

horizon

ISSUE 14 Spring 2014

The Amarna Project and Amarna Trust newsletter



The owner of tomb 23 at Amarna, the royal scribe Any, sits in a shrine of his own inside his tomb chapel. The simplicity of the façade can be compared with more elaborate examples in some of the other tombs, illustrated on pages 7-8. Photo by Gwil Owen.

Access and Archives

Over the years, the fieldwork at Amarna has created a large archive of records, in the form of notes, plans and photographs. These are, at present, housed in the project's office in Cairo's Tahrir Square. Thanks to a generous donation by Peter Borromeo, the lengthy task has begun of scanning them. The priority is to create more than one electronic copy of key material, and then to consider the feasibility of adding a selection to the web site.

This is in addition to the creation of the object database for material found from 1979 onwards, the first stage of which was reported on in *Horizon* 12 (page 4). The completed database awaits a phase of proof-reading before it, too, is added to the web site.

The Amarna Project is committed to making available, as and when it is feasible, source material for the study of the city and its archaeology through its web site, www.amarnaproject.com. It is good to report that, with the agreement of the Egypt Exploration Society, we have begun the process of scanning the six volumes of the *Amarna Reports* series for adding to the web site (see page 9).

Also reported here (pages 6-7) is an initiative of the Egyptian government to improve road access to Amarna from the north and, at the same time, through the Ministry of State for Antiquities, to safeguard the adjacent northern parts of the city.

Much of the work of the Amarna Project is possible because of donations to the Amarna Trust by members of public. Thank you for your continuing interest and support.

The effective working of the Trust owes much to its Treasurer. Dr Alison Gascoigne, having devotedly filled this position from the beginning, is now handing over to a successor. I am happy to welcome Sue Kelly as the Trust's new Treasurer. Her contact details are given on page 11.

I am also happy to report that the expedition started up again at Amarna on February 20th.

Barry Kemp
Chairman of the Trustees

contents

The use of corundum abrasive at Amarna	2
A new road to Amarna	5
Architecture of the rock tombs	7
Object digitisation update	8
Amarna Reports	8

Supporting the Amarna Trust	9
Scanning the excavation archive	9
Seton Lloyd at Amarna	10
The Amarna Trust	11



Figure 1. Indurated limestone fragment in the Metropolitan Museum of Art, 57.180.142. Harris Brisbane Dick Fund, 1957.

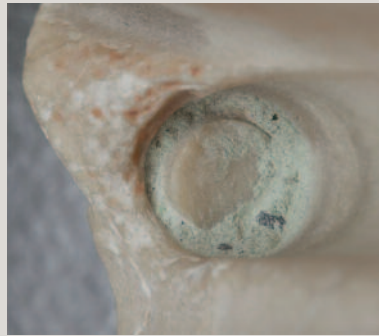


Figure 2. Close-up photograph of the protruding stump of the broken tubular drill core surrounded and partly covered by the granular material that provided the sample for analysis.

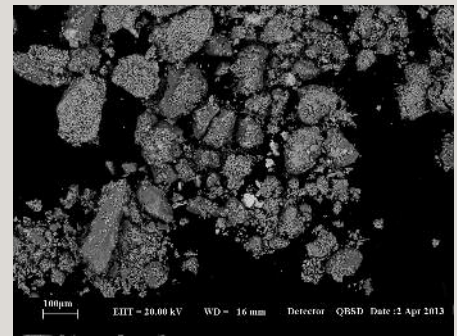


Figure 3. Back scattered electron (BSE) image of the sample from the bottom of the drill hole taken at 200X. At this magnification it is possible to distinguish several angular particles 50–200 μm in size, surrounded by much finer particles < 10 μm .

The current work of re-examining the Great Aten Temple is bringing to light quantities of carved stone fragments as well as waste from stone-working. The following article publishes a discovery made from the study of a fragment from the Petrie and Carter excavation at the same site in 1891–2 that passed into the collections of the Metropolitan Museum of Art, New York.

Evidence for the use of corundum abrasive in Egypt from the Great Aten Temple at Amarna

By Anna Serotta (Department of Objects Conservation, The Metropolitan Museum of Art) and Federico Carò (Department of Scientific Research, The Metropolitan Museum of Art)

Ancient Egyptian craftsmen were exceptionally skilled and prolific in extracting and shaping a wide variety of stones. For millennia, soft and hard stones were quarried, cut, drilled, carved and polished using a variety of tools and techniques, and it is generally agreed that abrasives played a significant role. Both saws and core drills utilized particulate abrasives, and the finishing of sculptures and architectural elements was likely carried out with a combination of rubbing-stones and abrasive slurries. [1] The composition of the abrasive materials used has been much debated, particularly in relation to the working of hard stones. [2] Were stones such as granite, diorite and quartzite shaped and polished using solely quartz-based abrasives, or did Egyptian craftsmen have access to harder materials? It has been demonstrated through archaeological evidence and experimental data [3] that corundum and emery, mixtures of minerals with a maximum hardness of 9 in the Mohs scale, were employed by craftsmen in the ancient Mediterranean and Near East, but were these materials part of the Egyptian tool kit?

