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The Catacombs of Anubis At North Saqqara

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Keywords: Saqqara, Egypt, Catacombs, Mummification, Dogs, Canids

Introduction

“Who has not heard, Volusius, of the monstrous deities those crazy Egyptians worship? One lot adores crocodiles, another worships the snake-gorged ibis...you’ll find whole cities devoted to cats, or to river-fish or dogs...” (Juvenal *Satires* XV).

The fact that animals feature prominently in Egyptian religion is nothing new, indeed it was ‘old news’ by the time Juvenal wrote his satire around AD 128-130¹ (Green 1974: 14). Egyptologists in their turn have examined the animal cults (e.g. Kessler 1989; Ray 1978; Martin 1982; Ikram 2005) but their attention has focussed mainly on the temple structures relating to the cults and on the literary evidence for them (e.g. Ray 1976). Whilst both of these research areas are invaluable they omit the biggest part of the surviving evidence – the catacombs and their mummified inhabitants.

This paper summarises a Cardiff University project begun in 2009 and directed by Nicholson with the aim of gaining a more rounded picture of the Dog Catacombs. The paper summarises the work of many individuals with the survey and mapping team led by Dr. Steve Mills (Cardiff University) and the faunal team by Dr. Salima Ikram (American University in Cairo). The intention of this new work has been to re-focus research on the animal cults toward the animals themselves, the individuals who operated aspects of the cult and to the subterranean structures associated with them. The temples and shrines, though undeniably significant, are often only the tip of the iceberg, the great bulk being below the waterline, or in this case below ground.

The Dog Catacombs

In 1897 Jacques de Morgan (1857-1924) published his *Carte de la Nécropole Memphite* (de Morgan 1897) on map 10 of which appear two catacombs labelled ‘T(omb) des chiens (A) and (B)’. The key to the map dates them to the New Kingdom (1550-1069 BC) (Figure 1).

¹ Indeed the “snake gorged-ibis” is a reference to the 5th Century BC historian Herodotus’s *Histories* 2. 77 1-4.

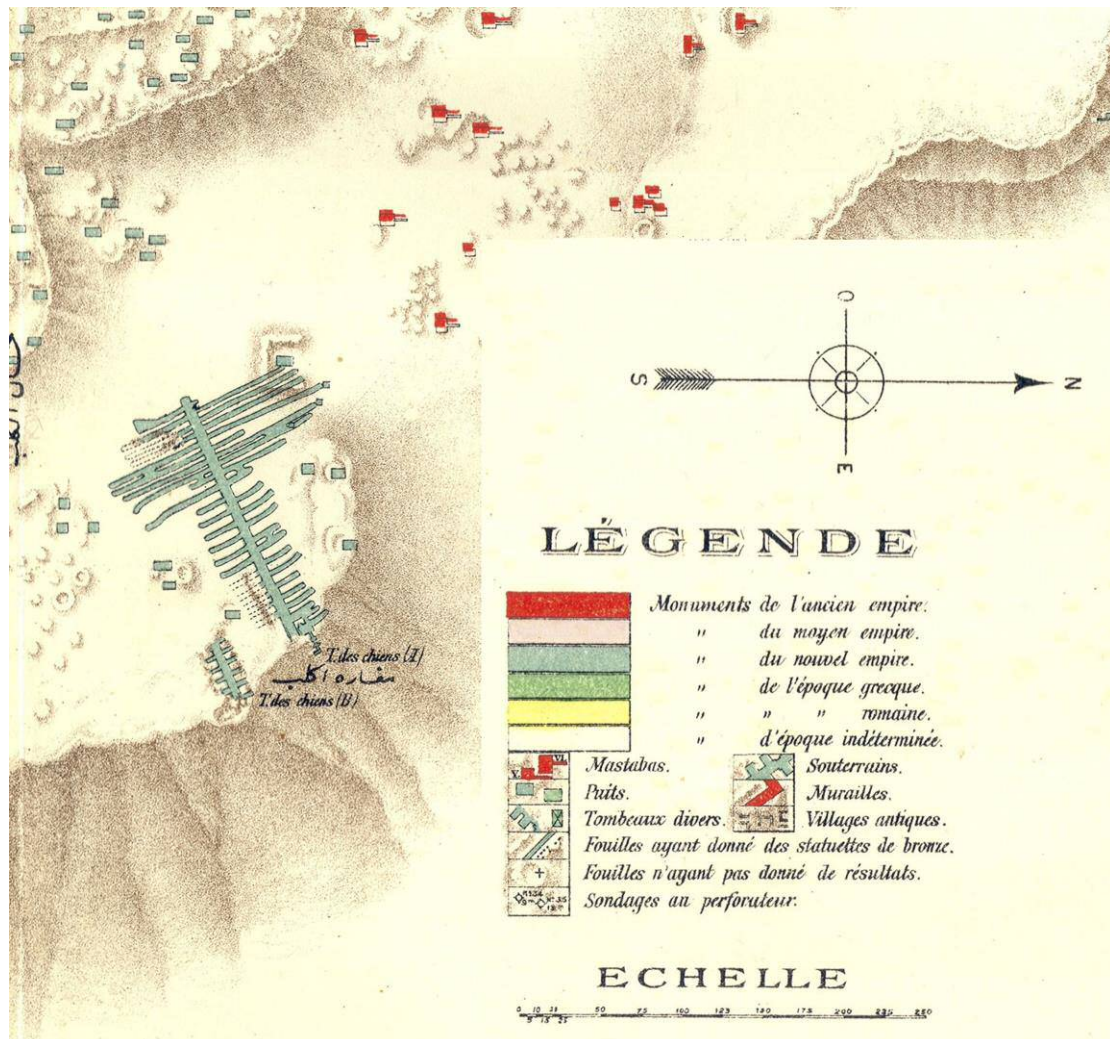


Figure 1. Extract from De Morgan's *Carte de la Nécropole Memphite* (1897) showing the location of the 'Tombes des chiens (A) and (B)'. Only the larger catacomb is currently accessible. Both are dated by De Morgan to the New Kingdom but the grounds for this are uncertain and we have discovered no New Kingdom evidence for the larger catacomb.

