ISSUE 16 Summer 2015

The Amarna Project and Amarna Trust newsletter

Since the autumn of 2014 the Amarna Project has been able to pursue a range of objectives. Reports on some follow in this issue of Horizon. Others will feature in the next issue.

Pieces of agate, broken from pebbles, recovered from a workshop in the Main City of Amarna. They are raw material for jewellery. See pages 8-9.

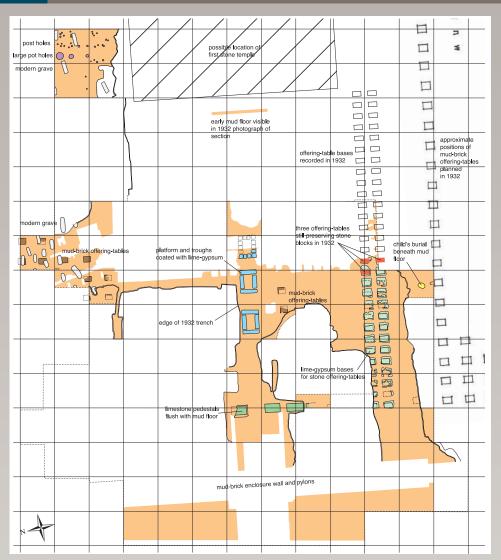
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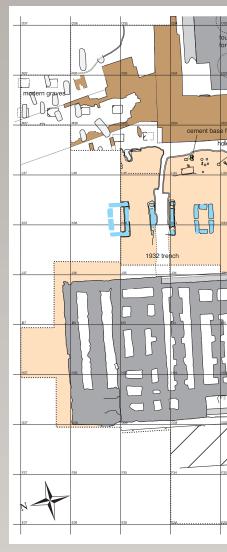
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Plan of features uncovered on areas of the early temple floor. The irregular outlines follow the edges of later covering features and of trenches dug in 1932.

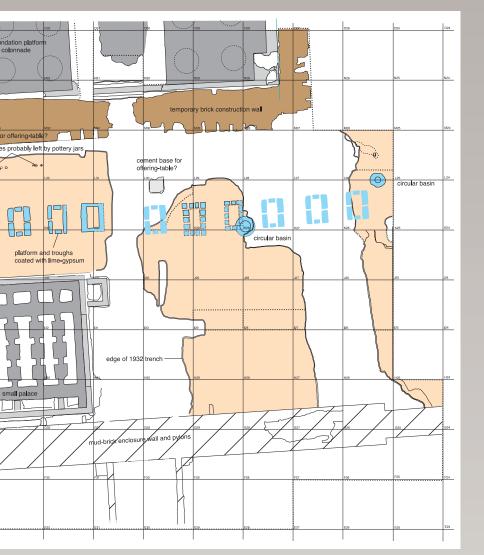
### Further work at the Great Aten Temple

For seven weeks earlier in the year the Amarna Project was able to carry out a further examination of the front of the Great Aten Temple and to extend the outlines, marked in new materials, of the original stone building.

Two separate ground levels, one earlier and one later, have been exposed, separated by a layer of rubble put down as part of the rebuilding of the temple (see *Horizon* 15, p. 6 for further detail). Both have, as a central feature, a line of small rectangular platforms surrounded by shallow troughs or basins, each set coated with a thick layer of lime-gypsum plaster. A good (but not unshakable) case can be made for interpreting them as places for preparing the dead. The earlier layout was accompanied by numerous offering-tables made from mud bricks. Different parts of the layout, and perhaps individual offering-tables, had had their own schedules of maintenance, some lasting longer than others. A new area of excavation on the north side of the temple revealed an altogether different set of features on the early ground surface: post holes for wooden constructions and larger, deeper holes where pottery jars had been buried.

Work at the temple was made possible by donations from the public to the Amarna Trust and by a grant from the Metropolitan Museum of Art, New York. A grant from the Huis van Horus Foundation of Leiden paid for the Tura limestone blocks used in the rebuilding.

