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Officers and Directors

The President's Papyrus

Greetings Amarnaphiles,

For a change of pace, here's a photo of me at the Luxor Museum, standing next to Akhenaten's father, Amenhotep III. Taken at the Luxor Museum on last year's trip to Egypt.

Floyd

Reassessing domestic space in the Amarna Workmen's Village

Thais Rocha da Silva

The ancient city of Akhetaten provides a range of house types that inform us about how people lived. From small houses to large mansions and villas, the diversity of dwellings at Amarna presents us an opportunity to examine different degrees of improvisation and adaptation in domestic architecture.

The rapid change to the new capital likely impacted the overall housebuilding in Amarna. The fact the Egyptian administration could mobilize a great number of people to build a new city certainly did not come without challenges, including provision of accommodation for the workers themselves. These state-built houses, such as the Clerks House in the Main City, and the Workmen's Village, give researchers the opportunity to explore how individuals could transform their domestic environment and how this may have impacted the state blueprint for various architecture features. Despite their initial standardized plan, these houses present many internal modifications, added, or removed walls, and large installations (ovens, mortars, mastabas) that seem to indicate to some level of cooperation or compromise between the state and householder. These transformations were not necessarily economic motivated and we need to look at houses taking into account other aspects that shape domestic life.

The Workmen's Village, situated on the eastern fringe of the city, offers a particularly rich opportunity to understand small and state-built houses in a different way. The settlement is a good case-study for examining the spatial distribution of domestic activities and lived experience, and how individual choices were negotiated in a state planned environment. Here, we can explore topics of state control, maintenance, individual and collective production, and revisit ideas about privacy in an ancient Egyptian context.

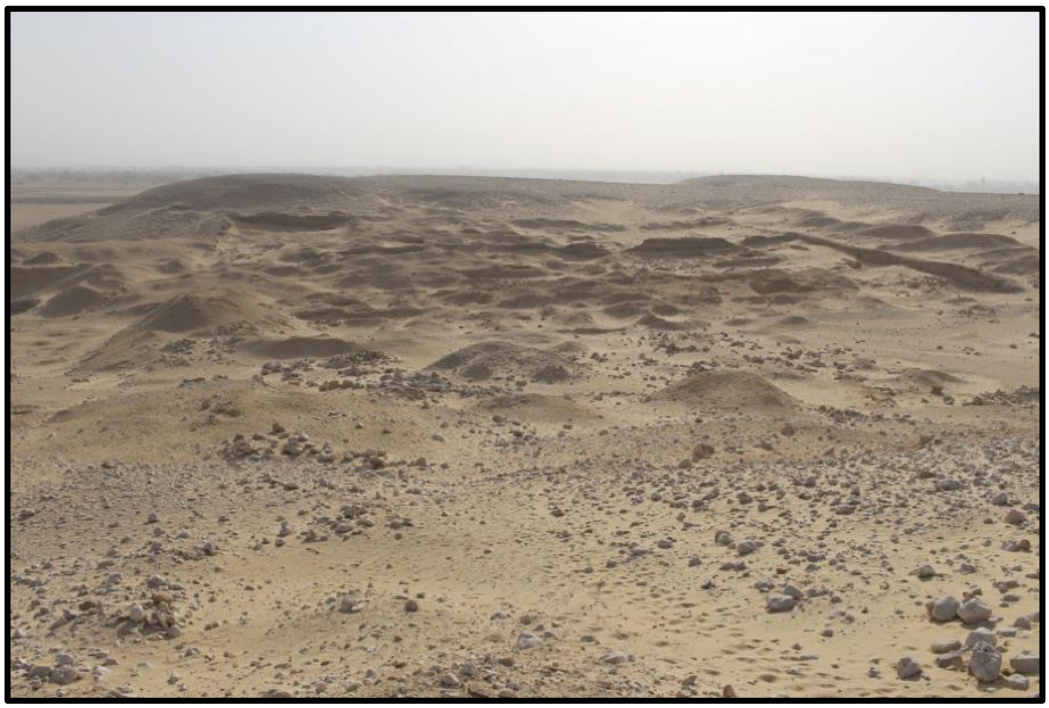

Figure 1: *General view of the Workmen's Village site. Looking Southwest (Photo by the author).*

Figure 2: *Current path towards the Workmen's Village. Looking Northwest (Photo by the author).*

The Workmen's Village, previously called the 'East Village' by Peet and Woolley, comprises a mud-brick wall that encloses 72 very similar houses, distributed in 5 parallel streets. The main entrance to the village is from the south, and the walled settlement is surrounded by slopes that keep it protected from the winds and partially hidden in the landscape (Figures 1, 2). The Workmen's Village was connected to other parts of the city by a network of roads and trails still seen in the desert, indicating a complex system of supply deliveries, such as water, pottery, working materials and clothes (Figure 3). But these roads could also keep the village isolated from those who did not belong to the community and were probably patrolled by the state.

Figure 3: *Mark of a road leading to the Workmen's Village (Photo by the author).*

The location of the village was carefully chosen by the Egyptian administration who dictated the initial layout of the settlement, probably providing a partial supply of Nile mudbrick so the villagers could start building their houses. Marl mudbrick, quarried locally, was used to complete houses and to build other structures outside the enclosure wall, like animal pens and chapels. The village was occupied for approximately 20 years from the foundation of Amarna and was gradually abandoned, possibly being reoccupied during the reign of Tutankhamen (Kemp 1987a, 12-13). The short period of occupation did not prevent the villagers from altering their houses, which shows the scope for domestic transformation even in a state-monitored settlement.

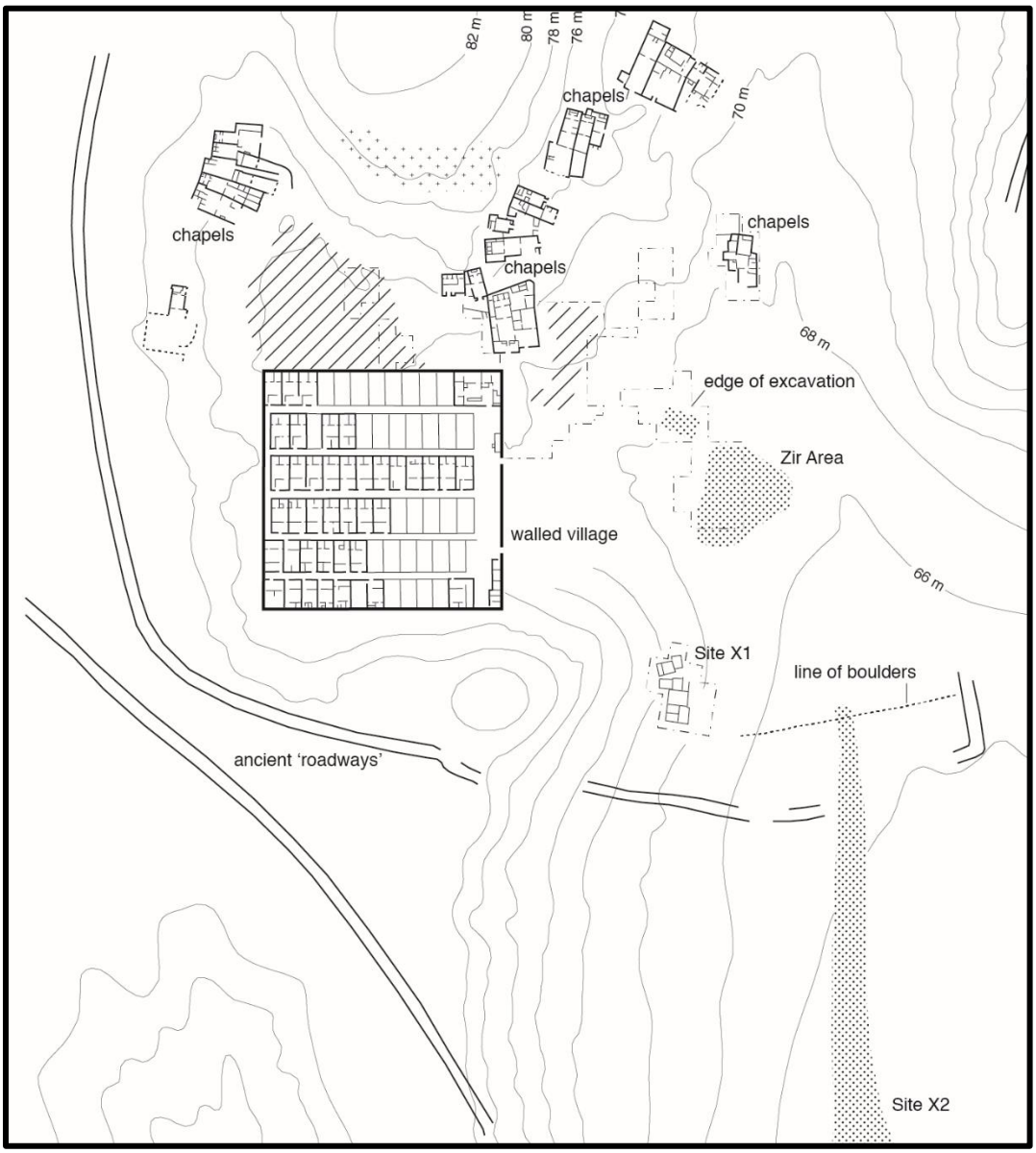

Figure 4: *Plan of the Workmen's Village. Courtesy of Barry Kemp.*

From the 72 houses in the Workmen's Village, 44 have been excavated. Peet and Woolley worked on 36 houses and focused on the general description of house units, and rooms. Overall, the houses were subdivided into three sections from front to back and had up to five rooms. The houses had 5m frontage and 10m in length. The initial excavators named the rooms Entrance Hall, Living Room (also Middle Room or Reception Room), Bedroom, and Kitchen (Peet and

Woolley, 55–56), terminology later revisited by Kemp. The central room (Middle Room) was probably the most important, as was also the case for the large houses in Amarna. Many central rooms had evidence of a small brick bench (mastaba) where people undertook multiple aspects of daily life (i.e. sleeping, eating) and social interaction. The room at the rear was usually dedicated to food production facilities, with small areas for storage, along with querns, or alternatively, the staircase.

The work conducted by Barry Kemp on behalf of the Egyptian Exploration Society in the 1970s and 1980s focused on houses Long Wall Street 6 (1979), Gate Street 8 (1985) and 9 (1986), and West Street 2/3 (1986), which offer more secure archaeological data, although not yet systematically published. Kemp's work expanded the scope of investigation beyond the enclosure wall and house units, highlighting the importance of other buildings and features in the landscape (Figure 4).

The fragmented nature of the Workmen's Village archaeological evidence poses a challenge to how to best deal with the available data. The problem is not only one of scale. Whether focusing on individual houses (e.g. Shaw 1992; Koltsida 2007) or on the settlement (e.g. Kemp 1984; 1985; 1987b), we need to see dwellings not only as containers for people and their activities. Previous approaches highlighted the importance of economic production, either individually, or collectively, as means to constitute the domestic environment. As a special purpose settlement, with a strong presence of the Egyptian administration, the Workmen's Village primarily functioned to attend to state demands. This is true. But people do not simply live to produce or to work, and houses can be a window to glimpse other aspects of human life.

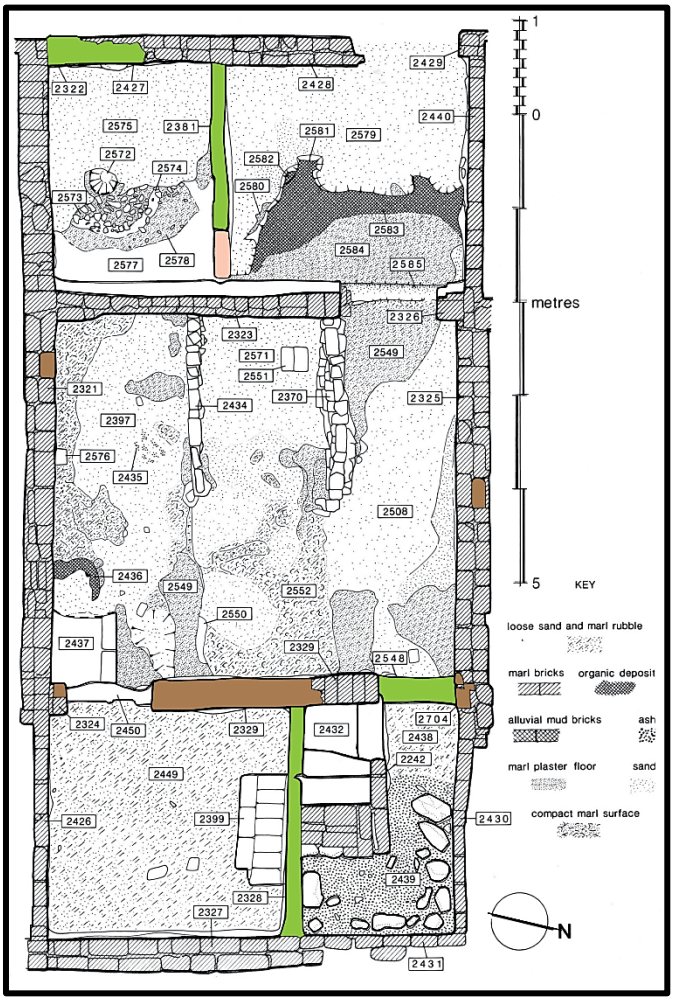

Figure 5: *Plan of Gate Street 9 indicating added walls (green and pink), and alluvial mudbrick (brown) (after Kemp 1984; 1986**).***

Houses and homes

Even though the central administration designed and built the village, individuals modified their houses according to the needs of different households. Architectural features of Gate Street 8 and 9, excavated in 1985 and 1986 by Barry Kemp, show the scale of individual/familial choices as well as possible cooperation between households. The two houses look very similar at first glimpse, following the tripartite model, with the front and rear rooms subdivided, direct access from the front room to the back of the house, and a staircase in the rear room, in approximately the same position.

In Gate Street 8 and 9, however, the Front Room was subdivided, possibly a choice to optimize space, allowing one part of the room to keep animals, while the other could be used for food

preparation. In the case of Gate Street 9, this dividing wall was built after the change of the main entrance to the house, another example of personal initiative in the re-arrangement of houses (Figure 5).

The location of the mastaba in Gate House 8, close to a limestone table and a quern, is worth noting. Despite the unobstructed axis through the house, from the entrance to the rear, the mastaba is not visible from the street, reflecting once again a personal choice that could be linked with a need for, if not privacy, at least temporary out-of-sight escape. From the Middle Room there are two passages that lead to the rear part of the houses. The Rear Room of both houses is also subdivided in two small rooms, although of different size, one of which comprises a staircase.

The artefacts retrieved from Gate Street 8 and 9 show that various activities were carried out in the rooms, simultaneously or alternatively. As already demonstrated by Koltsida (2007) because of the confined space, the rooms were undoubtedly multifunctional (as it is the case of other houses in the village).

Evidence from Gate Street 8 and 9 also suggests a process of sharing facilities, with cooperation between the two houses: a milling emplacement (Gate Street 8), an oven (Gate Street 8), a mortar or a quern (Gate Street 9). Examining the evidence from other houses, it seems cooperation might not have been restricted to pairs of houses, but, to larger clusters of houses, whose inhabitants could have been (potentially) related to each other (contra Samuel 1999).

There are other houses, too, that show major internal modifications, like house 24 that changed the main entrance from West Street to Long Wall Street (Figure 6). Other examples include Main Street 10 and 11 (Figure 7), which were joined by removing the wall in the Front Room. East Street 10 and 11 shared a staircase that led to the roof, indicating a possible shared roof between these two houses (Figure 8).

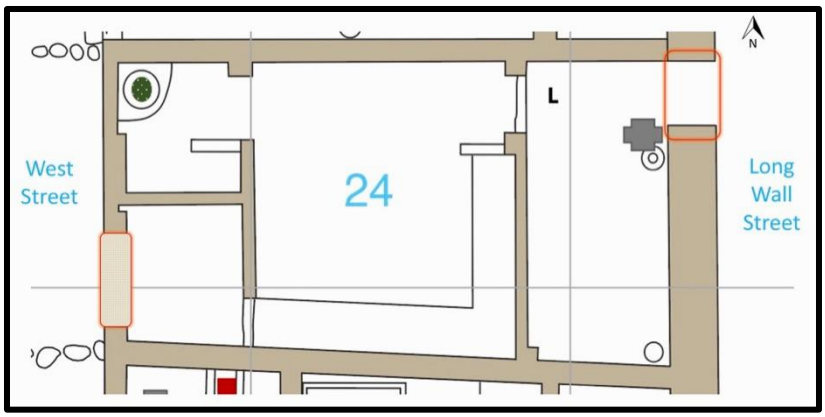

Figure 6: *Detailed Plan of House 24 from the Workmen's Village showing the entrance access modified (red squares) (After Kemp, The Amarna Atlas, in preparation).*

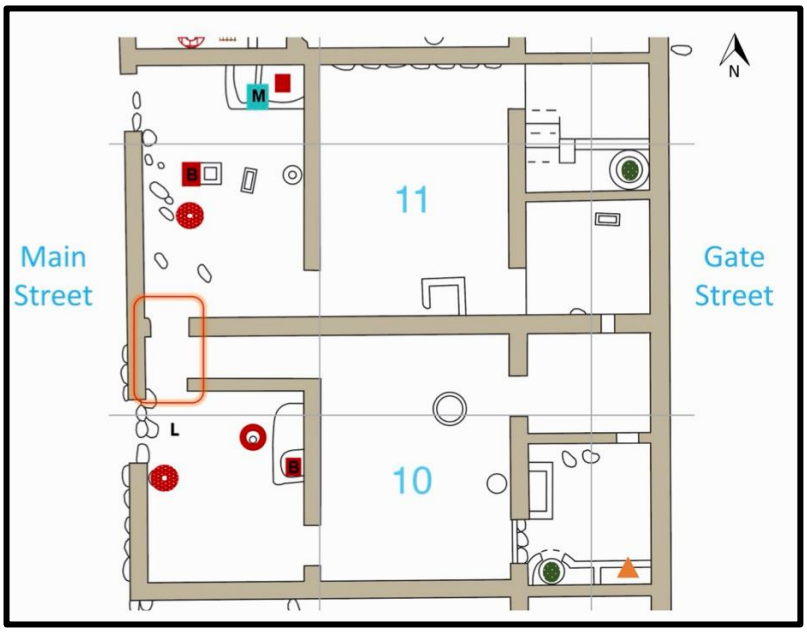

Figure 7: *Houses Main Street 10 and 11 with the opened interior access (After Kemp, The Amarna Atlas, in preparation).*

These alterations show that even in a short period of time (c. 20 years) people modified their houses extensively. The reasons for such changes cannot be fully accessed: did people get married and need more space? Were neighbor's relatives, or perhaps very close friends? In the case of house 24, did people not like the street view, or the front door neighbors? Perhaps because the west side of the village was occupied by a different social group? These questions may never be fully answered but we need to take into consideration that living in a house is more than self-sustenance.