De Morgan's map appears to be the first to show these catacombs which are located on the east of the Saqqara plateau. He gave no information as to who discovered them or when nor his reason for dating them to the New Kingdom. Following his publication the existence of these underground catacombs became well known to generations of Egyptologists, although they were not subject to any detailed study. This lack of research is the more surprising for the fact that the work of Professor W.B. Emery (1903-1971) at the Sacred Animal Necropolis on the west side of the Saqqara plateau was widely reported during the 1960s (Emery 1965; Bacon 1967a and b; ILN 1967) and might have been expected to make the animal cults a focus for research (for an excellent summary of Emery's work see Smith 1974).

Ironically, part of the reason for the *Tombe des chiens* attracting so little attention may have been the media focus on Emery's quest to find the tomb of Imhotep, the architect of the Step Pyramid, rather than on the animal galleries which he actually unearthed. His death in 1971 effectively ended the widespread interest in the work at the Sacred Animal Necropolis and with it any spur for a new assessment of the Dog Catacombs (see Figure 2 for map of Saqqara and its monuments).

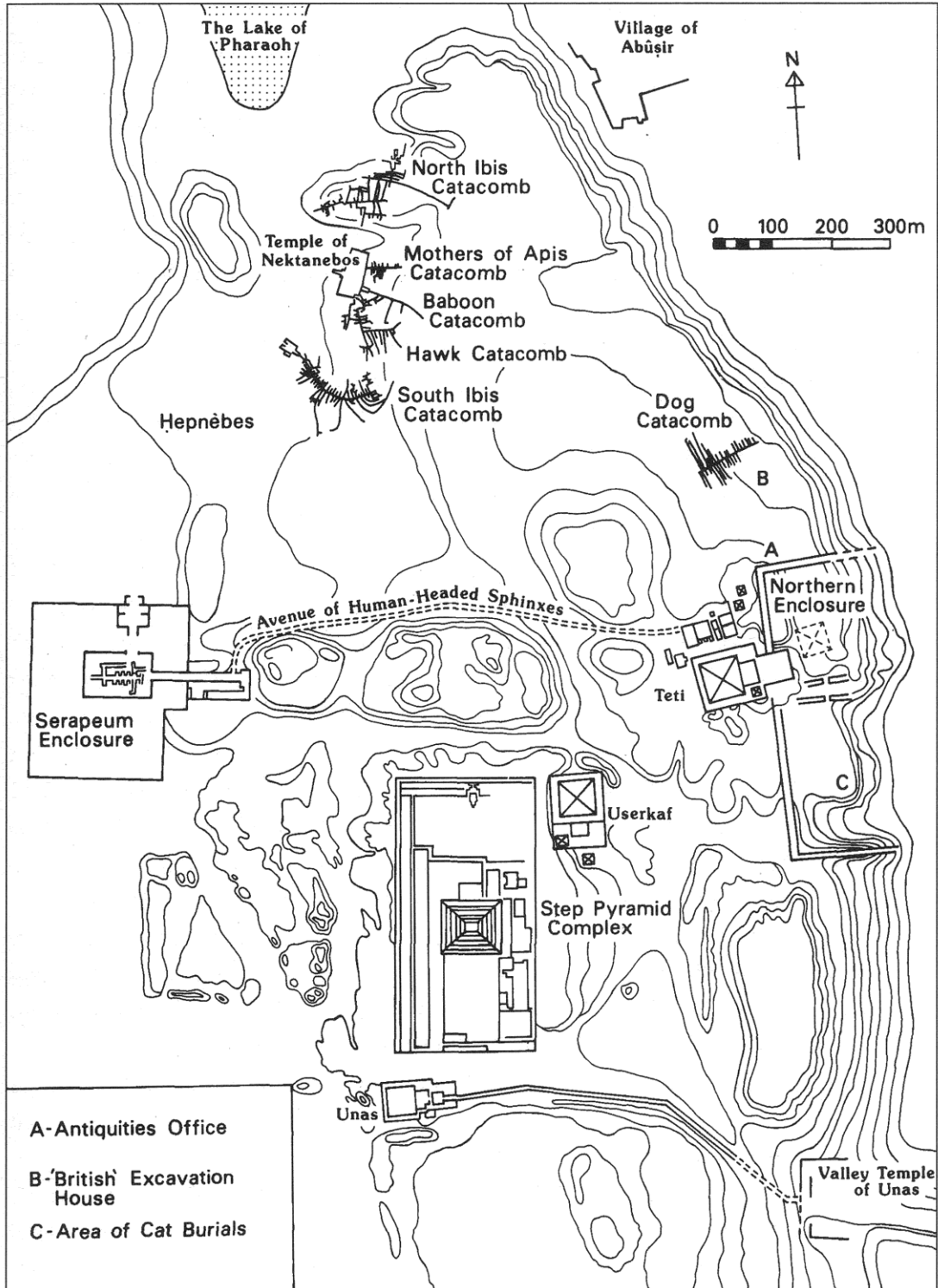


Figure 2. Map of North Saqqara showing the location of the animal catacombs in relation to other major features at Saqqara. (Drawn by J. Hodges).