A fuller report, with list of participants, will appear in volume 101 of the *Journal of Egyptian Archaeology*.



Plan of features which lie above the early temple floor. Four of the platforms and troughs (coloured blue) on the south are hypothetical. It is assumed that, since one on the north had been largely destroyed by a 1932 trench, others on the south had met the same fate.



Vertical photograph of the early mud floor on the north side of the temple, showing post and pot holes. North is towards the left. Photo taken and prepared by Anna Hodgkinson, Miriam Bertram and Yann Hamon.



A set of basins surrounding a rectangular platform uncovered in March 2015. It was in the process of being remodeled when the temple was abandoned. View to the east. Photo by Sue Kelly.



Laying new stone blocks on the outline of the northern stone pylon of the temple in its second phase, whilst sand is spread around the circular pads which mark the original positions of large column bases. View to the east.

### THE CEMETERIES OF AMARNA PHASE 2

ANNA STEVENS AND GRETCHEN R. DABBS

In 2005, the Amarna Project began a long-term study of the cemeteries of Amarna, with the goal of better understanding the health, life experiences and beliefs of the people of Akhetaten through an integrated study of human remains and burial practices. From 2005 to 2013, fieldwork focussed upon the largest of the city's non-elite burial grounds, the South Tombs Cemetery.



Panorama of the North Tombs Cemetery taken from near the wadi mouth, facing east.



In Spring 2015, a second phase of the cemeteries project began, with a shift in focus to a group of burial grounds at the north of the site. Excavation commenced at the largest of these (the North Tombs Cemetery), located within a bay that is formed by two adjacent wadi mouths, which breaks the steep cliffs of the high desert between North Tombs 2 and 3. The bay contains three flat sandy banks, a spur of limestone rising up in the centre to separate the two wadis. Spread across the banks are robbers' pits and associated spoil mounds that contain modest quantities of bleached human bone and potsherds, materials that have been dug up from graves below.

A total of 85 graves were excavated over six weeks, with 115 individual numbers

assigned. Whilst most of the individuals were buried singly, a feature of the cemetery so far is the large number of graves containing more than one person. At least 25 of the 85 excavated graves were multiple burials. In most cases, the individuals were placed closely side-by-side or stacked one on top of each other, often with their heads at opposite ends of the grave. Most of the multiple burials contained just two individuals, but others accommodated up to five bodies.

Also distinctive is the young age of many of the individuals. Age estimations based on the small sample so far analysed, and on observations in the field, suggest a very constrained age profile, with most of the individuals (82.2%) studied to date having died between the ages of 7 and 24 years. A preliminary conclusion is that the burials within the areas excavated represent a somewhat different or more restricted portion of the Amarna population than was found at the South Tombs Cemetery; namely, one that is young, relatively poor and involved in extremely heavy labour from an early age. Many alternative explanatory frameworks need to be explored as the project continues.

Several projects to advance the study of the two cemeteries and with the aim of detailed publication have also been run at the Amarna expedition house during the last year. Involving a wide range of specialists, the studies cover small finds, pottery, botanical remains (from food offerings), matting (see p. 6), wooden coffins and the human remains (bones and

A grave cut in square X8 containing the remains of four individuals, at least three of them children, placed both side by side and also stacked one on top of the other (Inds 1100, 1101, 1103, 1104).



Grave cuts in squares X7-9 and W7-9 at the 'mid site' at the close of excavations.





hair). A separate team of conservators has continued to treat the decorated coffins. A report on the identification of malaria is on p. 7; other results from specialist studies will appear in future issues of Horizon.

Funding for post-excavation work came from the British Academy, the Amarna

Research Foundation and the Amarna Trust; the coffins project was supported

by USAID through the American Research

Center in Egypt's Antiquities Endowment

Fund and the Egypt Exploration Society;

possible by public donations through our

Justgiving campaign, alongside a National

awarded to Southern Illinois University in

and the new excavations were made

Endowment of the Humanities grant

partnership with the Amarna Project.



