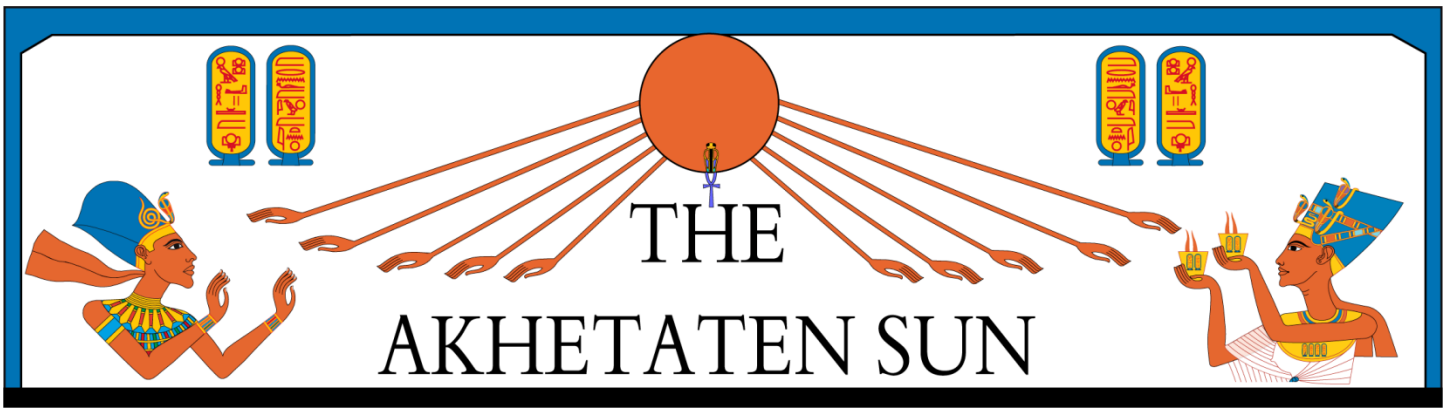

Volume 19, Number 2, December 2013

Published twice per year since 1993

Table of Contents

Officers and Directors

The President's Papyrus

Greetings fellow Amarnaphiles,

I want to wish everyone a most happy and prosperous New Year. It would appear that 2014 will be a good year for the American economy, if one can judge by the performance of the stock market. Hopefully we will all have even more to celebrate at this time next year.

Unfortunately, the future of Egypt is even more uncertain as I write. If the future is in doubt, so to, is the preservation of its past.

When it comes to antiquities, Egypt is one of the richest in the world. With the instability of the political situation, looting has become endemic. Although regrettable, it is understandable, since 40% of the economy is dependent upon the tourist dollar. Because of the current situation, tourism is at an all time low and people are trying to make up their loss of income any way possible.

The situation at Amarna, however, appears to be stable with no threats to the site itself. Here is hoping that 2014 will prove not to realize our worst concerns for Egypt as a whole.

Wishing you all the best,

Floyd Chapman

Who made bread, and how, at Amarna?

By Delwen Samuel

Bread was one of the pillars of ancient Egyptian diet throughout Pharaonic times. It sustained the populace but its role went far beyond nutrition. Because of its central role as a foodstuff, bread was a key commodity in the ancient economy, it played a role in social relations, it was a focus in religious and funerary rituals and specific forms were used in medicines. Bread and baking are therefore important topics of study for Egyptologists.

Tomb art traditionally has been the main source of information for flour production and bread baking. Baking scenes can be found dating to all periods until about the Twentieth Dynasty. Many authors have studied either specific scenes, or bakery art more widely, but the artistic evidence can only take us so far. It contains gaps and there are uncertainties of interpretation. It is restricted to illustration of baking for the elite and on its own does not go beyond description of many of the steps.

A number of ancient texts also deal with bread. Most baking texts are scribal problems which calculate, for example, how much grain is needed for certain numbers of loaves from temple bakeries, or which record bread rations assigned to different groups of people. The texts describe quantities but not methods and are not specific enough to be able to fully grasp the process.

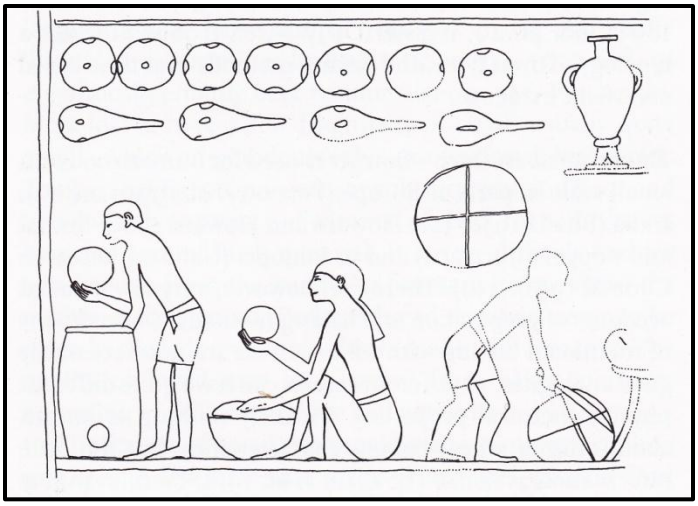

Figure 1: A baking scene from the tomb of Nebamun (TT17) at Thebes. Eighteenth Dynasty.

Until recently, we knew little about bread and baking beyond the temple bakery and the estates of the elite. But what of the majority of the Egyptian population, the workers, artisans, farmers and others? Images and texts both tell us that bread was provided by the state as rations. Was this the only source of bread for most people? Or was baking undertaken on a small scale at a neighbourhood or household level, and if so, how did it compare? Given the central importance of bread to the ancient Egyptians, there must be abundant archaeological material to broaden our understanding, yet there have been few studies of the archaeology of Egyptian baking.

Amarna is an ideal site to explore the evidence that can help us to understand both how bread was made, and where it was produced. It is unique in ancient Egyptian archaeology for its large scale, the former presence of all levels of society together with state institutions, and the richness of the archaeological record which has been uncovered. This gives us a special opportunity to examine key activities of ancient Egyptian life.

<u>Evidence for baking at Amarna</u>

Perhaps the most obvious archaeological installation connected to baking is the bread oven. By New Kingdom times, the most common type was a thick-walled sloping cylindrical form. The size varied depending on where the oven was located. In the large magazines associated with the Great and Small Aten temples and the temple of Kom el-Nana, the ovens are substantial, with individually built ovens measuring about a meter in outer diameter.

Figure 2: A set of ovens in a bakery room at the temple of Kom el-Nana, Amarna. Photo: Barry Kemp.

Associated with the much smaller Main Chapel complex of the Workmen's village, in contrast, an oven in an outer room measured about half a metre across its outer diameter. These ovens, with their thick walls, well-fired interior lining and often with accumulated ash and charcoal remains, should be easily detectable during excavation.

We have a good idea of how such ovens might have been heated and used, because they closely resemble traditional Near Eastern "tannour" ovens. These have been used for millennia for baking in Near Eastern countries, although they are not used in traditional contemporary Egyptian baking. The interior is heated to baking temperature by building and maintaining a fire inside. When a sufficient bed of embers has accumulated, the sides are washed down to remove soot, and the bread can be baked either directly on the interior surface or for smaller versions, on the hot embers.