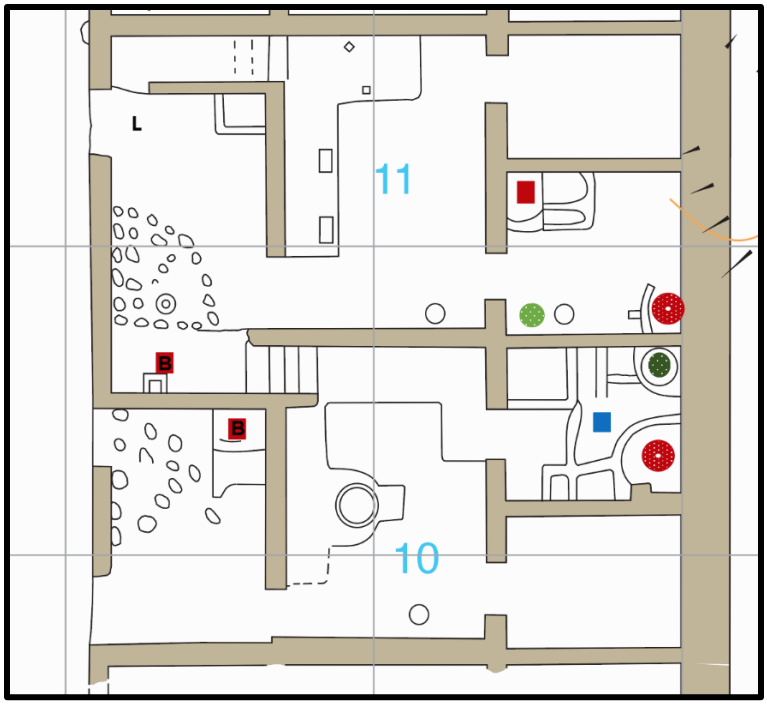

Figure 8: *Houses East Street 10 and 11 with the opened interior access (After Kemp, The Amarna Atlas, in preparation).*

House modifications attest the freedom individuals had to adjust the given space to their needs. But we are missing an important feature of domestic life in the Workmen's Village. All these changes are tracked on the floor level and projected in a two-dimensional plan. It is important to consider that most of the village life could have been experienced elsewhere, i.e. in the areas outside the enclosure wall, or on the roofs. The presence of a second-story is disputed but it is likely roofs were an important feature for the local population, when it comes to saving space, sharing facilities, and even moving from one house to another. The evidence from Gate Street 8 and 9, for example, leaves the debate about roof areas still open. Whereas Kemp (1986) argued the Front Rooms had no upper story because of the thin walls, Peet and Woolley (1923) and Spence (2004; 2010) believed in the presence of a roof, and that its location would be determined by the direction of the staircase. Kemp suggested, instead, that Front Rooms were covered with matting or that they were simply open to the sky. Animal keeping and grain processing are activities that are likely to happen in open spaces, as suggested also by modern ethnographic parallels, reinforced by the presence of a milling emplacement in the Front Room of Gate Street 8.

Another important issue is that most of the domestic objects could have been taken by the local population when they left Amarna. Others may not have survived, such as artefacts made with ephemeral materials (e.g. wood, textiles). Screen walls, curtains, matting, and even decoration (e.g. painted walls) tend to vanish with time, meaning we lack substantial evidence from houses that could indicate, more precisely, how people subdivided rooms and organized the internal space of their houses.

With houses clustered inside the enclosure wall, it is possible to argue that people would not have much individual space. Perhaps this may represent a problem to modern western societies but in this context sharing space was a given, inside the house, on streets, and on the roof. The overall layout suggests social interaction was key to village life and that individuals may have developed cooperation in sharing facilities, for example, not only to optimize their daily tasks, but as opportunities to socialize.

The expansion of individual houses, restricted by the enclosure wall, opened opportunities to develop communal areas either inside the wall, or outside. Examining the distribution of houses, we can argue that streets and roofs would be paramount for people moving around, getting together, linking or separating houses. These 'expanded' house areas became an essential part of the village life, establishing clusters for social interaction.

The village and its immediate surroundings

Following Kemp's work, to better understand the life of the inhabitants of the Workmen's Village, we cannot focus only on the village as if it was an isolated unit. The settlement is part of a setting that goes beyond the enclosure wall and its clustered houses. Sites X1, X2, the zir-area for water storage, and the network of roads are important features that help us to understand the living experience of the workers. Together, they constitute the domestic environment of the local population and, simultaneously, offer possibilities to people to respond creatively to what was initially established by the Egyptian administration.

Sites X1 and X2 are located at the natural boundary of the village and are connected with the circuit of roads surrounding the settlement. Site X1 is a three-room non-domestic building; it has been interpreted by Kemp as a prominent territorial marker, given its position at the intersection of the perimeter and the roads. It probably acted as a threshold, separating two different areas—the Workmen's Village and the City—and simultaneously linking them. In addition to its probably rather loose guarding function, X1 might also have served as a check point, a place that housed a 'police force' who controlled access to the site. X2 is complementary to the zir-area, and in the whole sector pottery sherds were found in large quantities, indicating that it was most likely the place where water deliveries occurred.

The road circuit surrounding the settlement is an important feature in the landscape and can be interpreted as a spatial network connecting the Workmen's Village with other parts of Amarna. From inside outwards, these areas were then a step between the 'center' (i.e. the village) and the 'outskirts' (the city and other parts of Amarna) (Figure 9).

Similarly, the enclosure wall needs to be understood not as much as a frontier and a means of monitoring the inhabitants of the village than a functional demarcation. It was the first boundary of the living area, marking the separation between the residential sector per se and more collective structures, as well as, beyond, the outside. Apart from its practical functions, like protection from the rain, wind, dust, and animals, the wall was also a way to mark a private (individual or communal) space. Ethnographic parallels, with traditional Egyptian villages, such as that of old Balat in the oasis of Dakhla, reinforce this idea (Hivernel 1996).

The large domestic space

Physically and institutionally, the Workmen's Village seems at first a very contained space, but the surrounding structures (sites X1 and X2, zir-area, and network of roads) allow for a more contrasting picture of connectivity and mobility. In itself, the village and its associated structures bear witness to, if not a paradox, at least a clear-cut contrast, between the institutional footprint and the daily actions of their inhabitants. Even if villagers were provided with a planned settlement and with (some) commodities, they re-appropriated the space according to their own needs in order to produce their own place: they modified the internal arrangement of houses; they most likely established 'community areas' outside the village in the forms of chapels, gardens, and pig pens; and they organized a form of internal, or domestic, production (likely to meet certain gaps in the state supplies).

The workers and their families benefited from a supply distribution system from the administration, who delivered water and grain at the zir-area on a regular basis. Assuming people had to go from their houses to collect water and other commodities, this area would be certainly a place of intense social interaction not only between the inhabitants of the village, but also with those who did not belong to the community but were authorized to cross X1.

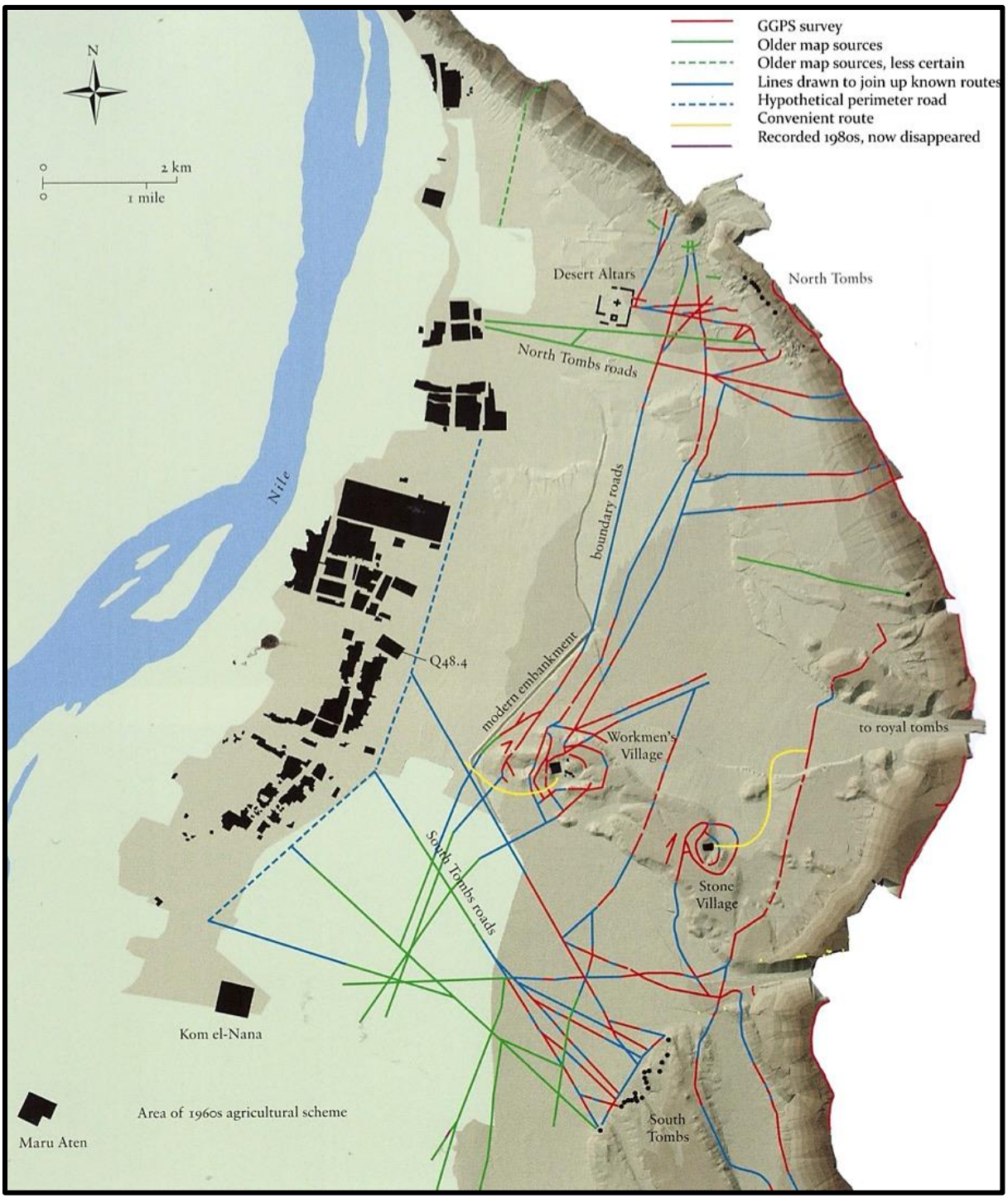

Figure 9: *Map of Amarna showing the Workmen's Village and the roads surrounding it (Kemp 2012). (alternatively it can be the map in this link:* https://www.amarnaproject.com/pages/amarna_the_place/workmans_village/map.shtml)

Activities in the village created opportunities for social interaction that could ultimately shape the routine of the village: neighbors arranging to collect water together, or avoiding people from a certain house, sharing tools and ovens for bread production, feeding animals, looking after children, managing waste … individuals unlikely were confined to the enclosure wall or to their houses. Assuming all individual houses had open spaces for domestic activities and a roof that could also be multifunctional, it is possible to imagine that most of the inhabitants spent most of their time in open areas. The domestic experience of the inhabitants of the Workmen's Village was outdoor.

The Workmen's Village can be seen as an extended household. The village contained all the basic requirements for living: animal pens, storage spaces, cultic areas. It mirrored the large houses in the City that were surrounded by small houses and communal areas. The walls of the village functioned as the walls of a house, encapsulating all individuals that belonged to the household group. By adding or removing walls people were in fact redefining who was part of the family or not. Roofs and streets, as communal spaces inside the village wall, shaped the extended household by allowing people to come and go, share space, facilities and activities. The communal space was further expanded beyond the walls, but without crossing the zir-area.

The given space for building houses was deeply transformed in 20 years. The Egyptian administration seemed to acknowledge there were limits for their presence as well. The zir-area constituted an intermediary zone where the presence of the state and the village inhabitants becomes blurred. This feature became possibly the focal point for state-individual interaction and the development of the community.

A great amount of water was necessary to keep the villagers, animals and gardens. This is why the zir-area was likely the busiest area in the settlement, creating a great movement of people coming and going, both from the City and from the walled village. To cross each layer of this expanded domestic space depended upon who you were. The community was not only watched by the Egyptian administration, but from the villagers themselves, who knew each other.

Domestic life consists of multiple interrelated expressions – material, social and conceptual. People's interaction with each other, with space and objects make the house a living organism, where living and working spaces overlap, creating movement and fluidity. Furthermore, the village, as whole or per sector is also a social interface.

By translating the traditional vision of Amarna's large houses into the Workmen's Village, the latter becomes then a large household, or an extended family experiencing a large domestic space, which socially shares a common identity, a sense of belonging, and, therefore, more than a place to stay.

The Workmen's Village is perhaps not the relic of economic activities nor is it a collection of shells of social units. Rather it is the frame upon which a living community moved and grew, creating a home for real people, not just pieces of intellectual curiosity.

About the author

Thais Rocha da Silva is a Visiting Research Fellow at the McDonald Institute for Archaeological Research at the University of Cambridge. Her focus is to explore new models to understand houses, through material culture especially related to the social construction of the domestic sphere. She is originally from Brazil.

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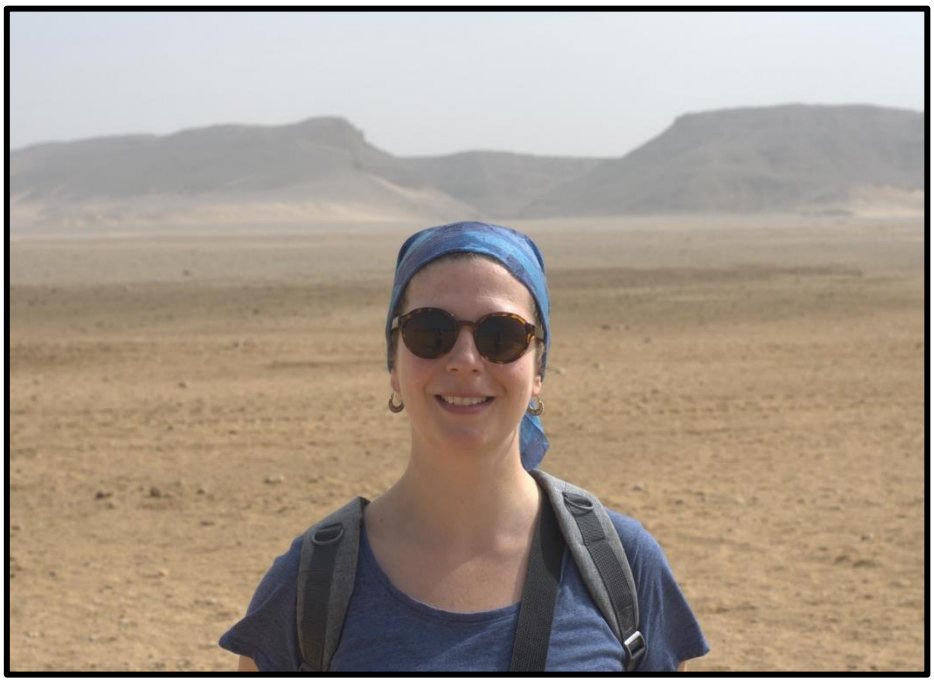

Thais Rocha da Silva in front of the Royal Wadi at Amarna

Nature paintings in the North Palace at Amarna: how they were to be viewed and the bird species depicted

Barry Kemp and Christopher Stimpson

Of all the buildings from ancient Egypt to which the term palace can be applied, the best preserved and most easily understood is the North Palace at Amarna (Figure 1). It stood, seemingly isolated, facing the Nile and on the same desert plain as most of the city. Built largely from sun-dried mud bricks (adobe) the North Palace preserved (until its modern excavation) proportionally more coloured wall decoration than any other building at Amarna. This is not evident to those who visit the palace today, however, who will find that the standing walls present the uniform drab colour of Nile mud.

The parts of the North Palace (its rooms and courtyards) are fitted within a rectangular walled space externally measuring 148 x 115 m (485.6 x 377.3 ft). The interior was designed with symmetry in mind around a central axis running from east to west, the rear, easternmost point marked by a low throne dais facing along the axis and towards the Nile.

Who was the 'owner'? Elements of carved stone (mostly limestone) bore short hieroglyphic texts and other designs. Amongst them, on door frames and columns, were the cartouche names of Akhenaten and of the Aten. Nefertiti's name is conspicuous by its absence. Also present is the name of Meretaten, referred to as 'king's beloved bodily daughter' and with no cartouche for her name. In most (but not all) cases her name has been carved over a largely removed earlier name, that of a female with the name Kiya (Kemp 2011). Traces of a title referring to her as 'wife greatly beloved of the king' (a seemingly unique title which perhaps conferred the status of queen on someone who was not otherwise entitled to it) can also be indistinctly made out. We can deduce from this that Meretaten replaced Kiya as the nominal owner of the building, both women perhaps holding in turn the position (ascribed to Meretaten –a.k.a. Mayati–in two of the Amarna Letters) as having charge of the royal household (Moran 1992: letters EA10, EA11). The North Palace could have been their administrative centre as well as personal residence. It is possible that we have an external reference to the palace in a couple of personal letters written to relatives at Thebes by a preparer of unguents (or similar) named Ramose, 'of the house of Meretaten' (Wente 1990: 94–96).

The palace was excavated by the Egypt Exploration Society over two seasons, winter 1923 and winter 1924–5, the directors being Francis Newton and (after Newton's death during the 1924–5 season) Thomas Whittemore (Newton 1924; Whittemore 1926). The walls of the palace stood to varying heights, the best preserved parts being along the north and east sides and reaching to 2 m. Here the likely existence of an upper storey over some rooms had led to them being filled with rubble to a greater height than normal when the upper part collapsed. This would also explain the unusual extent of preservation of the decorated wall plaster in these parts.

The paint was applied to a layer of mud plaster spread over the mud-brick walls. To help the mud cohere it was mixed with chopped (straw-like) plant material to a greater extent than would be found in the mud of mud bricks. The desert margins of the Nile Valley support colonies of termites (sometimes erroneously called white ants) which are able to survive for long periods as small nests close to the surface of the desert. They live on the cellulose of dead plant material, replacing it with sand grains weakly cemented together with their excretions, which can form tunnels which allow the colony to expand and to migrate. The effect at Amarna, as architectural woodwork is replaced by cemented sand grains, is the rapid loss of the mechanical strength of lengths of wood.

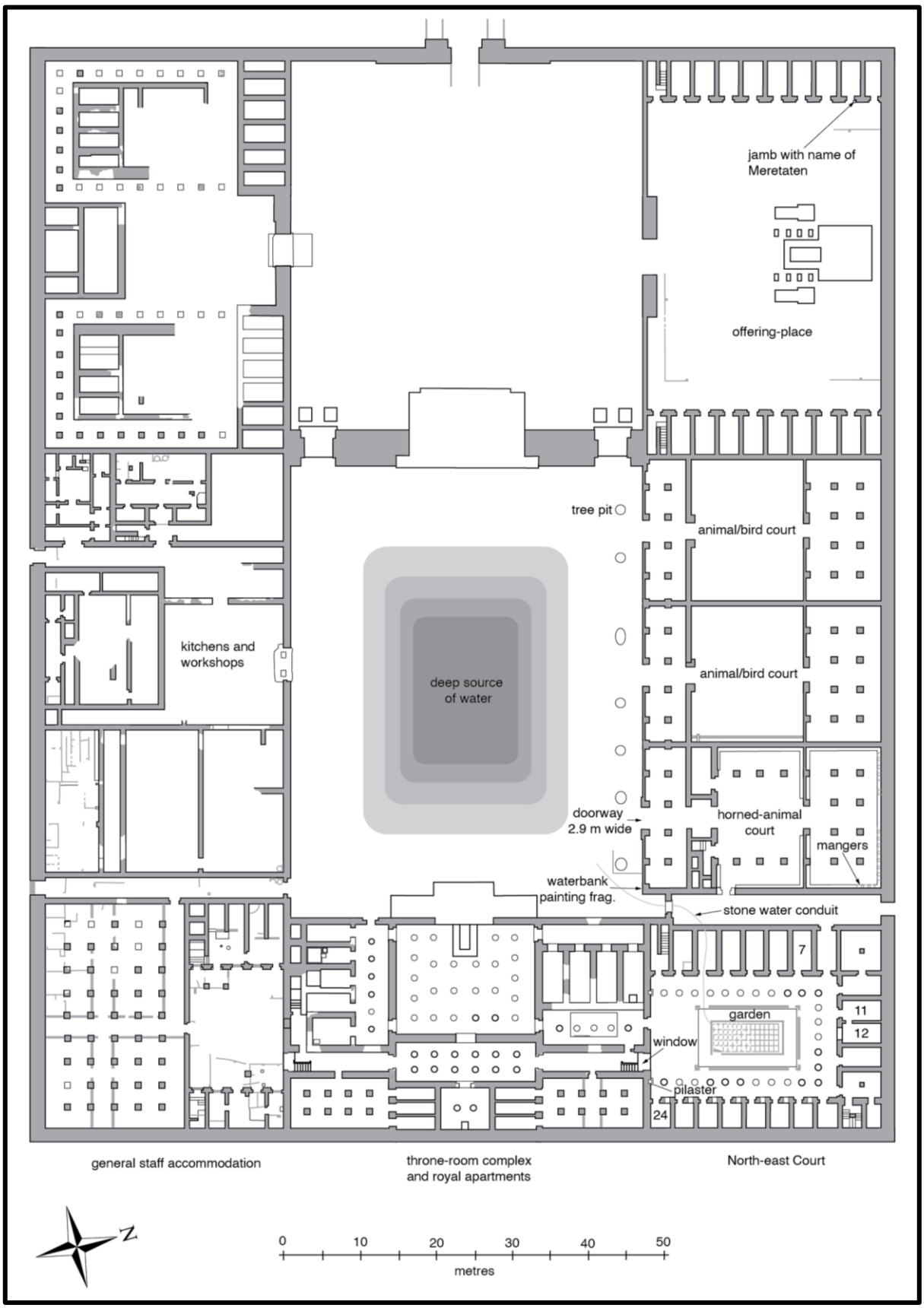

Figure 1: *Plan of the North Palace. The numbers in the rooms of the North-east Court are the excavators' room numbers. Room 12 is the Green Room.*

Observations of termite behaviour nowadays show that, within a few years, colonies establish themselves and devour cellulose-rich materials (modern cardboard as well as wood) until nothing of the original substance survives. At the North Palace the wooden beams which the builders inserted within the brick walls must have acted as paths into the straw-rich mud plaster which covered the walls. One of the artists who worked at the palace commented that the 'mud plaster on which the colour was directly laid had been so riddled by white ants that it consisted almost entirely of their excreta, and the film of colour adhered to the wall so lightly in parts that a touch would bring it down' (Davies 1929, 67).