1 cm

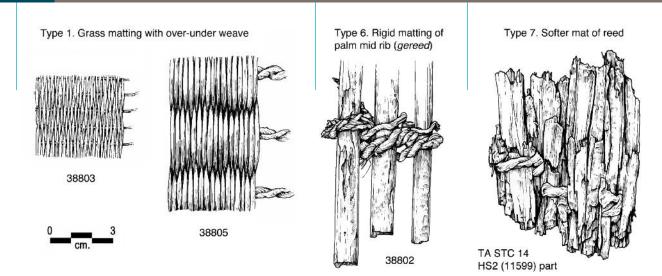
Jewellery recovered from the North Tombs Cemetery in 2015.

Top row from left: a *wedjat*-eye bead in faience (obj. 41087); part of a faience sphere bead (obj. 41098), a glass bead (obj. 41096), a faience cylinder bead (obj. 41097), a faience disk bead (obj. 41101).

Bottom row from left: a faience finger ring with *wedjat*-eye bezel (obj. 41092) and a wooden ear stud (obj. 41084).







#### Caring for the dead at the South Tombs Cemetery: a study of burial matting

#### Megan Paqua

The burials from the South Tombs Cemetery offer insight into the funerary customs of the non-elite population of Amarna. Despite the impression given by museum displays, decorated wooden coffins were uncommon for these 'ordinary' people. Far more often, they were interred in layers of woven matting within their simple pit graves. In November 2014, a preliminary study was undertaken to develop a typology of the matting found in these burials.

The classification was based on that developed by Willeke Wendrich for matting found at the Workmen's Village (in B.J. Kemp, ed., *Amarna Reports* V, London, EES 1989, 169–201). Three additional types were identified from the cemetery and added to the existing sequence (Types 6 through 8). Existing types were also subdivided based on the identification of the plant materials, by Alan Clapham. Andrew Boyce produced type drawings (shown above).

Type 1 matting was made by weaving untwisted fibre around strings of vegetal material and was subdivided into Type 1A, quite loosely spaced, and Type 1B, more tightly woven. While Wendrich noted that the Workmen's Village examples were entirely made out of grass, both palm-leaf and *halfa* grass were used in the cemetery mats. These mats would have been lightweight and flexible.

**Type 2** matting was made using bundles of vegetal material. Three subtypes were identified: Type 2A, of palm leaf; 2B,

which had thin, finer bundles of *halfa* grass; and 2C, of thick bundles of *halfa* and with a much coarser weave. Like Type 1, these mats would have been lightweight and fairly flexible.

**Type 6** was by far the most common. These mats would have been fairly rigid, and were made out of sticks tied together with rope: Type 6A was of palm midrib (gereed), and Type 6B of tamarisk.

**Types 7 and 8** were distinguished from Type 6 by the species of plants used, although so few examples with intact stringing were found that identifying the structure of these types was difficult. Type 7A was made out of reed while Type 7B was made out of sedge; both would have been softer and more flexible than Type 6. Type 8A consists of palm leaves with no evidence of string, and may have been used as wadding. Type 8B is made out of *halfa* grass, and may be a variation of Type 2, although the extant examples of Type 8B are much more tightly woven than those seen with the Type 2 examples. A piece of bark found associated with the burial of Individual 23 has been identified as a separate type, **Type 9**.

The study of the South Tombs Cemetery matting raised a number of questions regarding use and production. For instance, were these mats purpose-made for burials or were they being repurposed from domestic contexts? If the matting was originally intended for burial, is there a symbolism attached to the different types of material? It is interesting to note that many of the types are made using palm materials, and scenes from elite tombs show female mourners holding palm fronds during funerals. And it has been interesting to find at the North Tombs Cemetery that there is very little rigid 'stick' matting of Type 6. While there is more work to be carried out, the examination of the matting from the cemeteries sheds light on the practicalities and considerations given to the burials of individuals who lived at Amarna.