Although Petrie and other scholars posited the use of emery abrasive powder [4], the absence of direct evidence for the use of this material in Egypt, the lack of known sources of emery in Egypt, and the presence of quartz sand embedded in ancient drill holes led Lucas to dismiss the use of emery by Egyptian craftsmen. [5] Instead, he asserts that the abrasive used was much more likely a readily available local product, quartz sand, the ability of which to abrade the quartz component in hard stones was subsequently demonstrated through experimental archaeology by Denys Stocks. [6] However, in their investigation of concentric abrasive marks in drilled granite cores, Gorelick and Gwinnet concluded that corundum or emery could not be ruled out as an abrasive source, as drilling experiments using these harder materials produced lines much more similar in character to those observed on archaeological material. [7] A better understanding of the abrasive marks left behind on Egyptian objects is at the crux of this question, and the study presented here is part of a larger investigation aiming to better understand and characterise marks on Egyptian hard stone objects.

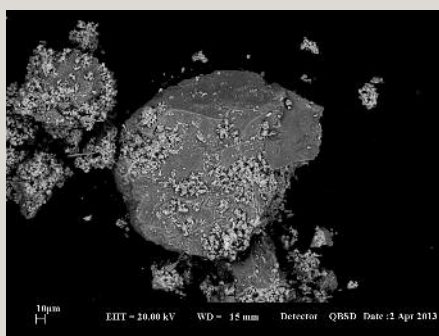
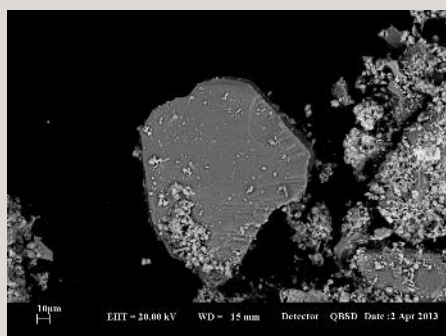


Figure 4. BSE images of angular quartz (left) and corundum (right) particles. Both the grains are surrounded by fine particles of calcite.

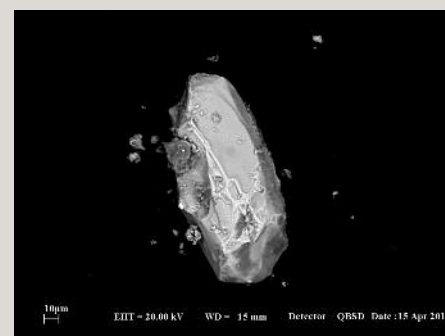


Figure 5. BSE images of a rutile grain found in the abrasive assemblage.

Although the experimental research carried out by Gorelick and Gwinnett is compelling, the absence of physical evidence for harder abrasives still renders their use in Egypt theoretical, and thus the authors of this study sought to investigate possible sources for direct evidence of abrasive material. Among the Met's Egyptian collection, there is a small fragment of indurated limestone excavated from a pit outside the southern wall of the Great Temple of the Aten at Amarna in 1891–2. It has the accession number 57.180.142 and measures 8.0 x 7.0 x 6.3 cm. The fragment has several remains of what resemble drill holes cut at slightly different angles (Figure 1). The main drill hole is about 1 cm wide, and has a protruding stump at the bottom left by a broken drill core. Lightly consolidated material is deposited around the stump. A micro-sample of this material was collected and analysed by polarised light microscopy (PLM), scanning electron microscopy, and energy dispersive X-ray spectroscopy (SEM-EDS).

Macroscopically, the sample consists of a fine-grained, whitish powder speckled with dark, slightly coarser grains (Figure 2). The whole material is stained light green. SEM-EDS analysis identified the material as a mixture of predominant angular grains of corundum with jagged edges, about 100–200 µm across, and a few other accessory minerals, usually smaller in size and with high angularity (Figure 3). The fragments of corundum often have inclusions of rutile and chromite, although the presence of other mineral species can't be excluded. Together with corundum grains (Figure 4), quartz (Figure 4), rutile (Figure 5), K-feldspar, apatite, ilmenite, augite, biotite, and chromite grains were found.