The Animal Cults

The Dog Catacombs are the burial place of animals sacred to the dog or jackal-headed Egyptian deity Anubis. They are, however, only part of a wider phenomenon – the cults of sacred animals.

Animal worship was already well established by the 1st Dynasty (3100-2890 BC) and the worship of the Apis bull is recorded from that time on the *Palermo Stone* (Dodson 2005: 72; Hart 1986:28; Simpson 1957) while its origins lay deep in the Predynastic era (5500-3100 BC). The sacred animals of the dynastic period were the 'living image' or 'divine manifestation' (*ba*) of particular deities; thus the Apis bull was the *ba* of Ptah, the creator god of Memphis.

Whilst some deities were represented by only a single animal – for example there was only one Apis alive at any one time – others might be represented by a whole species. Thus Emery found tens of thousands of ibis birds, sacred to the god Thoth, interred at Saqqara (see Martin 1981). Where large numbers of animals were involved they clearly cannot have lived within the temple precincts but must have been gathered from a much wider area. Their mummies are in fact votives (see Ikram 2005: 1) offered by pilgrims in gratitude for a favour granted by the god or in the hope of future good fortune. Whilst they may sometimes share a burial place with animals which were truly sacred, and which did live in the temple, these votive animals greatly outnumber them.

The large scale of the animal cults (see Kessler 1989) is testament to their popularity, itself probably a function of the way in which the cults operated. Many of the sacred animals, including the Apis bull, were oracular creatures and would give answers to the questions asked of them by pilgrims. Expressions of gratitude given to the animals might take the form of payment for a fitting burial of one of the god's representatives – an ibis for Thoth, a cat for Bastet or a dog for Anubis – or by the donation of a bronze statuette or *situla* (ritual vessel) at the relevant shrine.

The animal cults reach their peak from the Late Period (747-332 BC) through the Ptolemaic Period (332-30 BC) declining sometime during the Roman occupation (after 30 BC). In part this popularity probably stems from the perception of the cults as archetypally Egyptian, a symbol of national identity at a time when the country was increasingly drawn into the world of the Mediterranean and subject to the rule of foreigners such as Libyans and Persians (Dodson 2012); indeed Kessler (1989) sees the cults as specifically associated with the ruler. The writers take the view, expressed by Davies (2008), that the animal cults were a much more popular phenomenon. Neither view contradicts the idea that they may be a response to troubled times and so represent a symbolic return to Egyptian core values. The cults represented at Saqqara have been elegantly summarised by Ray (1978).

Despite the huge scale of the burial places of many of the sacred animals, at sites such as Saqqara and Tuna el-Gebel, the construction of the catacombs, their architecture and the nature of their mummified occupants has attracted relatively little attention in comparison to the study of the cults themselves (e.g. Kessler 1989) and of the surface features of the sites (Martin 1981) including the various temples and shrines (Jeffreys and Smith 1988; Smith *et al.* 2006). The work of Davies and Smith (2005) and of Kessler and Nureddin (1994) as well as von den Driesch and Kessler (1994), Boessneck (1987) and most recently Rowlands *et al.* (2013) are notable exceptions to this trend.

The project reported on here has sought to better understand the nature of one such underground catacomb and to assess how its many mummified occupants were

procured and prepared for the cult. It has also attempted to explain why certain of the galleries within the catacomb are now empty.

The Dog Catacombs

The Dog Catacombs are located on the east side of the Saqqara plateau to the north of the Step Pyramid and immediately north of Professor Emery's excavation house. They underlie the southern end of the Early Dynastic (3100-2686 BC) tombs (Figure 2).

Although De Morgan's map (1897) shows two catacombs the smaller of these (B) is not currently accessible due to extensive sand drifting. It is likely that part of it may have collapsed in the earthquake of 1992 when a large hole appeared immediately north of the Emery house and therefore in approximately the location of the (B) catacomb. Nonetheless it is known that the form of this catacomb was the same as its much larger neighbour (A) to its north, namely an axial corridor running approximately east-west with a series of galleries opening from it to the north and south. The De Morgan plan gives a length of approximately 45m for the axial and a maximum width of 25m for the complex. The individual galleries are about 7-10m long. It is in these tunnels or galleries that most of the burials were made.

The larger catacomb designated as (A) by de Morgan has an axial length of 173m and is 140m at its maximum width. The individual burial galleries in this catacomb are more varied in length, ranging between 3 and 70m.

The current entrance to this larger catacomb is via a flight of stone steps, though this is a secondary entrance, the original ceremonial entrance would have been much larger and would have led directly onto the axial corridor. However, this area has suffered from rock collapse and the galleries on the south side of the axial corridor in this fore part of the catacomb seem to have already collapsed when the De Morgan map was made.

Results from the *Catacombs of Anubis* Project

A first stage in the work of the project was to re-plan the complex (Figure 3). This was necessary because of the small scale at which the original De Morgan plan was reproduced, the two catacombs fitting into a printed area of 4 cm² and therefore too small to examine details. Work by the University of Pisa shows the catacombs in relation to the contours of the plateau (Bresciani and Giammarusti 2003: 332) but their map used the De Morgan plan and attempted to locate its position against a modern survey of the plateau. The catacomb was not resurveyed.