Although the areas of wall painting that did survive form an impressive body of artistic production, it has to be accepted that it represents a very small proportion of what was originally present.

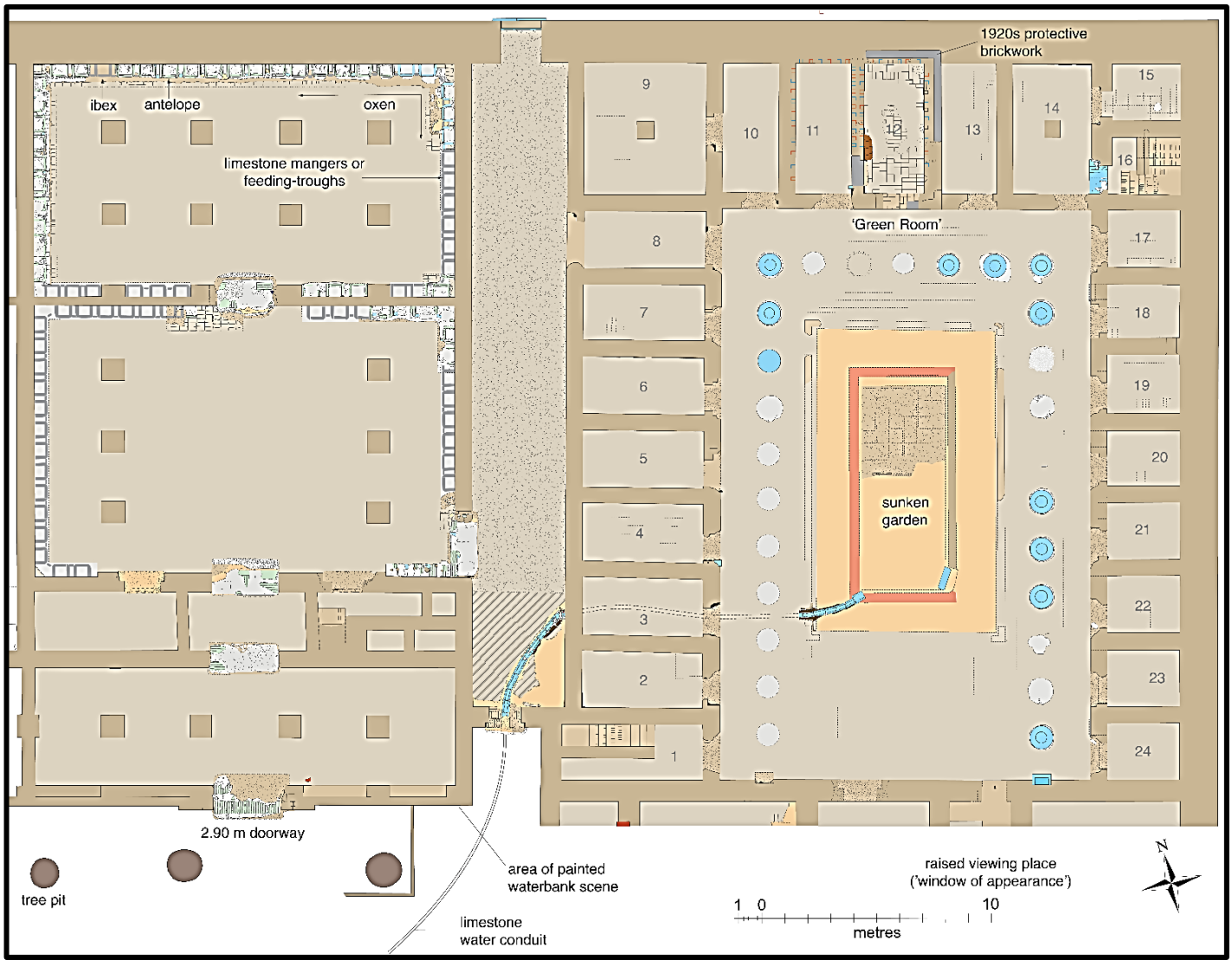

Figure 2: *Plan of the North-east Court (right) and adjacent horned-animal court (left).*

How the paintings were to be viewed

Some of the wall-paintings were intended to be seen, or at least glimpsed, as part of three-dimensional settings more complicated than room interiors. One of them was on an outside wall surface of a set of animal pens (Figures 1 & 2) which faced a wide courtyard in the centre of which was a large depression. This served as a source of water (via an underground limestone conduit)

for an internal garden lying further within the palace interior and might have contained a sunken garden in the depression itself. The preserved design of this external painting (Figure 4) measuring *c.* 56 cm high by 72 cm wide (Weatherhead 2007: 145), showed a body of water in which lilies grew and above them a dense screen of papyrus stems. On photographs taken at the time of excavation (Figure 3) the decorated surface, though indistinctly visible, must have risen almost directly from ground level, dispensing with the broad black dado that in other parts of the palace reached *c.* 70 cm in height. The south-facing wall stood behind (at a distance of *c.* 2.5 m measured to the centre of the tree pit), a row of trees planted in pits filled with fertile earth, the trees spaced irregularly at intervals of 6–8 m. For much of the day the painted wall would have been visible in patches, partly of direct sunlight and partly of irregular shade cast by the trees.

It is impossible to know if, further up (and the wall would likely have had the same height as the walls of the Green Room, *c.* 3 m, see below) the papyrus thickets would have contained their own population of birds. Although broken by three wide doorways, the wall extended westwards for 56 m from the corner where the fragment was found, opening the possibility that a perhaps slightly simplified version of the Green Room covered the entire surface (of 3 x 56 sq m).

Figure 3: *Excavation photograph (1924) which includes the portion of the outside wall of the eastern animal court. The red arrow marks the position of the fragment of painted waterbank scene which was 56 cm high. View to the north-east. EES photo 1924–5/88.*

The three divisions of the building behind (to the north of) the painted wall were laid out to house animals (and possibly birds). The easternmost (Figure 2) had contained around 87 limestone feeding-troughs, each with a tethering-stone, built against the walls of the two innermost divisions (though the stone slabs had been removed from most of them by the time of the excavations). The pieces that had survived had been carved with figures of horned mammals feeding. Several (at least ten) depicted oxen; ibexes and antelopes appear on others (Newton 1924: 296, Pl. XXX; Osborn and Osbornová 1998: 184, Fig. 13–182; Kemp 2012: 150, Figs. 4.26–4.28). It might be thought that the two different species groups (oxen versus antelopes and ibexes) occupied the two main divisions

of the building, each provided with mangers and tethering-stones. The field records show, however, that mangers depicting examples of the three species all occurred on mangers on the north side of the north division (though with all oxen placed on the east side and the others on the west side, all animals facing towards the central line of the building).

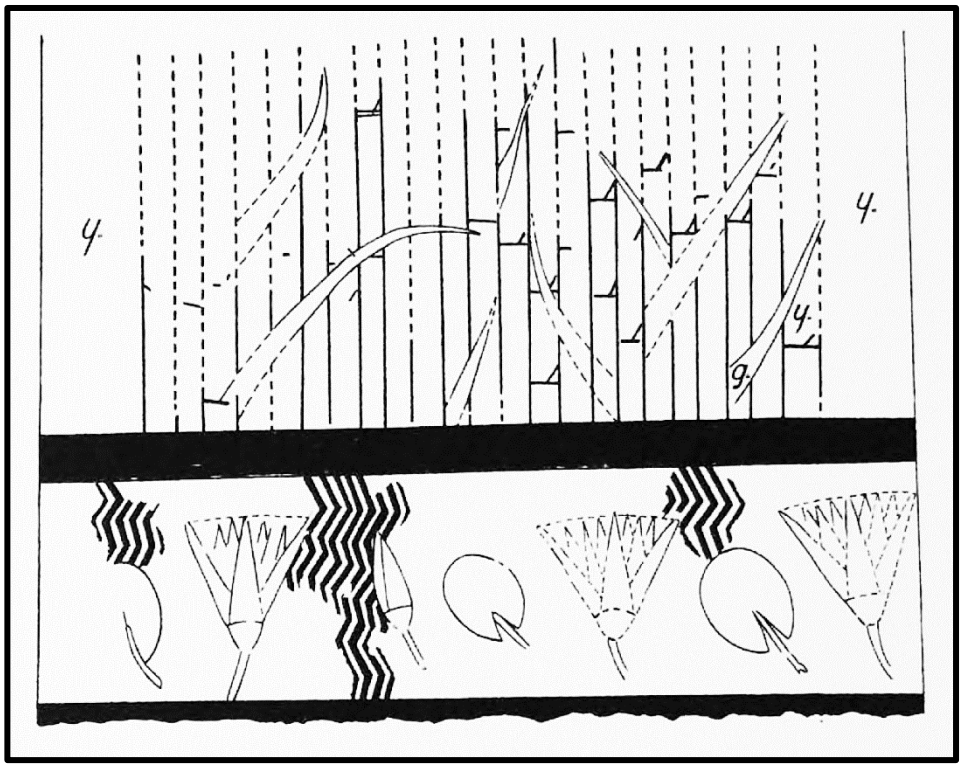

Figure 4: *Drawing of the waterbank scene preserved on the outside wall of the eastern animal court (Figure 3). After Davies 1929: Pl. XIIc; Weatherhead 2007: 145, Fig. 71, who calculates that the size was c. 72 cm wide by 56 high. The colour labels are: 'y' = yellow and 'g' = green.*

The middle enclosure was given a narrow trough against the east wall (for sheep and/or goats?); within the westernmost no distinctive features could be recognised (birds are a possibility, the paintings in the North-east Court depicting geese, storks, cranes and ducks; ostriches are also a possibility, suggested by their presence in the sunrise scene in the Royal Tomb, Martin 1989: Pls. 34, 35; Kemp 2018: Fig. 8.1). This would mean that each of the three enclosures served a different species group (Newton 1924: 295–296).

A distinctive feature of all three units is the unusual width of the stone-flagged doorways that lead from one section to another and to the outside. Limestone blocks had provided the thresholds in the eastern section; a soft yellow sandstone had served for those in the middle and western sections. In the easternmost section, devoted to horned animals, the width of the doorways was *c.* 2.90 m. Their widths contrast with a pair of doorways of more normal size (once one has made allowance for limestone doorframes) on either side of a passage which ran between the eastern enclosure and the North-east Court. Were the various species allowed to roam in the large central open space, tended by keepers who, at the end of the day or at set feeding times, herded them back into their enclosures? The deep central depression would have been their main source of water. They would have contributed a further element to the creation of an Arcadian landscape which exhibited the range of the Aten's invigorating life force. It helps to believe that something like this was possible by

referring to a carved limestone block from the Great Palace which depicts the juxtaposition of unrestrained antelope-like animals in an open space beside a building (perhaps a palace) containing a bedroom (Figure 5).

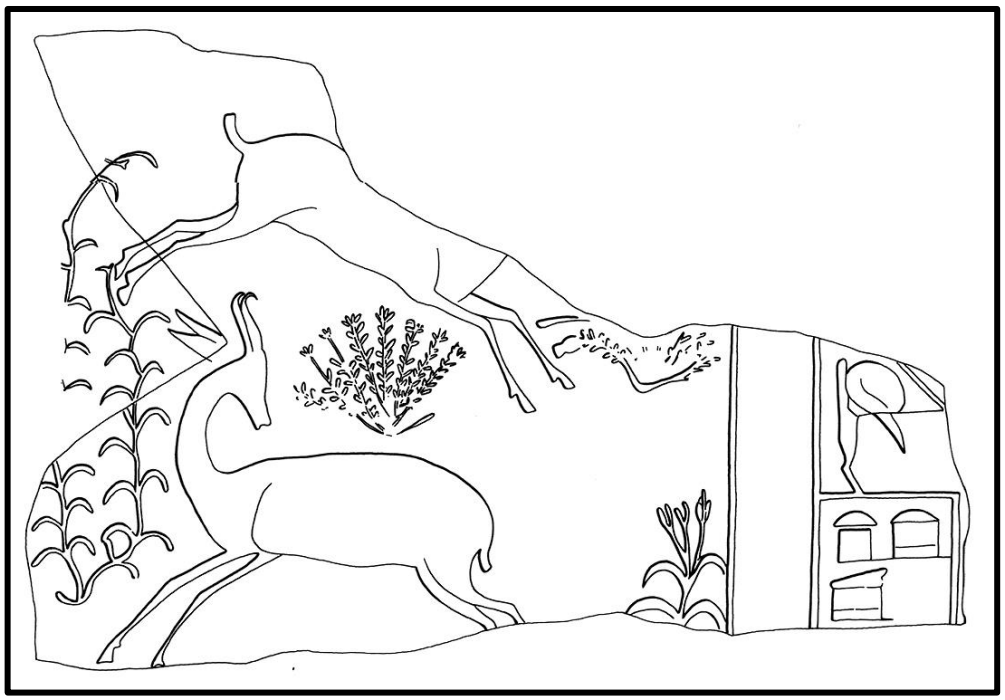

Figure 5: *Carved sandstone block from the Great Palace which depicts the juxtaposition of unrestrained antelope-like animals in an open space with a building (perhaps a palace) containing a bedroom. After Petrie: 1894, 11, Pl. IX; Kemp and Weatherhead 2000: 501, Fig. 4d; Kemp 2012: 141, Fig. 4.16d.*

A similar effect, though more of it in shade, was obtained in the building behind and to one side of this location (Figure 2). In modern times it has been called the 'North-East Court'/'North-eastern Court' (Davies 1929, 69, Pl. XIV; Weatherhead 2007: 156–196; 'Garden Court' (Kemp 2012: 147, Fig. 4.22); and was designated as the 'Women's Quarters' at the time of excavation (the term used on recording sheets, and *cf.* Newton 1924: 297–298; Whittemore 1926: *passim*). It surrounded an internal courtyard in the centre of which lay a sunken garden (watered from the above-mentioned large depression via an underground limestone conduit). When first exposed by excavation, the garden still preserved a gridded pattern of mud ridges which defined beds of dark mud, each measuring one cubit square (*c.* 52 cm and the standard design for gardens where flowers and also vegetables were grown). Individual chambers looked out on to the garden on the east, west and north sides, some of them via a window and all of them shaded by a veranda the roof of which was supported on decorated limestone columns. Not only were the walls of the chambers decorated with paintings which prominently featured birds (see below), similar paintings covered the exterior walls between the rooms (Figures 6 and 8).

The overall design introduces features which recur throughout this part of the palace, both inside and outside its various rooms. The nature subjects (birds in a papyrus thicket and birds being fed by men in open spaces) are as if viewed through windows bordered by a wide frame composed of several parallel brightly coloured stripes (Weatherhead 2007, Chapter 4 provides detail; Kemp 2012: Colour Plate XXXI illustrates the style though from one of the interior walls, as does Figure 10). The wish to isolate the subject matter and perhaps to create a three-dimensional illusion is emphasised

by giving the frame an undifferentiated black surround. At the base of each wall this generally rises for *c.* 70 cm. (In the central residential part of the palace the black dado was replace by one coloured blue, Newton 1924: 296.)

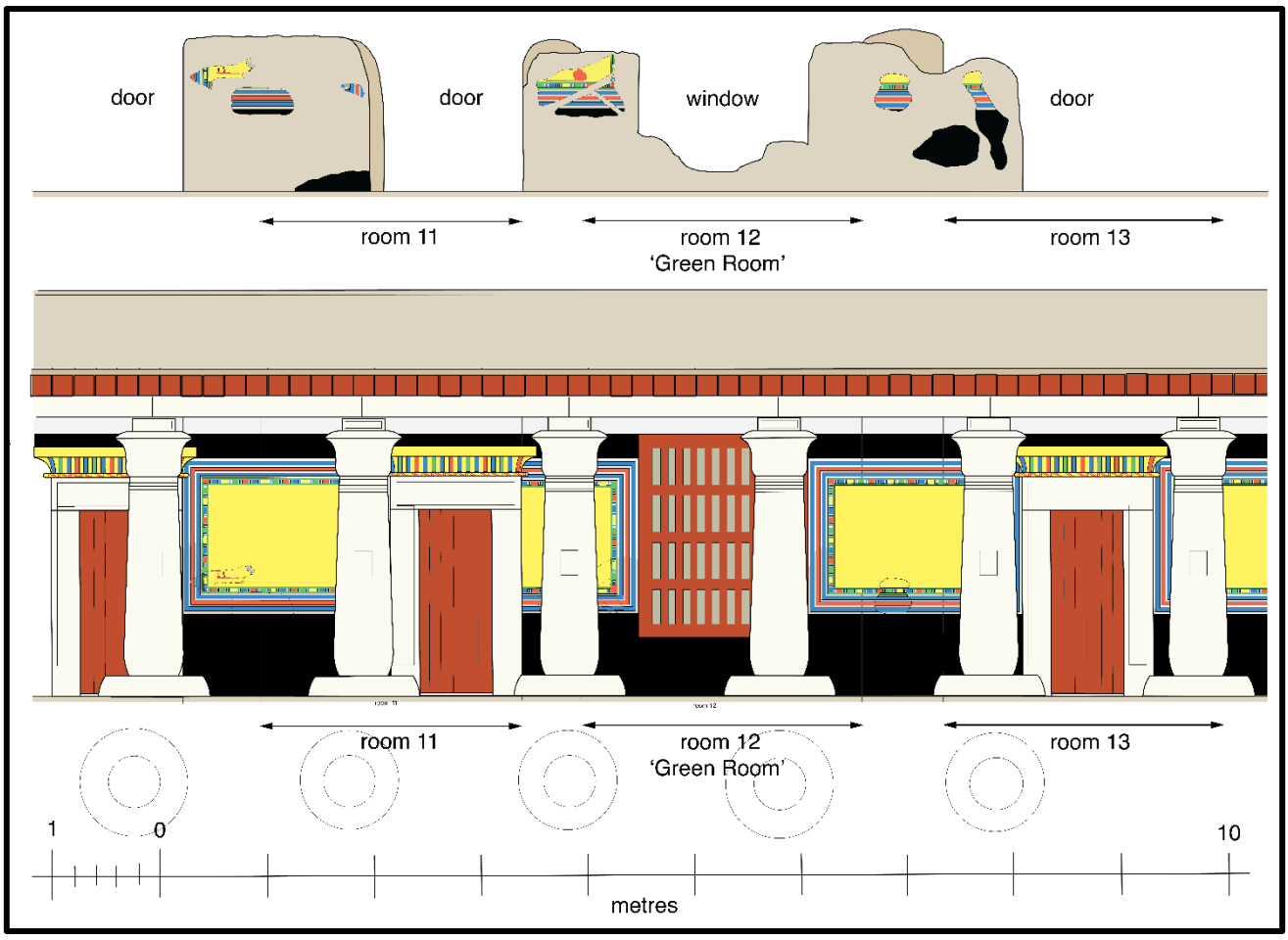

Figure 6: *Reconstructed elevation of the outside appearance of the north side of the North-east Court. The painted designs shown on the upper part of the elevation are based on sketches made by S.R.K. Glanville during the 1924 season, as interpreted by Weatherhead (2007: 187–190, Figs. 101–102). In the lower part the reconstructed elevation includes the portico which stood in front. It uses (with slightly modified dimensions) an unpublished drawing of one of the limestone columns and architraves reconstructed by Newton (cf. 1924: 298).*

The convergence of actual plants in a garden set below pavement level, of the play of light and shade in the surrounding colonnade, and the background of brightly coloured paintings behind the colonnade must have created an enveloping sensation of light, colour and the movements and scents of living plants and the insect life which they doubtless attracted. In the background, the animal courts and perhaps the main central court beyond provided the sounds of live animals and probably birds (geese, storks, cranes, ducks and maybe even ostriches). For those who wanted to see them, the layout of this part of the palace provided a short but protected route between the North-east Court and the easternmost animal court and from there, via the side entrance and the staircase room to which it led, a rooftop viewing platform which could have run along the entire front of the three enclosures.