Figure 3: An oven from the Workmen's Village Main Chapel complex. Photo: Barry Kemp.

At Amarna, data from initial excavations indicated that there were few ovens in smaller domestic houses such as those at the Workmen's village. Of the houses excavated by Peet and Woolley in the early 20th century, only about half contained ovens. When excavations at the Workmen's village were resumed by Barry Kemp in the 1980s, new evidence emerged to suggest that more houses may have had ovens than at first seemed the case. By using careful excavation in layers and detailed recording, it was possible to see that fragments of oven were contained in the collapsed debris of one of the village houses, demonstrating that it was most likely originally situated on the roof. Ovens had most likely been built on the roofs of other, previously excavated houses, but any evidence to show this has been lost.

Figure 4: A Syrian villager baking bread in a traditional tannour oven. Photo: Delwen Samuel.

Flour production

Even in modern post-industrial Western society, where staple foods are easily and cheaply available, it is not uncommon for people to bake bread at home. They may bake in gas or electric ovens, in dedicated bread machines, and some fortunate people have purpose-built wood-burning bread ovens. The majority of Western home-bakers buy their flour rather than grind it themselves from raw grain. Flour production is an entirely separate stage to baking bread. Was this the case for the people of Amarna? Were state supplies in the form of flour rations as well as of bread?

The archaeological record can be used to answer this question. We can look for the remains of tools and installations connected with flour production and where they are found across the ancient city. But first we need to know what tools were used, and for that, we need to understand the nature of ancient Egyptian wheat, because its structure imposes technological challenges for flour making.

Figure 5: Spikes of emmer wheat. Photo: Mark Nesbitt.

The ancient Egyptians grew two types of cereal crop: barley and emmer wheat. In earlier times, both may have been used for baking, but by the New Kingdom, emmer wheat seems to have been the grain of choice for bread. Emmer (or *Triticum dicoccum* to give it its scientific name), is little grown today but it has a very ancient history. It was one of the first plants to be domesticated approximately 10,000 years ago, and was once a staple crop of the western Old World. By the Late Bronze Age, modern types of so-called "free-threshing" wheat had eclipsed emmer in the Mediterranean, the Near East and Europe. This is likely due to the fact that emmer is harder to process than bread wheat and durum wheat (used mainly for pasta today). In Egypt, though, emmer remained the wheat of choice until the end of the Pharaonic period.

The important processing difference between free-threshing wheats and wheat such as emmer is the way the chaff breaks up during threshing. Whole ears of wheat consist of a central structure to which are attached packages of chaff enclosing and protecting the grain. The threshing process involves beating the ears to break them up. When free-threshing wheats are threshed, the central structure of the ear stays intact, but all the chaff pieces fall away, releasing the grain inside. It is then a relatively easy process to sieve and winnow the inedible chaff from the desirable grain.

When emmer is threshed, the ear falls apart in a different fashion. The central structure falls apart into individual components called spikelets. Each is composed of a firmly intact envelope of chaff tightly enclosing the grain. An extra, labour-intensive step is needed to break up the tough chaff to release the grain.

The best way to understand how the ancient Egyptians achieved this is to look at how the work was traditionally undertaken in regions where emmer has until recently still been grown. The most common method was to pound the spikelets in large mortars made of wood or stone with wooden mortars or mallets. This could be done by a single person, or in pairs, or even groups if the mortar was large enough.

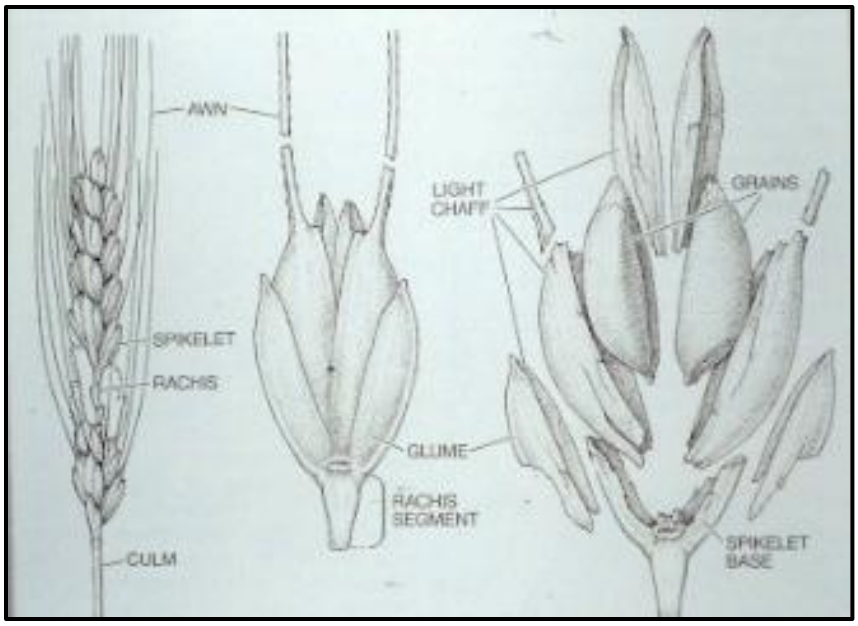

Figure 6: The structure of the emmer wheat spike and spikelet.

Figure 7: Two women pounding emmer at a large mortar, north Turkey. Photo: Mark Nesbitt.

The bed of spikelets cushioned the blows so that the chaff was broken and shredded but the grain remained whole. Many ancient Egyptian artistic depictions show this stage, but because the structure of emmer ears has generally not been understood, is often wrongly described as coarsely cracking the grain or pounding it into flour.

At Amarna, the clearest evidence for emmer spikelet processing comes from the houses of the Workmen's villages excavated in the 1980s. Here, some very well preserved limestone mortars were recovered. The best example comes from the house in the far south-west corner of the walled village, known as West St 2/3. Here, the mortar was placed in a corner and built up with a mud plaster rim to increase its height. Its use for dehusking emmer is certain, because on the floor around it was a scattered deposit of broken emmer chaff with a few intact emmer spikelets. A review of finds from recent and previous excavations has shown that most houses of the village contained mortars.

It is harder to be sure about houses in the Main City, because excavation records are incomplete. Nevertheless, there is sufficient information to show that mortars were part of household equipment throughout the city.

Once the grain had been cleaned from the chaff, it could be ground into flour. This was done using flat stones of granite or quartzitic sandstone known as saddle querns. Such milling stones were used throughout the Old World in antiquity, and are still in use in some African regions today. Like pounding, this is also a labour-intensive and even more time-consuming task. Grinding on saddle querns can be done communally, but the size of grinding emplacements at the Workmen's village indicates that in those houses, only one person at a time did the grinding. We can only speculate, but it seems possible that other members of the household carried out tasks nearby at the same time, such as sewing, weaving or other types of food preparation, so that grinding, although hard work, need not have been solitary.

Figure 8: A limestone mortar in house West St. 2/3 at the Workmen's Village, Amarna. Photo: Barry Kemp.

Saddle querns are highly durable and have been found throughout the domestic quarters of Amarna. We can see from their distribution across the site that they had been used in many if not most of the households. There was also a large concentration of quern stones to the south of the Great Aten Temple, suggesting that this region was used to supply flour to the neighbouring bakeries, and perhaps to bakeries of the other city temples.

Figure 9: A saddle quern, for grinding flour, a surface find from Amarna. Photo: Delwen Samuel.