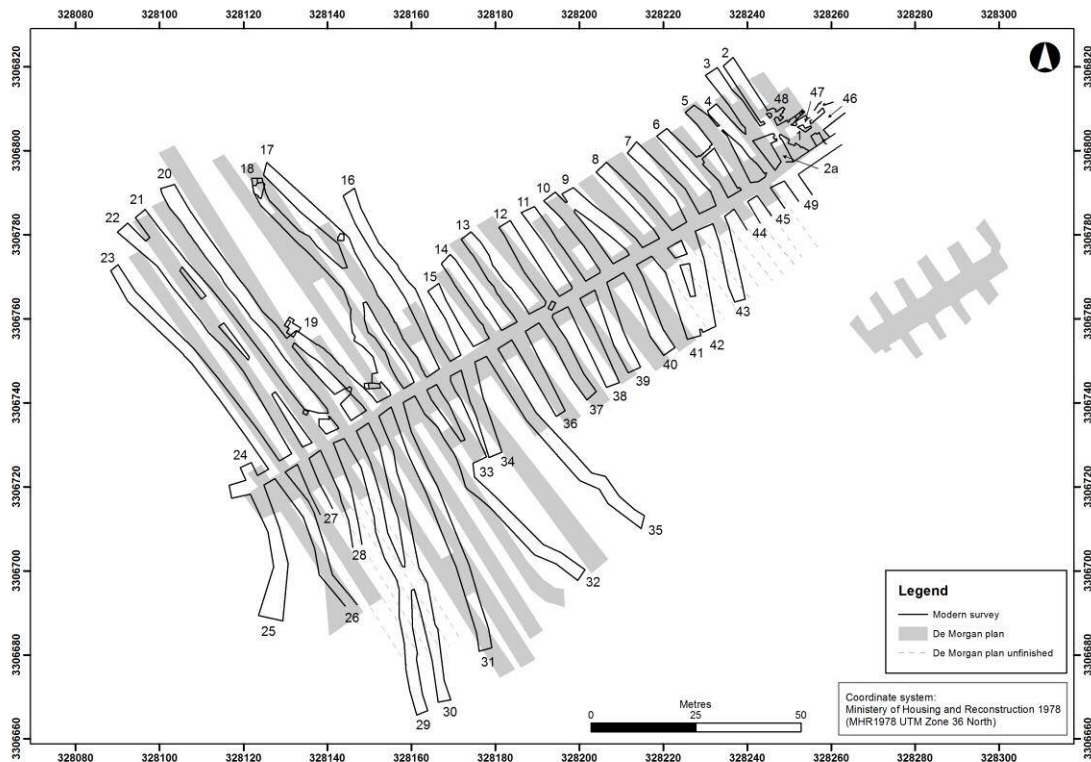


Figure 3. Plan of the Dog Catacombs overlaid on that by De Morgan (1897) (shown in grey). The smaller catacomb is currently inaccessible and so shown only in De Morgan's version. Galleries shown as open-ended are those deemed too unsafe to survey beyond the limit shown. (Plan by S. Mills, S. Williams and H. Nouwens).

Cutting the catacomb

The catacombs have been cut into the upper calcareous beds of the Saqqara member of the Lower Eocene (c.56-48mybp) Maadi formation (Youssef *et al.* 1984; Nicholson *et al.* 2013) deposited in a shallow lagoonal environment. Of some significance may be the fossilised skeleton of a marine mammal preserved in the roof of gallery 8. This fossil is currently under investigation, but at the time of writing is believed to be the first vertebrate fossil to be discovered from this formation at Saqqara. Whether those involved in cutting the catacomb, with only oil lamps as lighting, were aware of its presence is unknown though one might expect them to have noticed the difference in the rock. Mayor (2000) provides an interesting case for ancient attitudes toward such fossils and suggests that in Egypt they may have been associated with Seth (2000: 150-151). Anubis and Seth are themselves linked in the late Ptolemaic/early Roman *Papyrus Jumhilac* (Hart 1986:198; Vandier 1961; Te Velde 1967: 41) in which text Anubis brands Seth who then takes the form of a panther. Seth also has chthonic aspects which might have been regarded as a good omen for those excavating the gallery though this is by no means certain.

However the fossils were regarded by the ancient quarrymen or miners, they are likely to have been a small team, not least because of the confined space in which they were working. Whilst there would have been sufficient fresh air for the workers the atmosphere in the catacomb might well have been improved by making use of the shafts from earlier tombs overlying the galleries. In the case of the Falcon and Ibis Catacombs at Saqqara, Nicholson believes that such shafts were deliberately used and that the chambers at their base may even have been starting points for sections of

tunnelling. This is less apparent in the Dog Catacomb but there are sufficient shafts to have been used to help in air circulation and to provide a convenient means of hauling debris from the newly cut galleries to the surface where it could be dumped.

That the rock into which the Catacomb is cut is not always stable is evident from the collapse of several galleries at the east end of the complex, though exactly when such collapse occurred is not known. That at least some of the collapse happened after the galleries were filled is clear from gallery 42 which has mummies even though its entrance has collapsed. It is also known from the De Morgan *Carte* that collapse had taken place before his plan was made.