Notes

1. Lucas, A. 1962. *Ancient Egyptian Materials and Industries*. 4th edn, revised J.R. Harris. London, Edward Arnold and Mineola (NY), Dover, 66–7.
2. Summaries of this debate can be found in Lucas, 1962, 72–4; Gorelick, L. and A.J. Gwinnett 1983. 'Ancient Egyptian Stone Drilling'. *Expedition* 25, 40–7; Stocks, D. 2003. *Experiments in Egyptian Archaeology: Stoneworking Technology in Ancient Egypt*. London, Routledge, 105–11.
3. Heimpel, W., L. Gorelick and A.J. Gwinnett 1988. 'Philological and archaeological evidence for the use of emery in the Bronze Age Near East.' *Journal of Cuneiform Studies* 40/2, 195–210; Gorelick, L. and A.J. Gwinnett 1992. 'Minoan versus Mesopotamian seals: comparative methods of manufacture.' *Iraq* 54, 57–64; Lazzarini, L. 2001. 'I vasi in pietra minoici di Festòs: primi dati sulla natura e provenienza dei materiali lapidei.' In *Atti dei convegni Lincei, I cento anni dello scavo di Festòs*. Accademia Nazionale dei Lincei, Roma, 575–96.
4. Petrie, W. M. F. 1909. *The Arts and Crafts of Ancient Egypt*. Edinburgh and London, T.N. Foulis, 74, 79. Lucas also lists other scholars who previously proposed the use of emery, including Borchartd (1905), Hölscher (1912), Junker (1951) and Reisner (1931). Aston, B.C., J.A. Harrell and I. Shaw 2000. 'Stone.' In P.T. Nicholson and I. Shaw, eds., *Ancient Egyptian Materials and Technology*. Cambridge, Cambridge University Press, 65 mention, in passing, emery as an abrasive.
5. Lucas 1962, 73–4.
6. Stocks 2003, 116–36.
7. Gorelick and Gwinnett 1983.



Figure 6. Map showing Amarna and Hafafit.

Very fine particles of calcite (usually $< 10 \mu\text{m}$) surround the bigger particles, most probably remains of the indurated limestone that has been drilled. Several particles of corroded bronze and green copper corrosion products are intimately dispersed amongst the above-mentioned particles, imparting the light green color. These findings suggest the use of a bronze tubular drill [8], in conjunction with a corundum-rich abrasive mixture.

Although some corundum mineralization can be technically pure, most of the historically exploited corundum was in the form of emery, a complex mixture of different minerals that includes abundant Fe and Ti oxides, such as magnetite, titanomagnetite, hematite, rutile and ilmenite [9], and found in association with metabauxites. The major source of this abrasive in the ancient Mediterranean, located on the island of Naxos in Greece, was indeed an emery deposit within a specific metamorphic zone enclosed in marble [10].

If the assemblage so far identified on the Amarna fragment includes minerals that can be found in emery deposits [11], the

complete lack of iron oxides, and the presence of quartz and feldspar, as well as other accessory minerals, differentiate this material from usual emery, and pose some questions regarding its source, manufacture, and possible recycling history. Was this material mined from a non-emery deposit, or does the identified mineralogy reflect a compositional differentiation caused by the recycling of an emery-based abrasive?

Among possible sources of abrasive other than emery, byproducts from the mining of gem-sized crystals could have potentially provided corundum-rich loose material with a technical and economic value of its own [12].

In Egypt, the only known corundum deposit is located in the southern part of the Eastern Desert, at Hafafit (Figure 6) [13]. There, coarse-grained corundum (2–6 cm in length) of various colours can be found in aluminous pegmatite, together with quartz, feldspars and micas. No documented ruby or sapphire mines are known at Hafafit, which is, however, known for being a source of amazonite, probably mined from the abundant pegmatite veins exposed in the area [14]. Among the corundum varieties from Hafafit, some are rich in inclusions of rutile, zircon, apatite, tourmaline, and chromite. Iron oxides are present, but in rare minute grains.

The presence of abundant corundum particles imparts high abrasive efficiency to the studied material, and strongly suggests that this mixture was deliberately used in the drilling process of the hard limestone fragment. Remains at the bottom of the drill hole thus consist of a mixture of the abrasive, the powdered limestone, and corroded fragments of the bronze drilling tube. However, the data so far collected are not representative enough to draw solid conclusions about the origin of this corundum mixture or to explain the lack of iron oxide minerals that are usually abundant in emery abrasive.

Different deposits other than emery-containing metabauxites, such as the one in Hafafit, could potentially be a source of corundum mixture with a mineral assemblage compatible to the studied abrasive. In order to test the hypothesis of a non-emery source for the abrasive collected, and to verify the consistency of these first findings, new samples from other worked objects should be searched for and analysed. Additionally, samples from corundum-bearing deposits, including both the well-known historical emery deposits and the less-known Egyptian source of Hafafit, should be included in the study for comparison.

Notes

8. This tool was likely consistent with the drills described by Lucas 1962, 66–7 and Stocks 2003, 112–16.

9. Lazzarini 2001.

10. Urai, J.J. and A. Feenstra 2001. 'Weakening associated with diaspora-corundum dehydration reaction in metabauxites: an example from Naxos (Greece).' *Journal of Structural Geology* 23, 941–50.

11. Hatano, Y. 1976. 'Paragenesis of oxide minerals in some emery ores.' *Mining Geology* 26, 13–19.

12. John Twilley, personal communication.

13. El Shazly, et al. 1975. 'Mineralogical study of corundum, zircon, hercynite and andalusite from pegmatites of Hafafit, Egypt.' *Egyptian Journal of Geology* 19 (2), 153–68.

14. Harrell, J. 2012. 'Gemstones.' *UCLA Encyclopedia of Egyptology*.



View northwards along the newly surfaced road, at the point where the asphalt begins.