Going further back in the supply chain, there is little evidence to indicate how grain was distributed throughout the city. It is reasonable to surmise, for example, that the large complexes of the elite were supplied by their farms in the countryside, either across the Nile from the Amarna plain, or elsewhere in Egypt. We do have some archaeological evidence for the Amarna Workmen's village. Excavations by Barry Kemp and his team in the 1980s uncovered a depot about 50 metres to the south of the walled area of the Workmen's Village, designated the *zir* area. The layout together with numerous traces of large storage or "*zir*" jars led Kemp to conclude this was a supply depot for the village, and that the Amarna Workmen's Village was supplied with goods by the state. The written sources from Deir el-Medina provide a good analogy. Grain together with other food items must have been brought here. It was most likely transported in sacks, as artistic depictions indicate.

One feature at the *zir* area which puzzled the excavators was an ashy deposit in the north-east corner, full of charcoal, chaff and other organic material. One explanation for this might be that an area where grain and other foodstuffs were brought, stored however briefly and no doubt spilled on occasion, would be prone to insect and rodent infestation. Robert Miller suggested that ashy deposits on village quern emplacements were derived from fires which cleared grain fragments and eliminated pests. Perhaps the *zir* area needed similar cleansing and the ashy deposit was where the remains of contained fires were dumped.

Figure 10: Women grinding sorghum in Cameroon. Courtesy Royal Botanic Gardens, Kew. Photo: Jack Harlan

Nature of bread

Unfortunately, no surviving bread loaves have been recovered from Amarna. There are, however, hundreds of loaves now distributed throughout the world in Egyptological museum collections. These were almost all recovered from tombs and so are unlikely to be fully representative of the daily fare. They are very diverse in size and shape, and are often elaborately decorated.

Daily bread was surely not so fancy, but tomb loaves show that Egyptian bread could be a decorative art form when required, just as today many loaves for special occasions are attractively formed. Surviving loaves were sometimes made from reasonably finely ground flour. More often, the bread is full of roughly cracked grain fragments. This coarse texture has led some scholars to suggest that ancient Egyptian milling technology was crude and incapable of producing fine flour. The fine texture of some loaves belies this. The presence of coarsely broken grain means that this texture must have been appreciated, much like the chewy texture of a multi-grain or British "granary" loaf with whole or cracked cereal is enjoyed today.

Microscopic studies carried out on some tomb bread samples have established that Egyptian bread was leavened with yeast, but that the crumb structure is relatively dense. Emmer wheat can be made into risen loaves similar to wholemeal bread, but this is not the structure seen in the surviving ancient loaves. There are still questions to be answered about ancient Egyptian bread making techniques and how it may have tasted.

The archaeological record at Amarna has given us a much better understanding of bread production. We now have more detailed insights on how both households and state institutions produced bread and the complexities involved with the bread supply. The technology depicted in the artistic record can be better understood and the gaps filled in. In keeping with our knowledge derived from texts of bread rations distributed by the state, at Amarna the enormous numbers of temple magazines filled with ovens shows a tremendous output of bread loaves through the apparatus of state temples. The bulky oven installations in houses of the Workmen's village, as well as those from elsewhere in the city, show that households of all social classes must have baked on regular basis, made from producing their own flour. Bread was the foundation of meals for every level of society and was both state-supplied and self-generated for all households.

The Rock Tombs of Amarna

By Barry Kemp

Amarna's rock tombs are its best-known attraction. They fall into two groups, one in the north and one in the south. The setting of each group is different, giving rise to different subsequent histories. The North Tombs were cut into a rock face that begins high above a steep slope of broken rock, too high to attract drifting sand. The doorways into the chambers were therefore never lost to view. One of the tombs, no. 3, belonging to the steward of Akhenaten's estate, Ahmose, contains many Greek graffiti from the Ptolemaic Period, left by visitors, perhaps mercenary soldiers. In the fifth and sixth centuries AD, as happened at many sites of ancient rock tombs, Christians seeking a life that was separated from the everyday world established quite a large community centred on the northern tombs. They utilised each one of them, mostly for dwellings, adding extra chambers and courtyards in front built from rough stones. They converted the large tomb, no. 6, of the high priest Panehsy, into a church.

Figure 1: Aerial View of the North Tombs.
The modern steps (also shown in fig. 18) lead to tombs 3 and 4.
Photo: The Amarna Trust

The party from Napoleon's expedition that visited Amarna in 1798 saw the entrances in the distance and marked them as 'Grottes' (caves) on their map, but went no closer. A succession of European explorers later visited them and began the process of copying the scenes carved on the walls, the first being the Englishman John Gardner Wilkinson who was there in 1824 and 1826.

The South Tombs used the sloping surface of a much lower escarpment, the entrances sometimes having a descending flight of steps. The sand that blows across the site especially in the early summer quickly builds up in front of the entrances. Most years, the current Amarna expedition employs a small group of workmen to clear it away. Cuttings in the rock that marked the entrances probably remained visible even if the doorways themselves were choked with sand. The first clearance in modern times was begun by Gaston Maspero for the government antiquities service in 1883, allowing the French scholar, Urbain Bouriant, to begin copying the texts and scenes, amongst them the 'Great Hymn to the Aten'. This episode of exploration also saw the fitting of iron doorways to most of the inscribed tombs of both the northern and southern group, which were also numbered from 1 to 25. Here *The Amarna Research Foundation* makes its mark. Six tombs in the southern group which were given numbers but had little or no decoration were left without doors. In the 1990s Bob Hanawalt, TARF's founder, made his first donation to enable iron doors to be made and fitted.

Figure 2: View Southwards from in front of Tomb 14
Photo: The Amarna Trust

The southern group saw no Christian occupation. But during the 25th/26th Dynasty most of them were made accessible and seemingly used as places of storage. This is evident from large heaps of potsherds that are now outside, that derive from huge numbers of pots of this period, mostly storage vessels. Perhaps one of the armies that moved through Middle Egypt at this time temporarily camped at Amarna. The first modern clearance also brought to light the remains of burials of a later period, but virtually nothing from them has been studied.

The last significant episode of exploration and study was the comprehensive survey of both groups of tombs by Norman de Garis Davies, who began in January 1902 with fourteen weeks 'of continuous labour' in the tomb of the high priest Meryra and, by 1908, had published the six volumes of *The Rock Tombs of El Amarna* that remain the standard reference source (see note at the end).

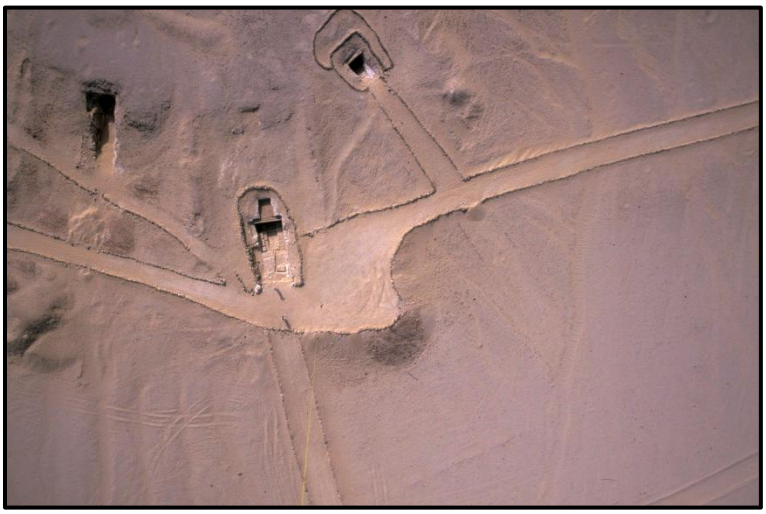

Figure 3: Aerial view of tombs 22 (left), 23 and 24 (right). The straight track that runs down from in front of tomb 23 belongs to the Amarna Period. Tomb 23 seems to have been begun higher up the slope but the initial cuttings were abandoned, perhaps because they left too thin a rock cover for the roof. Photo by Gwil Owen.

