identified are similar to those found at Kellis and Ein el-Gezareen with a few that probably represent surface contamination. An interesting find is of a freshwater snail, *Biomphalaria alexandrina*, now known from the Nile River downstream from Assiut, but not known fossil or extant in Dakhleh, but as a Pleistocene fossil from Kharga Oasis.

3. Neolithic Sites - Sheikh Muftah Cultural Unit.

Locus 105.

This is located southwest of Balat between a salted area and the sandstone rim that is the southern edge of the oasis. The materials were obtained in 2000 and I excavated some hartebeeste (*Alcelaphus*) major elements from a hearth.

The animals identified are cow, goat, hartebeeste, Dorcas gazelle and hare. The cows, probably only two individuals, were old or aged but the goats were numerous and of all ages. It is suggested that the goats were kept for meat, milk and hides, but that the cows were for milk, possibly blood, and draught work, and only killed when approaching the ends of their lives. The gazelle were quite numerous and of varying ages, and thus probably randomly obtained by snares, nets or traps. The hartebeestes, probably also only two in number, had to be caught by hunting and were probably a more difficult prey for the people. The picture is thus of a group of pastoralists who relied on their cattle and goats, but supplemented their diet by hunting hartebeeste and gazelle.

Locus 136.

This is a concentrated area on the northern margin of Camelthorn Basin that I had collected fauna from, in the late 1980's. The fauna is the same as for Loc.105, with the possible addition of ass. The bone at this site is very badly broken and deflation has removed between 1m and 1.5m from the surface on evidence of silts still banked against the sandstone gebels in the area. Its more extensive area is hard to explain at present except that it is slightly protected from the north winds and may have been a drier island in a then marsh basin.

4. Hyaena Den.

Hyaena Hill was revisited and recorded. Dr. Marcia Wiseman and I collected a coprolite from this site and measured and photographed it. An additional hyaena den was located in a

conical CSS hill to the west where hyaena broken bone was present. The hyaena den used as a burial chamber and lying to the NW of the gebel and springmound field also yielded a coprolite, certifying its original use by hyaenas. The den was originally a central chamber with north, east, and west tunnels, and is still in that form even though the east entrance has been enlarged and the central chamber modified.

5. Mid-Pleistocene 'Iron Balls' Fauna.

Little work was done on this fauna. Some CSS capped sandstone gebels at the eastern entrance to the oasis were visited to examine the stratigraphic contact between the palaeolake sediments and the sandstone bedrock. Only scraps of bone were noted at these visits. The Iron Balls Spring site, Loc.358 produced a gazelle horncore fragment and a shell fragment from a large clam (lamellibranch) that is not *Etheria elliptica*, the Nile oyster. It remains to be identified.

Cretaceous Palaeontology.

1. Dinosaur Site.

This site was discovered on Feb. 21, 2000, when a number of vertebrae were surface collected. It was visited four times this season, and specimens of shark, teleosts, turtles, lungfish, small bivalves and additional large reptilian materials collected. One vertebra was excavated in situ and a turtle shell is still in the shale. Most of the materials collected in 2000 were prepared this year and can be identified as crocodile, carnosaur, and sauropod, but not yet to genus or species. This site still requires more work.

2. Mosasaur Site.

Dr. Peter Sheldrick reported a mosasaur site which I was unable to locate in 2000. This year I was successful and recognized a mosasaur tail and a number of elasmosaur (plesiosaur) vertebrae. oratory Work.

Specimens were prepared in the laboratory, catalogued, identified, etc. Research on the mosasaur vertebrae from the mosasaur site and obtained elsewhere in previous years showed that the animal present in this area's Dakhla Fm. shales appears to differ from those described in the literature. Further investigation on this question is required.

A visit by Dr. Robert Giegengack and a party of geologists and palaeontologists from the University of Pennsylvania over Feb. 22nd to 24th enabled me to show them some of the local Cretaceous exposures and to consult with them about past depositional environments. Identification of some fossils was also discussed.

I was able to return with them to Bahariya oasis on my way to Cairo to visit Gebel el-Dist where they are working, on February 25th.

2. **Archaeobotany & Bioarchaeology.**

This year's field season of the archaeobotanists Ursula Thanheiser and Johannes Walter lasted up to six weeks. During this period plant remains from two Holocene sites, the Old Kingdom site Ein el-Gezaren, the Graeco-Roman village of Kellis and the multi-period site at Mut el-Kharab were extracted and analyzed.

Holocene Sites.

This year's work concentrated on excavating two Neolithic sites: **Loc.136** and **Loc.404**. Both locations were selected for excavation because of a visible concentration of animal bones on the surface, which usually indicates good preservation of organic materials. Unfortunately, the sediment was again very poor in botanical remains and therefore all 25

soils samples (c.110 litre) had to be screened by hand and using a dissecting microscope. Only minute charcoal fragments, too small to be identified, were found. Plant macro-remains were not present in the samples. The absence of plant remains on Sheikh Muftah sites seems to reflect a special use of these sites.

Old Kingdom Site – Ein el-Gezaren.

Twenty-one soil and ash samples were collected from the site, from ashy deposits visible on the surface plus some additional samples from excavated structures. Twenty samples have been analysed so far.

The results are very similar to those of past seasons: the majority of plant remains are cereals (Barley – *Hordeum vulgare* and emmer wheat – *Triticum dicoccum*), and fuel (twigs, flowers, seeds and fruits of acacia – *Acacia* sp. – and tamarisk – *Tamarix* sp.) The weedy species which were also found belong *predominantly* to the taxonomic groups of *Brassicaceae*, *Fabaceae*, *Poaceae*, and *Cyperaceae*.

Graeco-Roman village Kellis.

Ninety botanical samples (43 soil samples and 47 samples from screening) from areas A/7-A/10, C/2/4-C/2/7, D/2. D/6-D/8, NT1/1 and GS1 were analyzed.

The hand-picked samples comprise (fragments of) big seeds, stones, and fruits of date (*Phoenix dactylifera*), olive (*Olea europaea*), peach (*Prunus persica*), grape (*Vitis vinifera*), fig (*Ficus carica*) doum palm (*Hyphaene thebaica*), as well as twigs, bark and wood of these trees.

The soil samples very regularly contain cereals (barley – *Hordeum vulgare*; bread and hard wheat – *Triticum aestivum*, *T. durum*) as well as other field crops like fava bean (*Vicia faba*), lentil (*Lens culinaris*), saflor (*Carthamus tinctorius*), cotton (*Gossypium* sp.), and flax (*Linum usitatissimum*). Spices (coriander – *Coriandrum sativum*, rosemary – *Rosmarinus officinalis*) and fruit (olive, date, grape) occur regularly. The frequent weeds belong to the taxonomic groups of *Poaceae*, *Brassicaceae*, and *Fabaceae*. Besides these groups, *Asphodelus fistulosus/tenuifolius*, *Calendula arvensis* and *Alhagi maurorum* occur in several samples. The common shrubs and trees, presumably used as fuel, are acacia and tamarisk.

Multi-Period site Mut el-Kharab

All twenty-six botanical samples, comprising 22 soil samples and 4 hand-picked ones, of this excavation were finished in this season. The aim of the analysis was to assess the potential of this site for further archaeobotanical work. Unfortunately, the excavations were completed before the botanists arrived in Dakhleh. Therefore the sampling strategy could not be adapted to the conditions on the site and the recovered samples were too small.

Only 2 of the samples are rich in plant micro-remains while 7 of them are completely void; the remaining samples are quite poor. Cereals dominate (barley, and less frequent emmer wheat, some bread wheat). Other field crops (saflor and fava bean) are rare. Some common fruit (grape, date, olive, fig) are present. Weeds are represented by a few species only (*Phalaris* sp., *Scirpus tuberosus*, *Melilotus* sp. and *Alhagi maurorum*).

3. Geological Studies

The field work of the geological team (Prof. R. F. Giegengack & J. R. Smith) was concentrated on water resources in the Dakhleh Oasis, while another part of their time was spent in the Kharga Oasis with the Kharga Oasis Prehistoric Project where dating evidence is being collected for the purpose of cross-dating to the Dakhleh Oasis Prehistoric cultures. This report concerns their work in Dakhleh, while the other expedition will be the subject of another report.

Field work by the prehistoric group in and near Dakhleh Oasis included study of actively flowing springs and wells that continue to flow under artesian pressure. We hope to use isotopic data from those water sources to characterize the source of water that fed similar springs at times in the past when the Western Desert received more rainfall than it does today. Models produced by other geochemists have used the physical and chemical properties of pumping wells in the oases to impose constraints on the nature of the water that fed springs in the past.

We collected water from Ain el Dinareya near Qasr, and from a flowing well in Rashda. We were unable to locate Ain el Gebel (or, perhaps, Ain el Tafnis), an active spring described from the edge of the escarpment east of Baris. We will undertake a systematic search for that water source next season.

Archaeological Studies

4. Pleistocene Archaeology

Two separate teams devoted their energies to the examination of Pleistocene archaeological remains.

Dr. M. F. Wiseman reports that

Two weeks were devoted to testing a spring-mound (Loc.393/A*) for subsurface evidence of a Late Pleistocene (i.e., ~ 40,000 – 10,000 years ago) human presence in the oasis. Loc.393 was first reported in 1998 when several very fresh artefacts weathering out of a spring-mound SW of Sheikh Muftah were noted & collected. This season a 5 m² test-trench was excavated : 3 m² were excavated to a depth of 15 cm, and 2 m² to a depth of between 40 & 45 cm.

These excavations yielded a relatively small sample of artefacts in extremely fresh to mint condition, a situation rarely encountered, and one which is in stark contrast to the normally heavily patinated & abraded material found to date.

On the basis of stylistic & techno-typological criteria, there would appear to be at least 3 cultural phases represented:

1. A typical Levallois technique represented by points indicative of late Middle Stone Age, probably Aterian;
2. A somewhat atypical, Levallois technique represented by very 'bladey', elongate, extremely thin & rather small Levallois points, the dimensions of which have not been encountered previously by either A.L. Hawkins or myself (these points are even thinner and smaller than those encountered in Loc.318 which is presumed to post-date the Aterian proper.);
3. A number of blades, many produced by Levallois technology & therefore consistent with either 1. or 2. above; but several appear to be of non-Levallois production techniques & therefore are difficult to assign to either phase.
4. A core and an abruptly retouched, thick 'geometric' flake fragment (cf. Caton-Thompson's "mutilated flakes") both of which are highly diagnostic of the Sheikh Mabruk Unit.

Of potential significance, particularly in view of the confused stratigraphy anticipated within a spring-eye context, is the fact that the artefacts recovered display differential silicious patination which, pending further investigation into the formation processes of this gloss, MAY be indicative of relative chronology. If so, the fact that the Sheikh Mabruk material is

completely unsilicified (in terms of patination) would support my long-held contention that the Sheikh Mabruk post-dates the Aterian.

*) 'A' denoted the gridded & excavated area within the overall area of Loc.393.

The remaining time in the field was divided between processing & analyzing the material recovered from Loc.393/A, & from 2 relatively large collections retrieved in 1998, as a result of surface reconnaissance: Locs.**369/I** in the Balat Basin, and **MD/2** from Medawarra .

Loc.369/I was fully processed & diagnostics analyzed, thereby contributing an additional sample (ca. 550 listed artefacts) to the Sheikh Mabruk data-base.

MD/2 was found on a terrace in Kharga Oasis which has been destroyed by road construction. Of the 520 pieces sorted & numbered, very few are unfragmented, and with the exception of even fewer decidedly MSA flakes, they are of largely indeterminate cultural affiliation.

One new locality, Loc.**395**, which actually represents the general area around Loc.393 but at a lower elevation, i.e., not on the spring-mound, was catalogued & surface samples from Loc.344S in the Balat Basin, not far from R. Churcher's Hyaena Hills & Grave Den, were increased.

Plans for the future include going wider and deeper into Loc.393/A & analyzing the two collections from Loc.368 & Loc.346, still in storage.

Dr. A. L. Hawkins in turn reports:

The goals of my fieldwork at Dakhleh this season were threefold:

1. To determine the feasibility of obtaining ages on prehistoric archaeological sites and Quaternary geological features at Dakhleh using Optically Stimulated Luminescence (OSL) dating;
2. To conduct test excavations at several known Dakhleh Unit Aterian sites to determine whether larger scale excavations are warranted in the future; and
3. To re-examine some of the materials analysed in my thesis from a technological perspective to facilitate comparison with Middle Stone Age aggregates from elsewhere in Egypt and the Levant.