The excavators intuitively identified the North-east Court as 'women's quarters' as, 'except for one central doorway, it is separated from the rest of the residential part of the palace buildings' (Newton 1924: 297; *cf.* Whittemore 1926: *passim*). This still seems a reasonable hypothesis. Decorations from the rock tombs of Tutu and Ay at Amarna may be instructive here. Both tombs contain depictions of rooms where women relax, socialise and play musical instruments, more of which are stored therein (Davies 1908: Pls. XVII, XIX, XXVIII, XXXIV, XXXVI). While there are no grounds to infer that they represent a room in the North Palace, they show what a similar environment to that of the North-east Court might have looked like.

Figure 7: *View, to the south-east, of the interior of the Green Room (room 12) in the North Palace, after cleaning in October 2011. The sill of the large window has been built up afresh, the rough brickwork on the left side (facing the viewer) belonging to protective work carried out in 1926 when the room was temporarily roofed and parts of the wall-paintings conserved and removed. The rectangular gap towards the right end of the long wall marks where bricks were taken away in 1926 to enable a painted panel to be removed. The line of three rectangular niches in the wall is part of an original line which extended for the full length. The scale bar has the length of 1 m.*

The rooms that surrounded the garden suggest that hierarchy was also present. On the east side were eight which, despite being the smallest (3.1 x 2.4 m), possessed a window which faced the garden. On the west side were six which were larger (5.2 x 2.5 m) but lacked the window. The rooms on the north side were more varied and included, in the middle, a pair, one of which (room 12, Figure 7; at 5.65 x 2.6 m) has, in modern times, been called the 'Green Room' on account of its extensive wall paintings of birds in a papyrus marsh (the subject of the second part of this article). It could be entered only from a similar room next door (room 11), the wall facing the garden largely

occupied by a tall window which could have been filled with a wooden grille (as in the reconstruction, Figure 10).

By its characteristics it identifies itself as probably having belonged to the senior resident of the little complex.

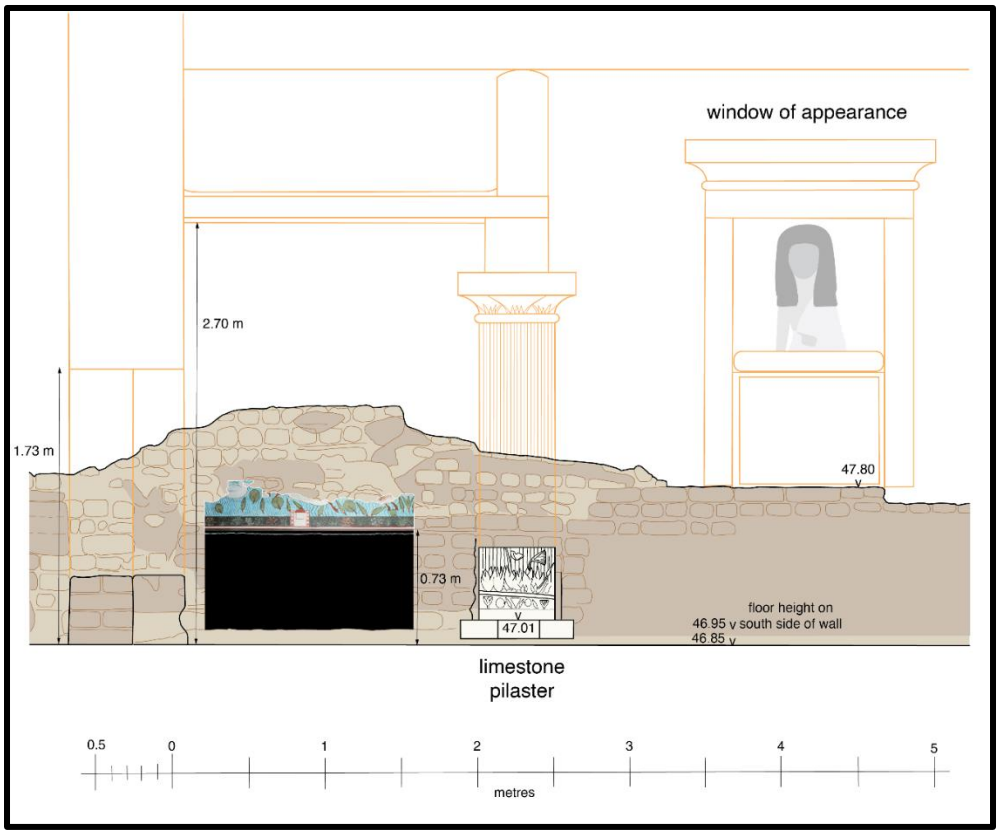

Figure 8: *Reconstructed elevation of the north-facing wall at the south end of the east colonnade. The beginning of room 24 is at the left edge of the picture. The outline of the brickwork is from an elevation drawing by Miriam Bertram (23.10.2011), where the darker tint represents modern repairs using new mud bricks and plaster. The position of the wall painting is given by EES archive photograph 23/91, where the details of some of the lily leaves are visible. The painted copy (Figure 9) was by Newton and is published in Davies 1929: 69, Pl. VIIB; Weatherhead 2007: 180–182, Pls. 30–32, the facsimiles on Pl. 30 showing portions at either end that were omitted in the Davies paper. The limestone pilaster was still in place when the photograph was taken. Figure 8 uses a pencil copy of the design on the limestone block from the pilaster made in 1924 by S.R.K. Glanville. His notebook contains the entry: 'Colour notes for front of pilaster (see full size drawing). Stems green; leaves at base of stems red; fish (?) red and green; lotus green in petals but lost colours. Band green. Frieze: water blue, flowers green, small petals perhaps as in fresco. Groove in the wall to take pilaster shows to the top of existing wall – 150 from ground.' By 'fish (?)' he is probably referring to an indistinct design in the middle near the top of the block. The floral design (papyrus flowers) at the top of the pilaster is based on the design from a block from the top of a similar pilaster found at Maru-Aten: Peet and Woolley 1923: 121, Fig. 21. The female figure is scaled to a height of 1.50 m (not including her thick wig).*

One of the excavators remarked on how small the rooms appeared. 'It is astounding that these rooms are not larger than prison cells or bathing cabins..., and bear no reflex of any charm of life' (Whittemore 1926: 6). This is misleading. The occupants of the North-east Court were clearly living a communal life which extended across a larger space than was defined by the individual personal rooms. For the occupants, the whole North-east Court was their home. Even the smallest rooms offered sufficient space for sleeping and for storing personal possessions in one or more wooden chests that were common items of furniture in the New Kingdom. These small but private spaces (and the elite connotations of the palace surroundings) could have sufficed for a reasonably satisfying life.

The principal occupant of the palace itself (in its later stage, princess Meretaten) was provided with far more spacious accommodation which lay directly adjacent to the North-east Court on the south (Figure 1). Hierarchy particularly made itself felt here. A corridor running from the main residential part of the palace ended on the other side of the wall separating it from the North-east Court. Instead of the wall continuing upwards without a break, at a height of 95 cm above the floor it was replaced by a platform reached by a flight of six steps (a photograph of the steps and platform, by D. Pepper, is in Kemp 2011, 7, Figure 6). This gave it the form of a 'window of appearance' (Figure 8), a more modest version of the window shown many times in the formal art of the period as the place where the royal family showed themselves to officials and courtiers at a ceremony of reward or announcement of promotion. Whittemore compared this North Palace example with 'the Tabasar, a place of observation in a Persian palace' (Whittemore 1926: 6).

Figure 9: *The bottom of the waterbank scene shown in Figure 8. After the painted copy by Newton in Davies 1929: 69, Pl. VIIB.*

From this vantage point, the observer would have had an oblique view across the central garden and the surrounding colonnade on the north and west, offering a view which 'must have been extremely charming with the flowers in the centre and the painted columns with their papyrus capitals throwing deep shadows on the ground and the coloured walls behind' (Newton 1924: 298). As the reconstruction drawing (Figure 8) shows, however, the small scale of the setting would have meant that the viewer would have been standing only a metre above anyone in the court and her eye level would have been the same as the stone architraves which joined the column capitals and pilasters and filled the right part of her field of vision.

The paintings of nature in the North-east Court

In the North-east Court, both within the individual chambers and on the walls that were shaded by the colonnade, the most common theme is fowl-feeding (Weatherhead 2007: 147). These depict human figures feeding ducks, cranes, storks and geese against an invariably yellow ground with large red pots and dotted with red grains and scattered white or grey feathers. The fowl-feeding scene from the south wall of room 7 includes 'a most life-like representation' (Newton 1924: 298),

and possibly the only identified example, of a greylag goose (Anser anser) in ancient Egyptian art (Frankfort 1929: Pl. XI; Houlihan 1986: 54) (Figure 11).

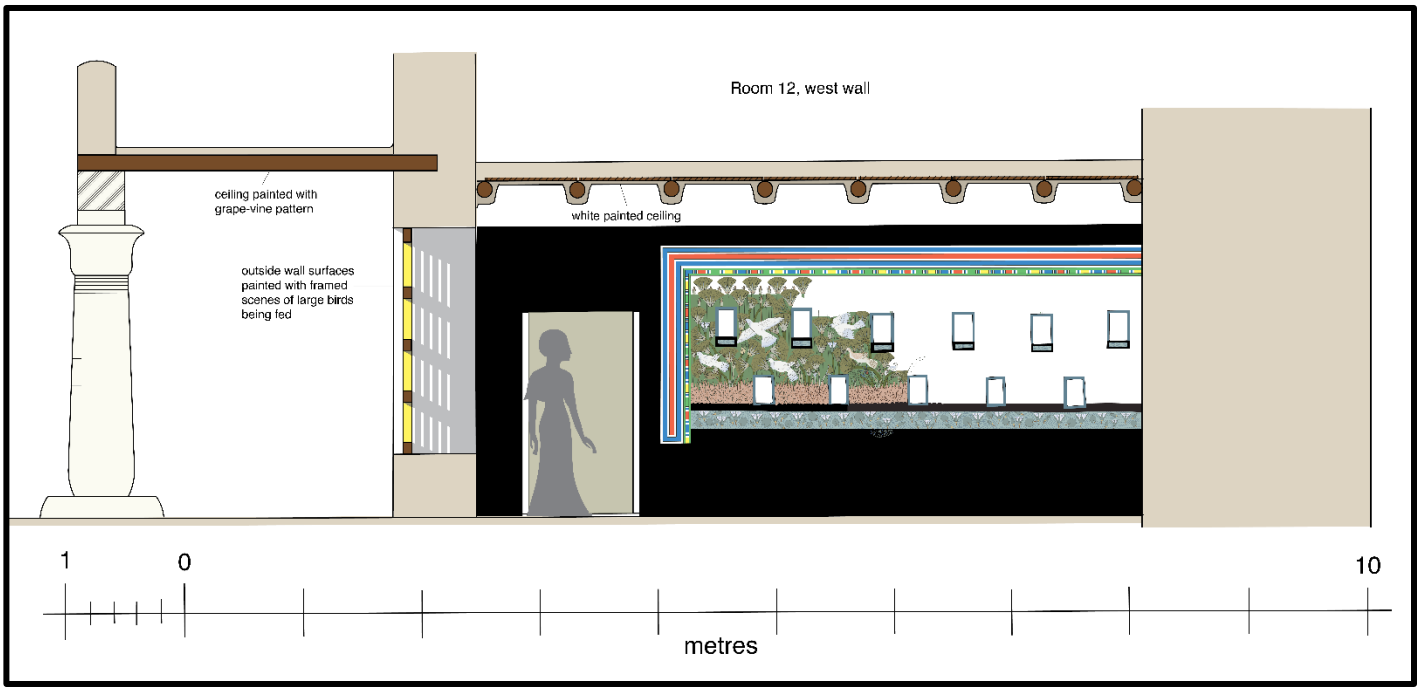

Figure 10: *Reconstructed elevation (the wall painting still incomplete) of the west wall of the Green Room and the adjacent area of the colonnade to the south (left). The top part of the painting might have been richer, with insects and birds in flight.*

A second theme is the waterbank design (Weatherhead 2007: 147), remnants of which were found throughout the North Palace, including on the wall in the North-east Court which contained the viewing window (Figures 8 and 9) and the Green Room in the middle of the north side of the same court (Figure 10). In contrast to the fowl-feeding scenes, which are presided over by humans, the waterbank design depicts birds amidst thickets of riverside plants, including lotus (Nymphaea caerulea) and papyrus (Cyperus papyrus), with a stylised river at the base (although the example in Figure 9 includes a miniature landing quay). The Green Room (room 12)—one of two small, interconnected rooms (Figure 2)—was so named due to the dominant colour and extent of this theme (Davies 1929: 58). The adjoining room (room 11) was apparently an architectural duplicate providing the only access to the Green Room, though no artwork survived. Both rooms are characterised by two rows of niches in the walls (Figure 7), the significance of which has been the subject of much speculation (e.g. Davies 1929: 65–67). The niches were decorated to resemble small ponds (Figures 10 and 11) and it has been proposed that they may have held cut lotus and/or lily plants (Boyce in Weatherhead 2007: 166). The detailed, naturalistic execution of the waterbank design in the Green Room stood in marked contrast to the more standardised and formulaic renditions used in the palace, and transformed the Green Room into an 'idyllic landscape' (Weatherhead 2007: 157), where 'the disturbing presence of man is infinitely remote' (Davies 1929: 59).

Artistic preoccupation with animals, birds and the wider natural world has produced numerous remarkable works, including now-iconic visualisations such as the cave art of Lascaux and Chauvet (e.g. Jones and Elliot 2019), the Minoan frescoes of Akrotiri and Knossos (e.g. Masseti 1997) and the immersive imagery of the Garden Room of the Villa of Livia *Ad Gallinas Albas* at Prima Porta outside Rome (e.g. Cole 2017). As the Green Room paintings were uncovered, they were

recognised as vitally important examples of 'the school of Akhetaten' (Whittemore 1926: 8), where the 'innovations by which the era of Akhenaten is peculiarly marked attain something like a culmination' (Davies 1929: 61). They have since come to be regarded as masterpieces of ancient Egyptian art (Houlihan 1986: 103; Weatherhead 2007: 143). Featured in these paintings are some of the most skillfully rendered of birds known from Dynastic Egypt.

The birds of the 'Green Room'

The surviving images of the birds of the 'Green Room' were remarkable for their naturalistic execution. As such, a critical but reasonable assumption is that the original artists worked from, and were striving faithfully to reproduce, real-life birds.

In 1926, a well-meaning attempt to conserve the original panels with consolidants discoloured and darkened the artwork. Fragments of the original painted plaster are today held in museum collections in Cairo, Oxford, London, Copenhagen, Cambridge, Liverpool and Leiden (Weatherhead 2007: 168). The panels were, however, the subject of an accomplished facsimile in tempera by Nina de Garis Davies, who, along with her husband Norman, had come from the Metropolitan Museum of Art in New York to assist in recording the paintings (Frankfort 1929; Weatherhead 2007: 167). The facsimile of the west wall is currently housed in the Metropolitan Museum of Art in New York (accession no. 30.4.136). This copy formed the basis of a recent, detailed reassessment of the likely identity of the species depicted (Stimpson and Kemp 2022), from which the following is drawn. Characteristics of the birds that are referred to in the text are annotated in Figure 12.

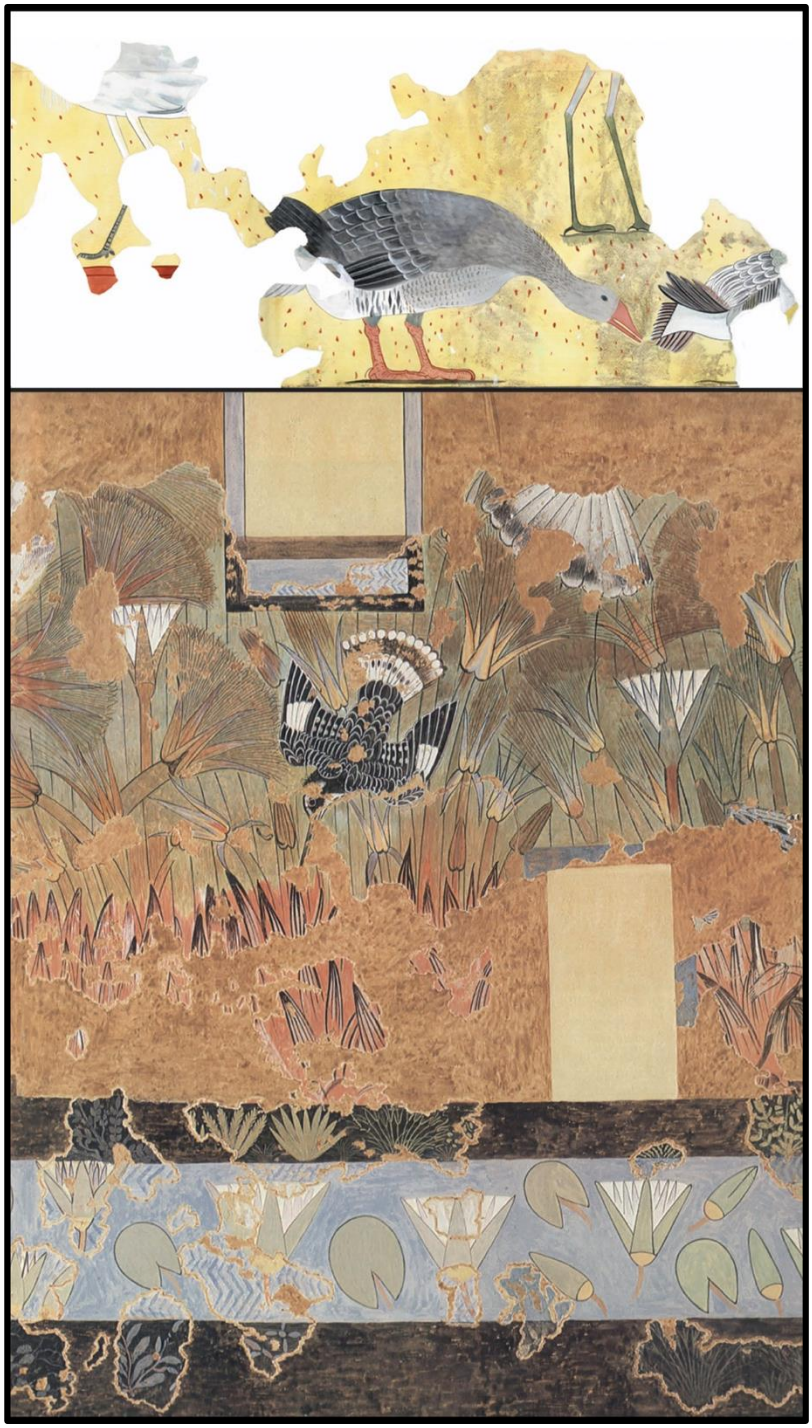

Figure 11: *Top: detail from a reconstruction of the fowl-feeding scene from the south wall of room 7 of the North-east Court. Original by Newton (EES archive). Bottom: excerpt from the waterbank design from the west wall of the Green Room, showing pied kingfisher (*Ceryle rudis*) and decorated niche (detail from N. de Garis Davies, Facsimile painting of the west wall from the 'Green Room' in the North Palace at Amarna; Public Domain; The Metropolitan Museum of Art, New York: accession no. 30.4.136).*

While the artwork of the Green Room is an exemplar of naturalistic execution it is important to remember that it is not a dedicated ornithological treatise. There is a long-standing tradition of the depiction of papyrus marshes, a habitat of spiritual, economic and recreational significance, in the wall art of ancient Egyptian palaces and tombs (e.g. Davies 1929: 61). Unlike the Green Room, however, there is a general tendency to illustrate hunting and fowling scenes, but these works do present several commonalities with the art of the North-east Court (see accounts in Houlihan 1986; Wyatt 2012).