As creations of the Amarna Period, what is particularly striking about the rock tombs as a group is the lack of standardisation. They look as though they are the product of personal choices influenced by many factors. The tombs that attract our attention most were made by men who were in prominent positions at Amarna. Some will have been present at Amarna from the beginning, whilst others will have moved there, or been promoted, at times extending up to close to the city's abandonment.

Figure 4: Cleaning sand from the front of tomb no. 16 (owner unknown). The iron door is one of six paid for by Bob Hanawalt, TARF founder, in the 1990s. Photo by B. Kemp

Figure 5: View southwards at the North Tombs. The tomb entrance that is visible is that for no. 5, belonging to the 'chief of physicians', Penthu. The unfinished façade on the left was started for Meryra, but then remade at a lower level. The loose stones belong to one of the Christian huts. Photo by B. Kemp.

There is a weak correlation between the known owners of tombs and the identified owners of houses in the city. Since the latter are relatively few, and large parts of the city remain unexcavated, the number of 'houseless' tomb owners is not surprising. We lack identified houses for the high priest Meryra and for the god's father Ay, for example. Conversely, however, where we lack tombs for men of substance whose houses have been discovered we need to consider alternatives to the tempting idea that men with high position at Amarna automatically sought to have a decorated rock tomb there. Examples of 'tombless' officials are Pawah, who had the same title, 'chief of seers of the Aten' as was held by Meryra, the 'overseers of works' Hatiay, the 'chief builder' Maanakht-tuef, and the sculptor Thutmose. In individual cases, the man might have arrived or been promoted late in Akhenaten's reign and so not have had time to start his tomb. Pawah's house, being on the eastern fringe of the city, might be an example, although this would imply that Meryra was no longer in office at this time (assuming that there was only a single 'chief of seers' at any one time). But even allowing for this, the number of large houses considerably exceeds the number of decorated rock tombs.

One can see, as far back as the Old Kingdom, that high officials and courtiers faced at least a theoretical choice as to where to locate their tomb: at the current court cemetery or at a provincial cemetery within the neighbourhood of the family home. Individual circumstances presumably dictated the answer. Attachment to a provincial family cemetery might explain the absence of tombs for some Amarna dignitaries. Someone who made a choice in the other direction was the 'royal craftsman' Parennefer, who left behind a partially completed tomb at western Thebes in favour of one at Amarna (no. 7).

Figure 6: The unfinished interior of tomb 21 (owner unknown), showing the stages in preparing the rock surfaces. Photo by B. Kemp.

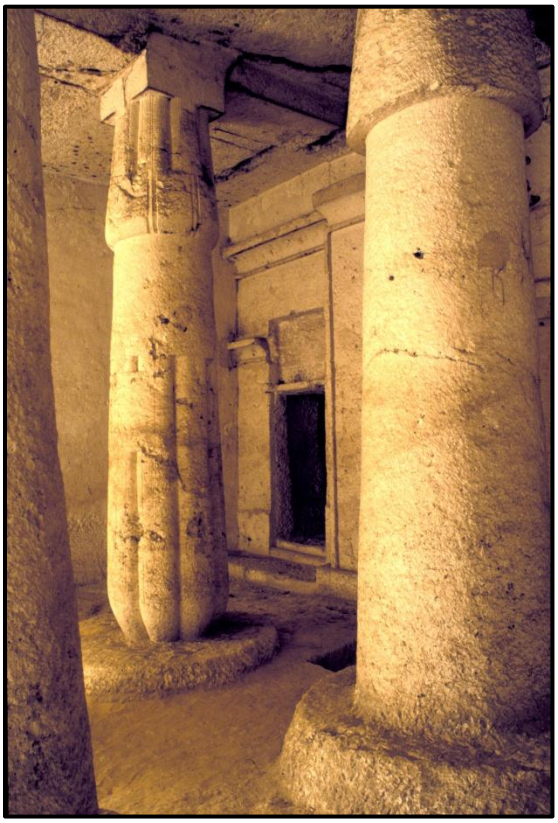

Figure 7: View of the interior of tomb 16, the surfaces of its outer hall close to being finished but without a single hieroglyph or other design having been added. Photo by Gwil Owen.

Figure 8: The painted ceiling in the tomb of the god's father, Ay (no. 25). Photo by B. Kemp.

Next to the decision an official might make to site his tomb at Amarna or not comes the size of his ambition and his ability to accomplish it. Amarna was home to a vizier and to a mayor of the city. In the first case the house of a vizier, Nakht, is known and it is, fittingly, particularly large and elaborate. His tomb (no. 12, where he appears as Nakhtpa-aten) was intended to have a transverse hall of columns but work had not progressed far, and the same is true for the tomb (no. 13) of the mayor of Akhetaten, Neferkheperu-hersekheper. Since there are no tombs for other viziers or mayors, the explanation that they arrived late at the city is weak. The alternative is that they gave a lower priority to the making of their tombs.

The tombs that had achieved a greater degree of finish show wide variation in both size and the programme of work followed. The army general Ramose, owner of one of the larger houses in the city, accepted a small and simple tomb (no. 11) with no sign that the walls of the single chamber were intended to be decorated, although at the back is statue pair, where he sits beside his wife, Nebt-ant. The 'chief of seers' Meryra, by contrast, chose an ambitious design for his tomb, with a wide façade that advertised its presence from afar, two halls of four columns and an intended shrine at the rear, and pushed ahead with the various stages of decoration so that the outer hall was finished, with all surfaces painted, whilst the stone-cutters were still working on the inner parts and had not begun on a place of burial at a lower level. How he achieved this is illustrated by the tomb of the god's father Ay. The various specialist decorators – gypsum plasterers, outline draftsmen, carvers of relief and colourists – were set to work as soon as limited areas became available. Even so, despite the fact that Ay's tomb was one of the earlier ones to be started (to judge from the presence of early cartouches of the Aten) he achieved less than his high rank would lead us to expect. The owner of tomb 16 seems to have had more patience. A fine columned hall was completed and beautifully plastered with gypsum, though leaving a doorway at the back for an intended second hall or shrine. However, no artists had been introduced and so, lacking a single hieroglyph, the owner is unknown (unless the tomb was made by a contractor hoping to sell it, 'ready for immediate decoration').