1. Initial fieldwork involved revisiting a number of Pleistocene and Holocene localities in the oasis to assess suitability for OSL dating. I examined two spring mound locations: Localities 080 (Dakhleh Unit) and 393 (Sheikh Mabruk Unit). The sediment in the eyes of these mounds is siliceous sand and was probably exposed to enough light to allow for OSL dating. However, ages obtained would be related to the last running of the spring and would only provide a limiting date for the archaeological material found in the mound sediments. Other locations visited to assess potential for OSL dating were:

- Locality 216: a remnant gravel terrace surface with some sediment in which Dakhleh Unit artefacts are found;
- Locality 324: a Sheikh Mabruk Unit site excavated in 1995 where artefacts are also found below surface;
- The rock art basin north of Bashendi where Pleistocene Laminated Sediments without artefacts are found adhering to sandstone yardangs;
- The "Iron Balls Fauna" site on Calcareous Silty Sediments in the El Alkouleh basin;

- The “Iron Balls Spring” site where early Middle Stone Age archaeological materials are found *in situ* in the El Alkouleh basin;
- The site of dispersed vitreous material on Calcareous Silty Sediments in the El Alkouleh basin; and
- Locality 136: a Sheikh Muftah Unit site in Camelthorn Basin.

A number of these localities are estimated to be older than 100,000 B.P. and beyond the range of OSL dating. However, at this time there are so few chronometric determinations for Pleistocene archaeological sites and Quaternary geological features in Dakhleh Oasis that even “infinite” dates would be considered useful. At most of the localities listed there appears to be enough silica sand and depth of sediment to make OSL dating possible. At a number of Pleistocene sites artefacts are found exclusively in surface context. In these cases it would be useful to combine OSL dating with an estimation of the duration of exposure, possibly using experimental dating methods. In sum, there appears to be good potential for application OSL dating at Dakhleh, and it may resolve some crucial questions of chronology, such as the relation between the Sheikh Mabruk and Dakhleh Units.

2. The specific goals of the test excavations were to determine:

1. The feasibility of carrying out controlled excavations in unconsolidated sediments;
2. Whether artefacts recovered from test excavations carried out in previous years were displaced from the surface during rapid test excavations;
3. Whether the piles of stone on the surface of Localities 342 and 216 are natural or cultural features;
4. If an arrangement of limestone blocks on the surface of Locality 216 BC is a cultural feature; and
5. If the samples of artefacts that I recovered in previous years and which served as the basis for my dissertation reflects the variety of artefacts found in subsurface context.

Excavations were carried out at three localities: 080, 216 and 342.

Locality 080: I excavated 11 one-metre squares to varying depths with the assistance of three local workers. All squares were located at the base of the mound area on the east end of a large trench that may be a borrow pit or may be a pit dug by earlier excavators at this site. There appear to have been two eyes at this spring and during this season we made no investigation of the eye at the top of the mound. Our excavations cut across the Cretaceous Mut Formation muds into sediment deposited by the spring: red and yellow silts and fine white sands. We found it impossible to maintain close stratigraphic control in the unconsolidated sand, but somewhat easier to do so in the silt. We excavated the material in four basic units, combining stratigraphic excavation and excavation by arbitrary level:

Level 1: Surface to the top of the white sand or silt;

Level 2: Top of the white sand or silt to 25 cm below surface (b.s.);

Level 3: Approximately 25 cm b.s. to 50 cm b.s.;

Level 4: Approximately 50 cm b.s. to 75 cm b.s.

The sediment was screened through ¼ inch mesh and we collected all the chert, quartzite and ball chalcedony encountered, regardless of whether these pieces were artefactual or not. These were later sorted in the lab and the natural pieces were discarded. There are many more natural pieces than artefacts: 556 compared with 48. The distribution of the natural versus cultural pieces in the different excavation units is similar, although not exactly the same (See Figure 1).

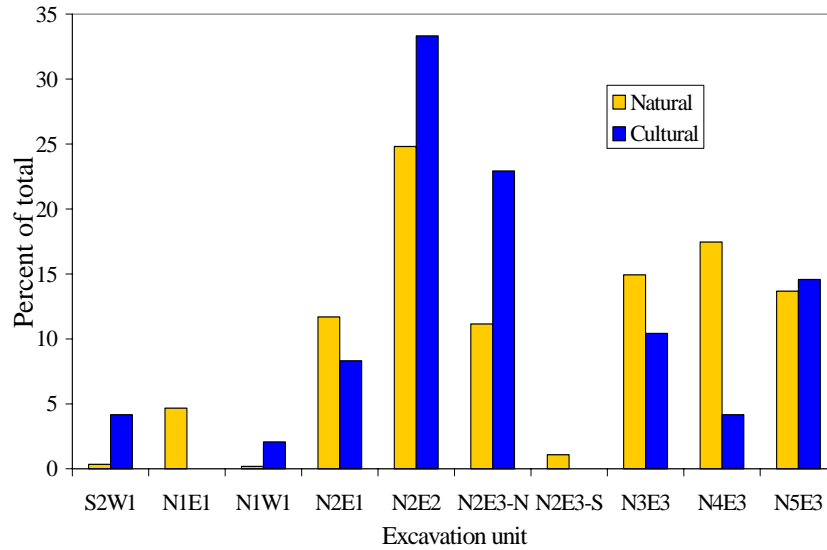


Figure 1. – Distribution of artefacts and natural chert, quartzite and chalcedony pieces by excavated square.

The differences can probably be attributed to the small sample of artefacts. At this time there is no reason to believe that there is a significant difference in the spatial distribution of artefactual and natural chert. The presence of a lot of natural chert and the apparent mixing of artefacts and natural pieces suggests that the mode of deposition of this material was natural, i.e., artefacts present on the P-III gravel around the spring were deposited in the spring sediments by the same processes that deposited the natural chert; or :

Prehistoric people deposited artefactual chert in or by the spring, but the churning of the spring sediments by water has resulted in mixing of artefacts with geological chert such that there are no longer any intact concentrations of artefacts. Examination of the distribution of

artefacts versus natural pieces by depth shows that, as with the distribution across space, there is not likely to be any significant variation (Figure 2).

Although Caton-Thompson found artefactual levels at a spring mound in Kharga, we found nothing similar here. It is possible that such exists, but cannot be discerned in the sand that collapsed as it was excavated.

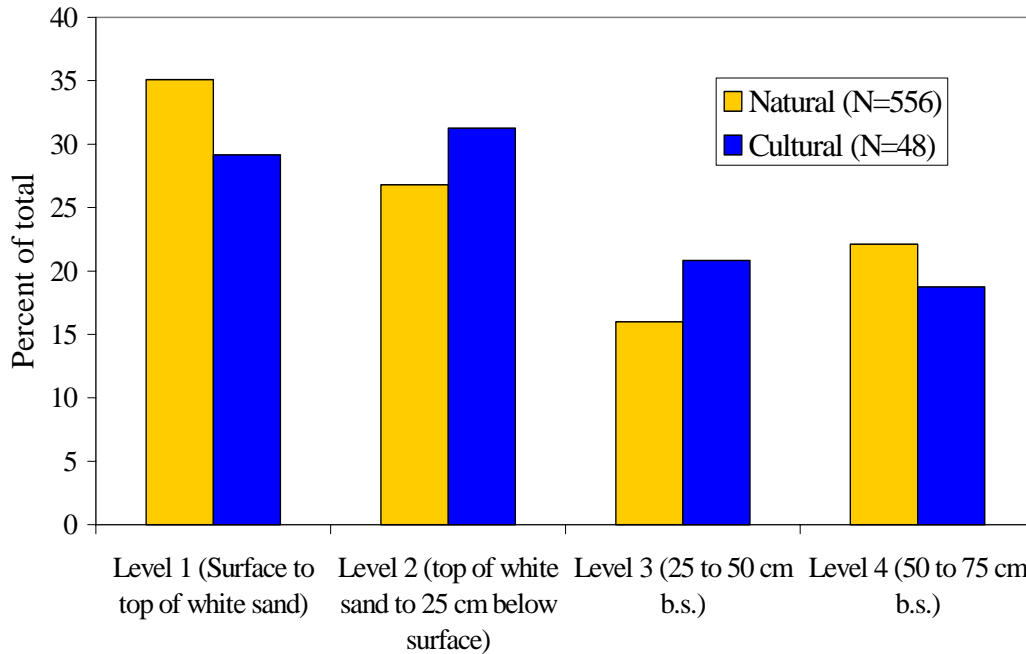


Figure 2. – Distribution of artefacts and natural pieces of chert, quartzite and chalcedony by depth

In my analysis of material from Loc.080, I examined the surface condition of the material for evidence of surface exposure. Artefacts with a brown patina or varnish correlated with the upper levels of the site, suggesting that Level 1 represents a mix of material including objects from the surface. Only three of the artefacts from Level 2 were brown in colour, and these were found in a patch of brown sand, suggesting post-depositional iron staining rather than desert varnishing. The only artefacts to show evidence of abrasion were also from Level 1. I interpret this to indicate that if pieces were incorporated into the spring sediments from the surrounding P-III gravel, they were not exposed for a long period of time.

I also looked at the technological attributes of the objects because this could inform on whether a mix of cultural material was present. Nine pieces from the excavation are particularly informative: four cores and five Levallois flakes. One “core” is possibly a natural piece and shows removals of a few small flakes from a small nodule, mostly from one platform. The others are classified as Levallois, with centripetal preparation. One is “preferential” and the other two as “recurrent”, based on the size and number of scars on the core striking face, and the proportion of the other face that serves as a platform. The dimensions of these cores are similar (L=59-64, W=44-54, T=20-25). The pieces classified as Levallois flakes include four flakes and one pointed elongate flake or blade. The flakes show patterns of centripetal preparation, the blade shows bidirectional preparation. Only one of these shows any modification caused for or during use: it is blunted bilaterally on the dorsal face at the base of the flake. This could be caused by or for hafting.

Although it would have been useful to recover artefacts from L. 080 that confirm its tentative Dakhleh Unit Aterian identification, we did not do so. However, all of the characteristics of the small sample of artefacts recovered fall easily within the range of variation described for the Dakhleh Unit. Furthermore, there appears to be some degree of cohesion in the small sample of analysed pieces, suggesting that even if the material represents a mixture of material that it does not include Holocene artefacts, or even artefacts deposited during significantly earlier or later times than the Dakhleh Unit. Therefore, OSL dating on the last running of the spring might provide an age that approximates the Dakhleh Unit use of the spring.

Locality 342: I excavated four metre squares at Locality 342 with the assistance of three local workers. During earlier work at Localities 342 and 216 we noted the presence of possibly cultural stone piles that may relate to knapping activity. Our excavation area was selected to bisect one of these piles and to include an area that appeared to be an undisturbed surface. We worked north of the area we surface collected in 1997 to avoid areas that were likely to be disturbed by that collection. The excavation was carried out in 2 cm arbitrary levels, with all squares being brought to the same level before excavation of the next level commenced. Workers were asked to refrain from stepping or sitting in the excavation units to reduce the risk of displacing artefacts downward in the section. We screened all sediment through ¼ inch mesh and collected all chert pieces. Natural pieces were sorted from cultural ones in the laboratory. The pile area was excavated separately from the area around it and in one square we collected all the material found in the screen, including a large amount of limestone.

Comparison of the size distribution of objects of different sizes from the pile and flat areas showed that there appeared to be no significant difference between the two places (see Figure 3). This suggests that the process that produced the pile was unselective with respect to object type. If a person made the pile, I would expect that pieces would have been selected either for size or for material. The sediment in the pile area was a more crystallised form of gypsum than that in the flat area. Based on this evidence, it seems that the small piles at L. 342 and 216 are probably natural features that are topographically higher than the surrounding area because they are slightly more resistant.

Controlled excavation in this location was achieved much more easily than at L. 080. Although we encountered some problems with wall collapse, workers were aware that sediment from collapse should not be combined with that excavated from levels. I am confident that the artefacts recovered from subsurface contexts are not displaced from the surface.