A new road to Amarna

For those who wish to visit Amarna by road from Cairo, using the eastern desert highway, the journey has been recently reduced by the creation of a new road, with asphalt surface. It runs southwards from the eastern end of the bridge that crosses the Nile just south of Mallawi. The road passes in front of the rock tombs of Sheikh Said and enters Amarna from the northern end of the North City, a picturesque ride in itself. At present, just before the beginning of the North City, the asphalt stops, and the road continues as a thick bed of compacted limestone chips and dust.



View northwards along the centre line of the double wall that surrounded the North Riverside Palace. The red truck in the background is following the existing dirt road. The proposed new line runs past the blue motor-cycle truck.



Photograph taken in 1930-31 during the excavation of the double wall. EES Lucy Gura archive photograph 30/31.203.



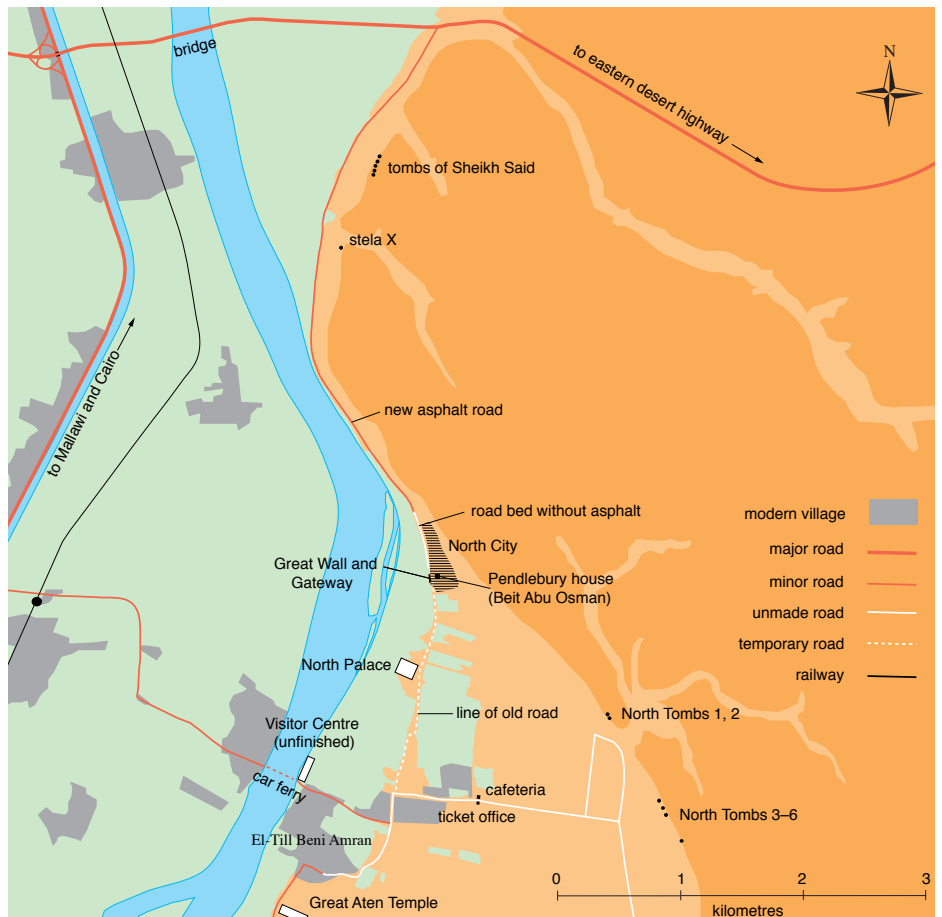
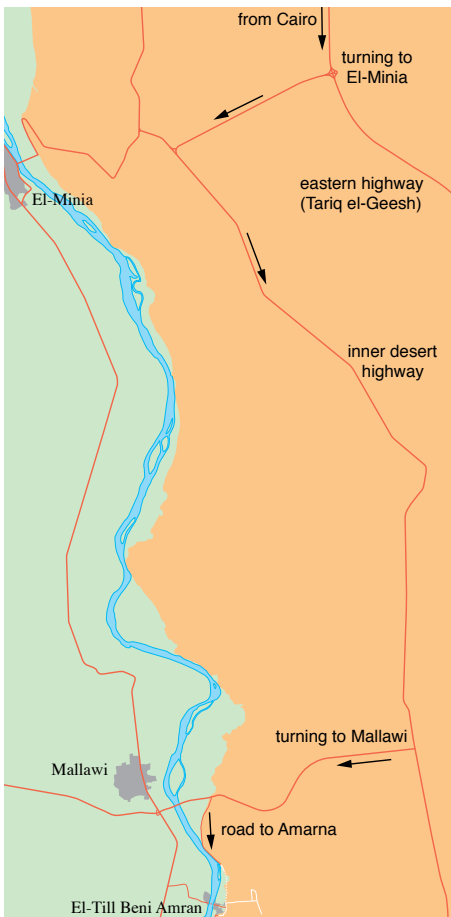
View southwards showing the existing dirt road as it passes to the left (east) of the mass of ancient brickwork that is part of the Great Wall and Gateway and, to the right (west) the leveled dirt bed of the proposed new line of the road. The silhouette of the old EES and Pendlebury house is at the left of the picture.

