Children from El-Till gather for the official opening of the Amarna Visitor Centre, see page 9. Photo by M. Mallinson.
The Nile valley lies on a major migratory route and birds figured prominently in the daily and spiritual lives of the ancient Egyptians. In October 2015 I began a study of the bird bone assemblages from the Pharaonic period at Amarna, with a view to establishing a more comprehensive picture of the bird life and to investigate the role and preparation of birds as votive offerings and/or as food items.

Of particular note at Amarna is the relatively short-term occupation of the Pharaonic city (< 20 years). Archaeological and palaeontological data can provide deeper-time perspectives on species distributions than are typically available to ‘modern’ ecological or ornithological studies and the bird bones recovered from the site represent relatively well-constrained chronological records of bird life along a major migration route in Middle Egypt. While it would be foolish to assume that the bird-bone assemblages are a comprehensive or unbiased sample of birds during the Pharaonic period (much of the material available for study likely being food-waste and/or the product of votive offerings), it is possible that migrant species may have been trapped by the people in the city as readily as resident species, and some bird bones may have been incorporated into the record as incidentals, through the actions of predators or other means.

An important part of the collection (371 specimens) was recovered during investigation of areas adjacent to the northern house of the High Priest Panehsy in 2006 by Pippa Payne and Anna Stevens. Although the house, which stood alongside the Great Aten Temple, had been completely cleared in 1926, the excavated spoil remains in heaps near by. The purpose of their re-investigation in 2006 was to recover samples of the animal bones which had been mentioned in one of the original reports. Two of the 2006 contexts yielded large and well-preserved assemblages of bird bone. While these assemblages were (numerically) dominated by the skeletal remains of geese (Anser sp.), a variety of other birds were also present (Figure 1). Ongoing work with the comparative collections of the Natural History Museum (Bird Group – Tring) has indicated that the assemblages included common crane (Grus grus), teal (Anas crecca), water rail (Rallus aquaticus), doves (Streptopelia sp.), quail (Coturnix coturnix), wading birds (e.g. Tringa sp.) and a variety of Passeriformes (perching birds), including at least two species of shrike (Lanius excubitor and Lanius senator). Also present were small numbers of the bones of fish, reptiles, amphibians (small frogs – Ranidae), rodents and shrews and three elements from a small bat.
While it would be impossible to
differentiate between the preparation
of, say, ‘offerings’ and ‘food items’ (or
indeed how this may have proceeded,
in sequence, from one to the other),
the recovered bird bones offer an
opportunity to examine skeletal element
representation and to compare it with
depictions of preparation of waterfowl in
tomb carvings and wall paintings. There
are expansive scenes of offering-tables
laden with geese at Amarna. These
images tend to indicate that whole
carcasses were placed on the tables
(e.g. in the tomb of Meryra, Figure 2A).
Given the scale of the images, however,
the renderings of the geese are not
detailed and this may have been a
stylistic choice to make the geese
obvious in the image. In more detailed
illustrations, which include images
showing Akhenaten and the royal family
with food offerings (e.g. tomb of Mahu,
Figure 2B) and other illustrations from
elsewhere during the Eighteenth Dynasty
(e.g. a painting in the tomb of Nakht, no.
52, Thebes, Figure 2C), waterfowl tend
to be shown with the wings and legs
removed – possibly cut away at or near
the distal end of the humerus and distal
end of the femur, respectively.

A preliminary examination of skeletal
element representation and taphonomic
modifications in the Panehsy materials
yielded the following results. Both the
goose assemblage and the ‘small’ bird
assemblages are dominated by
elements from the leg, but elements of
the wing are also represented (Figure 3).
Notably, there was a relatively high
abundance of one wing element, the
ulna, in the ‘small’ bird assemblages
that contrasts with the incidence of this
bone from geese. It is possible that the
relatively low incidence of ulnae from
goose reflects the use of feathers as a
secondary product (e.g. fletching and
cushion stuffing) and that goose wings
were cut away and removed elsewhere.
Conversely, the low relative abundance
of phalanges of the ‘small’ bird taxa in
comparison with the geese can most
parsimoniously be attributed to loss due
to the size of the mesh (10 mm) of the
sieves used during the excavation.
Notably, elements from the axial and
pectoral skeleton, which includes the
greatest concentration of muscle mass
(the flight muscles) around the sternum,
are either very poorly represented or
absent in both assemblages (Figure 3).
In the goose bone assemblages, the