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### The presence of malaria among the non-royal of the North Tombs Cemetery

#### Gretchen R. Dabbs and Jerome C. Rose

A recent clarification of the criteria for identifying malaria from bones is here applied to newly recovered material at Amarna.

Malaria is a potentially deadly disease transmitted to humans by the bite of female mosquitoes of the genus *Anopheles*. The most deadly form of malaria is caused by *Plasmodium falciparum*, although several other species of the parasite exist. Symptoms of malaria, which often occur in 2–3 day cycles until treated, include high fever, headaches, nausea, vomiting, shaking chills, profuse sweating, and muscle pain. Without successful treatment, malaria can result in death.

Analysis of the ancient DNA (aDNA) of the mummy of King Tutankhamun and his familial relations demonstrated that both of his great grandparents, Thuya and Yuya, and Tutankhamun were infected with malaria during their lives (Hawass et al., 2010). Tutankhamun, who was potentially born at Amarna and certainly spent a considerable amount of his early childhood at Amarna, demonstrates the likely presence at the ancient city.

The presence of malaria at Amarna is being investigated using a cheaper, less destructive method of skeletal analysis. The expense and logistical difficulties associated with aDNA analysis prevents a large scale undertaking in the non-elite cemeteries at Amarna. Examination of the skeletal remains for evidence of malaria includes looking for porosity of the superior eye orbits, neck of the humerus and femur, and on the vertebrae of the spine, and looking at the entire skeleton for evidence of infection (periostitis). Individuals with evidence of any of the first three types of porosity and evidence of either skeletal porosity or periostitis are diagnosed as having had malaria (Smith-Guzmán 2015). The raw prevalence rate for the North Tombs Cemetery sample (n=33) is 72.4%, with adults having a slightly higher frequency of malaria (76.9%) than subadults (68.8%), but this may be due to the small number of individuals examined to date.

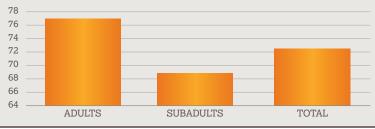


Periostitis



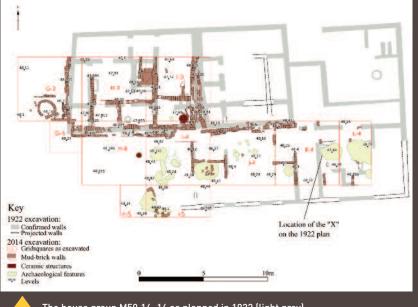
Cribra Orbitalia

Raw prevalence of skeletally indicated malaria in North Tombs Cemetery



References:

Hawass et al. 2010. 'Ancestry and Pathology in King Tutankhamun's Family.' *Journal of the American Medical Association* 303(7): 638–47. Smith-Guzmán, N. 2015. 'The Skeletal Manifestation of Malaria: An Epidemiological Approach Using Documented Skeletal Collections.' *American Journal of Physical Anthropology* 24 July 2015/DOI:10.1002/ajpa.22819 = http://onlinelibrary.wiley.com/enhanced/doi/10.1002/ajpa.22819/abstract



The house group M50.14–16 as planned in 1922 (light grey), overlaid with the plan made in 2014 (pink).



Blue glass ingot obj. 40344 resting in a fragment of ceramic cylindrical vessel obj. 40345 (they were not found together).

#### Excavation of a bead workshop M50.14-16

Between October 18th and November 13th 2014, a re-examination was carried out of a small group of rooms and a courtyard in Amarna which had first been excavated in 1922 by the Egypt Exploration Society. What was interpreted as a 'glaze kiln' had occupied the courtyard.

Anna Hodgkinson, who directed the new work, writes:

The courtyard yielded much evidence of industrial activity, including glass-working, faience manufacture, agate working (raw materials – see front cover – and an amulet and beads), alongside some tools. Overall, the finds are indicative of a bead workshop. Amongst the finds were 329 fragments of glass, particularly chippings of ingots, and 116 fragments of glass rods, bars and strips, in addition to one complete and one large fragment of a raw glass ingot, indicating that the processing of glass took place. Furthermore, multiple

#### Protecting Kom el-Nana

Kom el-Nana is an enclosure of the Amarna period lying isolated in the desert to the south of the main field of ruins. It can be identified with some confidence as the 'Sun Temple of the Great King's Wife Nefernefrutaten-Nefertiti' mentioned in the Amarna Boundary Stelae. In the 5th and 6th centuries AD a monastery was built over parts of it.