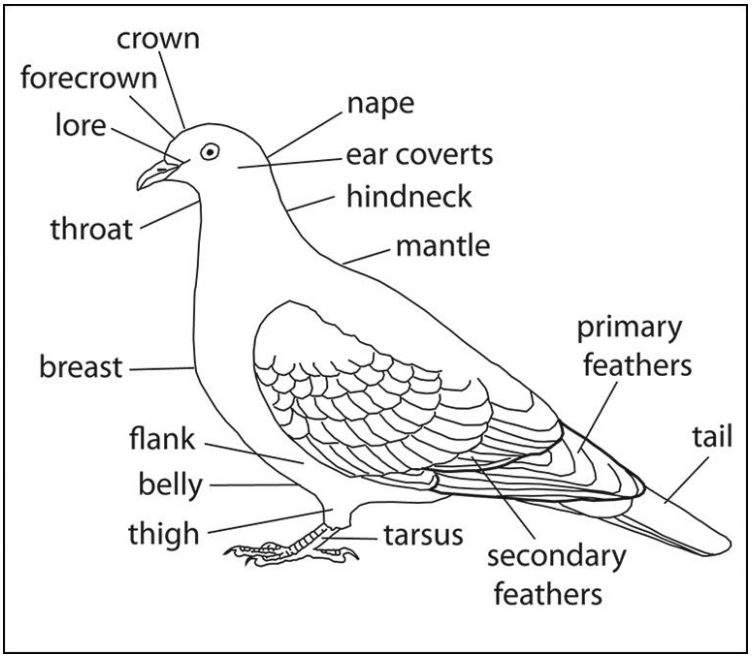

Figure 12: *Stylised diagram of a pigeon, showing anatomical characteristics referred to in the text (adapted by the authors from Gibbs* et al. *2001). Reproduced from Stimpson and Kemp (2022).*

First, the wall art of ancient Egypt was essentially two dimensional and 'comparative size mattered little' in the depiction of birds (Wyatt 2012: 84). Second, there are physical anomalies in the images, departures from a faithful representation of birds in life. In the case of the Green Room's unmistakable rendition of the pied kingfisher (Ceryle rudis) (bird 'i' in Figure 13), 'except for the slightest point of error, it is completely faithful to the living bird' (Houlihan 1986: 114). This 'error', however —the depiction of the head in profile rather than from above, as it would be in life—is to ensure that the viewer would 'not miss its character' (Houlihan 1986: 115). It is in this sense that the art of Amarna follows the wider, well-established aspective tradition in Dynastic Egypt (Brunner-Traut trans. 1986), in which artistic license sacrifices realism to portray the elements of an animal or bird most useful for their identification. Indeed, when birds of the Green Room are shown in profile, the dorsal aspect of their tails is also depicted throughout (Figure 13).

Figure 13: *Proposed identifications of the birds of the west wall of the Green Room: a–f) rock pigeons (*Columba livia*); g) red-backed shrike (*Lanius collurio*); h) white wagtail (*Motacilla alba*); i) pied kingfisher (*Ceryle rudis*); j–l) unidentified. (Original image: N. de Garis Davies, Facsimile painting of the west wall from the 'Green Room' in the North Palace at Amarna; Public Domain; The Metropolitan Museum of Art, New York: accession no. 30.4.136).*

Third, birds are shown perched and in one instance, nesting atop papyrus umbels in the Green Room panels (Figure 13). Papyrus umbels could not support a birds' weight and would not provide a solid support for nesting. The Green Room examples do make some concession to physics and show stems bending under the weight of all but one of the perched birds; curiously, bird b seems to be suspended in mid-air (Houlihan 1986: 101) (Figure 14), although this may reflect an attempt to depict the bird slightly deeper within the thicket of plants (*cf.* Evans 2010: 43). Overall, the depiction of birds on the umbels is most reasonably explained as a stylistic convenience.

Figure 14: *Birds a and b: rock pigeons (*Columba livia*). Detail from N. de Garis Davies, Facsimile painting of the west wall from the 'Green Room' in the North Palace at Amarna. Public Domain; The Metropolitan Museum of Art, New York: accession no. 30.4.136).*

There are also anomalies that are unique to Amarna. The folded primary feathers of the perched birds in the west wall panel all feature a peculiar bend at an angle of approximately 45° (Figure 13). This characteristic occurs independently of species and of theme: bent primary feathers are also portrayed in the fowl-feeding scene in room 7 (Figure 11) and appears to have been a local convention. Davies (1929: 64) speculated that this may have been the result of a foreign stylistic influence or, alternatively, that the wings of the original birds used as models were bound or that their feathers were broken. To our knowledge, the latter scenario had not been required over centuries of portraying birds in ancient Egyptian art; it would also seem unnecessary to hobble or handicap a tame goose (and, arguably, commensals such as pigeons or doves) in the face of a

ready supply of grain. The most likely explanation was that this was a convention to reinforce that a bird was perched and/or stationary. There are also anomalous marks on the tail feathers of two Green Room birds (birds g and h; Davies 1929: 64), which are considered after the individual accounts, below.

Images of 12 (possibly 13) birds were recorded on the west wall panel (Figure 13: birds a–l) of which nine were reasonably well preserved (a-i). The remainder (birds j–l), including a small bird nesting amidst the papyrus (bird l), cannot be identified.

Pigeons (birds a–f)

Most of the identifiable images are a species of pigeon (Columba sp.), one of which (bird b) has been the subject of detailed description by Houlihan (1986: 101–103). Depictions of pigeons in ancient Egyptian art are not uncommon or unique to the Green Room. Renditions of the rock pigeon (Columba livia), however, are rare. Bird b (Figure 14) is a fine example of this species and shows a remarkable attention to detail and an appreciation of plumage and morphology (Houlihan 1986: 103). There are at least six pigeons shown in the panel (a–f) and the presence of wing bars (Gibbs *et al.* 2001: 176) on the three perching birds (a, b and e) are suggestive of this species (see below). The remaining three birds, which are in flight (c, d and f), are also likely to be rock pigeons but lack diagnostic characteristics.

Pied kingfisher (bird i)

The pied kingfisher (Ceryle rudis) is one of, if not the most distinctive of the Green Room birds (Figure 11; see also Houlihan 1986: 114–116) and depictions of these kingfishers are common in ancient Egyptian art (El Menyawy 2020). This species is particularly conspicuous while fishing and hovering over water and likely a familiar sight along the Nile.

Bird g: reddish turtle dove or shrike?

The identity of bird g (Figure 15) is confused. While Davies (1929: 64) discusses a 'reddish turtle dove', a corresponding plate (Plate V in Frankfort 1929) is captioned as 'Pigeons and shrike, detail from Plate IV'. While bird g does appear to have a similar aspect and stance of the pigeons in the panel, its proportions are different: the neck is longer and slimmer, as is the body. Indeed, if bird g is a species of dove (Streptopelia spp.) then, in contrast to the renditions of the rock pigeons and pied kingfisher, it is poorly observed. Most notably, it lacks red tarsi, which are a defining characteristic (Gibbs *et al.* 2001); the legs instead appear pale grey. While there is damage to the belly, thigh, flank and base of the tail, the scales on bird g's tarsus are reproduced in fine detail, as are the claws, which suggests that loss of colour had not occurred. Bird g also lacks any characteristic hindneck markings found on Streptopelia doves or the less conspicuous, but still discrete, stippled patch on the throat of palm doves (Streptopelia senegalensis) (Gibbs *et al.* 2001). The white outer tail feathers of bird g are, however, a common characteristic in doves; notably, anomalous triangular marks are also present.

While there is damage to the head and facial features, the alternative identification proposed by Davies—that of a shrike—is a more parsimonious identification. Indeed, the original artist made great effort to emphasise the scaly, vermiculated character of the rufous plumage of the nape, hindneck and mantle of this bird (Figure 15). There is also fine barring depicted on the undamaged portions of the breast. The claws of the bird appear to have been emphasised, perhaps to suggest a predatory habit. These characteristics, together with the white outer tail feathers and pale grey legs, are consistent with a species of shrike. The vermiculated plumage is characteristic of a female or juvenile red-backed shrike (Lanius collurio) (*cf.* Lefranc and Worfolk 1997: 50). Known depictions of this species are very rare and to our knowledge, the only other image of a red-backed shrike is a

Twelfth Dynasty image of a male bird from the tomb of Khnumhotep III at Beni Hasan (Houlihan 1986: 126).

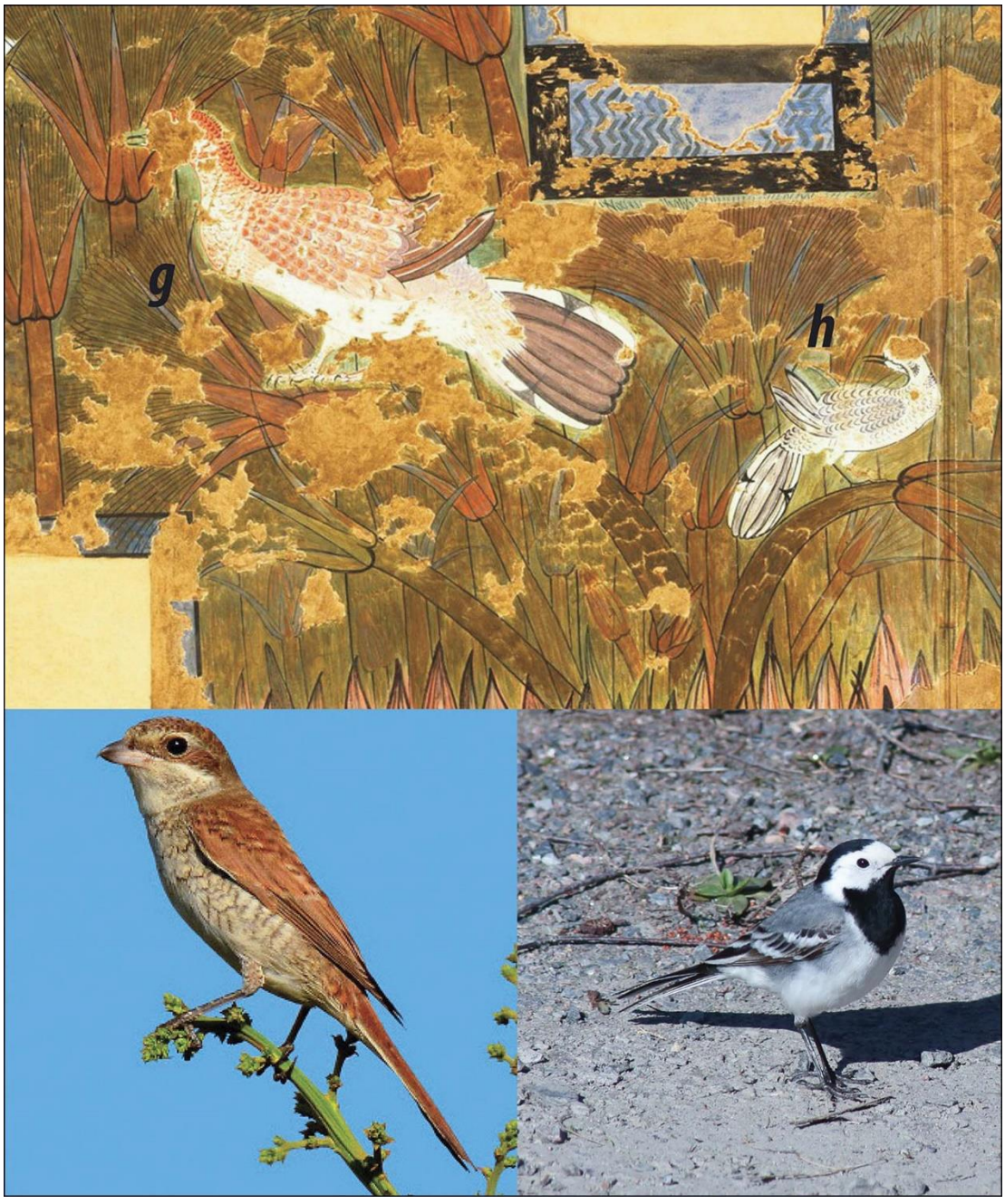

Figure 15: *Top: birds g and h, interpreted as red-backed shrike (*Lanius collurio*) and white wagtail (*Motacilla alba*), respectively. Detail from N. de Garis Davies, Facsimile painting of the west wall from the 'Green Room' in the North Palace at Amarna; Public Domain; The Metropolitan Museum of Art, New York: accession no. 30.4.136. Bottom left: red-backed shrike. Photograph: Lehava Kiryat Shmona Pikiwiki Israel; used under a CC-BY 2.5 licence: https://creativecommons.org/licenses/by/2.5/deed.en). Bottom right: white wagtail (used under a CC0 1.0 licence: https://creativecommons.org/publicdomain/zero/1.0/deed.en). Reproduced from Stimpson and Kemp (2022).*

Bird h: shrike or wagtail?

Although the head of the smallest surviving bird, bird h, is damaged, its identification is aided by an almost identical counterpart from the east wall (Ashmolean Museum: accession no. 1927.4084). Bird h has been referred to as a shrike (Frankfort 1929: Pl. IX) and Davies (1929: 64) considered the possibility masked ('pied') shrikes (Lanius nubicus) were shown. Bird h is depicted as slight, with slim black tarsi and finely barred grey plumage on the mantle and breast, with contrasting white outer feathers on a dark grey (or degraded black) tail (Figure 15). While these features are consistent with a juvenile masked shrike, the remains of the black bill are rather slim and the characteristic wing patches of the species are not present (*cf.* Lefranc and Worfolk 1997: 75). Furthermore, there is also the remains of a dark triangular mark below, rather than through, the eye and a well-defined black lore (the area between the eye and beak), which are not characteristic of masked shrikes (Figure 16). The counterpart on the eastern wall is almost identical in stance and character but is darker, with less fine barring. A grey back is present, with black head markings framing the eye; the crown and nape are black, and the lore is less well-defined. The forecrown and ear coverts are white. The tail is black with contrasting white outer feathers; an anomalous triangular mark is also evident on the outer tail feather. There is also a hint of a black hindneck together with a well-defined black triangular patch under the eye. These features are not characteristic of the masked shrike; critically, the distinctive eye stripe of this species is absent (Figure 16; see also Evans 2011).

An alternative identification proposed by Davies is more parsimonious; the depiction of bird h (and eastern counterpart) is more suggestive of a wagtail (Motacilla spp.). While the so-called 'yellow wagtails' (e.g. M. flava, M. citreola, M. cinerea) can be discounted, there is considerable variation in the plumage of remaining candidate species: white and African pied wagtails (M. alba and M. aguimp, respectively). Like the masked shrike, however, the African pied wagtail has a characteristic broad stripe running through and under the eye (Figure 16). Both sexes also

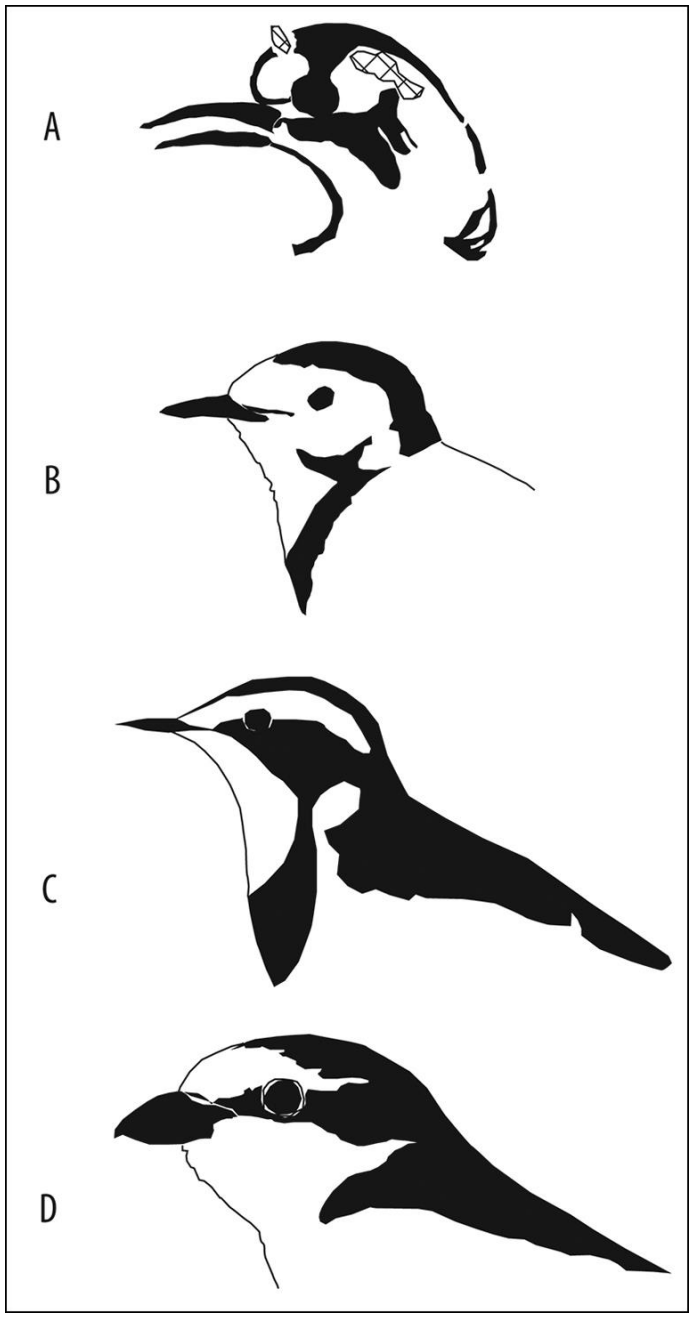

Figure 16: *Detail (A) from the facsimile painting of the east wall of the Green Room (N. de Garis Davies; Frankfort 1929: Pl. IX), with examples of head markings of white wagtail (*Motacilla alba*) (B: male, winter), African pied wagtail (*M. aguimp*) (C: winter) and masked shrike (*Lanius nubicus*) (D: male) (redrawn by the authors after Porter and Aspinall (2010), Hollom* et al. *(1988) and Lefranc and Worfolk (1997), respectively). Reproduced from Stimpson and Kemp (2022).*

display a uniformly black plumage. The grey mantle of bird h and its counterpart from the west wall, together with the triangular markings below the eye, are much more consistent with the white wagtail (Alström *et al.* 2003: 341), to which bird h is referred here. Wagtails are rarely identified in ancient Egyptian art; Houlihan (1986: 126) reports two instances of the genus: an Eighteenth Dynasty image (also in a papyrus swamp) from the tomb of Nebamun, Thebes, and one from the Fifth Dynasty mastaba of Ti at Saqqara.

Triangular tail marks

Birds g and h (and their counterparts on the eastern wall) are interpreted as red-backed shrike and white wagtail, respectively. Both these birds are shown with anomalous triangular tail markings (Figure 15). These markings do not occur in nature and appear to be unique to the Green Room panels (Davies 1929: 64); they do not appear in the fowl-feeding scenes and do not feature on the pied kingfisher (bird i) or the pigeons (birds a–f), despite the similar portrayal of the dorsal aspect of the tail. What could be their significance, if any?