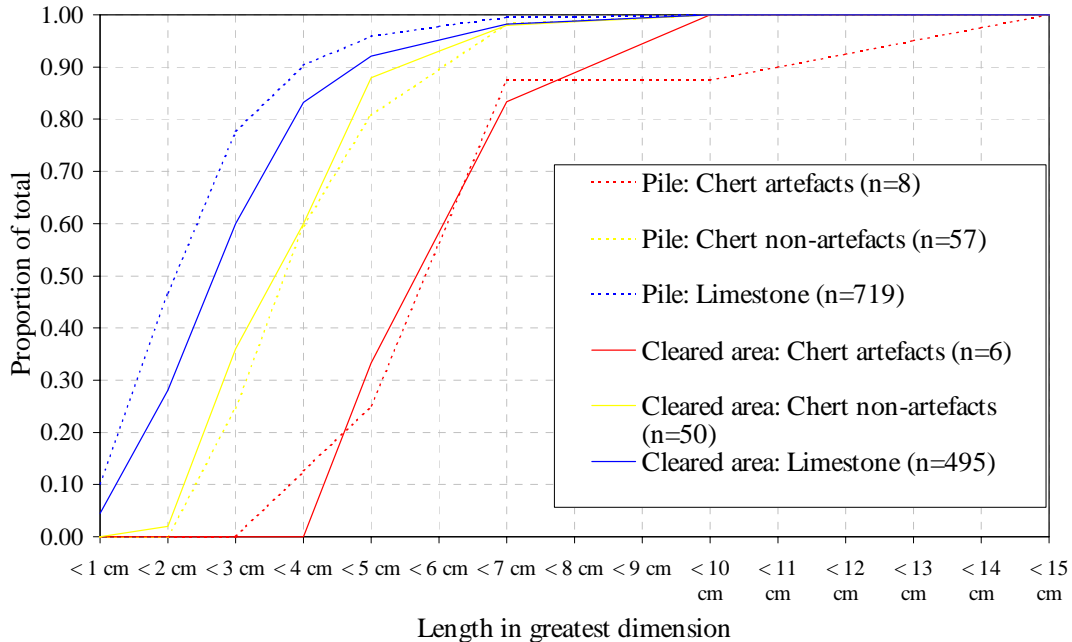


Figure 3
 . – Cumulative proportion of objects of different kinds from L. 342 N45W5

We recovered a total of 46 artefacts from subsurface context and 40 from surface context in these four squares. The number of artefacts drops sharply with depth, but artefacts were encountered to 12 cm below surface (see Table 1). The size distribution of surface and subsurface artefacts is quite different: there are many more small pieces found sub-surface than on the surface. Although it would be tempting to attribute the subsurface pieces to vertical displacement from the surface, there are a few large pieces that are found at a significant depth. This indicates that the processes by which these pieces were incorporated into the sediment were more complicated than simply falling through the section. Indeed, the difference in size distribution is probably contributed to by removal of small pieces from the surface by erosion. Desert varnish on many of the subsurface pieces suggests that they were exposed for some time before burial. A few pieces show evidence of more complicated burial history: a Levallois core found at 6-8 cm b.s. has a dark orange varnish indicative of long exposure, but is also abraded or rolled subsequent to formation of the varnish. A flake from 4-6 cm b.s. and one from 10-12 cm b.s. are also abraded or rolled. These pieces may have been part of the gravel on which the site lies, or may have been deposited before the surface was covered with sediment. On typological grounds, it is unlikely that they were part of the P-II gravel; however, it is possible that they relate to the archaeological units present before the formation of the P-III gravel.

We made an effort to refit pieces from the excavated area, but were unable to find any fits. However, the artefact sample is very small and based on this, we cannot exclude the possibility that the surface and subsurface artefacts mostly relate to the same knapping event. Unfortunately, there are not enough artefacts from subsurface to compare the two sets on technological grounds.

Table 1. – Number of chert artefacts by depth below surface at Locality 342

| Depth below surface | Number of artefacts |
|---------------------|---------------------|
| 0 (surface) | 40 |
| 0-2 | 21 |
| 2-4 | 7 |
| 4-6 | 8 |
| 6-8 | 7 |
| 8-10 | 1 |
| 10-12 | 2 |

The excavation at L. 342 demonstrates that material is definitely in place subsurface, but that it may relate to different deposition events. Therefore attempts to date the sediment should be carefully considered. Controlled excavation in this type of setting is possible, however excavation of large areas may present logistical challenges. The piles at Locs. 342 and 216 appear to be the result of a natural phenomenon.

Locality 216 BC: I made a quick test excavation at Locality 216 BC to determine whether the limestone blocks on the surface could be part of a structure. Structures and features are known from only a handful of Aterian sites. I removed the blocks on the surface and excavated one metre square to a depth of 10 cm in 5 cm levels. I screened the sediment through ¼ inch mesh, but sorted artefacts from natural chert in the field.

To my great surprise, limestone blocks also occurred sub-surface in the same general pattern as on the surface. The sediment from inside the possible structure appears to be a slightly darker colour than that from outside. The density of artefacts is much higher than at L. 342: I recovered 79 artefacts, and the sediment was not sterile at the bottom of the excavation. It is impossible to draw any conclusions based on this excavation, except that there is good potential here for finding a Dakhleh Unit structure. Careful excavations in future years are definitely warranted, and excavation at 342 shows that such are possible.

Examination of existing collections: I re-analysed two collections of cores from known Dakhleh Unit Aterian localities: 130 and 334. Both samples are quite small, but associated with definite tanged tools. One is a workshop (334) and one an occupation locality (130).

With the assistance of three local workers I re-examined the debris from L. 334 to narrow down possible sources of collector bias.

Finally, during this season I employed local workers to excavate Dakhleh Unit sites. I found that this worked very well, however local knowledge of prehistory is sadly lacking. In future, I hope to address this through training at the centre in Ein el Gindi.

5. Rock Art.

Prof. L. Krzyzaniak conducted another season of research on the petroglyphs of the Dakhleh Oasis. The programme this season comprised the following points:

1. A systematic search in the area called 'Mud Pan', SE of Teneida;
2. The start of systematic documentation of the petroglyphs in the area described by H.A. Winkler as 'Site 67';

3. Relocating Winkler's 'Site 69.'

1. Mud Pan Search.

The large expanse of the area called 'Mud Pan' is surrounded by sandstone hills and this was the subject of a systematic investigation this season. Seven new petroglyphic sites were discovered and totally recorded. Two of them - marked previously as 61-37/B2-1 and 3 - are dated to dynastic times, most probably to the Old Kingdom period. The remaining five sites - provisionally marked as 61-37/B2-2, 4, and 5, as well as sites 61-37/B4-1 and 2 are dated to predynastic times, their more exact chronology being a further subject of our research. The dynastic sites bear engravings depicting cattle, donkeys, dogs, oryx, a big lizard and perhaps also a lion and a female dancer. One of these two sites has the remains of a hut where the petroglyphs had been executed on flat stones originally constituting its base. The predynastic sites contain petroglyphs such as schematic depictions of a 'goddess' in association with giraffes and depictions of antelopes. All these sites have been fully recorded: they were recorded as written descriptions on the Unit's catalogue sheets, photographed and traced onto clear plastic.

2. Winkler's Site 69.

An important result of the season was the relocation of Winkler's Site 69. This site is in fact composed of a number of sandstone hills situated in a rather remote part of eastern Dakhleh. They bear the petroglyphs which were published by Winkler. The more characteristic petroglyphs were photographed by us. With this discovery, all sites from the Dakhleh Oasis published by Winkler more than sixty years ago have now been relocated by the Petroglyph Unit of DOP.

3. Winkler's Site 67.

The Unit's field work was also directed toward the area of Winkler's site 67 which has been visited by us several times in the past. This site is a cluster of hills, situated around a larger basin. Altogether, some ten petroglyph sites have been noted in this area and they were preliminarily numbered as 61-39/B2/1-5 and 7-11 (a major living site is situated in the centre of this basin - clearly of Bashendi cultural tradition - has been marked as site 61-39/B2/6). All these sites are of predynastic chronology. Among these sites, a particularly rich one is certainly site 61/39/B2/1 where a large number of particularly interesting petroglyphs have been noted. Some of them were engraved on a single piece of stone (*art mobilier*) and the most unusual one depicting apparently a row of dancing figures (men?) one of them much larger than the rest, was buried in sand in order to protect the piece from possible theft (unfortunately, disappearances of pieces of *art mobilier* from the surface of sites has been noted in the area of our work).

6. Holocene Prehistory

In 2001 Dr. McDonald spent 9 ½ weeks in Dakhleh, and was assisted by two students, Inez Teubner of Humboldt University, and Asten Warfe of Monash University.

This season we concentrated on the Sheikh Muftah, a late neolithic cultural unit found in the oasis for about 2000 years, and surviving until late Old Kingdom times. We focussed on two main sites. The first is Loc.136 or **30/450-B3-2**, located a few kilometres SE of Teneida in eastern Dakhleh. The site had been discovered during our survey of the area in 1983. When visited it in 2000, it was discovered that it had been partially destroyed by a road bulldozed through it, and that cultivation encroached from two sides. Fortunately, the

inspectorate was able to extend its protection over the site and we hope that it will be able to do so for another year or so, until we complete our work there.

The site is important for several reasons. It is very large for a Sheikh Muftah locality, measuring about 75 x 60 m. It has a rich surface scatter of chipped stone, and pottery that appears to span 2000 years, up to late Old Kingdom times. Moreover, the presence of large bone fragments in several spots on the surface suggested that *in situ* deposits might have survived.

We started work at Loc.136 by incising a 2 m² grid enclosing c. 3200m². We drew several kinds of map, including a theodolite map of the relief of the site, a map at 1:100 of the surface artefact scatter and maps at 1:20 of areas to be excavated. Work at the site then took two forms: intense surface collection and excavation.

A close look at the surface artefact scatter as we were mapping suggested that artefacts differed somewhat from one part of the site to another, indicating perhaps that some parts were occupied earlier than others. To test this we collected from 4200 m², or about half the total area of the site (minus the 300 m² taken up by the bulldozed road), and we hope to complete the surface collection next year. In the collections, each sherd is labelled for its 2 m², and each piece of chipped stone and other artefacts per 1 m², thus giving us good control on the distribution of artefacts.

In addition to making the controlled surface collection, we excavated 46 m² in five areas of the site, with several goals in mind: to learn something of the site history, to get *in situ* artefacts, as well as organic remains – both plant and animal – to shed light on the site economy, to get material for dating, and to learn more of site features.

The longest sequence occurred in a 2 x 4 m trench dug in the highest point of the site, squares. K13-L13. Here in the 1 m deep culture-bearing deposits, three dark bands were selected in the bottom 70 cm. Each band was from 5 to 7 cm thick, and they were separated by thicker grey-brown deposits, variously consolidated. Although they looked like burned deposits, the dark bands contained very little charcoal and appear to be the remains of marshy vegetation growing during humid episodes. In the top 30 cm of deposit, above the dark bands in square L-13 are two other black lenses, one at c.25 cm, the other forming a mound on the surface, armoured by fire-cracked rock. These top two black lenses seem to be hearths. This meter-deep deposit in the K-13/L-13 trench with artefacts throughout seems to then represent a period of time when Sheikh Muftah people lived at the site under variable (wetter and drier) climatic conditions.

None of the other trenches had culture-bearing deposits as thick as K-13/L-13, but in two others, artefacts were found up to 30 – 40 cm below the surface, while in the last two, cultural material was confined to the surface features.

Two types of burnt features occur on Loc.136: hearths and fire pits. The hearths are mounds up to 2 – 3 m in diameter, armoured by fire-cracked rock and sometimes sherds or other artefacts, and some still containing ash. Fire pits are flat and less visible on the surface, but are marked by scatters of animal bone, and may be as much as 10-15 cm deep. They range considerably in size: some in square K-34 measured 70 x 60 cm, while an extensive one in K/L-20/22 was 3 x 5 m and filled with powdery dark grey ash, animal bone, some chipped stone and up to 200 sherds.