Figure 1. Examples of birds identified in excavated materials from the northern house of the
High Priest Panehsy (A) Anser sp. (white-fronted goose is shown), (B) Grus grus (common crane),
(C) Streptopelia sp. (turtle dove is shown), (D) Lanius excubitor (great grey shrike), (E) Lanius senator
(woodchat shrike), (F) Coturnix coturnix (quail), (G) Anas crecca (teal), (H) Rallus aquaticus (water rail),
(I) Tringa sp. (redshank is shown).

Figure 2A. Offering-stands in the House of the Aten. Below the bouquets of flowers and bowls of incense
lies a row of geese, seemingly complete. Tomb of the Chief of Seers, Meryra (tomb no. 4 at Amarna). After
Davies, Rock Tombs of El Amarna I (London, EEF 1903), Pl. XXIII.

Figure 2B. Offering-table for the cult of the Aten. In
the same relative position as in Fig. 2A lies a row of
birds with wings and legs removed. Tomb of the Chief
of Police of Akhetaten, Mahu (tomb no. 9 at Amarna). After
Davies, Rock Tombs of El Amarna IV (London, EEF 1906), Pl. XV.
coracoid – a robust element that acts as a brace between the flight muscles, attached to the sternum, and the wing – while generally regarded as rather durable, appears to have been systematically broken close to the sternal articulation. It would appear that the main meat-bearing portions of the carcasses were bound for elsewhere and it is plausible to suggest that the remains from the Panehsy spoil heap represent the refuse from butchery.

The significance of the ‘small’ bird bones remains to be determined, but the initial results suggest a similar pattern (with two exceptions noted above) in element representation and they may also represent the remains of offerings and/or food items (note: they may also have been salted and stored in ceramic vessels).

From a taphonomic perspective, it has been commented that the mammal bone assemblages from Amarna display a marked lack of modifications associated with scavengers (i.e. gnawing) such as dogs (Legge, 2010). The goose bones, in contrast, are notable for the occurrence of ‘carnivore pits’ (small puncture marks in the surface of the bone. Maximum diameter: range 0.72 mm to 4.00 mm; mean = 2.07 mm) on a total of fifteen specimens. Barring one specimen (a fragment of distal humerus with shaft) all the pits occurred on the bones from the leg (e.g. Figure 4) – the femur, tibiotarsus and tarsometatarsus – and appear to be of a size and morphology consistent with the tooth marks left by small/medium carnivores, possibly cats (Felis sp.). Given that leg elements are relatively abundant in this assemblage and that these elements appear to have received particular attention by scavengers, then this may be taken as further evidence of removal during butchery: leg elements were ‘available’ in the environment for long enough for carnivores to have had access to them.

**Further reading:**


Excavation at the Great Aten Temple has revealed that, throughout its life, the ground in front of the main building was occupied by a row of rectangular platforms made of mud, each one surrounded by a shallow trench thickly lined with gypsum plaster. In all but one case the trench had been subdivided by cross-walls into a series of basins varying in number (Figure 1). Each set had seen considerable use and maintenance, and the gypsum linings suggest that the basins were to hold water. What purpose did they serve? The following suggestion arose from observing that the central feature of each – the rectangular platform – has a size and shape suitable for resting a coffin or human body on it.

Several tombs of the New Kingdom, from before and after the Amarna period, feature in their decoration a scene of a funerary garden (Figure 2). Its central feature is a rectangular pool in which plants, fowl and fish live. One or more small boats float on it, one of them bearing the coffin of the deceased. From the centre of the pool rises a rectangular island on which the deceased has been laid out. A garden surrounds the pool, planted with trees and provided with tables for food offerings, sometimes beneath light shelters.

Bringing the two sets of sources together – the platforms with their basins and the tomb scenes – immediately raises the question of scale. The pool is shown as being large enough to support aquatic life and to be navigable by real boats. The temple basins, by contrast, are too tiny for either, unless we accept that miniaturisation has reduced the body of water to a token.