The marks could simply have been a whim of an artist, or perhaps even a cryptic signature. But it is strange that the marks are restricted to just two (surviving) depictions and there are no compelling grounds to suggest that multiple artists contributed to the Green Room panels. Davies (1929: 64) speculated that these marks might indicate that the tails of these birds were bound. But, as with the bent primary feathers discussed above, this would be a strange practice. Tail binding alone would be insufficient to prevent flight, and it is questionable why it should have been necessary for wagtails and shrikes, but not kingfishers and pigeons if the birds were drawn from live ‘models’. Furthermore, the dorsal aspect of the tails of birds g and h are shown to be spread, as are the other birds in the panel; if bindings were depicted then they seem to have been ineffective.

Alternatively, there may have been a desire to emphasise seasonality in the art. The kingfisher and the pigeons are resident and present year-round in Egypt and were presumably so in antiquity. Conversely, red-backed shrikes are common autumn migrants between August and November. They are also rare visitors in spring, from February to May (Goodman and Meininger 1989: 442). While red-backed shrikes are not explicitly associated with papyrus marshes, their habit of perching conspicuously while hunting would likely have made them a familiar sight along the Nile Valley. The white wagtail is also a visitor and a common passage migrant from October to April, when it can be found in numbers in cultivated areas (Goodman and Meininger 1989: 377–78).

Given that the Green Room scene 'may have invoked religious ideas of Nilotic fecundity, or the primeval swamp' (Weatherhead 2007: 147), then perhaps these birds were marked as a token of their migrant status. The appearance of red-backed shrikes and white wagtails may have been associated with the recession of the Nile floodwaters and the exposure of fertile black soil for sowing, as shown by the black borders of the river at the base of the panel.

Pigeons in the papyrus

Rock pigeons, in their truly wild state in Egypt, are associated with rocky, arid uplands, roosting and nesting on cliffs, in caves and in wells. They are not known to frequent papyrus marshes or wetlands (Goodman and Meininger 1989: 309; Gibbs *et al.* 2001: 177). Is this just a fanciful anomaly or could there be an alternative explanation? It is possible that, while the original artist was an accomplished painter, they may have had little knowledge of or interest in the habits of rock pigeons. Given the careful observation that produced the Green Room images and the relative abundance of these birds that are depicted (Houlihan 1986: 101), however, this seems unlikely.

In the early twentieth century, another species of pigeon, the stock dove (Columba oenas) would occasionally visit the Sinai and Nile Delta in 'immense flocks', between early September and mid-

March (Goodman and Meininger 1989: 311). A ceiling fragment from the Eighteenth Dynasty palace of Akhenaten's father at Malkata (The Metropolitan Museum of Art: accession no. 12.180.257) also depicts a dense group of pigeons in flight, although this image lacks a clear environmental context. Could these images commemorate visits of 'immense flocks' in antiquity? In the Green Room panels, there are no grounds to query the identification of rock pigeons; stock doves have a yellow bill and lack the characteristic wing bars of rock pigeons (Gibbs *et al.* 2001: 176). Given the ephemeral nature of the visits of the stock doves, perhaps it was necessary to use the resident species as a model for the artwork instead? While possible, this would seem a stretch on very little evidence. Furthermore, if the theory that the triangular tail marks indicate migrant rather than resident birds is followed, the expectation would be that the Green Room pigeons would also be similarly marked.

Alternatively, rock pigeons could have been attracted to the city in large numbers by supplementary feeding, the beginnings of a feral population. While pigeons are known as votive offerings and were depicted as such at Amarna (e.g. fragment 11.1 from the North Riverside Palace; Weatherhead 2007: Pl. 15) pigeon bones are relatively rare in the archaeological bird bone assemblages (Luff 2007), suggesting that rock pigeons may simply not have been present in large numbers in and around the city and certainly not in the riverside marshes.

While possible spiritual explanations can lead to endless speculation, the contrasting artistic themes of the North Palace provide context for a simpler interpretation. The fowl-feeding theme was one of captive birds dominated by people. Conversely, the waterbank design of the Green Room is apparently devoid of human influence. If rock pigeons in their wild state were associated with the natural landscape of the cliffs and removed from the city, then their presence may have been a simple motif to enhance a sense of a wilder, untamed nature; another example of artistic licence sacrificing realism for emphasis.

Conclusion

While the identification of species depicted in ancient artwork should be approached with caution, the proposals presented here offer parsimonious interpretations of the available evidence. There is no need for the diagnosis of novel or undescribed species in the panels of the Green Room, and the interpretations are based on well-established characteristics of well-understood taxa. We make no claim that our hypotheses concerning the ecological and stylistic questions are definitive; the aim here is to stimulate further discussion and inquiry into this masterpiece of ancient Egyptian art.

From aesthetic and architectural standpoints, there are parallels between the surviving panels of the Green Room and those of the Garden Room of the Villa of Livia outside Rome. Cole (2017) has considered the Garden Room images within the wider architectural context of the villa and makes a persuasive case that art and architecture conspire to blend the internal and external environment, producing an immersive and continuous experience of nature. Given its unique architecture, large garden window and lavish decoration, did the Green Room serve a similar role? A significant difference must be noted. Most of the nature paintings (both the fowl-feeding and riverbank scenes) were ostentatiously framed by deep borders of coloured strips and black surrounds which seem to separate the viewer from the subject matter (in the way that modern glass-fronted museum cases do). Two exceptions survived. One was the riverbank scene with papyrus thicket on the outside surface of the corner of the easternmost animal court (Figures 2–4). Even the black surround has been reduced to a token strip at the bottom and there seems to have been insufficient space for coloured strips. Here the possibility of painting merging with a landscape where animals and birds were to be seen might have been realised. The second was the similar scene (but above a wide black area) on the wall at the south end of the east colonnade (Figure 8). There seems to be insufficient space at the left end for the wide painted strips (especially when one allows for the

painting having been longer than the area published by Davies, Weatherhead 2007: 180–182, Pls. 30–32).

It is certainly possible that, given the spiritual connotations of birds in combination with other elements in the room, the significance of the Green Room panels went beyond decoration. This could be the subject of much speculation. There was, however, a well-established direct relationship between depictions of the colour green, papyrus and the natural environment in Dynastic Egypt (e.g. Weatherhead 2007: 157), and the proposal that the Green Room panels may have been a celebration of Nilotic fecundity is reasonable. It is also realistic to suggest that the calming effects of the natural environment were as important to the royal household then as it has increasingly been shown to be today. The unique architecture, naturalistic decoration and a large window overlooking the adjacent garden would have certainly lent this area of the North-East Court to recreation and relaxation. Indeed, a room adorned with, by any measure, a masterpiece of naturalistic art, and filled with music and perfumed by cut plants, would have made for a remarkable sensory experience.

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EXCAVATION IN THE VICINITY OF THE EAST GATEWAY
(SQUARES EY38–39, FA38–39 AND ES41–42, ET41–42)

by Fabien Balestra

Introduction and background

Apart from the focus on the large stone temple (the Long Temple), the British mission is also drawing attention to the huge amount of open space that surrounds the stone temples and the other subsidiary structures that had been identified by former excavators. Another major question is thus to understand whether the purpose of this seemingly so much empty space was to provide the city's population with a place for large-scale gatherings or was the objective completely different, and if so, how exactly? Yet the main entrance to the enclosure on the west side, provided with large brick pylons placed only a short distance in front of the monumental front of the Long Temple, seems poorly designed for large crowds. Archaeologist John Pendlebury conducted, on behalf of the Egypt Exploration Society, an expedition at the Great Aten Temple in 1932 during which he managed to uncover, in the space of one month, the ancient foundation of the long Temple. At the very end of his season he also examined a gateway in the eastern wall of the temple enclosure but the work done was not reflected in his 1951 publication (Pendlebury 1951, Chapters II and III).

The above considerations and the existence of an eastern gateway led, in the Autumn of 2021, to new excavations carried out by the Amarna Project at the rear of the temple precinct (Balestra 2021). The results confirmed Pendlebury's assumption that the gateway was more than just an opening. Originally provided with a sandstone threshold, it formed an intrinsic part of the mud-brick wall. The excavation also partially exposed plausible remains of a mud-brick ramp on the outside and provided glimpses of human activities (fireplaces, pot-holes and post-holes) perhaps linked to guarding. The fieldwork yielded sizable quantities of fragmented incense bowls, pieces of incense and charcoal with resinous residues, suggesting the possibility that such materials were available to people before they proceeded further into the temple. Additional ceramics and other types of objects also came to light. Moreover, within the temple enclosure, including around the East Gateway, a superficial examination of the flat ground revealed irregular spreads of small sherds which suggested human activity but activity which did not require brick buildings.

For the autumn season of 2022 it was decided to continue the exploration on the east–west axis leading to the Sanctuary from the Eastern Gateway and to test a small area, slightly northward, where a particular concentration of potsherds had been noticed. The excavation at the very back of the temple's enclosure wall took place at the same time as the work at the Long Temple (Figures 1 and 2) and was conducted between 26 September and 27 October with the assistance of five workmen. It covered a total area of 250 m² and comprised 10 squares of 5 x 5 m. The East Gateway (EX38–39, FB38–39) encompassed six, while four belong to the second sector, also called the pilot area (ES41–42, EU41–42).

The main objectives for sector 1 were to complete the plan of the two exterior squares with the full extent of the mud-brick ramp and to pursue the interior mud floor, verifying at the same time if there were traces of any activities left, mainly on the sides of the pathway already observed in 2021. As for the sector 2, the aim was to test the usefulness of undertaking excavation below concentrated spreads of sherds and its feasibility during the time allowed for the season.

The initial setting-out of the grid squares was done by total station, extended by tape measure for EX38 and EX39. Prior to excavation a topographical survey was undertaken across each grid square. Workmen were then employed to remove overburden layers, which usually consisted of

wind-blown sand sometimes containing gravel as well as backfill from the 2021 season. All archaeological deposits were removed by trowel, brush and 100% sieved on-site for finds. Hollow features (i.e. pits or potholes) were excavated (and photographed) in several stages as they all contained many potsherds. In some cases, deposits were collected and sieved at the dig house using equipment with closer meshes in order to recover fine material (particularly organic remains). The structures were all planned afterwards, and cross-sections were drawn. The overall areas were planned at distinct stages at a scale of 1:25. The excavation was backfilled after the completion of the work, using the newly-created spoil after being sieved again. The unit numbers used during this season were a continuation of those employed in Spring 2022. No former numbers were reused (except for the continuation of FB38) but, when relevant, similarities and equivalences were made with the newly-created ones.

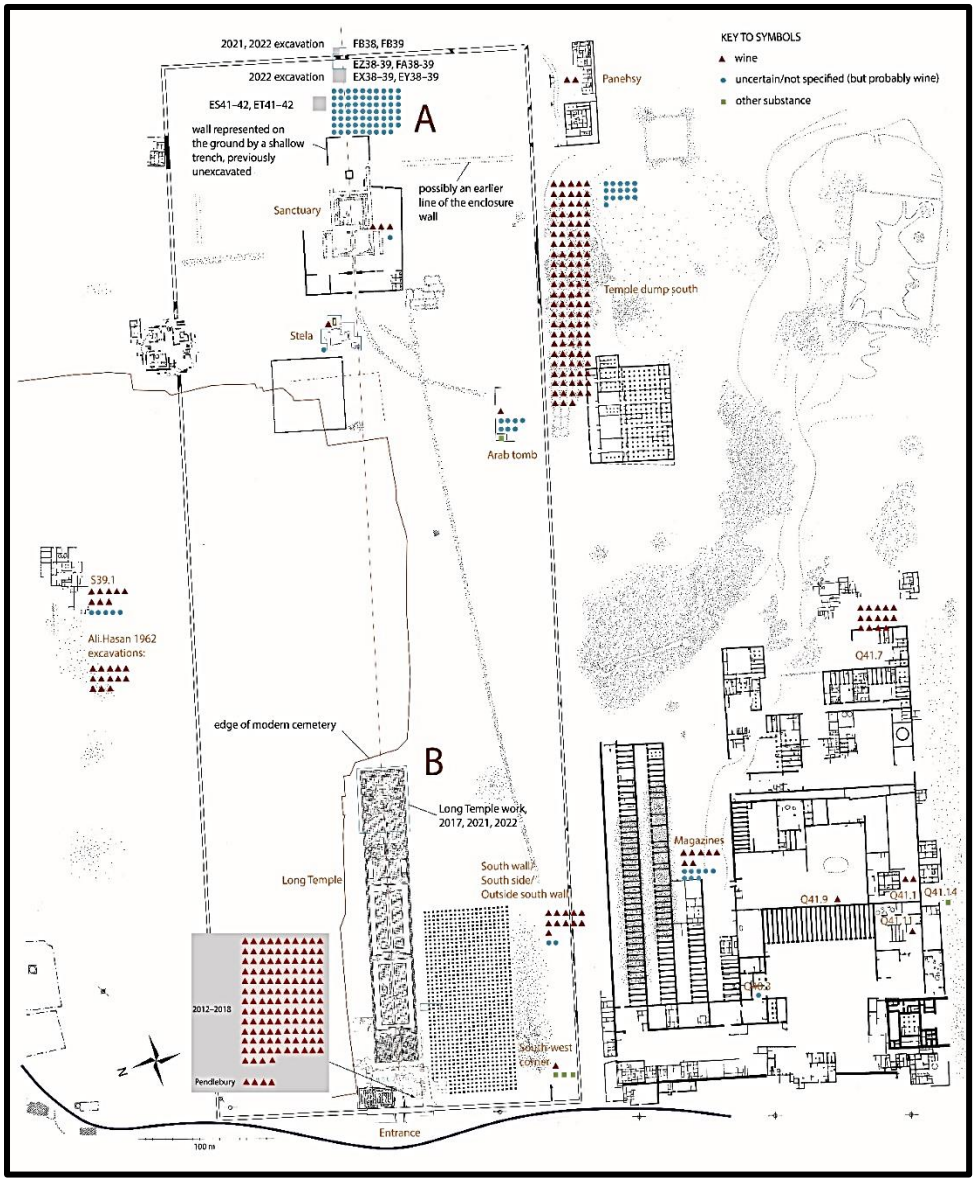

Figure 1: *Plan of the Great Aten Temple Enclosure. Areas A and B are the sites of the two field projects for autumn 2022: A is the East Gateway; B is the Long Temple. The plan also marks the find-places of mud-jar-sealings either specifically or probably for wine.*

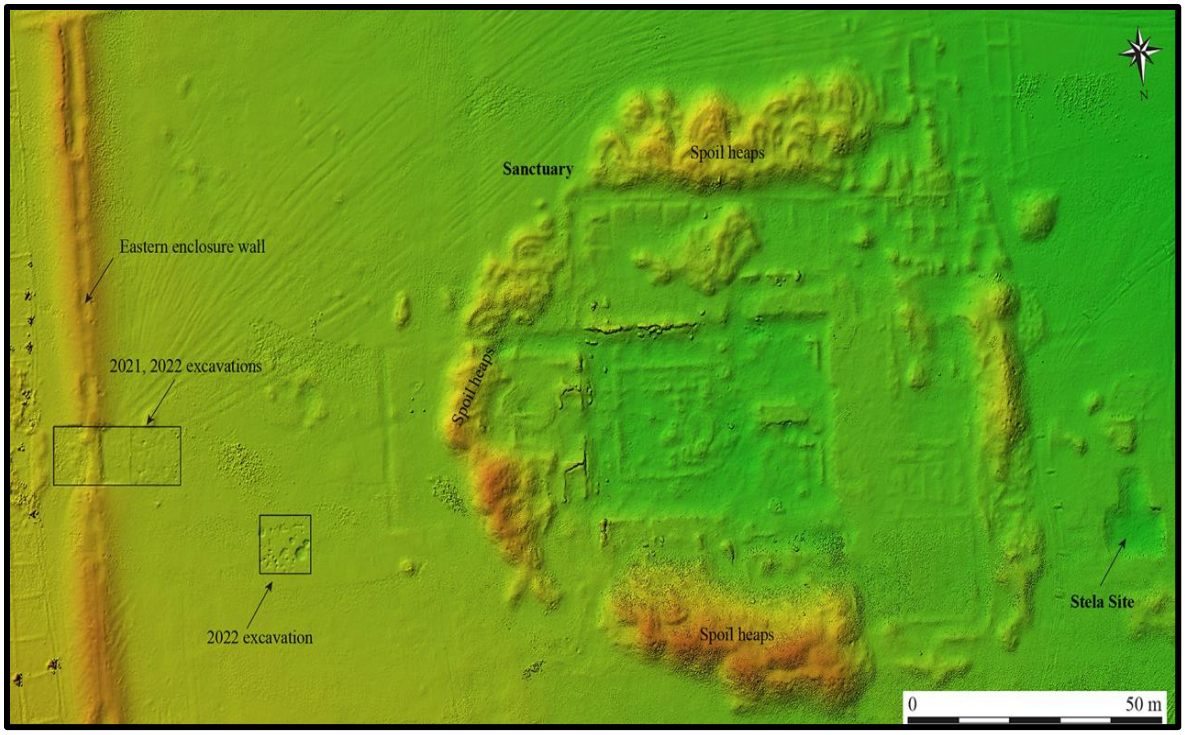

Figure 2: *Part of an orthomosaic of the whole Great Aten Temple made by Paul Docherty in autumn 2022. The part shows the Sanctuary and the area of recent excavation between the Sanctuary and East Gateway.*

Amarna Period

Sector 1: EX38–39 and FB38–39

The season started with the completion of square FB38, outside the temple enclosure. Here the 2021 campaign had stopped above loose sandy layers, yellow and brownish in colour (19634 and 19635), with patches of burnt areas, previously thought to have been possible fire traces (19633). The removal of these deposits led to the recognition that they were more likely wind-blown events, the burnt patches being perhaps either 'wasted' ashes or later ephemeral fireplaces, as the burning did not reach the mud-floor surface 19714, at roughly 10 to 30 cm deeper. This mud floor was partially observed in 2021 since the Pendlebury team, while examining the boundary wall [19607], had disturbed it. The excavation revealed, in addition to the buttress [19909], that the floor had been cut irregularly during the 1932 excavation.

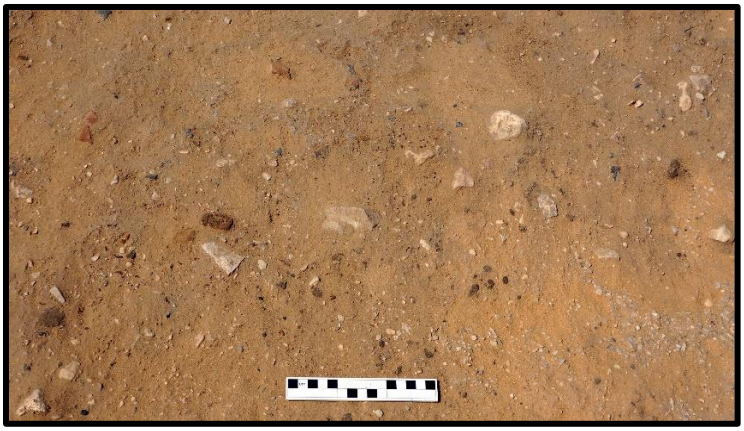

Figure 3: *Detail of the trampled incense and date seeds over the exterior mud floor 19714. West is towards the top.*

Embedded in the surface of mud floor 19714 were seeds of different species and incense in the form of dark ruddy-orange filaments, and more rarely, in lumps resembling glass (Figure 3). It also seemed, whilst collecting the sample for home sieving due to the quantity found (respectively 2.43 g and 40.77 g in total), that this material might have in part belonged to the making of the mud floor

itself along with the gravelly and pebbly inclusions. This was because the incense also occurred in the thickness of the mud floor that directly overlaid the compact desert surface (19612) which likewise contained trampled sherds and charcoal but no incense or seeds. This mud floor appeared to have been made in a rough way unlike the floor uncovered at the front of the temple in earlier seasons. In that area the clays seemed to have been processed to leave a finer and more even material before the addition of grass or other plant-like material. Minor variations in composition made it possible to distinguish various layered floors.