Figure 9: The 'first servitor of the Aten' (high priest) Panehsy adores cartouches of the Aten and of the king and queen in his tomb (no. 6) at Amarna. Photo by B. Kemp**.**

The recent excavation of the cemetery of people from the city who did not choose a rock tomb has brought out the contrast between the effort that some expended on rock tombs and the extreme modesty of the burials of everyone else, who accepted a narrow pit dug into the sand marked with a cairn of loose, unworked stones. This contrasts, in turn, with people's expenditure on houses in the city, where every gradation from small to large is to be found. It looks, at first sight, like a classic demonstration of the division between the rich and everyone else in an area of luxury provision, in this case a fine memorial for posterity.

Figure 10: The royal chariot drive in the tomb of Meryra (no. 4). Photo by B. Kemp.

There are grounds for thinking, however, that the division was not so sharp. Scattered amongst the numbered rock tombs are roughly the same number of unnumbered tombs, that are small, unfinished and usually undecorated. (The number of rock tombs on which at least a start had been made is 43.) The owner of one of them, at the northern end of the northern row and numbered 1A, did manage to have an ownership inscription carved on the lintel. This tells us his name, Rudu, but gives him no title. This implies that he was an 'ordinary' citizen, someone whom we might have expected to be buried in a simple pit in the sand in one of the common cemeteries. This leads on to a consideration of the labour needed to create a modest undecorated rock tomb. The limestone is generally soft and easily cut. A man with experience of cutting limestone, aided by a few friends or relatives, could probably have cut a smallish chamber in a relatively short time, maybe a month of concentrated work.

If we add this to the evidence already discussed, we can start to form the view that having a rock tomb at Amarna was, in itself, an option that was generally available, but was taken up only by a minority, with an increasing frequency the higher up the scale of wealth and status you were. But even at the higher end, individuals approached the matter with varying degrees of commitment and urgency. A good rock tomb was a desirable possession, but less urgent than a good house and all its various forms of support.

Figure 11: A royal banquet. Akhenaten and Nefertiti eat meat across from his mother, Tiy.
From the tomb of the 'steward of the Great Royal Wife, Tiy', Huya (tomb no. 1). Photo by Gwil Owen.

In none of the tombs have the remains been found of an original, Amarna Period burial. This is not surprising in view of their subsequent accessibility, and might in any case be a sign that, as the city was abandoned, relatives removed burials that were reasonably accessible to take back to their ancestral cemetery. The clearest evidence for the death of one of the owners comes from tomb 23, of the royal scribe Any. In an unfinished entrance vestibule some of his relatives and friends left small memorial stelae to him.

Figure 12: The royal family worship the Aten in the tomb of the 'chief of seers' Meryra (no. 4). Photo by B. Kemp

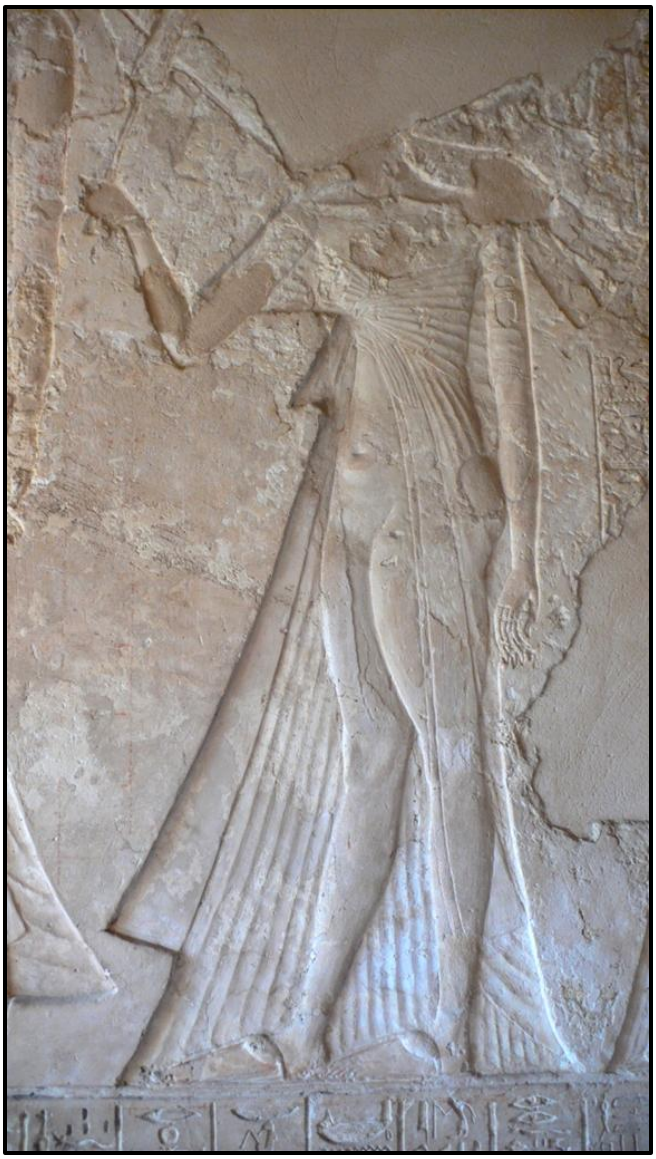

Figure 13: Finely detailed carving of Nefertiti on the side wall of the entrance in the tomb of Ay (no. 25). Photo by B. Kemp.

Despite the fact that several of the tombs lack a separate burial chamber (one of them Meryra's) we should not conclude that burials did not take place within them during the Amarna Period. Life was generally fairly short, and it is to be expected that a proportion of the tomb owners died whilst still at Amarna. We can try to imagine the predicament of the family faced with the need for a dignified burial and a tomb that was still unfinished. What realistic choice was there but to make the best use of the rock chamber that had so far been cut, and to place the coffin or the sarcophagus together with the burial equipment inside the chamber, even though the floor was irregular and the decoration unfinished or perhaps barely begun? The first step in creating a rock tomb was, naturally, to make a rectangular doorway, and this could be blocked with stones, perhaps plastered over. Once this was done, it is hardly likely that further work would be carried out on the interior.

Figure 14: Horse, groom and chariot, Tomb of Meryra, no. 4 Photo: The Amarna Project

Figure 15: Royal chariot journey, with Mahu, chief of police, leading his men in praise of the king as he rides past Photo: The Amarna Project

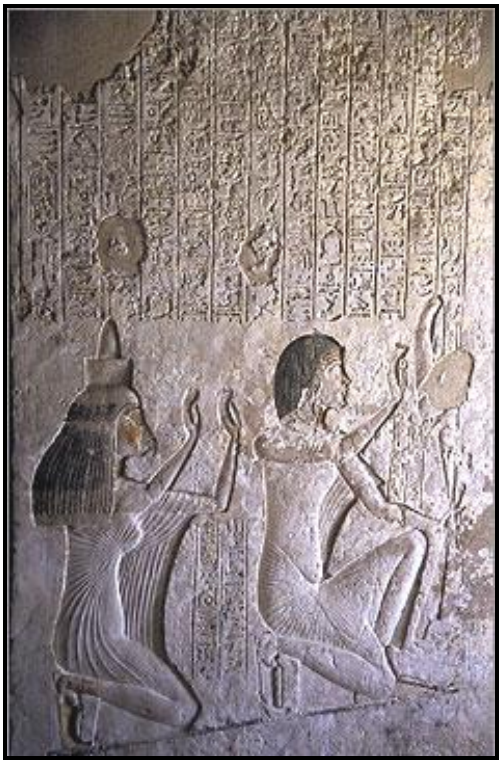

Figure 16: The God's Father, Ay, offers a prayer, the Hymn to the Aten Photo: The Amarna Project