The line of the road south from here is still being negotiated. The preference of the Ministry of Antiquities local inspectorate is that at the North City it should follow a line to the west of the existing informal track and so be outside the limits of the archaeological zone and be to the west of the large wall and gateway of the North Riverside Palace. A team from the Amarna inspectorate of antiquities, led by Hammada Kellawi, has commenced test excavations on the proposed course to determine what, if anything, remains of ancient brickwork.

Further south, the line of the road is likely to be not far from the present track, thus to the east of the North Palace.

The village preference is that the surface should be covered with asphalt throughout. One advantage is that it would encourage use of the new line in place of the old one.

The journey time from central Cairo is around four and a half hours (at a relatively safe speed).

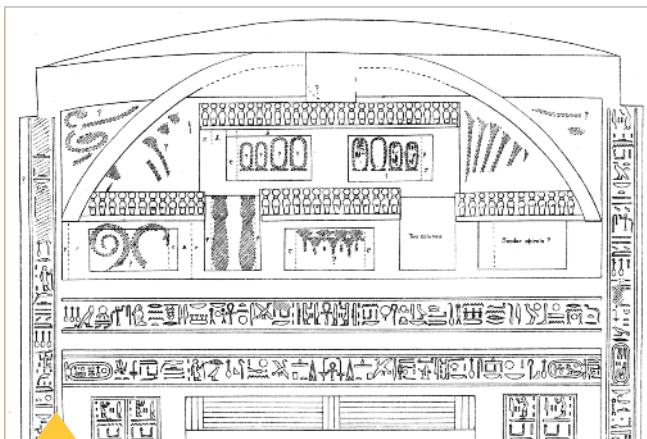


Architecture of the rock tombs

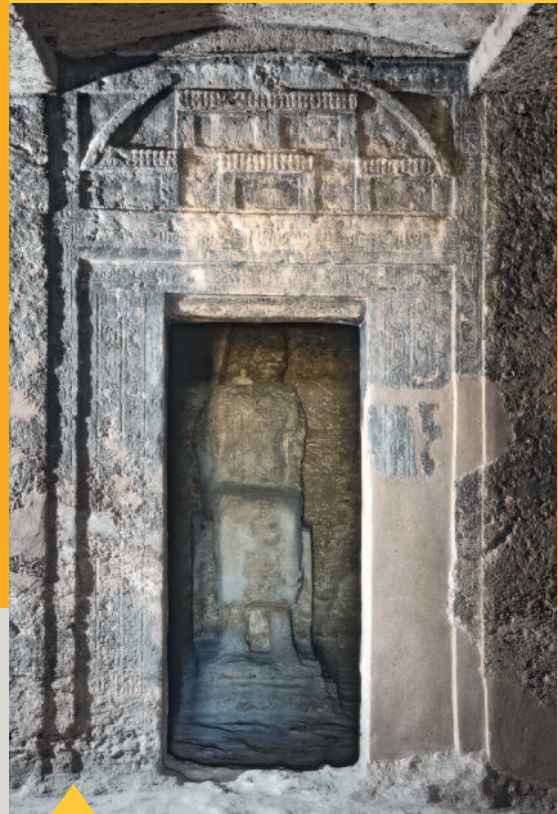
Shrines for private demi-gods

Amarna rock tombs were, in part, shrines dedicated to their owners. In some cases the small chambers made for their statues were designed to draw out the reverence that a god deserved.

One owner, the royal scribe Any (no. 23), chose a simple direct design, his statue on a stepped pedestal behind a doorway with a relatively plain door frame (p. 1). Others took their inspiration from a reinterpretation of a design that went back to the origins of the Egyptian architectural style. The space beneath a curving roof line was filled with several (usually five) small decorative panels. In the tomb of Huya (no. 1), the panels have been surmounted by rows of cobra heads supporting sun discs, the details in the panels rendered in paint (now barely visible).



Drawing, by N. de G. Davies, of the upper part of Huya's shrine façade. Davies recorded the faint remains of painted details.



Façade of the shrine for Huya at the back of his tomb at Amarna.

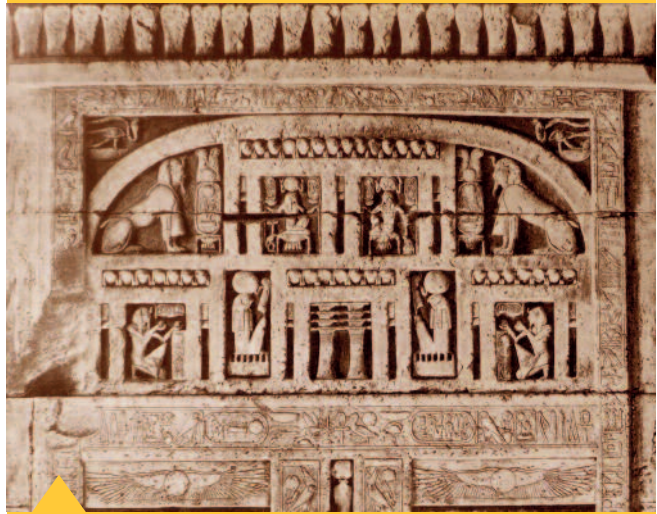


Façade of the shrine for Ahmes at the back of his tomb at Amarna. The carving of the raised parts is not finished. The deep recesses were probably to hold faience tiles that bore the decorative details in different colours.