Figure 4: *View, towards the south-west, of the tyre tracks passing through the mud-brick ramp. The gate itself is still covered by the sandy backfill from 2021.*

Similarly, the removal of the overburden (20375) and the earlier sandy deposits (20377, 20379, 19635/20380, 20382, equivalent to these exposed in EZ39 and FB38) permitted the identification of the full extent of the mud floor 19714 as well as trampled seeds and incense but in a smaller quantity (respectively 1.88 g and 0.45 g). Unlike square FB38, the main difficulty in FB39 was to distinguish between the eroded and mixed muddy layer (19630/20381) covering the top-surface fill (20384) of the ramp and its northern framing mud-brick wall **[**20383**]** as well as the earlier desert deposit (19627). The reason was how modern vehicle traffic had gradually but badly damaged the ground (Figure 4). It was possible, nonetheless, to expose the whole structure, although the damage caused on the northern mud-brick side wall did not allow the detection of its edges, in contrast to the southern wall [19910].

It was still possible, however, to observe how the ramp had been made: two mud-brick walls acting as a frame in order to maintain different fillings. An initial thin mud (floor) layer had been spread over the desert so that plausibly it could act as a means of adherence for the rest of the filling which consisted of various mud deposits of different widths. Some of them had been plastered and the latest one contained some gravel, pebbles and stones of small-to-medium size. All were of different materials and unworked (Figure 5). Overall, the ramp, slightly decreasing towards the east, measured 5.5 m long and 3.2 m wide, with a maximum height of 0.50 m. The northern wall is only 10 cm high owing to its modern destruction.

Traces of whitewash (19385) were also noticed as a result of gentle brushing of the mud floor located near the northern edge of the retaining mud-brick wall [20383], though nothing remained to be seen on its southern counterpart (Figure 6). There, the only traces of white plaster were on the southern face of the ramp's wall [19910]. The presence of a fireplace in the alignment of the south framing wall [19910] and the absence of the mud floor 19714 eastwards would indicate that the clay surface might not have extended in that direction or did not survive at all.

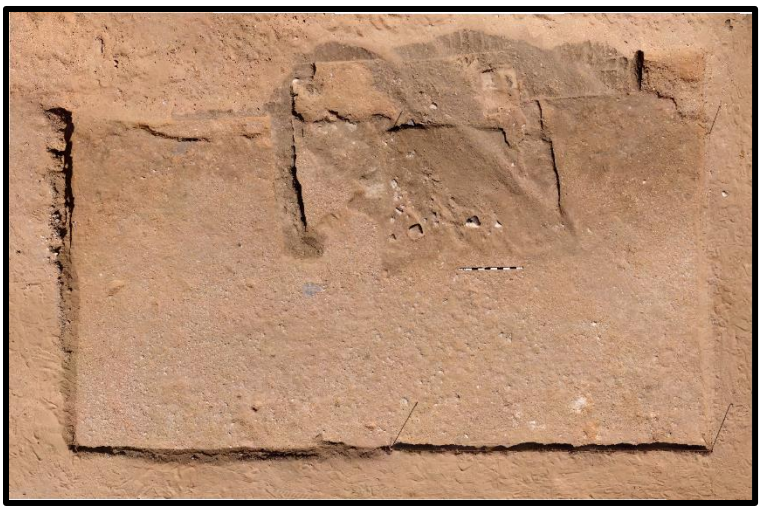

Figure 5: *The mud-brick ramp of access outside the temple precinct. North is on the right. Orthomosaic by Fabien Balestra.*

Figure 6: *(A) The exposed white plaster on the southern face of the framing mud-brick wall [19910] of the ramp in 2021; (B) the whitewash over the mud floor 19714 near the northern edge of the boundary wall [20383] of the ramp in 2022.*

The removal of Pendlebury's spoil heaps (19792 and 20376), the overburdens (20378 and 20390) and the earlier thin gravelly and sandy deposits (20379 and 20388) revealed the continuation of the mud floor 20386 toward the Sanctuary. It is important to state that the 5–10 cm of topsoil on the westernmost squares directly covered the mud floor, leaving the ancient surface and features at a high risk of damage. More to the east, the original ground surface lay beneath different collapsed contexts as exposed in 2021 (Figures 7 and 8).

Several features cut the mud floor 20386 and were recognised either as pot-holes or pits, depending on their depth and the material they contained, as illustrated in the table below (Table 1). Although they all lay on one side of the east–west temple axis, none seemed to have been postholes, since no pattern emerged when seen from the above. From a total of ten, seven potholes of comparable dimension were identified in the north part of the excavated area. The most remarkable, <20398>, was located at the westernmost portion and still contained a pot *in situ* (Figure 9). Excavation revealed that it seems to have been held upright by a medium-sized unworked piece of indurated limestone and a large broken plate with parallel-corded string impressions on its outer surface. After having been probably deliberately broken, this pottery dish of 43 cm diameter was carefully positioned on the pit's edges (Figures 9 and 27). The fill of the principal pot was sieved at the dig house. It yielded tiny pieces of charcoal and possible seeds of species that remained unidentified owing to their fragmentation and small number (0.01 g). Its outer surface showed traces of exposure to liquid, but nothing seems to indicate that the surviving upper part might have been used to support another container, an amphora, for instance (personal discussion with Pamela Rose, ceramist).

Near the potholes <20507 and 20509>, the likely pit <20392> was also observed but was almost empty of material and had been disturbed by wildlife.

Figure 7: *Collage of the 10 squares excavated at the East Gateway in 2021 and 2022. North is towards the top. Orthomosaics by Fabien Balestra.*

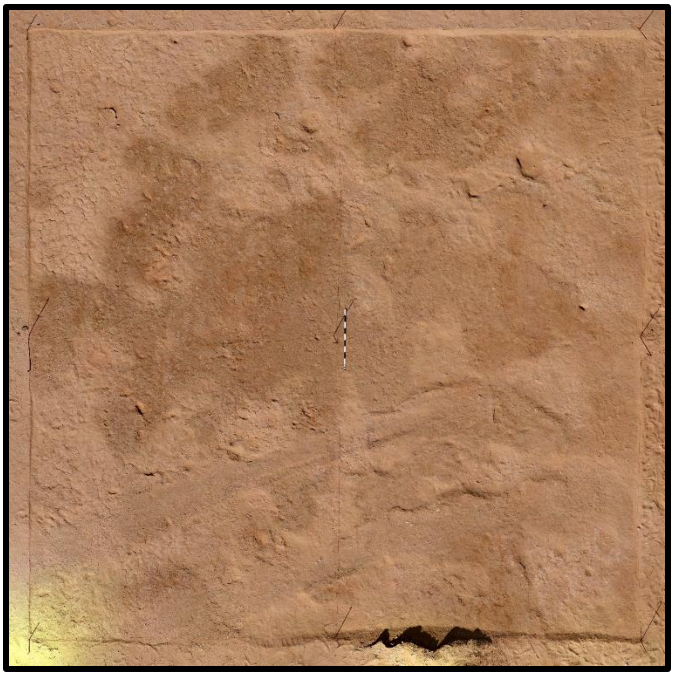

Figure 8: T*he interior mud floor 20386 showing the dips and the hollow structures exposed in 2022. North is towards the top. Orthomosaic by Fabien Balestra.*

Figure 9: The pot (object 44135) in situ stabilised by a medium-sized unworked lump of indurated limestone and a large broken plate (object 44121). A miniature vessel is also visible lying on the mud floor in the top right corner. South is towards the top.

Location on the pathway	Squares	Structure N°	Structure Type	Dimension (cm)	Depth (cm)	Main material found
North	EX39	<20396>	Pothole	30 x 34	26	4 potsherds, incense, charcoal
		<20398>	Pothole	Ø 52	25	3 potsherds (obj. 44135 and 44121), unworked indurated limestone
		<20511>	Pothole	24 x 25	10	6 potsherds
	EY39	<20387>	Pothole	20 x 22	13	7 potsherds
		<20392>	Pit?	47 x 50	20	6 potsherds
		<20507>	Pothole	Ø 40	18	57 potsherds
		<20509>	Pothole	30 x 32	8	4 potsherds
South	EY38	<20393>	Pothole	28 x 29	23	163 potsherds
		<20407>	Pit	48 x 50	30	231 potsherds, incense, charcoal
		<20501>	Pothole	29 x 31	13	14 potsherds (obj. 44133)

Table 1. *Summary of the hollow structures discovered on the sides of the pathway with their respective material.*

By contrast, the south side of the pathway contained only two potholes and one pit. The pit <20407> yielded a large quantity of potsherds of different appearance and thickness as well as a very small amount of incense (0.07 g). Being located only 5 cm away from the probable pothole <20393>, also filled with a quantity of potsherds, it was interpreted as a rubbish pit related to the pothole (Figures 9–10a). The other smaller pothole, <20501>, yielded, in addition to a broken incense bowl, twelve fragments of lightly fired vessel(s). This happens to bases of bread platters (personal discussion with Pamela Rose, ceramist).

Moreover, it is fascinating to observe a human footprint following the same alignment as that of the rubbish pit <20407> and the pothole <20393>, raising the question whether the impression is ancient

or modern. In being large and pressed into the mud floor 20386 which has risen slightly around it, it might have been formed when the surface was wet. Similar marks, but from large paw prints, were noticed running north/south in the western part of the excavated area (Figure 10).

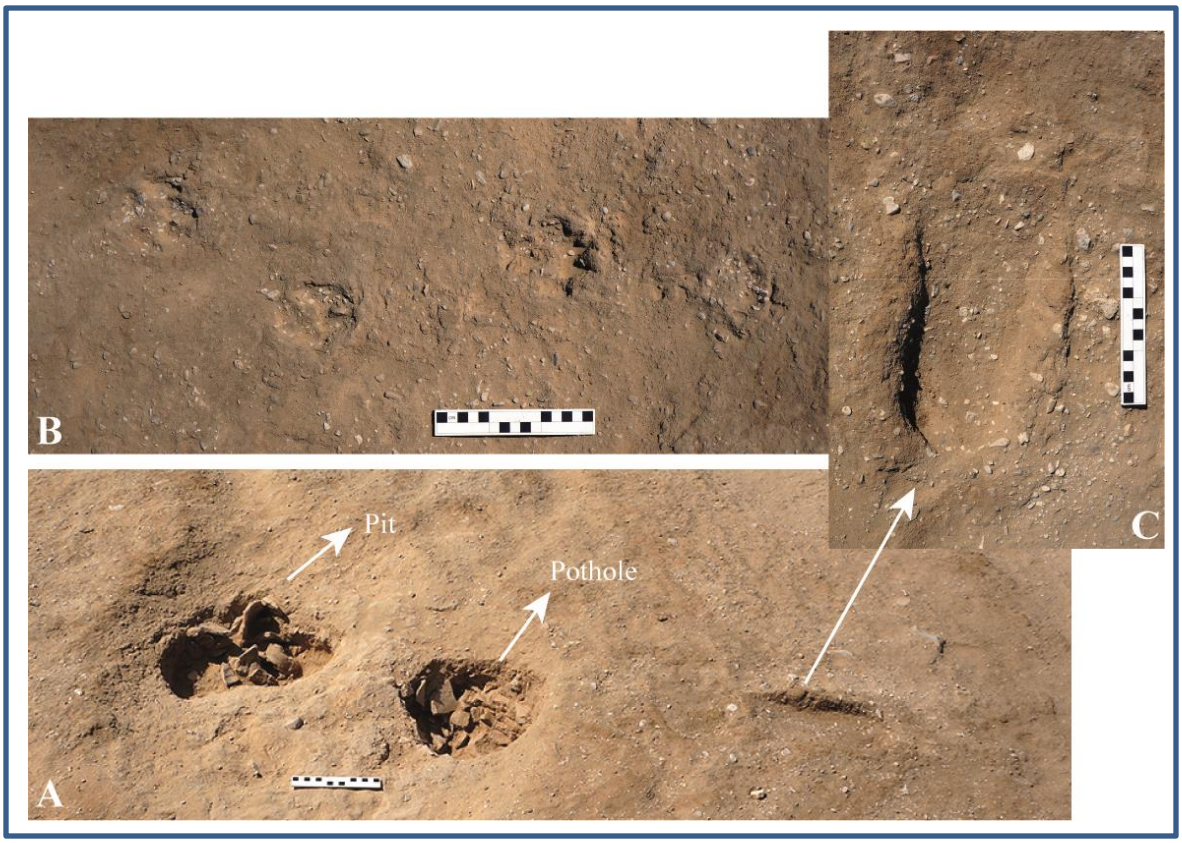

Figure 10: *(A) General view of the footprint and the adjacent hollow structures <20393> and <20407> (view to the west); (B) view of the paw prints (view to the east); (C) detailed view of the footprint (view to the south).*

Sector 2: ES41–42 and ET41–42

Before carrying out a field-walking survey followed by excavation, an aerial coverage was made using a camera fixed to a telescopic pole in order to create an orthomosaic as an attempt to show the spread of sherds from above. Once done, it was decided to conduct an excavation centred on its most concentrated portion and extending outwards as the potsherds decreased in number. This pilot area is located 5 m north and 15 m west of the eastern gate axis (Figure 11). With respect to topography, the gentle rise from the axis, though barely visible, would suggest a solid stratigraphy or, at least, the occurrence of archaeological features in good condition of preservation. Yet, the topographical survey rapidly showed that the actual ground surface was already at the same level as that of the East Gateway mud floor 20386 and the desert surface (19627), at an altitude of *c*. 53.15 m. The total quantity of sherds collected from the surface examination, some specimens being individually interesting (e.g. a kiln waster), was massive.

The topsoil (20403/20404/20408/20409) and the immediately underlying thin powdery layer (20502/20503/20504/20505) consisting of a yellow and greyish-brown sandy mixture lay over (by only a few centimetres) a brownish trampled mud surface, 20616, interpreted as a floor level. This context contained various inclusions of gravel, tiny pebbles, small sherds and small pieces of charcoal, thus suggesting that it had been made in the same careless manner as the floors exposed in sector 1. The only difference noticed at the time was the absence of botanical remains in its matrix.

These latest deposits also covered several loose yellow sandy patches of circular and irregular shapes of different sizes (Figures 12 and 13). Their removal revealed that they were either the upper layers of pits, pot-holes, post-holes or, more likely, animal burrows owing to the lack of a consistent pattern.

Out of 36 hollow structures observed, eleven were seen as potholes because of their dimensions, contents, and distribution (Table 2). Although they all contained potsherds in various quantities, one is worth mentioning separately because of the material found within. The pothole <20604> yielded a group of potsherds to which was attached mud (mortar?) upon which were plant and stem impressions (Figure 14). The question whether this material could have been part of a building structure (e.g. roofing) remains to be answered since it was the only sample discovered. Its fill also provided seeds (0.61 g), amongst them grapes, as well as a small quantity of incense (1.70 g). In contrast to other collected samples, these resinous items were brownish, fragile, fine filaments and lumps (Figure 15). Similar material was found in autumn 2022 under the 'causeway' in the Fourth Court of the Long Temple. The change of colour might have one of three origins: it is the result of a temperature difference whilst the viscous liquid was being poured through the strainer; the variation was caused by the incense quality itself; a difference in its components is the explanation. These postulates can only be answered through archaeological experiments and laboratory analyses. The pothole <20604> was found next to the sunken fireplace <20607>. This structure measured 56 cm in diameter and yielded various seed species, charcoal and tiny burnt branches of species also yet to be determined. Another structure worth singling out is the pothole <20600>. Only a few centimetres south of <20598>, a group of jar sealings was discovered in its cut along with a number of potsherds. On the east part, pit <20582> contained another group (Figure 16).

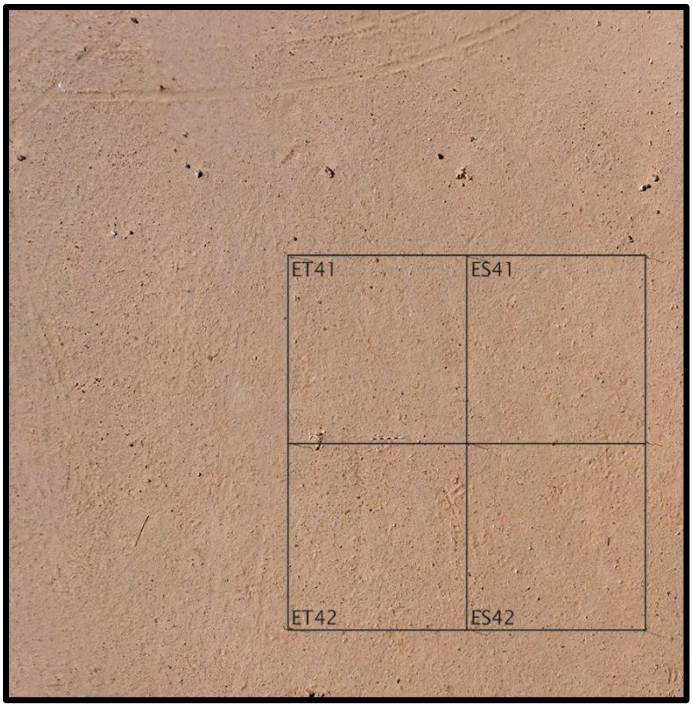

Figure 11: *Aerial view of the concentrated spread of sherds. The black squares define sector 2. North is towards the bottom. Orthomosaic by Fabien Balestra.*

Figure 12: *Overview of the mid-excavation stage in sector 2, showing the yellow sandy patches over the mud floor 20116. North is at the top. Orthomosaic by Fabien Balestra.*

Squares	Structure N°	Structure Type	Dimension (cm)	Depth (cm)	Main material found
ES42	<20552>	Pothole?	Ø 50	15	6 potsherds
	<20598>	Pothole	Ø 35	12	4 potsherds
	<20600>	Pothole	Ø 45	25	11 potsherds, jar sealings
	<20611>	Pothole	25 x 45	16	57 potsherds
ES41	<20602>	Pothole	Ø 35	19	2 potsherds
	<20604>	Pothole	Ø 42	29	48 potsherds, incense, seeds, charcoal
	<20609>	Pothole	Ø 24	12	31 potsherds
ET41	<20588>	Pothole	28 x 30	6	/
	<20590>	Pothole	30 x 34	16	/
	<20594>	Pothole	28 x 40	18	/
	<20596>	Pothole	32 x 46	18	/
	<20614>	Pothole?	28 x 32	6	/

Table 2. *Summary of the postholes discovered in sector 2.*

Figure 13: *The pilot area at the end of the work. North is towards the top. Orthomosaic by Fabien Balestra.*

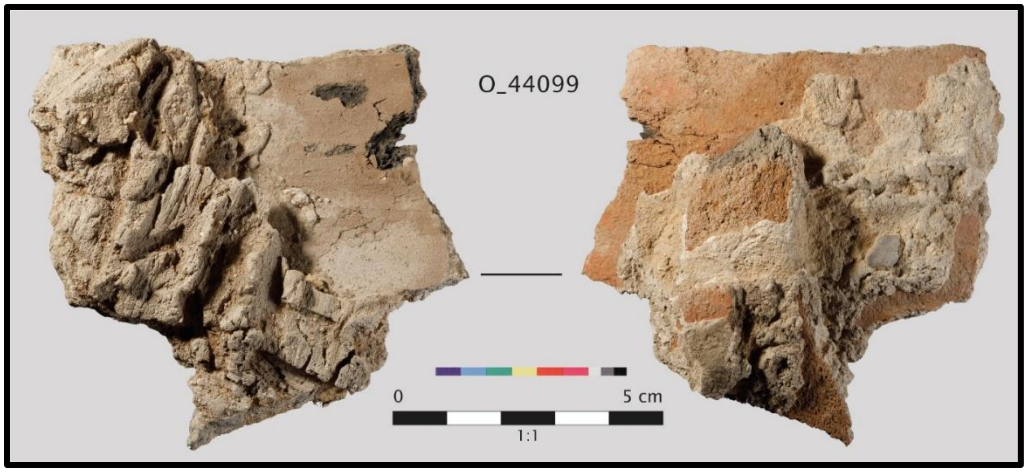

Figure 14: Agglomerated pottery with a mud mortar discovered in pit <20604>. Photographs by Andreas Mesli.