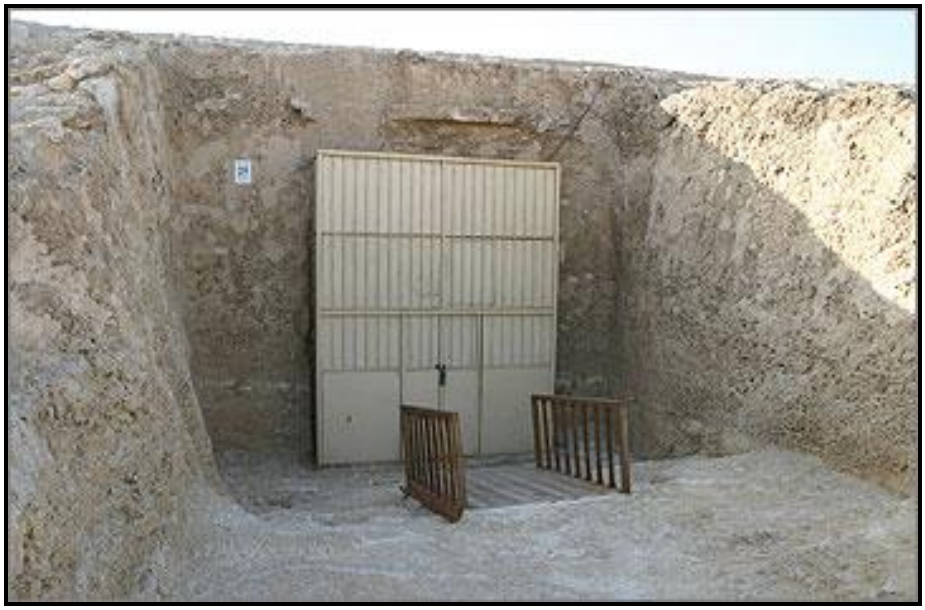

Figure 17: Entrance to tomb number 25, The God's Father, Ay

The rock tombs at Amarna illustrate a very human aspect of life in a society that could achieve monumental architecture and great art. The lives of individuals often failed to match the promises they made to themselves. Premature death and insufficiency of resources constantly created narratives that were at variance with the ideal, although some individuals, aware of this, sensibly aspired to less.

End Note: A good reference is N. de G. Davies, *The Rock Tombs of El Amarna*. 6 vols. London, Egypt Exploration Fund 1903–1908, reprinted as 3 vols in 2004 and obtainable from the Egypt Exploration Society.

Figure 18: Climbing the steps to the Northern Rock Cut Tombs at Amarna. Photo: David Pepper

Figure 19: View of the Amarna Plain from the Northern Rock Cut Tombs.
Photo: David Pepper

The 2013 excavations at the South Tombs Cemetery

By Anna Stevens, Mary Shepperson, and Melanie Pitkin

Background and aims:

The South Tombs Cemetery lies in a *wadi* in the eastern cliffs of Amarna, and is the largest of a series of desert cemeteries that were used by the non-elite of the city of Akhetaten. The burials are very simple, the bodies usually laid in an extended position, wrapped in textile and rolled in a mat, often made of reeds, and placed singularly in a pit in the sand.

The South Tombs Cemetery Project aims to explore the health, life experiences and beliefs of the people of Amarna through an integrated study of their skeletal remains and burial practices. Fieldwork at the cemetery began in 2005, with a collection of surface bone and pottery, and excavation has been undertaken annually since 2006. The excavation strategy has been to open a large excavation area at a location about two-thirds of the way down the *wadi* (the Upper Site), whilst jointly sampling other areas (the Wadi Mouth, Lower and Wadi End Sites) to test for variation in the way in which the cemetery was used (Figure 1). A noticeable trend has been the larger number of multiple burials at the Upper Site, and slightly less orderly appearance of burials, than at other areas. This raises the important question of whether these were simply family burials, or whether this part of the site was in use when the population was under attack by a disease that saw the use of 'mass' graves.

The 2013 season, which ran from 30 March until 1 May, was the last excavation season scheduled prior to the final analysis of skeletal material and artefacts, and the full publication of the project results. Along with the excavations, work continued on a major project to conserve the decorated coffins excavated at the cemetery (not reported upon here).

Our main excavation aim was to increase the sample of human skeletons, ideally to the overall project target of 400 individuals. To this end, further excavations were undertaken at the Upper Site, and at the Wadi Mouth Site, where a number of burials were identified late in the 2012 season and left uncleared. A new excavation site, the Middle Site, was opened in the large expanse of ground that had remained unexplored between the Upper and Lower Sites, to gain a further sample of skeletons here and again test for variation in burial practice. In the last couple of weeks of the season, a few test squares were also opened along the south-west edge of the cemetery, to check for its limits.

Progress of excavation and results:

The surface of the cemetery is scattered with pieces of bone, sherds and boulders that represent the remains of disturbed burials, the cemetery having been extensively robbed, probably sometime in the very distant past. The robbers usually rummaged through the interments, particularly the upper body, but often left much of the dislodged bone within the grave itself. The looting was so widespread that it destroyed most of the ancient surface of the cemetery, including the stacked-stone cairns that probably marked the locations the graves. In order to find the burials now, it is necessary to excavate the overburden of sand across each grid square until the grave pits or skeletons become visible. The depth at which this occurs varies according to the local topography, and this season ranged from essentially the current surface of the site to around 80 cm. Usually, the grave pits are visible only where they cut through horizons of more compact sand that underlie the upper layers of softer windblown sand. Sometimes, almost nothing remains of the grave cut itself. The pattern of excavation, therefore, is to remove the surface sand, immediate sub-surface layer, and lower horizons of bulk sand across each grid square until the graves emerge, at which stage each is individually investigated. All of the spoil is sieved, and all material culture and bioarchaeological material is collected, with each individual set of skeletal remains given its own 'Individual Number'. The work at each of the excavation areas is summarised below.