Aside from the hearths and fire pits, no features were found. With the exception of one possible hut circle, there were no structures or even post molds. Grinding equipment is rare: several hand stones and 2 or 3 small grinding slate fragments were recorded. Pottery is relatively abundant and, as noted, may span as much as 2000 years. Some of these sherds may have been imported from the Nile Valley or elsewhere in the desert. The chipped stone collection includes nearly 200 tools. Denticulates, scrapers, points and combination tools are all common, and the collection includes 42 triangles and trapezes (transverse arrow heads?), a new item in the Sheikh Muftah corpus, as well as 4 standard Sheikh Muftah arrow heads. The

faunal collection is a typical Sheikh Muftah one, with cattle and goat predominating, gazelle fairly common, and traces of hare and possibly hartebeeste.

Given the faunal collection, the lack of structures, and the paucity of grinding equipment, site 136 may have been occupied largely by a pastoral element within the larger Sheikh Muftah society.

If Loc.136 spans 2000 years, the other site we dug, Loc.404, (32/390-K2-2) seems to have been occupied at the end of the Sheikh Muftah era, during late Old Kingdom times. It is located on the edge of an Old Kingdom site in Western Dakhleh, 32/390-K2-2, 'Ein el-Gezareen', being excavated by A. J. Mills. It was located in the 2000 season by Lesley Mills who noted Sheikh Muftah sherds on its surface. In February of this year, we spent about 10 days at 404.

The site is about 70 x 36 m and covers two patches of ground separated by a sandy gully. On the larger, northern area we incised a grid of 1220 m², on the south area, a grid of 172 m². In the northern grid we surface collected 164 m². The pottery from this area examined by C. A. Hope, proved to be predominantly late Old Kingdom, with some Sheikh Muftah and a lot of 27th Dynasty pottery. The pottery from the southern grid, where we collected 104 m², proved to be a mixture of Sheikh Muftah and late Old Kingdom pottery, with a much higher proportion of Sheikh Muftah pottery than on the northern grid. Accordingly, we decided to concentrate on the southern grid, where it appears Sheikh Muftah people lived beside the large late Old Kingdom site.

We excavated 22 m², revealing three features, a fire pit and two other pits, one filled with many sherds. The firepit, at the E side of the site, was marked on the site surface by blackish powdery deposit. On excavation it proved to be an oval feature 3.5 x 2.5 m with the surviving deposit up to 12 cm deep. It contained some animal bone, much chipped stone, and a great deal of pottery, some metre squares yielding over 150 sherds, many of them fire blackened.

The second pit, in its surviving portion, measured about 1.9 x 1.0 m, but showed no signs of burning. It contained some sherds and some large bone fragments and, on its western side, a concentration of chipped stone including 8 cores and 3 large scrapers of tabular chert. The third pit, c.11.4 x 1.3 m x 12 cm deep, likewise showed no evidence of burning. It contained some chipped stone and much Sheikh Muftah pottery: about 300 sherds, some quite large, were recovered.

The chipped stone collection from Loc.404 included about 100 tools, nearly half of them denticulates or point-denticulates. Scrapers were also prominent, with most of them made on tabular chert. The other categories present are points, notches combination tools and 4 arrowheads. Amongst the animal bone from the site are cattle, goat and gazelle.

Charcoal for botanical analysis is unfortunately rare on both Locs.136 and 404. In order to get some Sheikh Muftah botanical samples, and to further investigate particularly the early part of the Sheikh Muftah sequence, we spent 2 days on Loc.135, a scatter of Sheikh Muftah clusters located about 1 km south of Loc.136. We located several clusters with charcoal preserved in hearths or fire pits. We took soil samples from 4 newly located clusters, numbered Locs.135, Cl 6 – 9, including samples from 2 fire pits in Cluster 6. We also took a sample from a fire pit in Cluster 5, where we had worked in 1987, and which had yielded a date of 5000 bp. In addition, we took ostrich eggshell samples from 2 of the clusters.

7. Old Kingdom Studies

Watch-post Hilltop Sites

In December 2000, a team of O.E. Kaper, H.O. Willems and L. Kuijper continued their survey for Old Kingdom Hilltop watch posts. Three new sites were discovered this season, in addition to the eleven already known of the same type.

The sites are located on hills, and are dated to the Old Kingdom by the ceramic types and by the rock art present on them.

The first site, **32/435-TBN**, lies 7 km northeast of Bashendi. It consists of a hill with a wide view of the surrounding area, on which is one stone hut circle with three rooms and two additional stone windbreaks. On the surface of the site the material remains consist of ceramic, flint, and rock art. A sample of the flint was taken, as well as a complete collection of the ceramic remains. A record of the petroglyphs was made as tracings on plastic film and in photographs.

The second site has been numbered **31/420-H10-3**. It is located southwest of Sheikh Muftah and it consists of a series of hut circles and other features on the top of a prominent hill. A rich collection of ceramics was present on the surface, as well as a small amount of flint and rock-art. The surface of the site was mapped in detail

A complete collection of the ceramics was made and these were reconstructed as far as possible with good results. A series of nine water vessels and eleven different types of Meidum bowl could be distinguished upon this site. The petroglyphs were recorded in photograph and copied on plastic film.

The third site was found to the south of the previous hill. It was numbered **30/420-G2-1**. It had already been visited by the German team led by R. Kuper who had kindly provided us with the coordinates. An initial survey was made of the rock-art, and a sample of ceramics was taken. A group of four images of the god Seth were copied on plastic and photographs, and a photographic recording was made of a selection of other petroglyphs. The site is to be recorded fully in a future season.

The new sites yeild more material for interpreting the nature of these sites, which we believe were part of a military infrastructure aimed at guarding the oasis during the Old Kingdom.

As part of a study of the escarpment northeast of Tenida, it was decided to examine the traces of ancient routes visible on aerial photographs and by eye from the ground. One particular route proved to have been utilized during Old Kingdom times as evidenced by abundant ceramic remains dating to this period. Late period, Roman and Byzantine ceramics were also found, but no modern material was found on this route. A sample of ceramics was taken, and a second sample was taken when the route was visited again in the company of Dr. Colin Hope in January 2001.

In addition, a joint field trip was undertaken with Dr. Lech Krzyzaniak and his team in order to exchange information about each others' sites and the rock art present on them.

32/390-K2-2 : Ein el-Gezareen.

Our work at Ein el-Gezareen this season falls into two separate studies. One, was the beginning of the study of our chipped stone industry by Dr. M. Kobusewicz in November, 2000; the second was the excavation in an important building in the settlement area of the site.

I. Dr. Michel Kobuseiwicz undertook studies of chert materials collected and excavated at the site. The aims of this research are:

1. To study the technological approach to chert knapping utilized by the inhabitants of Ein el-Gezareen and the typology of chert artefacts produced by them.
2. To compare the chert assemblage from Ein el-Gezareen and the assemblages of the Sheikh Muftah sites in the oasis, looking for similarities and differences between these two units, and trying to resolve whether the inhabitants of the Ein el-Gezareen settlement originated from a local, pre-pharaonic Egyptian population, or whether they were newcomers from the Nile Valley who settled in the newly founded town.
3. The comparison of the chert assemblage from Ein el-Gezareen with other types of Old Kingdom sites, like Ayn Aseel, or the small watch-posts guarding the oasis, and even distant sites of the same age such as Kom el-Hisn in the western Delta.

To recognize and define the chert knapping technology the materials from 50 square meters of the special 100 sq. metres collection from square **O-16** was meticulously analyzed. These artefacts were very precisely collected from the surface. The assemblage contains all materials including very small chips.

Chert debitage was sorted according to our debitage type list. All unbroken pieces were measured; platform types and the amount of cortex were described. Also, cores and retouched pieces were treated the same way.

Next, the materials from all excavated units and materials collected from the surface of 10m x 10m squares were checked. Retouched tools were selected and described according to the type list composed for the Ein el-Gezareen assemblage to date consisting of 25 types. Raw materials were analyzed and described.

Generally, the chert knapping technology is rather a very simple and "primitive" one. Two kinds of raw material were used: grey nodular chert and yellowish-brown tabular chert. The nodules of grey nodular chert were simply knapped from all possible directions, practically without any preparation. This resulted mainly in multiplatform-unpatterned cores and core fragments. Almost the only products were thick wide flakes and chunks. Blades are extremely rare, purely accidental. Hardly visible bulbs on flakes prove that the cores were knapped by a soft hammer, which is confirmed by the absence of hammer stones. Hammers could have been made of copper (?). Only a few of a great number of flakes were chosen for retouching, mainly for making small tools like groovers, perforators, some denticulates and notches. Partially retouched flakes also occur.

Tabular chert was used for the production of larger tools, especially scrapers of different tools and bifacially retouched knives. There are no cores of tabular chert. Tools made of this material were shaped from chert tablets by retouch. For production of bifacially retouched tools, small, thin and wide flakes are characteristic, concave from the dorsal side. This was recognized in the debitage from the special collection of square **O-16**. Among retouched tools specified in this collection the nodular chert represents 53.16% while tabular chert 46.84%. Other raw materials like quartz and chalcedony(?) represents less than 0.5% of the assemblage. Rare flakes of sandstone and quartzitic sandstone derive from shaping grinding stones. A single core of quartzitic sandstone indicates that some flakes of this raw material were also produced.

Among the tools an obvious exception are sickle blades. They are all made of high quality regular blades obtained by pressure (*par pression*) technique from single platform cores. No single core of this type has yet been found. Also the raw material seems to differ from that known at the site. All this may indicate that the sickle blades, or at least the half-products of sickle blades, were delivered to Ein el-Gezareen from elsewhere.

II. Excavations.

The excavation at Ein el-Gezareen this season was conducted by A. J. Mills, with two assistants from Cambridge. The work was concentrated upon 'Building C'. This was identified last season as an important structure, when wall tops were brushed and mapped. The building is symmetrical in plan, with rooms that were larger than is usual on the site, with well-built walls that had a thick coating of plaster on all surfaces. It was supposed that the building was a mudbrick temple. The object of this season's excavations was to explore the interior of the rooms in an effort to gather evidence for the use of the building. Please see plan for room numbers.

Fig. Plan of Excavated Area at *Ein el-Gezareen*.



The excavated rooms in Building C are of two types: the first is L-shaped rooms, the southern end is 4.5 x 7 m, and the north-south part is 11.5 x 3.5 m. There are two of these rooms (Nos.1 and 2), lying on the outer sides of the two central rooms (Nos.3 and 4), which are 7 x 3 m each. Entry into this part of the building is from a room to the north (Room 6), with two doorways placed at the NE (room 1) and the NW (room 2) of the outer rooms. The inner rooms are entered from doorways in their NE (room 4) and NW (room 3) corners. There is no access between rooms 3 and 4, nor directly between 1 and 2. The unexcavated area to the north of these four rooms bears the remains of square pillars and pillasters.

While the building is symmetrical in plan, this part of it is divided into two distinct parts. The symmetry even extends to two round/oval lined pits, one of which is placed in each of rooms 1 and 2. These pits are placed, in both cases, exactly in the centre of the floor of the room. They have been rebuilt or at least refurbished several times, presumably when the floors of the rooms were remade. In both cases, the pits were filled with a fine, grey-white ash, but neither pit showed evidence of burning having been within it.

There is a maximum preserved height of the walls here at the south-west corner of Room 1, where it is 0.75 m high. The remaining walls decrease in height towards the north end of the complex. The walls of rooms 1 and 2 are painted with a thin yellow 'wash' as a decoration. In the doorway between room 1 and 6 there is evidence for red paint. The walls in rooms 3 and 4 were coated with a light grey or white surface of clay or lime. All of the walls in these rooms have a plastering of a mud of a different colour than the mud of the bricks. This mud plaster is from 3 to 6 cm thick and gives the walls a smoother surface. This mud plaster has not been found anywhere on the site except in the rooms of building C and is one of the features that identifies it as a special building.

The floors of these rooms are well made, and of mud. They are hard packed and some attempt has been to surface them. A test showed that there are several floorings. A future season will expose these.

The objects from these rooms are mainly from the fill, and little was actually on the floors. They are principally potsherds and chipped stone material. There are six round limestone column bases, and a rectangular stone of similar thickness. There are traces of red paint on most of these stones, following the circumference of the stone and which show the columns above to have been almost the same diameter as the stone bases.

The stratigraphy of the site is becoming clearer. The enclosure wall underlies Building C, which overlies the eastern enclosure wall. That wall, in turn, appears to have been built after the western enclosure. At one point in Room 2, structures underlying the floor have become apparent and it seems that our Building C is one of the latest buildings on this part of the site.