The site and portions of desert to the east and west were protected by surrounding canals from the large official irrigation scheme laid out in the 1960s. In 1987, however, local farmers began to take parts for cultivation. To hinder this the expedition, then running as a project of the EES, began an excavation the following year. This ran until the outbreak of local unrest in 1995. Apart from a short season in 2000, no further excavation has been carried out, but the expedition did erect a barbed-wire fence around the central part of the site. This was subsequently removed by farmers.



View, to the south, of the enclosure wall and associated floor cut by the recent agricultural encroachment. The white arrow on the satellite image of 2014 (right, page 9) marks the location of the photograph.

Now the site has been further compromised by large agricultural encroachments. These have destroyed part of the site on the west side. Google Earth contains a library of images which, at intervals, covers Kom el-Nana for the period between 28 March 2005 and 29 May 2015. They show that the main encroachment took place between 17 October 2013 and 12 January 2014. This matches local reports which ascribed the act to the period of unrest which followed the removal from office of President Mohammed Morsi in July 2013.

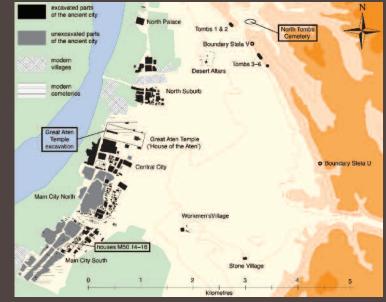
fragments of ceramic cylindrical vessels, probably used as moulds for glass ingots, were found. In order to produce beads, glass rods softened by heating would have been wound around copper-alloy rods, of which 15 were found. Two undecorated, dark blue glass vessel fragments may demonstrate that the decoration of such vessels took place at the site. Other finds included more than 400 faience and glass beads of various types, including manufacturing errors, five faience moulds and over 100 faience amulets, tiles and other fragments. The results support the hypothesis that this area of the city was somewhat specialised in processing relatively large <u>quantities of glass.</u>

The work was funded by grants from the G.A. Wainwright Fund, the Corning Museum of Glass (Rakow Grant), the Association for the History of Glass and the Thames Valley Ancient Egypt Society. Other team members were Susan Kelly, Ashley Bryant and Kimberley Watt, and antiquities inspector Mohamed Khalil; inspectors Dora Mohamed Nagy Abdel Salam and Therwat Shawky Demian participated as trainees.

A more detailed report is A. Hodgkinson, 'Archaeological Excavations of a Bead Workshop in the Main City at Tell el-Amarna.' *Journal of Glass Studies* 57 (2015), 279–84. The original report is T.E. Peet and C.L. Woolley, *The City of Akhenaten* I (EES Excavation Memoir 38; London, 1923), 19. Site M50.14–16 as excavated on November 2014, looking north-east. Photo by Anna Hodgkinson.

Map of Amarna showing the locations of the three excavations reported in this issue of *Horizon*.







A Google Earth image of Kom el-Nana dated 5 November 2009. The archaeological site is the square enclosure in the middle of the trapeze-shaped area of desert. North is toward the top.

Subsequent images show that the initial encroachment has not been expanded. Nevertheless it seems prudent to offer help in protecting the parts of the site which remain untouched by agriculture.

With the agreement of the Ministry of Antiquities, the Amarna Project has begun a scheme to surround the main part of the site with another but stronger barbed-wire fence. An appeal for funds launched

A Google Earth image of Kom el-Nana dated 26 November 2014. Across the western (left) side of the site rows of cultivation strips have been cut into the desert and into the edge of the site itself. The white arrow is where one such strip has cut through the enclosure wall and associated mud floor.

through the Justgiving web site has raised sufficient to make a good start. A first batch of specially made iron supports was made in June (p. 12). It is planned to start the work of erecting the fence in October.