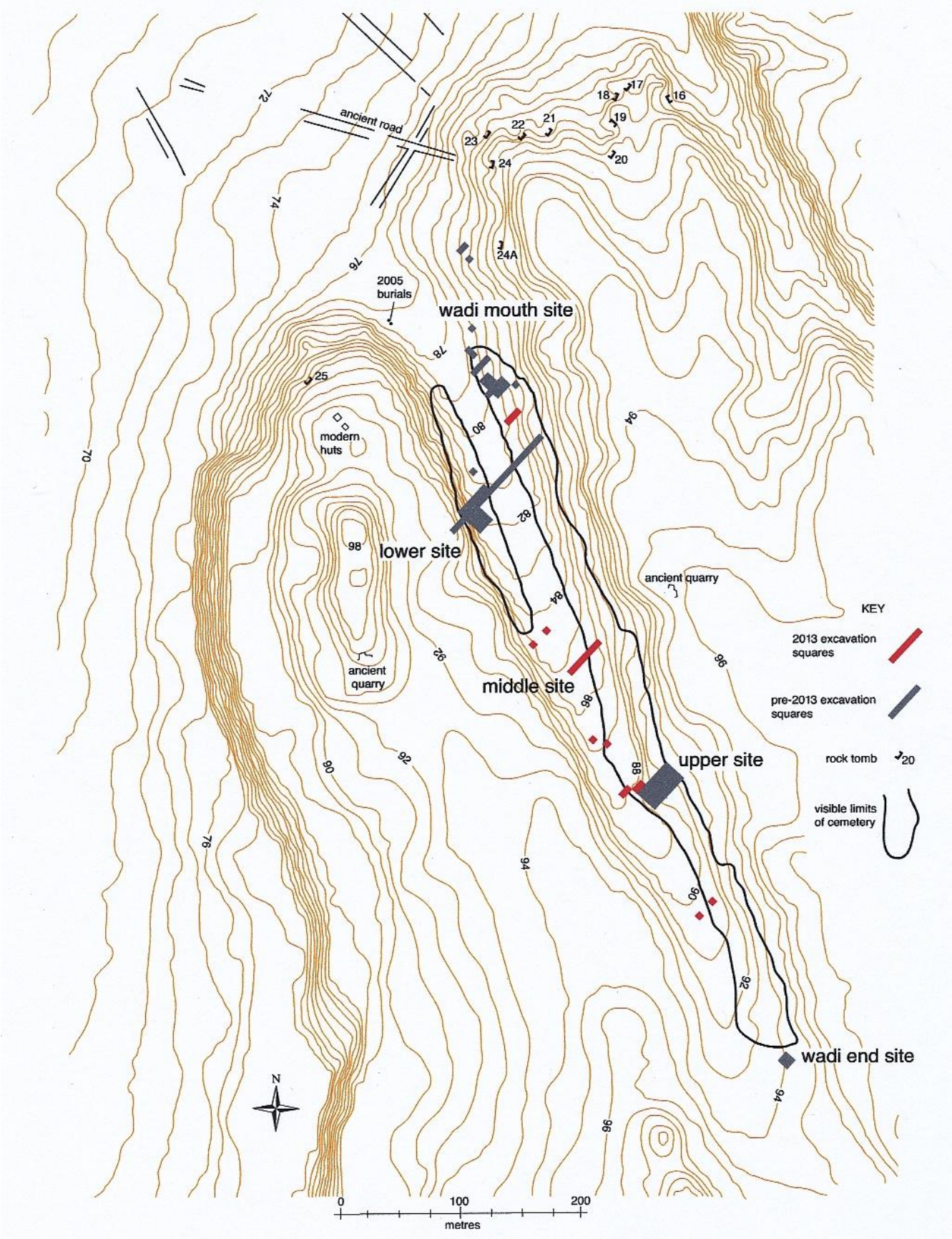

Figure 1: Plan of the South Tombs Cemetery showing the 2013 excavation areas (base map by Helen Fenwick and Barry Kemp).

Figure 2: Dr Delphine Driaux excavates a grave at the Wadi Mouth site

Wadi Mouth Site:

At the conclusion of the 2012 South Tombs Cemetery season, 11 burials were left unexcavated in three grid squares. These were revisited over the first two weeks of the 2013 season, revealing a further four burials. Of the 15 burials excavated, two were devoid of human remains. This includes one which possibly belonged to a child (as indicated by the short length of the grave cut) and also the only coffin found at the Wadi Mouth during the season, of which only painted plaster fragments survived. In both cases, the burials were highly disturbed by looting. All remaining 13 burials were also disturbed, with skulls recorded for only three individuals.

All of the Wadi Mouth individuals were interred singularly, with no examples of multiple burials. The graves themselves were quite evenly spaced. Where the posture of the skeleton could be identified, all appear to have been buried on their back (Figure 2), the usual position at the cemetery. Only one object was recovered this season, a blue-green faience scarab beetle in the burial of Ind. 336. As with previous seasons, however, the state of preservation of human remains was relatively good and hair, desiccated skin and toe nails were encountered quite often.

Upper Site:

Four 5 x 5 m squares were marked out at the Upper Site in 2013. Two of the four squares under excavation, F55 and H55, were on the eastern slope of the *wadi*, contiguous with the area previously excavated. The other two squares, E56 and F56, were located on the floor of a channel that runs along the axis of the *wadi*, and seems to have been largely created by a flood after the Amarna Period. The surface level of each square was photographed and recorded before the surface deposits were removed. The sub-surface bulk material was then excavated down to the level at which grave cuts became visible.

Square H55:

Three single burials were excavated in H55, containing Individuals 345, 355 and 356. Of these, the burial of Ind. 355 was notable for the unusual quantity and quality of the plant fibre matting used to wrap the body. Sections of this matting were removed by the conservation team. The final grave to be dug in H55 was a triple burial in a wide, deep cut, unusually containing three adults: Inds 357, 358 and 359 (Figure 3). The three bodies remained partially *in situ* side-by-side at the bottom of the grave, with the middle body laid in the opposite direction to the others. They each had a separate and different plant stem coffin and appeared to have been buried all at the same time.

Figure 3: The triple burial of Inds 357, 358 and 359 at the Upper Site, unusual amongst the Amarna multiple burials for being all adults, rather than one or more children.

Square G55:

Four grave cuts were found in square G55 but one could not be excavated as the majority of it lay outside the area of excavation. The remaining three graves held a single (Ind. 345), a double (Ind. 346 and 347) and a triple burial (Ind. 351, 352 and 353). The double burial consisted of an adult with a baby wrapped in textile laid over the adult's legs, lying in the opposite direction. The triple burial consisted of two adults and a small infant. The two adults were laid in separate coffins with their heads at opposite ends. The infant was laid over the legs of Ind. 351 in the same direction.

Square F56:

F56 contained the edge of the eastern *wadi* side, sloping steeply to the *wadi* floor near the east edge of the square. On removal of the material from this slope, two burials were quickly identified before the edge of the *wadi* floor. One of these could not be excavated as it lay too far into the two unexcavated squares at the south-east corner but the other grave was a double-width cut containing the triple burial of Inds 348, 349 and 350. This burial was very badly disturbed and much was missing, but from the recovered bones it seems to have contained two adults and one infant, although it was not possible to tell how these were arranged in the grave. No graves were found in the western part of the square.

Square E56:

This square lay at the bottom of the *wadi* floor. No burials were found in square E56 despite being excavated to a considerable depth. Pottery and bone fragments were found in the upper levels of deposit but these became less as excavation progressed. A sondage was dug along the eastern side of the square as a final check to see if burials might be found at greater depth, but this produced no cultural material of any kind and no burials. The deposit here appears to be accumulated layers of flood wash, the upper portion containing debris washed out from the cemetery, and the lower levels predating the use of the cemetery. It seems that at the Upper Site burials did not extend beyond the eastern *wadi* slope.

Figure 4: The Middle Site at the very beginning of the season, with the Upper Site just visible in the background.

Middle Site:

Seven 5 x 5 m excavation squares were opened at the Middle Site, in a single row (Figures 4 and 5). Three of these, R–T75, lay on the raised embankment of sand that runs along the north-east side of the *wadi*, and the remainder, N–Q75, lay within the channel that runs along the axis of the *wadi*, and was formed at least in part by a large flash flood some time after the Amarna Period (and also after the site was looted).

Figure 5: Excavations underway in grid squares P–Q75 in the channel floor at the Middle Site.