There will continue to be speculation concerning the purpose of this building. The two examples of excavated Dynasty VI temples, at Abydos and at Elephantine, bear no resemblance to this structure. In addition, no evidence directly relating it to any cult has been discovered. However, the unusual nature of Building C within the context of Ein el-Gezaren makes it worthy of regard and consideration as a special structure.

8. Roman Period Excavations.

Amheida. (33/390-L9-1)

Dr. Lynn Meskell reports that this year marked the second preliminary season at Amheida. The main aims were to create a base map of the total site, survey more completely Area 1 and develop strategies for intensive survey, surface collection, excavation and conservation. Conservators were consulted in assessing the potential excavation areas and the condition of

many of the standing buildings, especially those where plaster and paint were evident. Two weeks were spent collecting and analysing data and developing field methodologies.

A GPS map of the site was developed, specifically for standing remains and prominent archaeological features on the site. Each feature was given a position, photographed and relevant notes taken. A series of levels were determined from which to analyse human activity, including an urban core, mortuary zone, and a more extensive area of field systems and farmsteads. With the help of the ceramic specialist a sampling strategy was prepared for surface materials which will be integrated into the settlement site excavation. Additional features were identified for intensive survey or excavation in future seasons.

Area 1 was also recorded more extensively this season. We used a total station (an EDM theodolite) to record a series of structures that can be reconstructed using a CAD program. This is crucial before full-scale excavation takes place in 2002. These buildings were also drawn in detail. The conservators examined these areas, made drawings of exposed mud brick, and developed plans for the conservation component of the project. Issues of site display and reburial were also discussed. Surface sampling was undertaken and ceramics and small finds recorded. Four test pits were also initiated to determine the density of ceramic materials, the complexity of the stratigraphy and the feasibility of maintaining baulks during excavation. Clear stratigraphy was evident and the results were extremely positive and useful for determining future excavation strategies.

Ismant el-Kharab (31/420-D6-1)

Dr. Colin A. Hope submits the following report:

Excavations were conducted at Ismant el-Kharab for three weeks commencing on 21/01/2001. The focus of the short season was the further examination of the Roman Period mausolea, but some work was also undertaken within the East Churches and in a residential structure in Area C. The majority of this represented the completion of work within areas that was commenced during previous seasons; only one new excavation area was examined, namely The South Tomb Group. In addition to the excavation, significant progress was made in recording the backlog of ceramics, the glass, textiles and other artefacts, especially the material from the mausolea; this aspect of the season's work will not be discussed here.

I: The North Tomb Group: the excavation of tombs 1 and 2 was completed.

I.1 North Tomb 1

This is the largest of the brick mausolea within the northern group; it is located at the southern end of the main row, closest to the settlement. The structure comprises three rear chambers that open off a transverse room on the east; the central chamber was stone lined while all others were of mud brick. Immediately to the east of the tomb is a free-standing portico; a narrow corridor surrounds the tomb on all sides save the east. In addition to the main entrance located on a central axis from the portico into the tomb, there is a door through the north wall of the transverse room that provides access to what may have been a second, wider corridor around the first one. The latter is poorly preserved and its wall could only be traced on the north. This wall extends for a considerable distance to the east of the actual tomb (approximately 37 m), at which point it appears to turn through 90 degrees to the south, but its full length on the east could not be determined and there is no clear trace of it on the south or west of the tomb. The focus of the excavation was the recording of the burials; for a

discussion of other architectural features see the report presented on the 1999/2000 season of excavations.

Eighteen burial cuts were investigated (burials 7-24; 1-6 having been recorded in the previous season). In these complete or near complete bodies were preserved in burials 10, 12 and 16 in Room 3; burial 13 in Room 4, burial 17 in Room 6, burial 18 in Room 8 and burials 19-24 in Room 11B. All other cuts contained disarticulated and disturbed human remains with the exception of one, burial cut 15 in Room 2, which was completely empty. Burials 14 and 17-24 are located within the corridor and rooms surrounding the main part of the tomb, and all contained the remains of small children. None of the burials was accompanied by artefacts. Work within Rooms 1-4 of the tomb concentrated on floor level and sub-floor activity, and it could be demonstrated clearly that the original gypsum-plastered floor in Rooms 1, 2 and 4 had been replaced by a stone floor comprising randomly-cut sandstone blocks. The floor in Room 3 was originally of stone, but this had been removed almost completely, probably before the burials in that room (burials 4-6, 10, 12 and 16) were interred.

All of the burials and burial cuts appear to post-date the construction of the tomb and its original use. Those graves within the tomb were all cut through the stone floor. All cuts are oriented east-west; where the body remained its head was positioned on the west. Those who cut the graves and were buried in them may, therefore, be identified as Christians, and a date in the late fourth century suggested. Most of the bodies of adults had been disturbed to some degree. In some cases it appeared as though the body had been dug up, the wrappings carelessly pulled away and the body then thrown back into the grave. Where this had not happened (burials 10 and 7) it seems as though the western end of the grave was dug into, as though the head was targeted specifically. This feature has also been observed in the contemporary cemetery immediately to the east of the settlement (31/405-C5-2).

A careful search was made for the location of original burials, including under the stone paving in the main transverse room and below floors in rooms within and outside of the tomb. No subterranean chambers were located and it appears that none was constructed, and it must be concluded that the original burials were placed within the three rear rooms of the tomb, either in coffins or upon funerary beds, though no trace of these was found. During the course of this study substantial evidence was accumulated on the building techniques of the tomb, and the main phases of construction. The tomb is built onto the basal clay of the site with foundations set into trenches; the floors of the portico and external rooms rest upon a foundation of Nubian clay and crushed sandstone. Only the central rear room that was once stone lined has substantial foundation courses of stone blocks. The interior walls of the portico preserve a decorative scheme of red and yellow painted panels.

I.2 North Tomb 2

North Tomb 2 is situated to the north of Tomb 1 and like it comprises a transverse chamber off which open three chambers in a row on the west. It is built of mud-brick and the central and northern rear chambers are stone lined; the floors were stone paved throughout. A small entrance portico is poorly preserved; apart from this there are no external rooms. In the 1999-2000 season most of the building was cleared of debris and the rear chambers were excavated to floor levels, where the remains of several burials and associated artefacts were found (see DOP report for that season). The excavation of the transverse room and portico remained to be completed, as did the examination of any sub-floor deposits. This work was completed in 2001.

It appears that the construction of the tomb was undertaken in a single phase; unlike in Tomb 1, there is no evidence of changes to floor level, and the tomb sits upon foundations built directly upon the gebel surface. No subterranean chambers were located, though, unlike in Tomb 1, the stone flooring was not lifted as it was extremely-well preserved except in the southern rear room. Here a deep pit was found in the south-west corner that appears to be a

robbers' pit dug in an effort to locate subterranean burials; it is 2.7 m deep and irregularly shaped. Several sandstone paving slabs were found in it at a depth of 1.65 m and 1.8 m; below the former were the remains of the burial of a child placed in a crouched position within sand. Only the torso and lower limbs survived; associated with it was a large quantity of linen. Several fragments from an elaborately carved, sandstone offering table were found at a similar depth but they do not appear to have been associated with this burial, which appears to be late in date. Other fragments from the same table were found in sand deposits elsewhere within the same room.

In the transverse outer room three graves were located: one each against the north and south walls, and one against the west wall between the doors into the central and southern rear rooms. None of these was original in that they were cut into the foundation trenches for the neighbouring walls and they disturbed the original distribution of paving slabs. Each grave originally contained a single burial within a ceramic coffin. The burial in the northern grave was represented only by fragments of bone and linen, and the coffin had been completely broken. The southern burial was again poorly preserved though the coffin was almost intact. The third burial, on the west, was in a better state of preservation and still covered by sandstone blocks. The well-wrapped remains of a female were found within a ceramic coffin that had been broken into in antiquity and then repaired; the head was found disarticulated and partly unwrapped. The remainder of the body was intact; it was wrapped first with wide bandages and then narrow bandages in a lozenge design over this. Well-preserved basketry sandals were attached to the exterior at the foot end, and a wooden 'mummy label' was secured to the body by the outer bandages. The label preserves the identity of the deceased, reading 'Sentais, daughter of Thatres'. This is the first discovery of such a label at the site. The style of all of these burials is similar and implies a degree of contemporaneity; the only preserved body was oriented north-south with the head on the south. The other two graves are oriented east-west. These interments are not those of Christians and may be assigned to the second or third century CE.

Again, it would seem that the original burials, which may be represented by finds from the previous season, were placed in the rear chambers upon funerary beds, and they were accompanied by ceramics and offering tables. At least one of these burials was within a painted cartonnage coffin, and another within an inlaid coffin from which sections of inlay survive, most notably a dark-green glass scarab with mottled red-glass wings.

II: *South Tomb 4*

The South Tombs are located immediately to the south of the settlement, beyond the remains of an ancient canal that provided irrigation for the field network around this part of the site. The exact number of mausolea within this group is uncertain as many are poorly preserved; on the west is a group of five comparatively well-preserved examples. The most elaborate of these, no. 4, was selected for excavation. It comprises a poorly preserved T-shaped entrance porch measuring approximately 3.0 x 3.65 m. This leads into a transverse chamber, measuring 9.82 x 3.50 m, from which another of equal size is accessed through a central door in the south wall. A partition wall, erected immediately east of the door into the outer room, sub-divides this room into areas of unequal size; it is a secondary alteration to the layout. In the rear (southern) wall of the inner room, which is 10.16 x 3.43 m, there is a central niche, 0.58 m above the floor level; it measures 0.61 m wide by 0.28 m deep and is preserved to a height of 0.70 m. There appears to have been another niche in the east wall that had a stone base, but this is now poorly preserved. The floor of the inner room is of mud bricks. Externally, the tomb is provided with two half-columns on the east and west sides, and two half-columns on either side of the entrance; at the corners there were double half-columns. The roofs were barrel-vaulted.

Within the tomb brick collapse overlay sand fill to almost floor level. At floor level throughout there were the very disturbed remains of the interments, some, though not all, burnt. The floor and lower walls of the inner chamber were heavily burnt. Associated with the burials were a variety of incomplete artefacts. These included fragments from a gilded sandstone statue of Isis, a terracotta figurine of a female, pieces of plastered and painted wood that may come from funerary furniture, pieces from glass and ceramic vessels; the latter are of types that may be ascribed to the first to third centuries CE.

III: Area C/2, Structure 7

Excavations within this structure in 1999-2000 indicated that it had been used as a blacksmith's workshop and, because of the rarity of such, it was decided to conduct further work here in 2001. This concentrated on the floor deposits in Room 1. A 3 x 2 m grid was set up in the south-west corner of the room and this was sub-divided into 0.5 x 0.5 m units. The deposits were excavated separately within each sub-unit and the entire matrix was kept; the magnetic component of each was isolated and the weight of magnetic and non-magnetic fractions determined. This showed that the upper deposits may derive from use of the room by animals, while the main phase of activity definitely relates to the smithing of iron, with large quantities of micro slag being present. In some units the matrix comprised between 15-30% micro and macro slag. This is supported by the discovery of fragments from smithing-hearth bottoms, vitrified linings and fuel as slag, some found *in situ*.

Pottery associated with the deposits from which the slag derived can be assigned to the first to second centuries CE, and appears to attest a domestic assemblage, suggesting that we have a household workshop.

IV: The East Church Complex

Two test trenches were opened in the east churches, A/7 and A/8, in order to determine whether there were earlier structures beneath the floors. The area excavated in the large church, A/7, was in the south aisle, immediately outside the doorway to Room 3, one of a sequence of four rooms that open off that aisle on the south. This area was chosen specifically, as excavation carried out beneath the floor of Room 3 during the 1999/2000 season had revealed a substructure within that room and also a substantial wall upon which the north wall of the south rooms had been built.