One of the galleries, 43, where minor collapse is recorded is also unfinished and shows the usual means of cutting a tomb known from many sites in Egypt, notably the removal of material from the top downward, rather than the cutting back of a face. Why this particular gallery is unfinished is not clear. Given that it is near the entrance of the catacomb it might have been expected that it would be completed before proceeding further unless it was realised that the rock here was of poor quality. It is also possible that the quarry men believed that they were getting close to the smaller catacomb and did not want to break into it. This would tend to confirm that the smaller catacomb is indeed the earlier one, and it may be evidence from this smaller complex that led De Morgan to the New Kingdom dating of both catacombs. Examination of his plan (De Morgan 1897) suggests that the smaller catacomb does not extend as far as most of the collapsed galleries, including 43. However, the end of the smaller catacomb is not completed by a solid line on the plan and it may well be that it originally continued although collapsed when first planned. Usually dotted lines are used to show such continuation but perhaps the collapse was such that the map maker was unsure whether or not the catacomb extended.

That the catacomb continues to deteriorate naturally is apparent from the ‘scabbing’ of material from the ceiling and walls of the catacomb, a process which may be accelerated by humidity (Figure 4). This process is being investigated by the current project (Nicholson *et al.* 2013).



Figure 4. Looking along the axial aisle of the Dog Catacomb. The effects of scabbing can be seen at the foot of the walls. (Photo: P.T. Nicholson).

The Mummies

That this was a ‘dog’ catacomb was already apparent to De Morgan and would have been obvious from examination of some of the animals, which are visible in wall niches, as well as from those piled in the burial galleries. No work seems to have yet addressed the question of whether these canines were actually dogs or other creatures and whether the complex was exclusively for a single species.

Examination of the mummified remains, supervised by Ikram, has shown some interesting and unexpected features (see Ikram *et al.* 2013). As it now survives, the great mass of the mummified material is in very poor condition (Figure 5). The wrappings have decayed leaving the bones largely exposed. In places the bones are mixed as a result of treasure hunting at some time before the site was taken into the care of the *Ministry of State for Antiquities*. In other areas complete and articulated skeletons are recognisable, and recoverable, amongst the debris; in a few parts of the catacomb complete, wrapped, mummies can be found on the surface of the mummy pile (Figure 6).



Figure 5. Gallery 11 with mummies still in situ. It is obvious that the pile, approximately 1m deep, has been dug into and turned over by robbers. (Photo: P.T. Nicholson).



Figure 6. Complete mummies lying on the top of the mummy pile in undisturbed Gallery 42. (Photo: P.T. Nicholson).

Most of these animals seem to have had only cursory mummification. It is likely that the corpses of the youngest and smallest were simply laid out on, or buried in, the hot sand to desiccate before being given a minimal wrapping in linen after being anointed

with oils or resins. Some larger animals had a good deal more wrapping applied to them and these may have undergone a more complete desiccation process involving evisceration and covering in natron. Resins and oils were also used on these animals, as is attested by vestiges attached to the bone and textile. No examples of well-decorated mummies of the sort that are well known from museum collections have been recovered from the site.

It is possible that the best mummified examples are those which are found in the wall niches of the catacomb although this difference may result from differential preservation (Figure 7). These niches are cut into the walls of the axial corridor as well as into the walls of the burial galleries themselves. In these instances (and possibly also in the axial if it was later filled) they would have been buried by the mummy pile. Although most of the niches found are now empty a number still retain their contents; they are usually adult animals (Figure 8) (in one case accompanied by a puppy). It is quite possible that these are the creatures which were kept in the temple itself and lived out their natural lives. It may be assumed, given their more elaborate burials, that they were dedicated by the priests themselves or by the most favoured of donors.



Figure 7. Niche 5B with the remains of a wooden coffin and parts of the mummy still in situ. (Photo: P.T. Nicholson).



Figure 8. Head and neck of an adult dog from niche 35x. (Photo: P.T. Nicholson).

These niche burials account for only a small fraction of the total number of animals from the catacomb. Many are neonates and were probably taken at birth and drowned or left to die from starvation before becoming naturally desiccated. The small size of these animals accounts for the very high numbers currently estimated for the catacomb. The estimate, based on the minimum number of animals represented in a series of 15 litre samples and averaged across the complex, is approximately 7,723,000². This number may increase or decrease somewhat as further work is completed but it is nonetheless clear that very significant numbers of animals were needed.

² This figure assumes that the axial corridor as well as the burial galleries were filled with mummies to a depth of 1m. If the axial corridor is discounted the figure would be approximately 7,000,000.

This raises the question of how the animals, most of them domestic dogs, were obtained. Although the duration of use of the catacombs is not known, there are still too many animals to have been kept at the temple at Saqqara and it must be assumed that they were bred off-site. The most likely scenario is that there were a series of puppy-farms located nearby, probably in Memphis and its environs, from which most of the animals were sourced. There is no written evidence relating to procurement and it is not known whether such farms were sanctioned in some way or whether they were essentially independent concerns. Similarly, it is not clear what was the relationship between the pilgrim, wishing to leave a votive mummy, and the priests at Saqqara. It is entirely possible that pilgrims visiting the Anubieion Temple would have seen the healthy adult dogs kept there and assumed that a payment made for the burial of one of the god's representatives would secure the due burial of such an animal, rather than a neonate. It is equally possible that pilgrims arrived at Saqqara with the tiny mummy of a neonate having purchased it from a farm in the vicinity and that this was entirely acceptable since the point of the exercise was to secure fitting burial for the god's representative regardless of its age. Its life may have been extremely short but its journey to the afterlife was to be a good one and the afterlife was forever; the animal cults cannot be viewed with twenty-first century sensibilities.

Study of the faunal remains shows that not all the mummies are those of dogs. Jackals (*Canis aureus*), foxes (*Vulpes* sp.) and ichneumon (*Herpestes ichneumon*) are also present, as are cats (*Felis catus*), jungle cats (*Felis chaus nilotica*) and two falcons. There is not space here to look at the reasons for these particular selections but it is likely that all the 'dog-like' creatures were treated as interchangeable whilst mythological reasons may be sought for the cats and raptors. The percentages of these animals are given in Table 1.