The Workmen’s Village provides a perfect example of miniaturised sacred landscape. In front of the entrance to an annexe to the largest of the private chapels outside the walled village a T-shaped basin, c. 1.75 m long, had been formed in the ground (Figure 3). In the centre of the cross-arm a replica on a tiny scale had been made of a quay flanked by staircases down to the water’s edge.
We do not have to look far for how it might have been used. Two steering-oars from a painted wooden model boat were found in the rear part of the adjacent chapel (Figure 4). Pieces from other model boats come from several of the houses inside the walled village (Figures 5 and 6).

T-shaped basins and rectangular pools with an island suggest different interpretations of the common theme of water as the source of life and of rebirth after death. The point of the comparison is to illustrate how miniatures could substitute for the real thing in sacred settings. But not all in the layout at the temple was of reduced scale. The scenes of funerary gardens also show offering-tables. During the first period at the Great Aten Temple, at least, the basins stood adjacent to groups of offering-tables, some of brick and some of stone. That they, too, were parts of a layout that served funerals of differing scale would explain their differing histories (and see Figure 7 for a probable offering-table beside one of the later basins). Nothing here, however, explains why the basins have compartments and in differing numbers and sizes.

The excavation and recording of the platforms and basins have been the work of Sue Kelly.

Further reading


F. Weatherhead and B.J. Kemp, The Main Chapel at the Amarna Workmen’s Village and its Wall Paintings (EES Excavation Memoir 85; London, 2007), 75, 116, fig. 2.3; 134, pls. 2.1–2.4.


In 2005, the Amarna Project began a long-term study of the non-elite cemeteries of Akhetaten. Initially, we focused on a large burial ground at the South Tombs, and in 2015 then shifted the fieldwork to a cluster of burial grounds near the North Tombs. The excavations at the South Tombs Cemetery produced around 367 burials, including a minimum of 399 skeletons – one of the largest assemblages of well-excavated burial data now available from pharaonic Egypt. A current priority of our research programme is to write-up this data for publication; it is time to reflect on the site and our excavation results.

One of the questions that we have been grappling with is how many people were buried at the South Tombs Cemetery. An initial estimate was made during the early seasons of fieldwork, and a figure of c. 3000 individuals arrived at. But we now have a better understanding of how much ground the cemetery covered, and of how many individuals were buried on average across each of our 5 x 5 m excavation squares. Extrapolating from this, we feel confident in modeling a considerably larger cemetery population of around 6000 individuals. It is too early yet to estimate a population for the northern cemeteries, although based on our first season of fieldwork, we suspect that there are several thousand more individuals buried here. So in total, we are probably looking at something like 10,000 people, if not more, buried at Amarna.

This estimate, however preliminary, is very significant. It prompts reflection on how many people might have lived at Akhetaten. Population estimates for the city are difficult to arrive at. Part of the problem is in knowing how many houses the city contained, with portions of it lost beneath agriculture before any archeological recording began. The other problem is that we do not have a clear idea of what formed an average New Kingdom ‘household’ – census lists give some indication, but also highlight the fact that household numbers fluctuated over time. Because of these uncertainties, a broad population estimate of 20,000 to 50,000 people is usually provided for Akhetaten. But if we are correct in proposing around 10,000 dead within the cemeteries, 20,000 people now seems somewhat low and an upward revision of this lower limit of the population estimate is probably warranted.