The lintel over the shrine doorway in the tomb of Ahmes (no. 3), although at an early stage of carving, seems destined to have been more ornate. Across the main space, four 'bars' have been left, in positions suitable for carving into rows of cobra heads with sun discs. On the bottom strip carving has only just begun, apparently with a start on creating a row of Djed-pillars. The deep recesses that fill much of the main space were probably for coloured inlays, faience being the most likely material, illustrating a style of surface decoration that was popular at Amarna (as with the piece shown at the top of page 12). These inlay panels would have borne the curved ends to the top line as well as the internal details of the panels.

In other contexts, this design denoted the presence of a god or of a god-king. It formed the decoration of the rear walls of shrines in the temple of Seti I at Abydos, and is reconstructed as occupying the corresponding position behind the king's throne dais in the palace at Medinet Habu. Our Amarna officials had a high opinion of themselves.

Amarna photos by Gwil Owen.

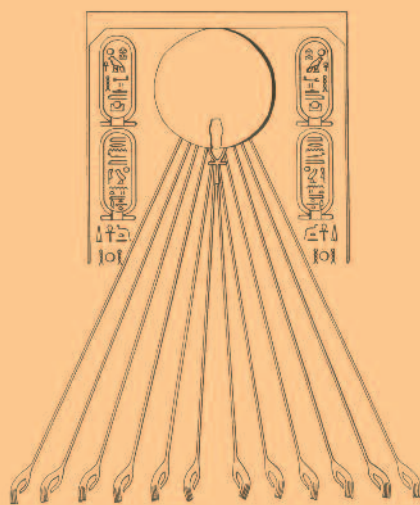


Panel from above the false door on the back wall of the Horus shrine at the temple of Seti I at Abydos.

Object digitisation update

In *Horizon 12*, p. 4, it was reported that a project to create a uniform electronic database of objects found since 1979 had got underway during September and October 2012 under the direction of Dr Anna Stevens. The second and final stage of the main data entry part was done during October 2013, at the Amarna Project office in Cairo. The team of

volunteers comprised Anna Stevens, Melanie Pitkin, Reinert Skumsnes, Conni Lord, Megan Paqua and Rebecca Bradshaw. The database now contains over 36,000 entries, which will now be copy-edited in preparation for launching it online as an open access research tool for scholars interested in the material culture of New Kingdom Egypt.



AMARNA REPORTS I

BARRY J. KEMP
EGYPT EXPLORATION SOCIETY
3 DOUGHERTY MEWS, LONDON WC1N 2PG

Amarna Reports

The series of six volumes, entitled *Amarna Reports*, were published by the Egypt Exploration Society between 1984 and 1995 and have been out of print for some time. They are now being made available in pdf form, with the agreement of the Egypt Exploration Society, on the project web site at the address below. In the case of the photographs, the scans have been made from original photographic prints.