	<i>Canis aureus</i> (jackal)	<i>Canis lupus familiaris</i> (dog)	<i>Felis catus</i> (cat)	<i>Felis chaus nilotica</i> (jungle/wild cat)	<i>Herpestes ichneumon</i> (ichneumon/mongoose)	<i>Vulpes</i> sp. (fox)	Total Identified Specimens
Total	70	5574	335	29	4	22	6034
Percent	1.16%	92.38%	5.55%	0.48%	0.07%	0.36%	100%

Table 1: Frequency of identified specimens by species.

Whether or not the pilgrims saw the particular mummy they were paying for, they were unlikely to see the place in which it was finally laid to rest. Although written evidence for the Dog Catacombs is lacking there is evidence from the writings of a 2nd Century B.C. temple resident named Hor relating to the ibis cult. This *Archive of Hor* (Ray 1976), suggests that the ibis mummies were put into temporary storage and then given a mass burial during an annual ceremony. If this practice were employed for the large number of dogs a bi-annual burial ceremony may have been necessary.

The dogs would then be placed in the burial galleries until they became full at which point a rather poorly constructed wall of stone and mud would be built across the entrance where it met the axial corridor (Figure 9). The wall only extended part way up the height of the gallery since it seems that, unlike the galleries which contained ibises or falcons in pots, the burials were never stacked more than about 1.20m deep. The niches of the 'special' animals were sealed with stone slabs, often rough hewn

pieces from the cutting of the niche itself, before it became obscured by the stacked mummies. There is evidence from the Falcon Catacomb to suggest that the individual burial episodes there were sometimes marked by adding a mud plaster facing over the ends of the jars before the deposition of the next group in the next year. A single gallery might therefore have evidence of several depositional episodes. This sealing phenomenon has not been noted in the Dog Catacomb and in any case such a mud sealing would not work particularly well where animals are not buried in containers. It is possible that rubble walls were used to mark depositional episodes but since no gallery has been cleared out by the project such divisions, if they existed, have not been found.



Figure 9. Gallery 38 (left) showing the remains of the small wall which marked the end of the gallery and prevented its contents spilling onto the axial corridor during the time it was in use. At a late stage in the history of the catacomb burials may have been made in the axial corridor. (Photo: P.T. Nicholson).

There is some evidence, in the form of very small niches, to suggest that not only were special animals buried in niches but also bronze votives. These small niches are frequently close to the large burial niches and though all have been found empty it is known that bronze *situlae* and other items were once present in the Catacomb. We have found one such *situla* as well as fragments of other bronzes. It is unclear whether bronze votives were also buried amongst the stacked mummies – none have been found by us - and it has not yet been possible to make any investigation with metal detecting equipment. The extensive disturbance of the mummy pile may suggest that robbers believed bronzes to have been present amongst the mummies, a practice which is known from other catacombs at Saqqara and elsewhere.

There is some evidence for the events which took place at the time of burial however, in that from one of the burial galleries we have splashes of resin around one of the wall niches, presumably part of the interment ritual. A vessel containing what may be the same resin (as well as the toe bone of a dog) was found in the same gallery.

After the cult

It is not known for how long the Catacombs of Anubis were in use, though it is reasonable to assume that the one investigated began around the 4th Century BC when it is known that the animal cults enjoyed particular prominence, and that they may have lasted sometime into the early Roman period – perhaps the first century AD.³

What became of the Dog Catacombs after they went out of use is uncertain. They were clearly the subject of robbery at some time, almost certainly having been re-discovered via tomb shafts on the surface. A tomb shaft has been cut by the axial corridor outside gallery 12 where robbers have built a platform of loose stone in order to make their escape from the gallery floor into the shaft easier.

However, the effects of local plundering in antiquity and early modern times is as nothing in comparison to what appears to have been a concerted attempt to empty the catacomb in modern times.

One of the most striking features of the catacomb today is that many of the burial galleries are either empty or virtually empty (Figure 10). It might be thought that this is because the complex was constructed with the intention of filling it but that the cult eventually lost popularity and so the galleries were unused. There are, however, strong arguments against this view.