The trench commenced from the centre of the doorway and continued in an easterly direction for 2.5 m; it spanned the width of the south aisle (1.8 m). At a depth of 0.70 m below the floor of the aisle, a thick layer of hardened mud was reached; this appears to have functioned as the foundation platform of the church, for it was also encountered at a similar depth beneath the nave and in a small test trench in the north aisle, both of which were excavated in previous seasons. The structure beneath the north wall of the Room 3 proved to be the foundation wall for all of the south rooms; it was laid directly onto the mud layer. It is 0.4 m high and extends a further 0.56 m into the south aisle than does the exposed wall built atop it; this may be to accommodate the mastaba that was once built upon it. The foundation wall of the south colonnade was also laid upon the thick mud platform. The fill between the mud platform and the floor of the aisle comprised mud-brick rubble, ash, bones and sherds. The ceramic assemblage was identified as fourth-century. The mud platform proved to be sterile. No earlier structure was detected.

The test in the small church, A/8, ran east-west along the mastaba on the south wall for a distance of 3.6 m commencing at the mastaba on the west wall, and extended one metre into the church. This area was chosen because a section had been added to the mastaba along the east wall suggesting that it was a later addition. Excavation revealed that the mastaba along the entire south wall had been built directly onto the floor of the church. At a depth of 1.45 m below the floor a thick layer of mud was encountered yet again; this may have formed a

foundation platform for the south wall but, as excavation was not undertaken beneath this mastaba, this cannot be confirmed. The fill comprised rubble, with bones and sherds; no ash was present. The ceramic assemblage was fourth-century. No earlier structure was detected.

Mut el-Kharab (31/405-G10-1)

Dr. Colin A. Hope reports on the excavations at this site as follows:

A two-week period of excavations was conducted at Mut el-Kharab between 6/01/2001 and 17/01/2001. The aims were, briefly stated, to determine the potential of the site to yield well-stratified deposits related to architectural features and other cultural material that would enable a history of activity at the site to be determined. Surface evidence indicated that the site was occupied from the Old Kingdom to the Late Roman, and possibly even Islamic Period, though whether continuously was not known. The scale of the remaining structures indicates that it was a site of considerable importance, undoubtedly the capital of Dakhleh at some stage, and the temple enclosure is the largest in the region. It offers the potential to document the history of the oasis during many periods that are relatively obscure in this oasis, especially from the New Kingdom to the Ptolemaic Period.

In addition, it should be noted, that the continued existence of many parts of the site is under threat from a variety of factors, but mostly human agency. It is evident that many sections have suffered considerably from traffic passing across the site; this is not only in the form of pedestrians and animals (some are actually grazed upon the site), but animal-drawn carts and motor vehicles of various forms. Distinct pathways and tracks show that this activity has been under way for a long time and in places it has completely removed all trace of the ancient structures and sections of the thick enclosure wall. The modern town abuts the site on the north-east, while fields completely surround the other sides; a modern road runs within a few metres of the south-east corner of the wall. Also effecting the south-eastern part of the site is a long trench, probably once a canal, flanked by mounds of earth, that originates in a large depression that may be the remains of an intrusive well. Pits in the site are used for the dumping of garbage and dead animals; many are of recent date indicating the activity of locals searching for antiquities. During the course of the excavations our work was disturbed on a regular nightly basis. Thus, there is a very real urgency for exploring the site now and the development of some strategy for its preservation.

I: Brief Description of the Site and its Environs

The site is located to the south-west of the modern town and occupies a large mound. The dominant feature is a substantial mud-brick enclosure measuring approximately 300 m N/S by 200 m E/W, with walls up to five metres in thickness. These are preserved to some eight metres in height at the west end of the south wall but are almost entirely absent on the north-east. The wall, as is standard technique, is built in sections and it appears from the different composition of the bricks and mortar that it incorporates different constructional phases. On the south the enclosure is built onto a natural spring mound, and this may originally have determined the actual location of the site. In the south-west corner of the enclosure there is a large well, some 30 metres in diameter, that is surrounded by dredgate containing substantial quantities of potsherds. The foundations of the enclosure wall on the east of this well are set into trenches that were dug into the side of the well, indicating that it predates the construction of the enclosure wall.

Slightly to the north-east of the centre of the enclosure there is a large depression with a scatter of sandstone covering approximately 80 m N/S and 20 m E/W, indicating the location of what can be identified as the site of a temple, now poorly preserved. Adjacent to this are the remains of mud-brick structures that may represent parts of the temple, and others, some

quite sizeable, appear to fill the enclosure. The nature of these buildings cannot be identified from surface remains, though they probably represent administrative and storage facilities, and possibly accommodation for temple personnel.

On the mound to the south of the enclosure are several Islamic tombs now falling into disrepair; however, there are traces of other structures here, which predate the existence of those monuments. There are no visible remains from other elements of the ancient settlement adjacent to the temple enclosure. To the north of the enclosure are two large mounds, one is Ayn Marqula, and elsewhere within the area of the modern town there are others of smaller size, including Ayn Hammam, Ayn Mardume, Ayn Sadira, Kom el-Kharab bi hi Atlal and Humiyat B. These appear all to contain cemeteries relating to the settlement and indicate that it was occupied for a considerable duration. Humiyat B is currently under excavation by the Dakhleh Inspectorate and contains mud-brick tombs with both pottery and stone coffins that, on the basis of associated ceramics, can be ascribed to the Late Period. Ayn Marqula, excavated by the Inspectorate some years ago, yielded material of the XXVIth-XXVIIth Dynasties, and tombs of a similar date and others of the Ptolemaic and Roman Periods have been found in the other mounds. To the north-west of the site there is a cemetery with mud-brick mausolea over burials that resemble those of the early Roman Period examined at Ismant el-Kharab (see below and DOP report for the 1999-2000 season). During the course of study of these mausolea in 2001 a decorated stone block undoubtedly from the temple at Mut el-Kharab was found on the surface.

II: Review of current state of knowledge concerning Mut el-Kharab prior to recent work

Whilst it is evident that early travellers to Dakhleh during the nineteenth century visited Mut and must have viewed the remains of the ancient settlement, only Winlock at the beginning of the twentieth century (1908) provides a brief description. It is clear that the site had already suffered much damage and his report provides little information of use. In 1894, however, Captain Henry Lyons purchased two hieratic stela in Mut that were said to come from ruins to the south-west of the government offices; they were presented to the Ashmolean Museum, Oxford. The larger of the two, published in 1933 by Alan Gardiner, contains a decree concerning water rights in a district named *s3-wh3t* by Wayheset, a member of the Libyan royal family, in year 5 of a King Shoshenq, that was confirmed by an oracular pronouncement by Seth; it was witnessed by various personnel from the Temple of Seth. This is now ascribed to Shoshenq III of Dynasty XXII, thus 820 BCE. The other stela, contains a record of offerings in the Temple of Seth in year 24 of King Piye (Piankhy) of Dynasty XXV and mentions a Libyan tribe called the Shain as resident in the region. These two documents thus indicate the existence of a cult and temple of Seth at Mut during the Third Intermediate Period and later. The cult continued to be celebrated into the Roman Period and Seth figures in reliefs and inscriptions in other Dakhleh temples into the second century CE, most notably in Shrine I of the Temple of Tutu at Ismant el-Kharab. This is of particular interest as, in general, from the Late Period onwards in the Nile Valley it would appear that there were concerted efforts to suppress his veneration.

Two votive statues of the Third Intermediate Period are known that probably originated from this temple, one discovered at Deir el-Hagar in Dakhleh and the other seen on the antiquities market. The Dakhleh statue has been dated to the XXIst Dynasty and mentions a high priest of Seth named Nesubast. If this dating is correct then it shows that the temple was in existence then. Some confirmation of this comes from a fragmentary inscription found at Mut by Ahmed Fakhry that mentions a Governor of the Oasis, probably in Dynasty XXI. More importantly, this inscription is cut upon a reused block, and the remaining part of the original inscription may contain the names Thutmose, raising the possibility of an XVIIIth Dynasty date, if not a reference to one of the kings with that name. That the oases of the Western Desert were under Egyptian control from the beginning of the XVIIIth Dynasty is

indicated by a variety of textual sources. Mut itself has yielded fragments of New Kingdom bread moulds of the type used in the baking of offerings.

The region of *s3-wh3t* is mentioned in wine-jar docketts and on jar sealings from Malqata and Amarna, showing that by the late XVIIIth Dynasty it produced wine that was consumed at court. Wines of the oases were imported into the Nile Valley throughout the New Kingdom and their distinctive containers, large ceramic amphorae, have been found at numerous sites from Buhen to Qantir, and they are now well attested in Dakhleh and Kharga. Oasis wine is mentioned in inscriptions from the Nile Valley until the Ptolemaic and Roman Periods.

Mut el-Kharab was probably occupied continuously into late antiquity as is indicated by the ceramic finds. During the fourth century, and possibly longer, it was the capital of a separate nome; the city was then named Mothis and the nome the Nome of the Mothites. This information has been yielded by papyri found at Ismant el-Kharab. From the same source we know that Christianity flourished in Dakhleh and that there was a bishop, presumably resident at Mut. Several fragments from stone columns can be seen on the surface of the site that, together with a larger block bearing part of a Greek inscription and decorated with crosses, probably derive from a church. Ceramic data attest activity into the fifth-sixth centuries with many imported pieces from Aswan; glazed sherds indicate some activity during much later periods.

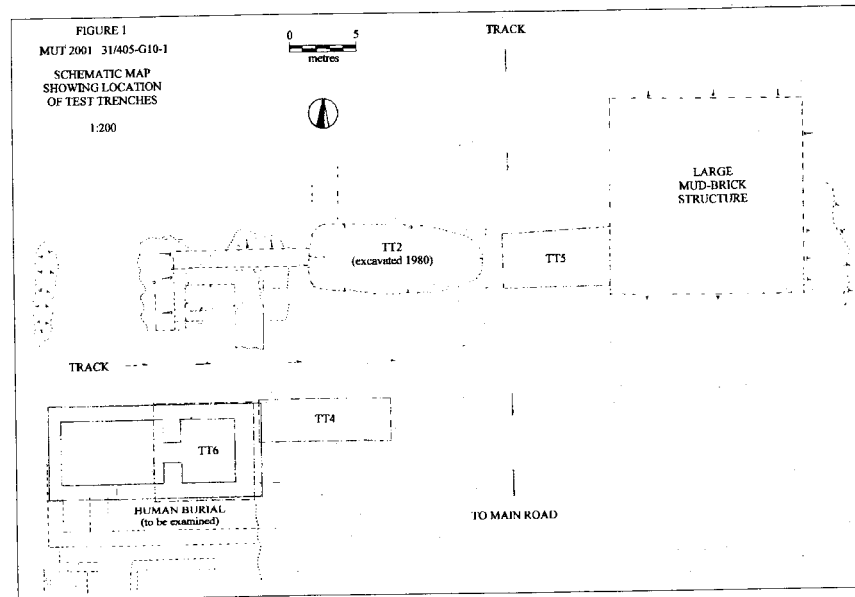
In 1978 some preliminary surveying of the site was undertaken during the first season of work conducted by the Dakhleh Oasis Project, and further work was undertaken in 1980. Three test trenches (TT1-3) excavated then showed the temple to have been destroyed almost to foundation level, revealed some Old Kingdom material in deposits under the temple, and produced a wide variety of ceramic material. In the mid-1990s the Dakhleh Inspectorate undertook some excavation at the south-east corner of the site where the modern road runs close to the temenos wall. This revealed the existence of what may be an earlier inner temenos built upon a similar scale to the outer one.

III: The 2001 Excavations (see Figure 1)

Three test trenches were excavated in the area where the temple was located:

- TT4: against the exterior of a two-roomed mud-brick structure that forms part of a group of brick buildings lying on the west of the depression with stone scatter; dimensions 10 x 3 metres, with long side E/W.
- TT5: against the west face of a large mud-brick structure on the east of the same depression and slightly to the north of TT4 - TT2 excavated in 1980 lies to its immediate west; dimensions 7.5 x 4, with long side running E/W.
- TT6: within the outer (eastern) room of the two-roomed building against which TT4 is located;
- the stratigraphy and features of TT4 and TT6, therefore, can be related to each other.