www.amarnaproject.com/downloadable_resources.shtml

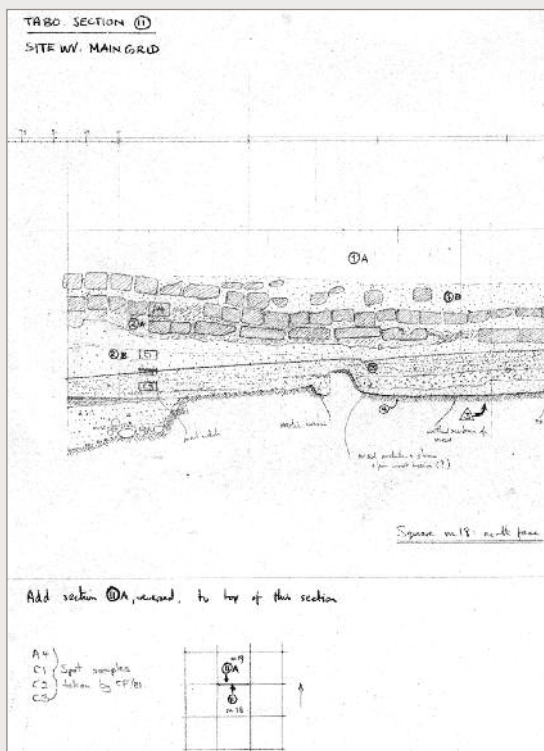
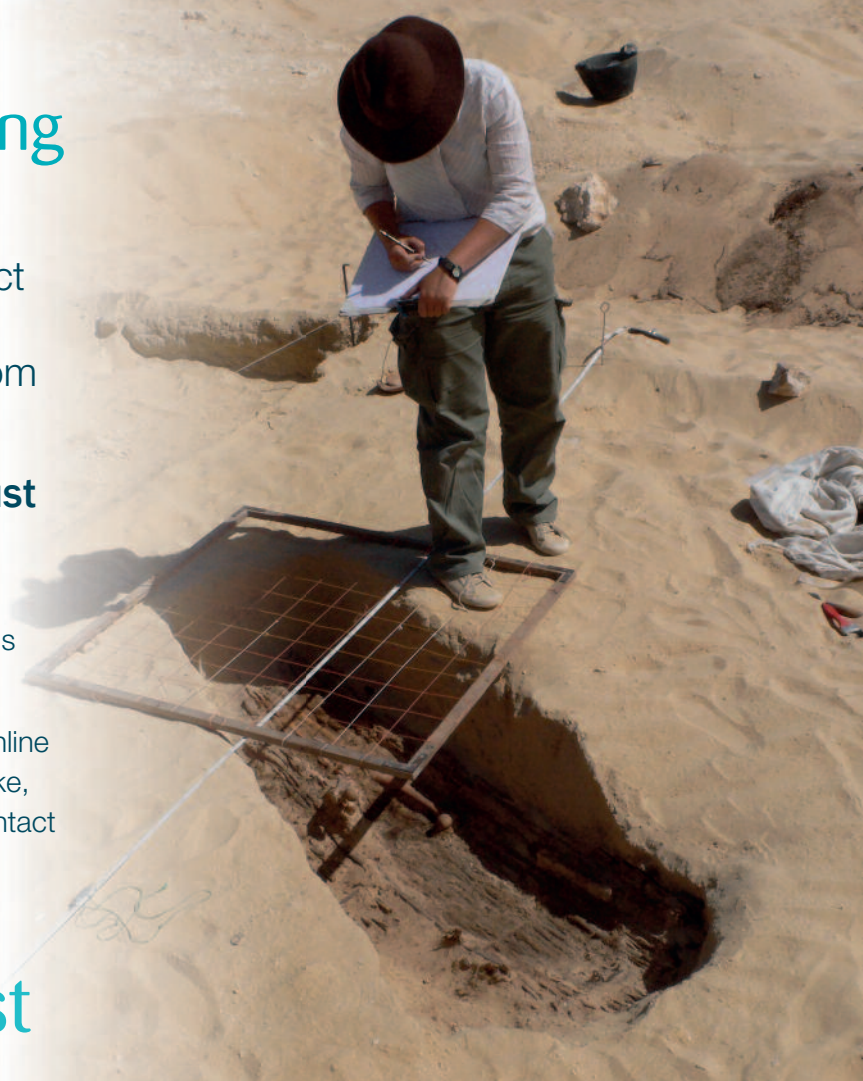
Interested in supporting the work at Amarna?

It is now possible to set up a direct monthly transfer from your bank account to the Amarna Trust – from as little as £1.

www.justgiving.com/amarnatrust

Your donation will be used to support our ongoing programme of excavation, research and preservation, and can be directed towards specific projects on request.

Justgiving.com is one of the UK's leading online fundraising sites. Donations are simple to make, and secure. For further information please contact bjk2@cam.ac.uk



Scanning the excavation archive

Thanks to a generous donation from Peter Borromeo, the large task has begun in the Cairo office of scanning the archive of field notes, field drawings and photographs, covering the seasons of fieldwork that began with the initial surveying of Amarna carried out in 1977 and 1978. Security is uppermost in our minds, but in time some of the results should appear on the project's web site.

A scan of a portion of one of over a hundred section drawings from the excavations at the Workmen's Village, 1979–1986.

Seton Lloyd at Amarna

In his autobiography *The Interval; A Life in Near Eastern Archaeology* Seton Lloyd (1902–1996) relates how he and a close friend, both of them young architects, decided to change places with the result that, when he arrived at Amarna at the beginning of the 1929 season, the director, Henri Frankfort 'was only briefly disconcerted to find that I was not the person he had interviewed six weeks earlier'. So began, fortuitously, a lifetime's distinguished career in archaeology, though after this one season all of it was devoted to the Near East, primarily Iraq and Turkey.

The 1929 season saw the excavation of a large area of housing within the North Suburb. The subsequent publication, *The City of Akhenaten*, Volume II, contains many of Lloyd's plans and an attractive reconstruction of one of the housing areas.

They were heroic days. 'We begin work at 6.30 with about 150 village workmen divided into gangs: twelve trained 'Gufti' experts digging, and dozens of small boys and girls of about ten upwards, carrying flat little baskets of earth to a 'dump'.... The men stop work at 5 P.M. and we tramp home to baths and an excellent dinner, after which all the finds have to be classified and indexed.'

Recently his niece, Dr Dominique Collon of the British Museum, Department of the Middle East, donated to the Amarna Trust a small collection of her uncle's photographs taken at the time. Two are reproduced here.

The quotes are from Seton Lloyd, *The Interval; A Life in Near Eastern Archaeology*. Faringdon 1986, pp. 19 and 20.



The original caption reads: 'The "guftis" presenting their finds for registration at the end of the day. In the middle my "worm" (Frankfort!) with my coat and drawing board!' The *guftis* (skilled workmen recruited from the Upper Egyptian town of Quft, ancient Coptos) seem to number eight. The picture forcefully brings home how it was regularly this group of men, rather than the archaeologists, who selected the finds that were to be kept and who were paid for what the director (in this case Frankfort) thought each find was worth. The purpose was to encourage alertness and the handing over of finds at this point rather than to an outside receiver. The location is the northern EES dig house, in its rather rough pre-Pendlebury phase.