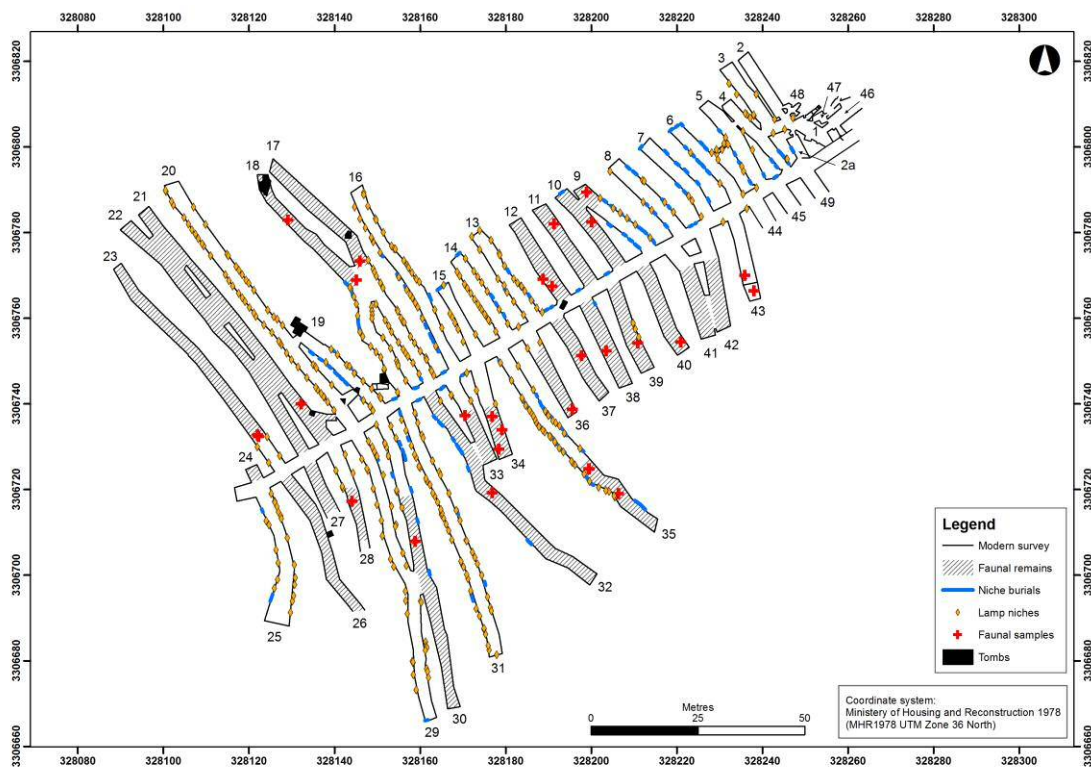


Figure 10. The new plan of the catacomb showing the location of the remaining mummified remains as well the position of niches for animals and for lamps. Note that the lamp positions are almost always associated with empty or partially emptied galleries and do not extend along the mummy pile. (Plan by S. Mills, S. Williams and H. Nouwens).

³ Investigation of the Anubieion temple by Jeffreys and Smith (1988) shows several phases of temple construction from the 6th to 2nd centuries B.C. and it may be that use of the catacomb ceases earlier than currently believed.

The empty galleries are not concentrated together as one might expect if the complex had been filled from back to front or front to back. Rather the empty galleries are randomly distributed. In many cases these empty galleries are those with the best rock whilst some of those still full of mummies have been judged by Professor Harrison, the mining geologist on the team, to be too dangerous to enter.

Furthermore, where galleries are empty it is clear that they have been emptied rather than simply remaining vacant. The floor still preserves a trail of black dust: the remains of mummies.

The explanation seems to be that the Dog Catacomb was used as a 'quarry' for extracting mummies probably for use as *sebakh* (fertiliser) or for use in paper making. The emptying has been so efficient and complete as to suggest that it is not the work of local people coming in to extract the occasional few basket-loads of remains for their fields but of an industrial operation. That view is perhaps supported by the fact that mummified remains have not been taken from those galleries which have been judged dangerous. Presumably the organisers, or their workers, thought it imprudent to try to work in the difficult galleries.

Our re-planning of the complex has helped considerably in understanding the catacomb. At regular intervals along many of the burial galleries are small niches with soot blackening above them, the sites of small lamps. We initially assumed that these were left by the workers who had cut the galleries and/or subsequently placed the burials within them. However, in looking at the distribution of such lamp niches it became apparent that they occur mainly in empty galleries and that in some where mummies remain the lamp niches cease a few metres before the pile of mummies (Figure 11). These then, appear to be the sites of lamps used by those who were *removing* mummies and who were aware of the risk of fire if the lamps were placed too close to the mummy pile.



Figure 11. Gallery 9 with position of one of the lamp niches, immediately before the remaining dog mummies, indicated. (Photo: P.T. Nicholson).

The mummies seem to have been removed either via the shafts or via the entrance. Since the ancient entrance is now buried by sand, and has collapse around it, it is not clear whether it was accessible in modern times. A suggestion that it may not have been easily accessible is given by the cutting of steps into the eastern side of a former tomb shaft a little to the north of the ancient entrance. This is the means by which we now enter the catacomb and although it is not very convenient for removing baskets of mummies it would allow workers into the catacomb. A doorway has also been cut through the wall between galleries five and six, presumably also to allow the movement of these workers (Figure 12).



Figure 12. A secondary doorway cut between galleries 5 and 6. As well as having rubble from its cutting nearby it also has the characteristic lamp niches outside it and along its length (see figure 10). (Photo: P.T. Nicholson).

Why all those galleries in which work was ‘safe’ have not been cleared is uncertain. In the nineteenth and early twentieth centuries it was possible to obtain licences to exploit archaeological sites for *sebakh* (Gazda 1983: 2) and it may be that such a licence expired before the catacomb was empty or that the reason for its exploitation ceased – for example chemical fertilisers or guano became more prominent.

Conclusion

The Catacombs of Anubis project has sought to try to understand a broad range of the evidence from this site from its construction and use in ancient times, through to its exploitation in relatively recent times. A study of this type has not previously been undertaken since the focus has traditionally been upon the temples associated with the animal cults or with written evidence where it exists. Although catacombs have been mapped there has been little or no attempt to understand them as monuments in their own right.

This new work suggests that the cult of Anubis was on a far larger scale than previously supposed and that it required a correspondingly large infrastructure. One need only begin to think in the same terms as those proposed by Padgham (2014) to appreciate the numbers of individuals who might be associated with the cults, as priests, animal breeders, embalmers, makers and sellers of bronzes as well as those who provided for them, to appreciate that animal cults were a very significant economic force in Late Period Egypt.