Figure 1. *Mut el-Kharab* (31/405-G10-1). Schematic Map of area of Test Trenches



IIIa: TT4 and TT6: (Figures 2-3)

Both trenches revealed the existence of *in situ* deposits of sandy loam beneath the main structural features. Within this matrix there were deposits of ash; the artefacts comprised potsherds, chipped-stone tools and debitage, and there were fragments of burnt and broken animal bones. Many of the stone tools, debitage and potsherds have been exposed to heat. The ceramic includes locally-manufactured deep bowls and spouted forms in a shale-tempered fabric that are a regular feature of the Sheikh Muftah and Old Kingdom assemblages in Dakhleh. Stone tool types and technology are of the same date. Importantly for dating, amongst the ceramics are fragments of carinated bowls, the so-called Meydum bowl, made in a fine marl fabric, that are of types which may predate Dynasty VI. Absent from the assemblage are examples of the late Old Kingdom, red-slipped and burnished, carinated bowls made in silt fabrics that occur ubiquitously in VIth Dynasty contexts. Although no structures or other features were identified within these deposits, it would seem that we have good evidence for mid-Old Kingdom activity of a domestic nature, and possibly also tool manufacture, and once again material attesting the interaction of the local and Nile Valley cultural traditions. The depth of these deposits could not be ascertained; the lowest was traced to a depth of 1.3 metres without reaching basal clay, and above this deposit others are preserved to a height of one metre. They were exposed most clearly in TT4.

TT4 showed that the temple building sat directly upon the Old Kingdom deposits in places but also cut into them. Within the centre of TT4, running north-south, a two-metre-wide trench had been cut to a depth of one metre into the Old Kingdom strata, and a bed of yellow sand laid across its base. On its western side this trench was reinforced with a 0.25 m wide brick wall, surviving to a height of 0.9 m. It is possible that the trench once contained a stone wall, but all trace of this has been removed; the fill of the trench above the sand comprised disturbed deposits filling robbers' trenches, with much smashed sandstone. Robbers pits and deposits of smashed sandstone occurred across the full length of TT4.

Fig. 2: Test Trench 4, South Section.

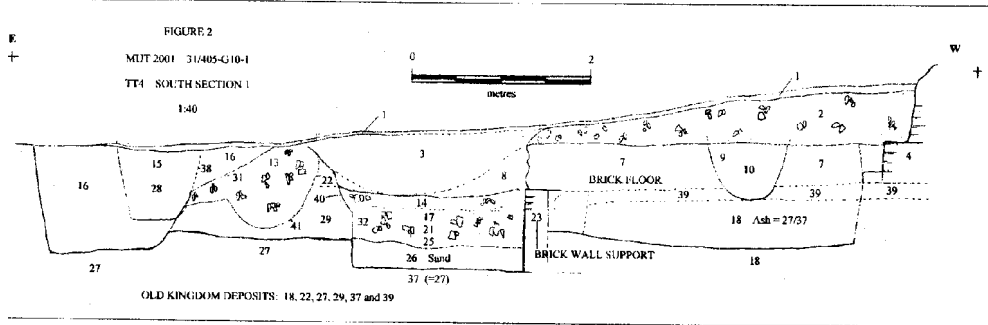
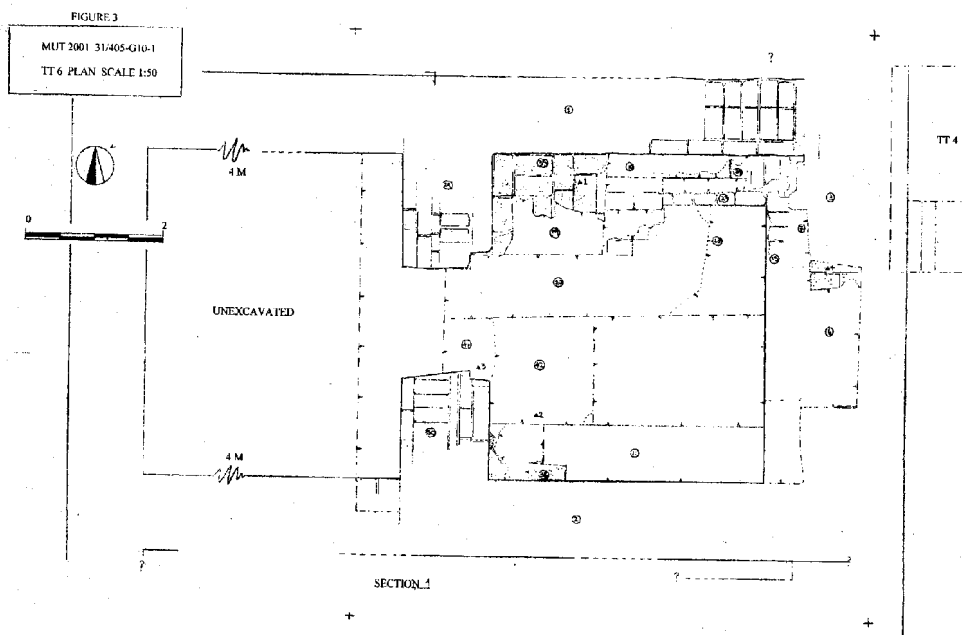


Fig. 3: Test Trench 6, Plan.



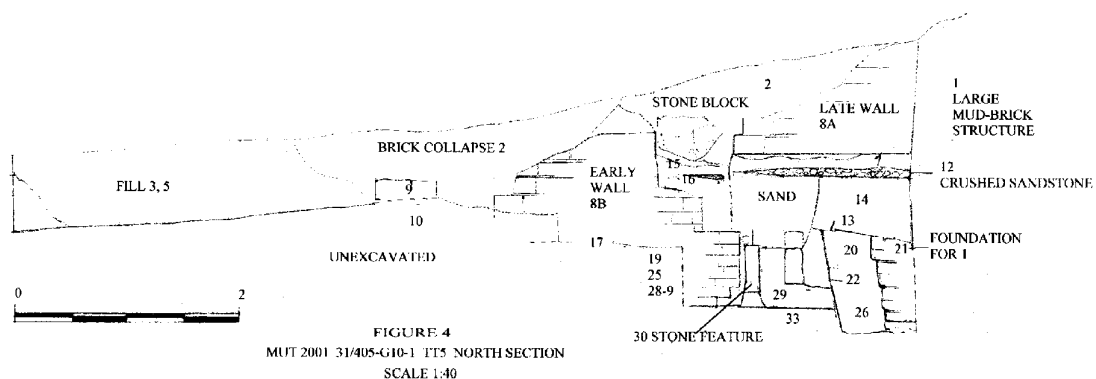
Sitting atop the brick wall with the trench and extending the distance of 4.0 m to the west to abut the outer wall of the two-roomed building, was a floor of mud and mud brick, up to 0.5 m in thickness. Upon this some sandstone blocks were found against the exterior of the building that may indicate that it served as a support for stone paving. Also upon this floor were several inscribed blocks that may come from a doorway. One contained a reference to a high priest, part of another contained the word for oasis (*wh3t*), while another preserved the name of Seth, the determinative of which had been changed from the Seth animal to the figure of a seated male deity. A small piece probably from a stela had the words 'Seth [Lord of] the Oasis'.

The entrance into the two-roomed building was located within the centre of the east wall. The outer room measures 3.87-3.92 m east-west and 3.82-3.90 north-south; the mud-brick walls are between 1.0 and 1.40 m in width. The east door is 1.76 m wide and the door into the inner room on the west is 1.58m wide; the inner room is 7.5 m east-west by 3.90 m north-south. The excavated area within this building included all of the outer room but only that part of the inner one adjacent to the connecting door. The outer room was originally paved with sandstone blocks, set upon a mud layer over a layer of smashed sandstone, and supported upon mud-brick ledges against the walls of the room. These ledges sat upon a compacted earth surface that originally extended across the entire room but had been dug into probably when the paving was removed. The area below the paving and between the ledges was filled with earth rubble that contained large quantities of ceramic and other artefacts. Amongst the latter are several of New Kingdom date: a pair of calcite ear studs, a fragment from a large faience *w3s*-sceptre, and the head from a small sandstone statue of a male wearing a wig with lappets falling over the shoulders at the front. Other items of interest though of uncertain date comprise: a pair of small carnelian hippopotamus figures, a bronze hippopotamus and a bronze figure of the Seth animal, and the upper part of a small wooden figure of a king or god wearing a lappet wig and the white crown. They may belong to the New Kingdom or immediately thereafter, and many of these pieces may be votive in nature. Numerous demotic ostraka were found; they are currently being studied by Professors John Tait and Harry Smith. One ostrakon from the surface of the site is in hieratic and mentions Seth.

The ceramic material from the fill contains numerous slender stands, piriform jars, large open bowls, smaller bowls and other forms all of which seem characteristic of the Late Period in general, and more specifically of Dynasties XXV-XXVI. The probability that the two-roomed structure and the remains of the temple building found in TT4 can be ascribed to the early XXVIth Dynasty is raised by the discovery of a decorated and inscribed, sandstone slab, measuring 0.95 x 0.90 x 0.22 m, within the north-east corner of the outer room. It preserves the figure of Psamtek I (664-610) making offering to Atum and Ra-Horakhty seated within a shrine; several other fragmentary blocks decorated in the same incised style were found within the room. It would appear that either the entire room was lined with such blocks, or that the blocks derive from a cult relief set against the rear wall of the inner room. As mentioned above, blocks from a stone doorway were found above the floor adjacent to the exterior of the structure; the northern jamb of its external doorway preserves stone blocks *in situ*. One inscribed block predates this phase, namely the one upon which the orthography of the name of Seth was changed; in its original form it may belong to the Third Intermediate Period.

IIIb: TT5 (Figure 4)

Fig. 4: Test Trench 5, North Section.



This test trench lies a short distance to the north-east of TT4 and abuts the south end of the western face of a mud-brick structure approximately 15.0 m square. This feature appears to contain various rooms and its walls are composite, indicating that it may be the result of several structural phases. Mud-brick walls extend to the north and south from the structure. To the north of the two-roomed structure in which TT5 is located there are other brick buildings, but none seems to parallel this feature. TT5 was located against this feature to determine its date and function; no trench could be situated within the feature because of the short duration of the work and the extant size of its walls.

The trench was situated to include the south face of a brick wall projecting to the west from the large feature. With the removal of surface sand and brick collapse, it was discovered that this projecting wall was in fact two walls: one abutting the main feature and projecting to the west for about 1.60 m (feature 8A), while the western section (feature 8B) actually represents the southern extant end of a wall that runs to the north parallel to the west face of the square structure. This section of wall represents the oldest architectural feature revealed within the trench; it is 2.15 m wide and extends 0.41 m into the test area. This substantial wall has been cut back on its east face to form two distinct steps. The lowest courses of the wall are set back from the west face and there is compacted sand against them; it was not determined whether the base of this wall had been reached when excavation terminated, by which time it had been revealed to a height of 1.80 m. Immediately to the east of the lowest part of this wall two sandstone blocks were revealed set upon their edges and 0.23 m apart; they are 0.13-0.145 thick and 0.40-0.41 wide. They were set into compacted sand also that filled the space between them; under this material was a compacted earth surface that may extend under the wall also. Surrounding the stone feature and sand were deposits of compacted earth that abutted the south end of the brick wall and extended south across the test area. These contained large quantities of ceramics, predominantly from thin-walled, ribbed jars with flat bases, many of which are perforated; rim sherds show the form to be restricted. They are to be identified as offering jars (so-called beer jars); associated with them were the bases from typical New Kingdom bread moulds of the type used in the baking of bread offered in temples. A few fragments of Old Kingdom ceramic were found in these deposits.

These earth deposits had been cut through by a trench running north-south at the eastern edge of the test area and into which the foundation courses of the west wall of the square brick structure were set. The base of this trench cuts into the earth surface that may extend under the earlier brick wall described above. It is probable that the cutting back of the east face of the earlier wall was contemporary with the cutting of the foundation trench. When the foundations were inserted into the trench an earth layer was laid that concealed the stone feature and lowest part of the early wall. Other earth deposits were laid and eventually a stone paving, parts of which were preserved *in situ* on the west of the upper section of the early brick wall; whether any paving was laid on the east of that wall and adjacent to the large brick structure is unknown.

The section of wall that projects west from the face of this structure (feature 8A) represents a third structural phase. Its base is 0.75 m above the top of the foundation trench for the large structure and it sits upon a layer of compacted brown sand that is on a deposit of smashed sandstone. Traces of the latter material were found elsewhere within brick collapse that fills most of the western part of the test area and overlies the earth foundations for the stone paving. This may indicate that the wall stump (feature 8A) is a relatively late feature belonging to the period after the temple had been destroyed.