A total of 44 graves were identified, and 32 of these excavated, the remainder extending too far into the edges of the squares to retrieve in the time available. The excavated graves yielded the remains of 35 individuals. As is standard at the cemetery, the bodies were usually laid out in an extended posture on their backs, wrapped in textile and matting. One important exception was an adult (female?) buried in a flexed position in a small grave pit, the burial remaining undisturbed (Figure 6). She had been wrapped in textile and two layers of matting, the inner an unusual woven basketry and the outer a plant-fibre layer. This is only the second flexed burial so far encountered at the cemetery, and the only undisturbed example, the other being the looted burial of an adult female found at the Upper Site.

Most of the squares at the Middle Site were quite densely filled with grave pits, with neighbouring graves usually running in a similar direction. As is often found at the cemetery, graves cut into flat ground usually followed the axis of the *wadi* itself, whilst those on sloping ground often ran at an angle to the *wadi*. No burials were found in square N75, and across the south-west part of O75, suggesting that the south-west edge of the cemetery runs through the latter.

Figure 6: An adult female buried in a flexed position. This is only the second flexed burial from the cemetery to date, and we wonder whether this individual was perhaps a foreigner living at Amarna – although with no grave goods this is almost impossible to investigate further.

Only two wooden coffins were found, both in very bad condition, but which appear simply to have been rectangular, undecorated boxes. One contained the body of a child (Ind. 319), and the other an infant (Ind. 372), the latter buried in a particularly deep grave, perhaps to deter robbers. The interment escaped robbery, but was badly affected by a flash flood. Generally, the burials cut within the channel floor showed signs of water damage, the flooding causing the matting, textile and rope to deteriorate, although the bone often remained in good condition.

Most of the Middle Site individuals were adults buried singularly, in graves cut just large enough to accommodate the body and matting, but there were three examples of double burials. The first comprised a child (Ind. 319) buried in a wooden coffin, with the remains of an infant (Ind. 318) found high up in the grave fill, but possibly originally interred alongside the juvenile. The remaining two examples comprised burials of adult females (incidentally, both with long, braided hair) with children. The first, Ind. 362, lay extended and supine with the skeleton of a young child (Ind. 361) buried in a separate mat, of plant-fibre, lying over her lower legs (Figure 7). There was nothing to suggest that the two individuals were not interred at the same time. In the second case, the child, a very young infant (Ind. 386), seems to have been wrapped within the same plant-stem mat as the adult, perhaps in a separate piece of textile. In this case, there is no doubt the two were buried at the same time, raising the possibility that the woman died in childbirth.

Squares B35, -B35, I3, H65, M82 and P82:

Towards the end of the excavation season, six 5 x 5 m squares were laid out along the south-west margin of the cemetery, where the surface scatter of bone and sherds peters out. The aim was to test whether burials continued here (Figure 1). Burials were observed in squares B35, I63 and P82, but not in -B35, H65 or M82 (although the latter contained a possible unused grave pit). This suggests that the edge of the cemetery conforms fairly well to the edge of the surface scatter of bone and sherds, narrowing as it extends deeper within the *wadi* and concentrated here on its north bank. One burial was excavated in B35, that of an adult (Ind. 365) of which only the lower legs remained, the rest washed away by a flood. The graves in I63 and P82 were planned but not cleared.

Figure 7: One of the double burials at the Middle Site, in this case of an adult (Ind. 362) with a child (Ind. 361) bound in a separate mat.

Burial goods:

Burial goods were quite rare this season, as is common at the site. By far the most numerous find are fragments of pottery vessels, of which diagnostic pieces were retained for future study. Four substantially intact pottery vessels were found: an Egyptian pilgrim flask, two small bowls and a small jar.

Amongst other grave goods were pieces of jewellery, some with likely amuletic functions, such as decorated beads, scarabs and finger rings (Figure 8). Several ear or hair rings were found, whilst a fine metal chain from an infant burial at the Upper Site represents a technique of metalworking not previously recorded from Amarna (Figure 8). Items with a cosmetic role comprises two bronze tweezers found together in a grave at the Upper Site (Figure 8), and two wooden cosmetic applicators, found with a piece of kohl, in a burial at the Middle Site.

Amongst the more unusual finds were two model mud balls from the burial of an infant (Ind. 388) at the Middle Site, which probably had a ritual function, and a wooden handle (?) with elaborate decorative binding also from the Middle Site (Figure 8).

Only one possible stela was recovered this season, a badly weathered slab of stone lying on the surface of the cemetery to the south-east of the Middle Site.

Most of the artefacts have been placed in storage in the onsite magazine, and will be recorded in full in a future field season. The more significant pieces have been removed to the Ashmunein magazine.

Figure 8: A selection of artefacts excavated at the South Tombs Cemetery in 2013. Clockwise from top: faience fish pendants and a selection of beads from a necklace (obj. 40116); bronze tweezers with textile wrapping (obj. 40119); wooden handle (?) with decorative binding (obj. 40138); bracelet from an infant burial (obj. 40115); bead with engraved insect and lizard (obj. 40113); and faience finger ring with papyrus design (obj. 40120).

Concluding remarks:

The 2013 excavations saw us reach the target of 400 excavated individuals from the cemetery. The Upper Site continued its trend for a high frequency of multiple graves, perhaps a greater degree of disturbance from looting, and a more disorganised distribution of graves in terms of density and orientation. The Middle Site burials seem more in keeping with those at the Wadi Mouth and Lower Sites, although also incorporating several multiple burials. With the conclusion of the 2013 excavations, we have a substantial sample not only of human remains from the South Tombs Cemetery, but a solid understanding of variation in use of different parts of the site.

Acknowledgements:

Funding for the season was provided by a British Academy Small Research Grant. The Supreme Council of Antiquities Inspector was Ms Shimaa Sobhy Omar, to whom we extend many thanks, along with the staff of the Minia and Mallawi SCA offices. And, thanks are also due to our hard-working and dedicated team of excavators and conservators.

For those wishing to learn more about the cemetery excavations, annual reports are available online at:

http://amarnaproject.com/pages/recent_projects/excavation/south_tombs_cemetery/

And, you can follow us, and view photos of the excavations, at our Facebook page:

http://amarnaproject.com/pages/recent_projects/excavation/south_tombs_cemetery/

Figure 9: South Tombs Cemetery Wadi. Photo: Barry Kemp

Honorary Trustees of the Amarna Research Foundation

Bob Brier, PhD
Senior Research Fellow,
C.W. Post Campus,
Long Island University, Brookville, NY

Rita E. Freed, PhD
Norma-Jean Calderwood Curator,
Egyptian, Nubian & Near Eastern Art,
Museum of Fine Arts, Boston

W. Raymond Johnson, PhD
Director Epigraphic Survey,
Oriental Institute, University of Chicago

Barry J. Kemp, CBE
Field Director Amarna Expedition,
Egypt Exploration Society (EES) &
Professor of Egyptology (Retired),
Cambridge University

Geoffrey Martin, PhD, LittD, FSA
Field Director,
Cambridge Expedition to the Valley of the Kings,
Christ's College, Cambridge University

Dietrich Wildung, PhD
Director (Retired),
Egyptian Museum,
Berlin

Richard Wilkinson, PhD
Director (Retired),
Egyptian Expedition,
University of Arizona

The Amarna Research Foundation, Inc.
3886 South Dawson Street
Aurora, CO 80014
e-mail: RTomb10@comcast.net
website: www.TheAmarnaResearchFoundation.org