We can also begin to think about the impact of death on the population of Akhetaten. If, for example, we work on the basis that the city was occupied for 15 years (5475 days), there must have been about one funeral a day at the South Tombs Cemetery. And what about the burden on individual households? It is likely that the people buried at the South Tombs Cemetery lived mostly within the Main City, the closest of the residential suburbs. As a rough estimate, the Main City probably contained something like 1000 houses. This is based on the fact that around 630 buildings have been excavated here, most of them houses, but also that portions of it (around a third perhaps?) remain unexcavated, and that sometimes the early excavators gave a single ‘building number’ to what was actually a cluster of small houses. Originally, therefore, there were in excess of 630 houses in the Main City – a figure of 1000 is perhaps not too far off. If so, this would imply that each household lost on average around 6 members over the course of the occupation of Akhetaten. There are a lot of ‘ifs’ here, but we are compelled to start thinking in these directions when presented with such a remarkable, if still frustratingly incomplete, dataset. Death, it seems, was a pervasive aspect of life at large urban settlements like Akhetaten.
The last issue of *Horizon* (no. 16, pp. 8–9) reported a recent serious threat to an important part of Amarna, the southerly site of Kom el-Nana. This contains the remains of the Sun Temple of Nefertiti, one of the buildings promised by Akhenaten in the texts of the Boundary Stelae, together with a small monastery of the 5th and 6th centuries AD (including a decorated church) built over the top. The land belongs to the Ministry of Antiquities but this does not prevent farmers in the area from seizing it for cultivation.

Thanks to a generous response to an appeal by the Amarna Trust for funds to cover the costs of a barbed-wire fence, a first set of iron stakes was made in the late spring of 2015 and it proved possible to begin the fence in October. By early November the most vulnerable side, on the west, had been finished. As the work went ahead, a tractor ploughed up adjacent land, working on the floor of a shallow sand quarry which had already cut away a small part of the site. We plan in the near future to resume fencing the remainder of the site.
In the summer of 2005 work began at Amarna to create a Visitor Centre, a project of the Supreme Council of Antiquities (now Ministry of Antiquities), with designs by Mallinson Architects and ideas from members of the Amarna Project. An outline of how it was conceived at the time has remained on the Amarna Project website:

http://www.amarnaproject.com/museum.shtml

Ten years on and the large and handsome building beside the waterfront at El-Till is complete, as is a cafeteria and large garden further along the waterfront. Much remains to be done on the exhibits, however. In the spring of 2015 the Ministry of Antiquities requested the Director of the Center for the Revival of Ancient Egyptian Art, Amr El-Tiebi, to involve his department (which has extensive workshops in the Cairo Citadel) in preparing the Visitor Centre for public opening.

One outcome has been the making of a series of replicas of objects, mostly from Amarna and in the Egyptian Museum, and of items of furniture typical of the New Kingdom. The first batch was delivered in November. Another outcome concerns the full-size recreation of the house of Ranefer which is the centrepiece of the displays. A group of five craftsmen spent a week in November adding decoration and textures to some of the surfaces.

On March 20th the then Minister for Antiquities, Prof. Dr. Mamduh El-Damaty, formally opened the Visitor Centre in the company of the Governor of El-Minia. This marks an important step in bringing the scheme to completion and in developing a programme that serves the local community as well as visitors from outside.

For the Center for the Revival of Ancient Egyptian Art see:
http://www.sca-egypt.org/eng/STORE_REP_MP.htm

http://english.ahram.org.eg/NewsContent/9/44/193451/Heritage/Museums/Tel-AlAmarna-Visitors-Centre-in-Minya-opens.aspx

https://www.facebook.com/media/set/?set=a.1161111367243129.1073741834.178713395482936&type=3

One of the replicas delivered to the Visitor Centre and made in the Citadel workshops. It is of the restored canopic chest of Akhenaten, discovered in the Royal Tomb at Amarna and housed in the Egyptian Museum, Cairo. Behind it, to the left, is a replica of the façade of the domestic shrine from the northern house of the high priest Panehsy.

The moment of opening: the Minister for Antiquities stands beside the Governor of El-Minia and a group from El-Till school. Photo M. Mallinson.
As mentioned in the last issue of Horizon, the Amarna Trust has now set up its new account. The details are:

Bank: NatWest
Address: High Wycombe branch, 33 High Street, High Wycombe, Bucks, HP11 2AJ
Account name: The Amarna Trust
Account number: 21457700
Branch sort code: 60-11-01
BIC: NWBK GB 2L
IBAN: GB66 NWBK 6011 0121 4577 00

For many years the expedition cook, Mohammed Abd el-Badia (from the village of Ezbet Hagg Qandil) died in Asyut hospital on February 24th after an illness. He was a kindly, gentle man, who, in addition to feeding us, entertained us with his distinctive artwork and the making of straw horse ornaments, and took a warm interest in the house cat and kitten community. He will be much missed.