South Tombs

Although no excavation was conducted within the cemetery immediately to the south of the temenos, it may be noted that it appears to comprise between 20 and 30 tombs. They have the remains of mud-brick superstructures and at least one has stone-lined subterranean

chambers and sarcophagi. This tomb had been dug into fairly recently to expose the sarcophagus; bones were scattered around the mouth of the pit. This tomb was filled in to protect it, and during this process fragments from numerous small faience ushabti figures were found. Features of this structure recall the Late Period burials in Tell Marqula, and some surface ceramics might indicate that it is of a similar date.

In conclusion, it can be seen that the site has the potential to yield valuable information on various phases of the history of Dakhleh, and evidence from periods as yet little known therein. There are deposits with material from the earliest phase of dynastic Egyptian intervention in the oasis, predating the massive expansion of activity in the VIth Dynasty. There appears to be a lengthy gap until the New Kingdom when a temple to Seth was constructed and part of which may be represented by the early brick wall in TT5; the exact date of this is as yet uncertain. During the period covered by the late Old Kingdom to sometime within the New Kingdom the focus of Egyptian activity was undoubtedly at Ayn Asil. By the Third Intermediate Period, Mut was the capital of Dakhleh; its temple was elaborated at the beginning of Dynasty XXVI, during which dynasty temples elsewhere in the oases of the Western Desert were also begun. As the cult centre of Seth, Lord of the Oasis region (*wh3t*), it withstood the assault upon the status of its god effected in the Nile Valley. The newly discovered demotic ostraka may shed valuable light upon the functioning of the temple. Although Kharga had become the administrative capital of the region by the Ptolemaic Period, Mut was undoubtedly the local centre and recent finds of amphorae and table wares from around the Mediterranean attest continued affluence. Although no undisturbed deposits of material from late antiquity were found, such may well be forthcoming. It is possible, therefore, to study almost three thousand years of activity at this site, a spectrum not known at any other locality within the region.

Deir el-Hagar : Epigraphic Recording

From 25 February until 14 March, a fourth season of epigraphic recording was undertaken at the temple of Deir el-Hagar. Five young epigraphers from Berlin took part in the recording. A total of 17 scenes were copied onto plastic foil. These comprised eleven scenes in the sanctuary, four in the pronaos, and two on the outside of the temple. A further two scenes were finished in ink. The emphasis this season was on the copying of scenes which had not yet been recorded, and at the end of the season only five scenes in the temple remain to be recorded in future. One of the latter scenes is to be conserved by the conservation department of the Dakhleh antiquities inspectorate, prior to copying.

In addition to copying, much time was spent verifying the previous copies of the inscriptions in the temple, and new readings were suggested for a number of these.

Theft.

Unfortunately, we had to report the discovery of a theft from the Sanctuary of the Temple of Deir el-Hagar this season. Dr. O. E. Kaper, the epigrapher at the site discovered the theft and reported as follows:

“Report on a theft from Deir el-Hagar temple, Dakhla Oasis, New Valley

During copying of the reliefs in the sanctuary room of the Deir el-Hagar temple, I noticed on 21 March 2001, that a small part of the relief decoration had been removed by force. During the previous year, March 2000, this relief had still been intact.

The relief in question is located on the eastern wall of the sanctuary, south of the doorway, in the bottom register. It depicts the goddess Sekhet bringing food offerings and the part which is robbed is the hieroglyphic legend in two columns which contained her name. The scene was

copied by Winlock who took photographs of it in 1908. The face of the goddess was robbed in the 1960s, as was recorded by Ahmed Fakhry who worked at the site.

It is clear from the saw marks on the wall that the robber used a steel saw, and saw dust is still present on the floor. The dimensions of the stolen inscription are c. 23 high and c. 19 wide. There was a vertical block joint at 2.5 cm from its left side, so that the inscription must have separated into two pieces.

respectfully submitted,
Dr. Olaf E. Kaper

This report has been submitted to the local inspectorate, where appropriate action was taken immediately.

We would like to add that access to the temple is relatively simple as sand has overcome the fencing on the south side, where it is not cleared away, so that animals and men can easily gain access into the temple enclosure on the side away from the guards house. Perhaps if more attention were to be paid to this breach in the defences, the incident would not be so easily repeated.

9. Bioarchaeology & Physical Anthropology.

Professor J. E. Molto reports on the activities of his team of anthropologists as follows:

Objectives of the 2000 season.

In this field season work continued on the excavation and analysis of the cemetery numbered **31/420-C5-2** (hereafter, 'Kellis 2'), a large skeletal sample associated with the Roman period occupants of the town site circa AD 175 to 400. In addition, problematic cases of pathology were re-examined and samples collected for analyses. Finally, the work continued on collecting buccal samples from modern inhabitants of the Oasis for comparative DNA research.

A total of 72 burials were excavated and partly analysed in this field season. They were recovered in the area adjacent to and just east of the original (1st field season) excavated area (see map). As expected, grave inclusions did not accompany the skeletons which were buried in an extended position with head to the west. Of the 72 burials, 61% were undisturbed and the looted crypts varied in terms of the degree of burial disturbance. For example, in three cases (4.2%) only the skulls were looted, in 6 only the thorax was disturbed (8.4%), while in 11.1% (8/72) entire skeletons were removed and/or disturbed. We are still uncertain of the nature of the looting (systematic, random, inside job vs. hit and miss from later times) at Kellis 2.

The osteological research concentrated on the analysis of the adult skeletons, plus the age determination of the subadults. Complete skeletal analysis of the latter will be conducted in the next field season.

The demographic breakdown of the burials is summarized below:

| | N | % |
|--------------------|----|------|
| Total | 72 | 100 |
| <u>Sub-adults*</u> | 36 | 50 |
| Foetal | 4 | 5.6 |
| B - .99 | 20 | 27.8 |
| 1 – 6.99yrs | 7 | 9.7 |
| 7y-12.99 | 2 | 2.8 |
| 13-18.99 | 2 | 2.8 |
| <u>Adults</u> | 36 | 50 |
| Male | 13 | 36.1 |
| Female | 23 | 63.9 |

*In one sub-adult, the age was indeterminate

The total Kellis 2 sample is now 450. The only cohorts not well represented are males and females 50+ years. In this year's sample only one male (#414, estimated to be 55 ±5 years) and two females (#438 [70 ±10 yr] and #443 [65 ±10 yr]) were judged to be older than 50 years of age. This demonstrates the problem of increasing the sample sizes in the older age cohorts. Increasing the number of older adults is a priority in order to test hypotheses on the nature of the morphology and disease patterns in the population. The percentage ratio of males/females of 36/64 is statistically skewed in this year's sampling and overall the male to female % ratio is 41/59 (81/115) which is also a statistically significant result. This sex ratio has however, fluctuated from field season to field season and is currently being interpreted as stochastic finding. The high representation of peri-nates and children has been a constant feature of the Kellis 2 sample, attesting to its ideal representation and preservation.

A number of important finds were made this year in terms of pathology and morphology.

1. Pathology.

The adult burials analyzed in this field season yielded the usual evidence of porotic hyperostosis, degenerative joint disease, dental pathology and trauma. The key pathologies are described below.

Leprosy. Two burials (B392 and B347), both males, show unequivocal evidence of lepromatous leprosy. There are now 4 cases of this disease in Kellis 2 (see map). In addition to these confirmed cases two other male skeletons (#380 and #388) excavated this field season show possible early evidence of lepromatous leprosy by way of palatal reabsorption and infection of bones inside the nasal cavity. The total number of possible lepers in Kellis 2 is also 4. The diagnosis in the equivocal cases can only be confirmed by DNA analysis. The fact that the leprous burials are concentrated in one area of K2 (see map) may also be significant if additional dates continue to show that the lepers were contemporaneous. Kellis 2 has the largest number of leprous skeletons in sound archaeological context than any other archaeological skeletal sample. These, together with the 4 Ptolemaic period skeletons with this disease from Dakhleh, raise important questions concerning the origin and prevalence of leprosy in ancient Egypt.

Trauma. Of the 13 male skeletons excavated this year, 10 (77%) had evidence of healed fractures. The most noteworthy was Burial 418, a male estimated to be approximately 20 years old, who has sharp instrument (dagger/knife) trauma to the centra of L2 and L4. Neither of these lesions is healed and they were likely delivered during the same malintent episode. This is the second example of trauma inflicted by sharp instruments in the Kellis 2 sample. Both cases involved young adult males. The overall rate of malintent trauma in Kellis 2 males is 11.4%; all cases judged to be a concomitant of interpersonal violence.

There are no cases of malintentioned trauma in females in the Kellis 2 sample. Of the 23 burials excavated this season only 5 (21.7%) females had evidence of trauma. Two cases are noteworthy. Burial 403, a female estimated to be 20 ± 2 years of age, has humeral varus deformity: this condition has left the right humeral head malformed and the bone considerably shortened (65 mm less than the left) and is interpreted as evidence of birth trauma. This could have been a concomitant of a breech birth whereby a midwife damaged the proximal metaphysis (growth plate) in an attempt to deliver the baby. This is the third case of humerus varus deformity in the Kellis 2 sample. Burial 438 is an elderly female estimated to be 70 ± 10 years old. She is edentulous (all teeth lost antemortem) and her bones are very osteoporotic. She suffered a severe osteoporosis related left femoral fracture sometime prior to her death. The fracture occurs adjacent to synovial rim. The pseudoarthropathy is eburnated (polished) indicating considerable use after the fracture. The flat pattern of wear suggests her gait was compromised in terms of abduction. This is the fifth example of osteoporotic related hip fractures in the older female cohorts in the K2 sample.

Morphology. Two rare nonmetric morphological traits, the mendosal suture and the supratrochlear spur, were found in Kellis 2 burials for the first time. Another rare trait that has been found in clusters of K2 burials is the fronto-temporal articulation, which this year was found in two more burials including one (burial #437) with leprosy. The fact that a rare genetic morphological trait that is relatively common in Kellis 2 occurs in a burial with leprosy is highly suggestive that this individual is part of the local breeding population. This fact does not necessarily mean, however, that he acquired the disease in Dakhleh. Of additional interest is the fact that burials 380 and 388, both possibly lepers, have right unilateral presence of supratrochlear spurs. It is quite possible that these individuals are closely related genetically, a fact that can be tested using DNA. Plotting the distribution of rare morphogenetic traits is invaluable research focus for determining intrasample genetic relationships. Moreover, it can be used to streamline molecular testing.

Other. Burial 426 a female in her mid-20s likely died during childbirth as the remains of a perinate were placed by her lower left leg. DNA testing will be used to confirm this hypothesis. If supported this is the only testable case of death from birth complications in the Kellis 2 sample.

Summary.

The data collected in this field season provides additional statistical sampling for studying all aspects of the bioarchaeology of the Dakhleh Oasis Project (eg., palaeodemography, palaeoepidemiology (fracture analysis, palaeogenetics, etc.) Though certain problems still exist, such help in understanding the intra-sample morpho-genetic patterns in particular, the evidence of Kellis 2 marker trait (the fronto-temporal articulation) occurring in a burial with leprosy is important for identifying this individual as being part of the local breeding population. Also, the presence of two possible lepers with another rare trait, the supra-trochlear spur, suggests that they may be closely related. In terms of this notorious disease Kellis 2 has the largest number of lepers and possible lepers of any site in antiquity. Documenting the nature (i.e., prevalence, origin, etc.) of this disease at Kellis in the Roman period will unequivocally advance our understanding of leprosy in antiquity including the possibility that leprosy has an African origin.

10. Conclusion.

It is with great satisfaction that I submit this report to you. We have managed to cover many of the areas of our interests and have made good progress in everything from

environmental studies to historical archaeology and the study of human remains from one of the most populous periods. Our excursions into the Old Kingdom is increasingly rewarding and we intend to continue to pursue this avenue in future seasons. We have also begun to explore two new sites of great importance to our understanding of the Graeco-Roman period, at Mut el-Kharab and Amheida. Of course, none of this work would be possible without the full cooperation of our many Egyptian colleagues. In particular, I wish to mention Mr. Maher Bashendi of the Dakhleh Oasis Inspectorate and Mr. Emad ed-Din Abdel Hamid, the representative from the Minia Inspectorate, attached to the expedition by the SCA. Both have been particularly interested in the work and most helpful to us.

Respectfully submitted,

Anthony J. Mills,
Director.

1 July, 2001