Furthermore the condition in which we now see the catacomb owes more to recent exploitation than it does to its history as a place of cultic reverence. The empty galleries, secondary doorway and steps and numerous lamp niches all owe their existence to modern industry rather than ancient piety. These features are,

nonetheless, a part of the history of the complex and contribute to the ongoing debate about the roles which have been played, and are being played, by ancient monuments within modern industrial society.

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References

- Bacon, E. 1967a. Saqqara: the clues mount up in the quest for Imhotep. *The Illustrated London News* July 29, 23-25.
- Bacon, E. 1967b. Saqqara: evidence of the treasure of Imhotep. *The Illustrated London News* August 5, 25-27.
- Boessneck, J. (Ed.) 1987. Tuna el Gebel I. Die Tiergalerien . Hildesheim: HÄB 27.
- Bresciani, E. and Giammaruti, A. 2003. *The North Saqqara Archaeological Site: handbook for the environmental risk analysis*. Pisa: Edizioni Plus; Università di Pisa.
- Davies, S. (2008) Bronzes from the Sacred Animal Necropolis at North Saqqara. In M. Hill and D. Schorsch (Eds.) *Offrandes aux Dieux d’Égypte*. Martigny: Fondation Pierre Gianadda, 174-187.
- Davies, S. and Smith, H.S. 2005. *The Sacred Animal Necropolis at North Saqqara; the falcon complex and catacomb: the archaeological report*. London: Egypt Exploration Society.
- De Morgan, J. 1897. *Carte de la Nécropole de la Memphite: Dahchour, Sakkarah, Abou-Sir*. Cairo: Institut Français de l’Archéologie Orientale.
- Dodson, A. 2005. Bull cults. In S. Ikram (Ed.) *Divine Creatures*. Cairo: AUC Press, 72-105.
- Dodson, A. M. 2012. *Afterglow of Empire*. Cairo: American University in Cairo
- Driesch, A. von den and Kessler, D. 1994. Tiermumien aus dem altägyptischen Friedhof von Tuna el-Gebel. *Einsichten, Forschung an der Ludwig-Maximilians-Universität München* 1, 31-34
- Emery, W.B. 1965. The search for Imhotep. *The Illustrated London News* March 6, 20-23.
- Gazda, E.K. (Ed.) 1983. *Karanis: An Egyptian Town in Roman Times: discoveries for the University of Michigan Expedition to Egypt (1924-1935)*. Ann Arbor Michigan: Kelsey Museum of Archaeology.
- Green, P. 1974. *Juvenal: The Sixteen Satires*. Harmondsworth: Penguin.
- Hart, G. 1986. *A Dictionary of Egyptian Gods and Goddesses*. London: Routledge.
- Herodotus, *Histories*.
- ILN 1967. The quest for Imhotep. *The Illustrated London News* March 25, 30. (Though unsigned this article is probably by E. Bacon).

- Ikram, S. 2005. Divine creatures. In S. Ikram (Ed.) *Divine Creatures*. Cairo: AUC Press, 1-15.
- Ikram, S., Nicholson, P.T., Bertini, L. and Hurley, D. 2013. Killing man's best friend? *Archaeological Review from Cambridge* 28 (2), 48-66.
- Jeffreys, D. G. and H. S. Smith. 1988. *The Anubieion at Saqqara*. London: Egypt Exploration Society.
- Juvenal, *Satires* XV.
- Kessler, D. 1989. *Die heiligen Tiere un der Konig, Teil I*. Weisebaden: Harrassowitz.
- Kessler, D. and Nureddin, A.H. 1994. Der Tierfriedhof von Tuna el-Gebel. *Antike Welt* 25, 252-265.
- Martin, G.T. 1981. *The Sacred Animal Necropolis at North Saqqara*. London: Egypt Exploration Society.
- Mayor, A. 2000. *The First Fossil Hunters*. Princeton and Oxford: Princeton University Press.
- Nicholson, P.T., Harrison, J., Ikram, S. and Qin, Y. 2013. Geoarchaeological and environmental work at the Sacred Animal Necropolis, North Saqqara, Egypt. *Studia Quaternalia*, 30, 83-89.
- Padgham, K. 2014. *The Scale and Nature of the Late Bronze Age Economies of Egypt and Cyprus*. Oxford: Archaeopress, BAR 3594.
- Ray, J.D. 1978. The world of North Saqqara. *World Archaeology* 10 (2), 149-157.
- Ray, J.D. 1976. *The Archive of Hor*. London: E.E.S.
- Rowlands, J., Ikram, S., Tassie, G.J. and Yeomans, L. 2013. The sacred falcon necropolis of Djedhor(?) at Qesna: recent investigations from 2006-2012. *Journal of Egyptian Archaeology* 99, 53-84.
- Simpson, W.K. 1957. A running of the Apis in the reign of 'Aha and passages in Manetho and Aelian. *Orientalia* 26, 139-142.
- Smith, H.S. 1974. *A Visit to Ancient Egypt*. Warminster : Aris and Phillips.
- Smith, H.S., Davies, S. and Frazer, K.J. 2006. *The Sacred Animal Necropolis at North Saqqara : the main temple complex : the archeological report*. London : Egypt Exploration Society.
- Te Velde, H. 1967. *Seth, God of Confusion*. Leiden: Brill.
- Vandier, J. 1961. *Le Papyrus Jumhilac*. Paris: Musée du Louvre.

Youssef M., Cherif O., Boukhary M., Mohamed A., 1984. Geological Studies on the Saqqara Area, Egypt. *Neues Jahrbuch für Geologie und Paläontologie, Abhandlungen* 168, 125–144.