Each issue of Horizon is simultaneously printed and also prepared as a pdf file which is added to both web sites:

http://www.amarnaproject.com/downloadable_resources.shtml
and
http://www.amarnatrust.com/newsletter.shtml

The printed copies are mailed free of charge to anyone who asks.

We are proposing to rely more on disseminating Horizon through the web sites. Hard-copy versions will still be mailed to a reduced mailing-list that includes donors and institutions. If you wish to continue to receive a printed copy or be reminded by email that a new issue has been added to the web sites, please email Barry Kemp at: bjk2@cam.ac.uk

South Tombs Cemetery
http://www.amarnaproject.com/pages/recent_projects/excavation/south_tombs_cemetery
Annual reports from 2005 to 2013 (the last excavation season of the current scheme)

North Tombs Cemetery
http://www.amarnaproject.com/pages/recent_projects/excavation/northern_cemeteries
Report for 2015

Great Aten Temple
http://www.amarnaproject.com/pages/recent_projects/excavation/great_aten_temple
Reports (in pdf form) from 2012 to 2015

Amarna Royal Tombs
http://www.amarnaproject.com/pages/amarna_the_place/royal_tombs/index.shtml
Short article by Barry Kemp, January 2016

Amarna Reports
http://www.amarnaproject.com/downloadable_resources.shtml
VOLUME V of Amarna Reports (1989) has now been added.

Publications
Entry on Tell el-Amarna by Anna Stevens in the UCLA Encyclopedia of Egyptology:
https://escholarship.org/uc/item/1k66566f
Follow-up article on the report (Horizon 16, pp. 8–9) on the M50.14 excavation by Anna Hodgkinson, ‘Amarna glass: from Egypt through the ancient world’:
http://ees.ac.uk/userfiles/file/EA%2048_Hodgkinson.pdf
The objectives of the Trust are:

i) creating a permanent facility for study (the research base – The Amarna Centre);

ii) undertaking and supporting field research (and publishing the useful results of such research);

iii) promoting training in archaeological field skills;

iv) providing, and assisting in the provision of, lectures and publications in furtherance of the stated objects;

v) developing displays and exhibitions at a site museum for the benefit of the public and an educational outreach programme for the benefit of pupils at schools; and

vi) working in partnership with the Supreme Council of Antiquities of Egypt to maintain the ancient city for the benefit of the public.
The Trust invites donations from individuals or from corporations. Donations can be earmarked for particular purposes or they can be allocated by the Trust in pursuit of the stated objects of the Trust. The Trust is able to benefit from the present UK tax legislation by reclaiming tax on donations from UK tax-payers under the Gift Aid scheme, which increases the value of the gift by nearly a third. For this it is necessary to accompany each donation with a Gift Aid declaration form or a similar letter. There are further tax advantages for donors who pay at higher rates.

For residents of the USA, donations can be made either to the Amarna Research Foundation or to the Cambridge in America Foundation (both 501(c)(3) tax-exempt organisations) with the request that the donation be made into a grant for The Amarna Trust.

Further information, including downloadable forms, are available at [www.amarnatrust.com](http://www.amarnatrust.com) where you can also donate on-line. Donations can also be made via [secure.thebiggive.org.uk/charity/view/9588/the-amarna-trust](http://secure.thebiggive.org.uk/charity/view/9588/the-amarna-trust) [secure.thebiggive.org.uk/project/greatatentemple](http://secure.thebiggive.org.uk/project/greatatentemple)

Sandstone block recovered from a deposit of excavated material buried in the 1920s beside the southern expedition house (the South House Dump). It comes from the EES 1922 excavation at Maru-Aten. At the left side a man stands inside a building which includes a doorway to a garden where plants surround what appears to be a rectangular pond. Traces remain of red and blue paint over a thin coat of gypsum plaster. Photo by G. Owen.

All work done at Amarna relies upon the support and agreement of the Ministry of State for Antiquities of the Arab Republic of Egypt. We are indebted to its personnel, both local and in Cairo.

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