The original caption reads: 'Delicate operation of photographing the bathroom.' The house to which it belongs is T36.11, in the North Suburb. The members of the 1929 expedition were Henri Frankfort and his wife, Henriette ('Jettie'), Seton Lloyd, Alan Shorter and John and Hilda Pendlebury. If Seton Lloyd took the photograph, then the line-up of the others might be: Frankfort operating the plate camera, Pendlebury the tall one in long trousers, with Shorter beside him. For comparison, see the Armant camp photograph of 1928, in which all apart from Lloyd appear, in *Egyptian Archaeology* 36 (Spring 2010), p. 9 = www.ees.ac.uk/userfiles/file/EA%2036%208-9%20Carruthers.pdf





The Amarna expedition house, viewed to the north in 2011. It can be compared to the 1977 eastern prospect in *Horizon 12*, page 11.

The Amarna Trust

The Amarna Trust is registered with the **Charity Commission** as no. **1113058**. Its registered address is

The Amarna Trust

Newton Hall
Town Street
Newton
Cambridge CB22 7ZE
United Kingdom

The contact for The Amarna Trust is

Prof. Barry Kemp, CBE, FBA

at the above address or

The Amarna Project

1, Midan El-Tahrir
Floor 5, flat 17
Downtown
Cairo
Arab Republic of Egypt

Cairo office: **+2022 795 5666**

mobile: **+20122 511 3357**

email: **bjk2@cam.ac.uk**

For donations and other financial matters
the contact is the **Honorary Treasurer**

Susan Kelly

8 chemin Doctoresse-Champendal
1206 Geneva
Switzerland

email: **suekelly.canada@gmail.com**

The Amarna Trust submits an annual set of accounts to the UK Charities Commission. None of its income is used in the furtherance of raising funds. Its overheads are modest.

The objectives of the Trust are:

To advance public education and to promote the conservation, protection and improvement of the ancient city of Tell el-Amarna, Egypt and the surrounding area for the benefit of the public in particular but not exclusively by:

- 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.



Fragments of a blue faience inlay plaque, impressed with hieroglyphs from the first cartouche name of Akhenaten. The presence of gypsum on the back implies that it had fallen from an object present in the city, perhaps made of wood. But similar pieces were suited for inlaying into stone surfaces, such as that illustrated on page 7, tomb of Ahmes. Maximum width – cm; thickness 0.3–0.4 cm. From the small houses excavated in 2004/5, Grid 12, object nos. 34391, 35048 and 34744.

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 where you can also donate on-line. Donations can also be made via www.justgiving.com/amarnatrust



Ancient World Tours run regular tours that include Amarna and we are proud to be sponsors of the excavations carried out by the Amarna Trust. Contact AWT on 0844 357 9494 or at www.ancient.co.uk or at amarna@ancient.co.uk

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.

Thanks to those who have recently supported the Amarna Project

Amarna Research Foundation
King Fahd Center for Middle East and Islamic Studies
(University of Arkansas)
Metropolitan Museum of Art

- | | |
|--|------------------------|
| Anon | Donat Kirsch |
| Suzanne Arnold | Virginia Landoni |
| R and B Baker | Elsebeth Larsen |
| Alf Baxendale | Deborah Lattimore |
| A and E Beeston | Rennan de Souza Lemos |
| Peter Borromeo | Florence Maruejol |
| Donna Breker | Michel van der Meij |
| Juliana Bruno | Robert Merrillées |
| Lucilla Butler | Anne Midgley |
| Clive Barham Carter | Chris Naunton |
| Carole Cherchian | Lorna Oakes |
| Michael Coultas | Clinton Owen |
| Manuela Dames | Mary Ownby |
| Cheryl Davis | Norma Parfitt |
| Suresh Dhargalkar | Lynette Petkov |
| Jan Summers Duffy | Shirley Priest |
| Ellie Rose Elliott | Gillian Pyke |
| Jane Faiers | Lorna Pyke |
| Betty Feldman | Elaine Pym |
| Carina Felske | Kenneth Ragland |
| Thomas Fiedler | Pam Reynolds |
| Barry Fitzpatrick | Julia Vilaró Rodriguez |
| Juan Alberto Friedrichs | Susan Royce |
| Lucia Gahlin | Uwe Schmidt |
| Dennis Gottschalk &
Robert Lamarche | Barbara Schorf |
| Gerald Hagner | Steve Schultz |
| Günter Hahn | Susan Solick |
| Elke Heitmayer | Gundula Steiner |
| Monica Hernandez | Anna Stevens |
| Dana Ivey | Tetsuya Takahashi |
| Dot Jansen | Stewart White |
| Cary & Kay Jennings | Paul Wingfield |
| Barry Kemp | Rachel Wright |
| | Robin Young |

Horizon is currently distributed free of charge. Should any recipient not wish to receive future issues please email bjk2@cam.ac.uk