Google Earth co-ordinates: 27°37'10.57" N / 30°53'16.32" E

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#### **AMARNA TRUST NEWS**

The Amarna Trust has taken advantage of recent UK legislation to convert itself into a Charitable Incorporated Organisation. It retains the name Amarna Trust as well as its original objectives but has acquired a new charity registration number: 1161292. The Trust is in the process of setting up a new bank account with NatWest. For the time being, the old account (15626229, sort code 60-11-01) will remain operational.

Coinciding with the change the trustees are delighted to report that **Prof. Paul Nicholson** (Cardiff University) has agreed to be Chairman of the Amarna Trust in its new form. **Prof. Barry Kemp** and **Dr. Anna Stevens** remain respectively Director and Deputy Director of the Amarna Project.

#### INTERESTED IN SUPPORTING THE WORK AT AMARNA?

The first part of 2016 will see two major field projects taking place at Amarna: at the 'House of the Aten' (the Great Aten Temple) and at one of the cemeteries of the people of Amarna.

The easiest way to make a donation is by means of the online fundraising sites:

secure.thebiggive.org.uk/charity/view/9588/the-amarna-trust secure.thebiggive.org.uk/project/greatatentemple

Donations can also be directed towards other projects on request. Contact Barry Kemp at: bjk2@cam.ac.uk or see our web site www.amarnatrust.com

#### STUDY TOUR for Members and Friends of the Thames Valley Ancient Egypt Society

Between April 21st and May 4th TVAES members and friends successfully toured sites in the Faiyum, Alexandria and the Delta, many of them infrequently visited. Organised by John Billman, guided by Rawia Ismail and accompanied by Barry Kemp, the tour was able to raise a generous donation to the Amarna Trust.



At the Delta site of Mendes (Tell el-Rub'a) Rawia Ismail explains the meaning of its giant granite shrine.



#### WEB SITE DOWNLOADS

Volume IV of *Amarna Reports* (1987) has now been added as a pdf to the Amarna Project web site: www.amarnaproject.com/downloadable\_resources.shtml

Also added to the same page are a file containing the EES photographs of the Great Aten Temple excavation of 1932, with explanatory notes, and a location plan showing from which point each photograph was taken.





One of several sculptor's demonstration pieces moulded in a lime-gypsum plaster and found in rubble used to create a raised floor level in the Great Aten Temple. This one was probably intended to show how the feathering of a vulture could be laid out, the feathers intended to receive coloured inlays. Object no. 41104.

### The Amarna Trust

### The Amarna Trust is registered with the Charity Commission as no. 1161292. Its registered address is

#### The Amarna Trust Newton Hall Town Street Newton Cambridge CB22 7ZE United Kingdom

The chairman of The Amarna Trust is Prof. Paul Nicholson (Cardiff University) The contact for The Amarna Trust is

Prof. Barry Kemp, CBE, FBA at the address to the left, or

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#### 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.

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The first batch of iron stakes for the proposed fencing of Kom el-Nana, delivered to the Amarna expedition house in June. Many more will be needed. A specimen is held by Mohammed Omar Osman, who has looked after the house and the expedition's local interests since 1978.



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

secure.thebiggive.org.uk/charity/view/9588/the-amarna-trust secure.thebiggive.org.uk/project/greatatentemple

## 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 Project. 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 Association for the History of Glass British Academy Corning Museum of Glass (Rakow Grant) Egypt Exploration Society Egyptian Department, Metropolitan Museum of Art, New York King Fahd Center for Middle East and Islamic Studies, University of Arkansas McDonald Institute for Archaeological Research, University of Cambridge Metropolitan Museum of Art National Endowment of the Humanities (USA) through Southern Illinois University Thames Valley Ancient Egypt Society Tra Ciello e Terra USAID through American Research Center in Egypt's Antiquities

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