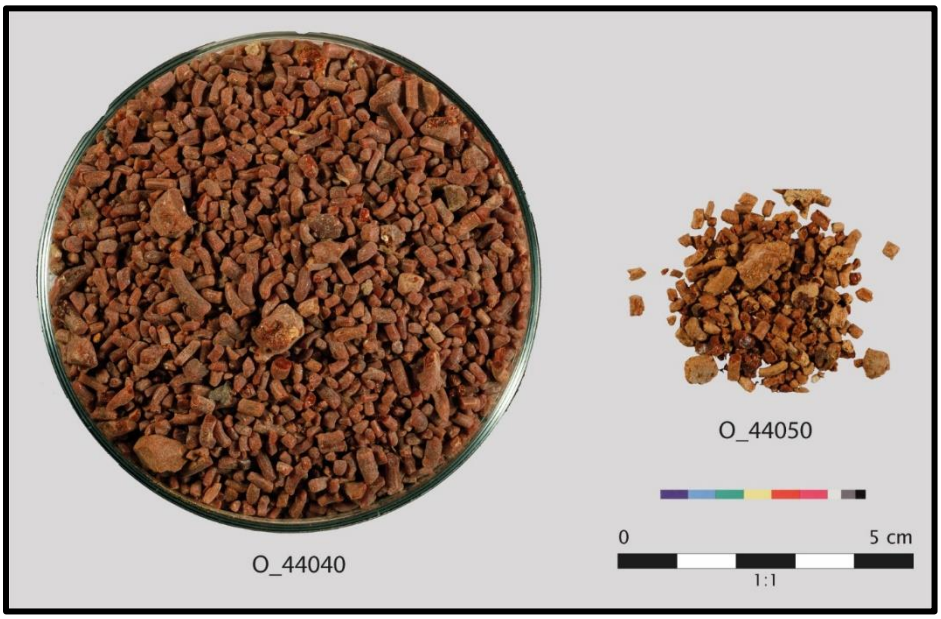

Figure 15: *Incense samples collected from the exterior mud floor 19714 (object 44040) and the pit <20604> (object 44050). Photographs by Andreas Mesli.*

These potholes seem overall to be gathered in group of three or four and to be mostly located in the west part of the examined zone along with the biggest pits. The largest, <20513>, measured 2.30 x 2.40 m but was only 23 cm deep. It consisted of two sandy layers, differing in the presence of mud fragments and broken jar sealings. The upper deposit (20512) appeared to cover another smaller pit, <20529>, situated a few centimetres south-west. Its second fill was a mix of yellow sand and crumbled mud fragments. Jar sealings were also found within it. A similar pit, <20522>, was noticed opposite to the latter. In the centre of the zone, two pits are worth citing: one, <20515>, of irregular shape contained a wavy-rimmed pottery bowl but without decoration on the outside (Figure 27, object 44120). The second, pit <20517>, measuring 1 m diameter and 17 cm deep, is reminiscent of a puddling pit owing to the presence of a clay base layer extending up the edges. Its excavation provided grape seeds in great quantity and good shape (0.43) that seem to have spent time inside a liquid of some sort rather than having been crushed, pressed or chewed (personal discussion with Alan Clapham, archaeobonatist). Circular marks were also noticed at the bottom of the pit, leaving the feeling of being perhaps the impressions of small pots, unless they are the remains of animal burrows (Figure 17).

Previous investigations conducted in the ancient city of Amarna exposed the presence of similar structures in buildings Q48.4 and O45.1. In both cases, they were discovered in association with pottery workshops and, as such, their fills contained unfired sherds broken between the drying and firing stage. Thus, these structures were interpreted as puddling-pits for clay preparation in which the potter could have reused the raw material (Kirby 1989, 27–29; Rose 1989, 82–84; Nicholson and Hart 2007, 49–50). Their average dimensions are seemingly the same as that of pit <20517> but the clay-base deposits appear to be different. There, a thick clay layer of a very fine texture without any inclusions had been spread over the cut. Unfortunately, the true function of pit <20517> remains unclear in the absence of other comparable features and buildings around. Some members of the mission have theorised that this puddling-pit might have been used in the process of recycling jar-sealings, since this material was discovered on a considerable scale within the surrounding pits. The only problem is the fact that most of these jar sealings were made of a pale greyish, sandy-coloured matrix, quite different from the clay-base of the puddling pit. The presence of grapes could also suggest activities in relation with these botanical remains despite the lack of other indicative evidence.

Figure 16: *(A) Groups of jar sealings found in pothole <20600> and (B) in pit <20582>.*

The rest of the hollow structures must be divided between pits and postholes or animal burrows according to their smallness. How the pits were distributed in the north-west corner of the area may imply that they were dug later: they all gather in a roughly circular pattern, although the full extent remains to be seen (Figures 13, 19; Table 3). Out of seven, four yielded numerous, fragmented and very fragile jar-sealings, of which a large proportion was stamped, indicating that they had closed wine containers for the 'House of the Aten', that is, the Great Aten Temple. Besides, the origin of the wine remains unknown since no jar labels with supplementary information were found. Animal burrows were identified within some of the hollow structures (Figure 20).

Figure 17: *The clay base of the puddling pit <20517>. The two possible pots impressions are on the left. North is on the left.*

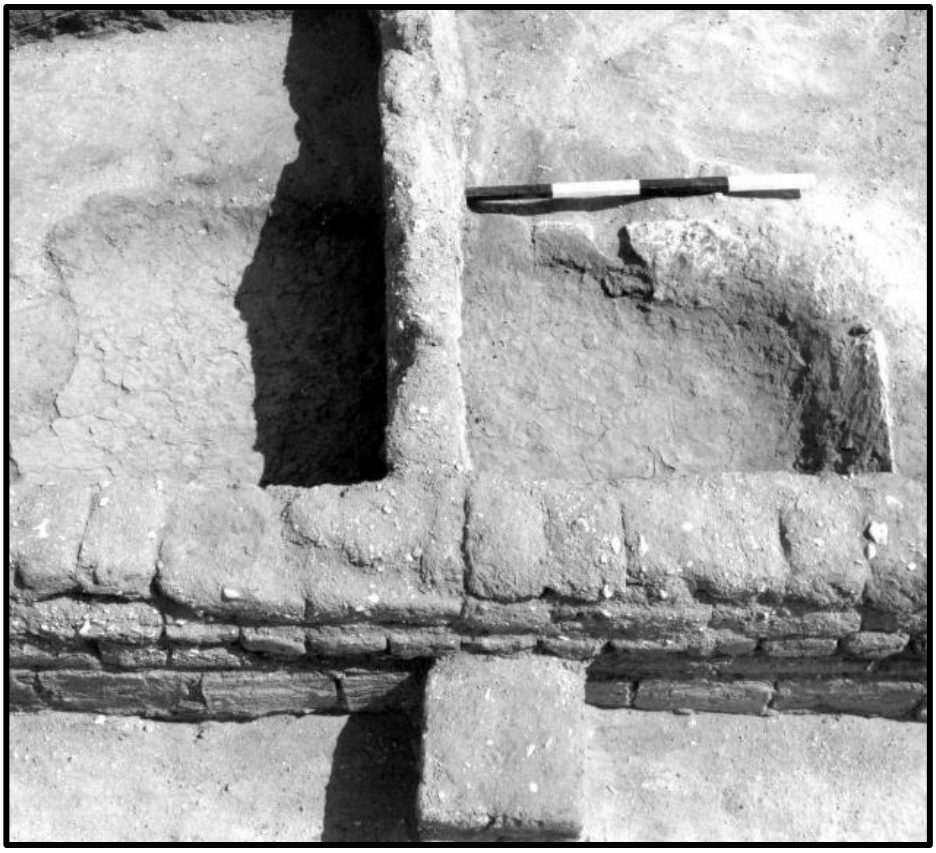

Figure 18: *The puddling pit [3166] crossed by later wall [2908] in Building Q48.4. (After Kirby 1989, 28, fig. 2.7).*

Squares	Structure N°	Dimension (cm)	Depth (cm)	Material found
ET42	<20556>	49 x 54	13	33 potsherds, charcoal
	<20559>	64 x 74	20	53 potsherds, jar sealings
	<20562>	Ø 57	17	32 potsherds, jar sealings
	<20566>	50 x 57	18	140 potsherds, jar sealings
	<20568>	62 x 73	25	200 potsherds, Obj.44120
	<20570>	45 x 53	27	70 potsherds
	<20572>	60 x 64	15	/

Table 3. *Summary of the pits discovered in the north-east corner of the pilot area.*

Figure 19: *Pits arranged in a circular pattern in the north-east part of sector 2 showing the material (primarily potsherds) contained within. View looking north-west.*

These pits and the others also provided much broken pottery. They represent different vessel types, rarely of amphorae, of which the sherds appear to form various specimens in each pit. The structures seem to represent a practice of rubbish disposal associated with activities happening in and around the Sanctuary. About 15 m west of the excavated area, the back door of the building almost faced sector 2, as shown in the scenes in the tombs of Meryra and Panehsy (Davies 1903, pl. X, XXXIII; Idem 1905, pl. XIX). They depict offering-tables and offering-stands within rooms and courts, upon which are laid food, jars for liquids (including amphorae), incense burners and floral bouquets

Figure 20: *Animal burrow seen within the pit <20570>.*

A preliminary look at a very small selection of sherds seems to indicate that some of the pieces were very poorly made, suggesting speedy industrial production (personal discussion with Pamela Rose, ceramicist). Although the general result remains to be determined since the study of the ceramic assemblage is still in an early stage, the abundant number of sherds gives rise to the thought of them being the consequence of deliberate breakage. The practice of breaking vessels is well attested from the Old Kingdom to Ptolemaic times. A well-attested case, called the ritual of Breaking

the Red Pots, was mainly performed in a funerary context at the end of an offering-ritual. Despite its antiquity, the rite appears in New Kingdom funerary scenes in tombs of private officials in the Memphite and Theban necropolises. The ritual had previously been mentioned in textual sources initially found in royal and later in private tombs. They show that the ritual took place most likely at the entrance to the tomb, which New Kingdom funerary scenes seem to confirm due to the presence of a small kiosk made of a solid, light, or simple architectural construction. It is inside these structures that offerings, comparable to these noticed upon offerings-tables at the Great Aten Temple, were placed, including jars which were filled with liquid (water presumably, sometimes wine). At some point during the funerary rite, one individual would pour out the liquid and break the pot or smash it under the ground with the liquid still inside (Elsharnouby 2018). It has been argued that two meanings lie behind the ritual: first, to ward off the enemies of the deceased, the pots being a substitute for opponents; second: to protect the participants in the funerary ritual itself (Budka 2014, with complementary references).

The recognition of this practice remains either uncertain or very difficult from an archaeological viewpoint. In addition, it is a little odd that this specific funerary ceremony might have been accomplished in a temple context regardless of the fact that it once occurred in the Luxor Temple during Amenhotep III's reign (Van Dijk 1993, 177–188). However, if some potsherds uncovered this year in the pilot area really result from the smashing of vessels, one must keep in mind the possibility of another ceremony (Budka 2014, 646–648).

Post-Amarna Period

After the Amarna Period the temple was no longer maintained and started to be an open quarry. The desertion of the area is visible in the few sandy layers which had been deposited by the wind over time as well as after the completion of Pendlebury's excavation which had left the zone opened to the elements.

Contrary to the work conducted in 2021, no evidence of collapse was noticed this year. Instead, the excavation permitted the recognition of two pairs of tyre tracks identical to those exposed during the first season. They were documented, photographed and planned in order to complete the recording from the previous fieldwork (Figure 21). The first pair perfectly matches the depressions crossing the East Gateway, its threshold as well as its mud-brick ramp, in a south-west/north-east direction. The gap between the boundary wall had been used for so long as

Figure 21: *Collage of aerial photographs taken in 2021 and 2022 showing the tyre tracks damaging the East Gateway. Orthomosaics by Fabien Balestra.*

a road that the hollow depressions had badly damaged the archaeological structures. The removal of the latest deposits and the careful excavation of the area showed that the tyre tracks had penetrated deep into the upper fill of the ramp before turning at almost a right angle to continue northwards. The action of the latter had flattened the extremity of the northern framing wall of the ramp. The second set of traces, north of the others and almost parallel to them, were found inside the enclosure wall of the temple. They also had marked the mud floor surface even if they were less striking, gradually vanishing eastwards. Indeed, these depressions were only noticed in 2021 (Figure 8).

The archaeological site also remains under natural threats, being subject to strong winds that cause erosion (Figure 22).

Figure 22: *A 'Dust Devil' hitting the archaeological site in 2022. View facing south-west.*

The finds

The excavation yielded many artefacts. They were sorted according to their material: pottery, flint, faience, glass, mud (jar sealings) and organic remains (charcoal, animal bone and others) before being separated into further categories: fragments, beads, inlays and working pieces. The sherds received special treatment due to the amount and the variety recovered and were then sorted into the provisional categories of *standard* and *special* types. The first category was organized according to the use of Nile or marl clay, with subdivisions according to their fragmented shape (rim, base, handle or body). The second category comprised all other vessels (blue-painted and with gypsum, pigment or incense attached, and miniature vessels). The blue-painted fragments, being characteristic of pottery at Amarna, followed the same subdivisions as the standard vessels.

Although the post-excavation analysis is still proceeding, a preliminary overview is possible. The general amount of pottery predictably outnumbers the other kinds with a large representation of Nile-clay standard vessels. This season also provided a group of incense burner fragments, along with a few pieces of charcoal with resin residues. By contrast, the blue-painted pottery is barely represented at the East Gateway. The vessels discovered in the two sectors were separately recorded for a better understanding (Figures 23–27). It is to be hoped that a fuller study of the ceramic assemblage will give an insight into the nature of human activity that occurred in the area or, at least, into the function of the vessels (amphora, beer jar, bowl, *etc*.). Eventually, hypotheses could also emerge on the possibility of relationships with the Stela Site or the Sanctuary itself, the latter being almost within the east entrance axis, making it the first building to be seen by people entering the temple precinct.

More mud jar-sealing fragments were discovered than in 2021. They all came from closed contexts, found in pits or large potholes. Among the 69 fragments recovered, many showed the remains of recognizable stamped designs and grass impressions on the underside, making the identification of the vessel contents possible. The composition of the material (dark grey Nile clay or yellowish-beige desert clay) and, perhaps at minima, the form of the sealing (cap, dome or cylindrical shape) may

also indicate the organization of the economic system within the country as well as outside, in particular its connection with Canaanite regions (Wegner 2018: 244–245; Bavay 2015). The majority of those found in the vicinity of the East Gateway were made of a pale greyish, sandy-coloured matrix and flat-topped. These containers might have contained products such as varieties of incense, olive oil or honey. These items of merchandise were widely used in temples as offerings along with wine which, according to the number of recovered stamps, was the most common stored and drinkable liquid (Bertram 2019).

Very few worked alabaster pieces were discovered during the excavation. They are mainly of conical shape with one or two smooth surfaces. Faience items are exemplified by very thin unknown lumps and some beads. The glass objects are illustrated by rods and some tiny lumps. To conclude, one very small and thin gold sheet, samples of gypsum and several seeds. Although the material is still in progress, the first survey gives dates, grapes, barley, *nabak* (Christ's thorn) as well as probable vegetables (Table 4; Figure 28). A surprising observation is that, although the site of the excavation lies close to the rear of the Sanctuary, no fragments of broken stonework that could have derived from the thoroughgoing destruction of the Sanctuary after the end of the Amarna Period were found.

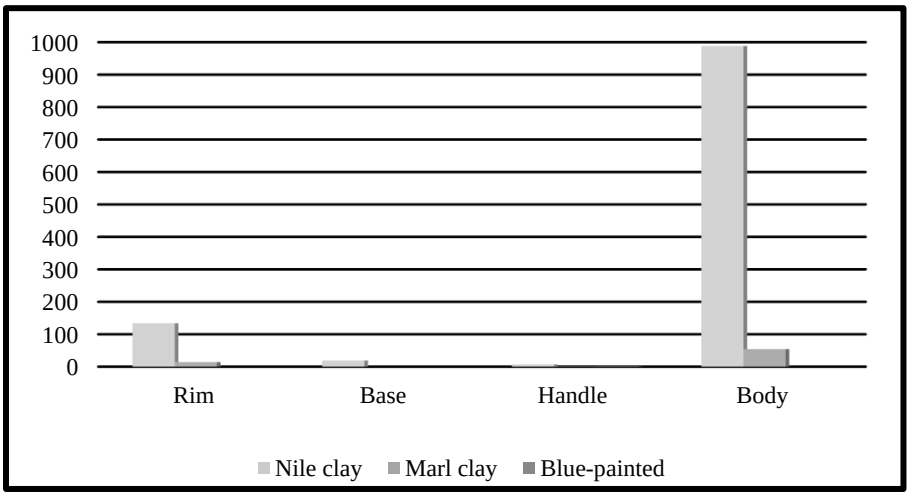

Figure 23: *Distribution of sherds found at the East Gateway by type of fragmentation and fabric.*

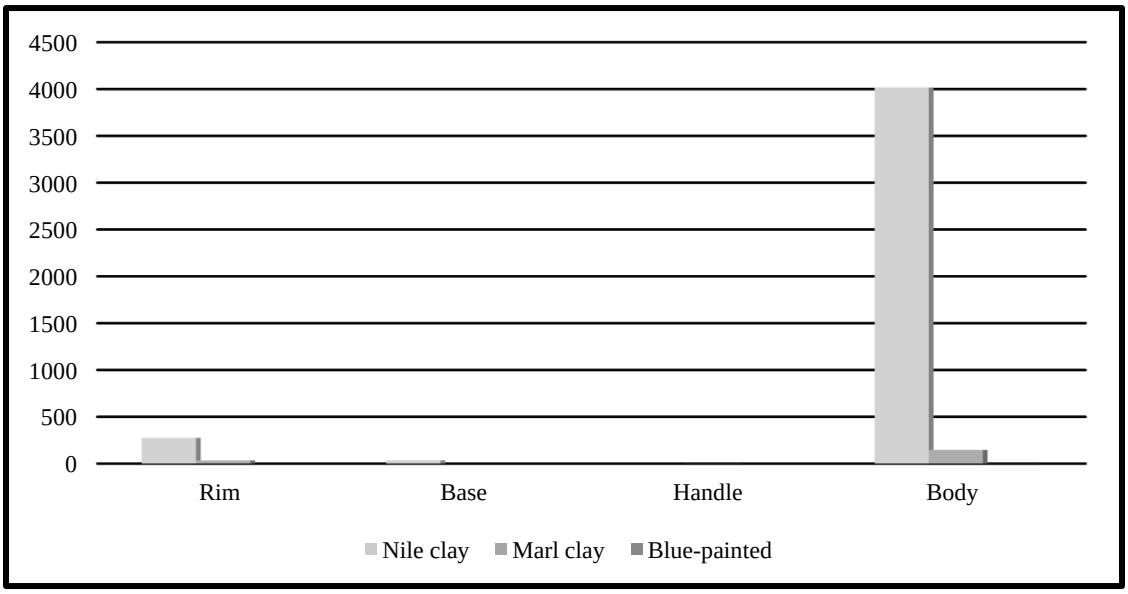

Figure 24: *Distribution of sherds found in the pilot area (sector 2) by type of fragmentation and fabric.*

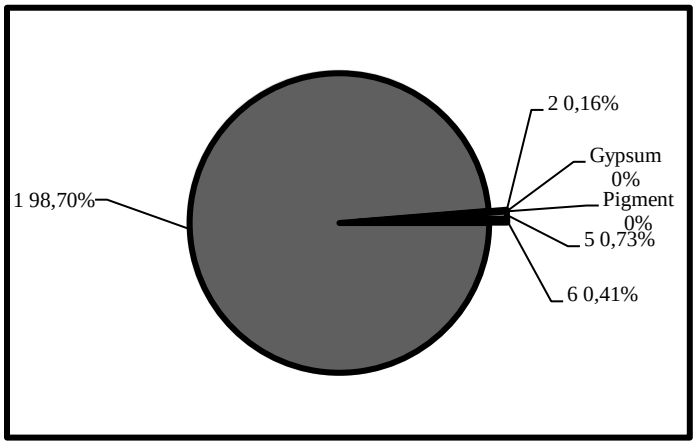

Figure 25: *General vessel types recovered from the East Gateway.*

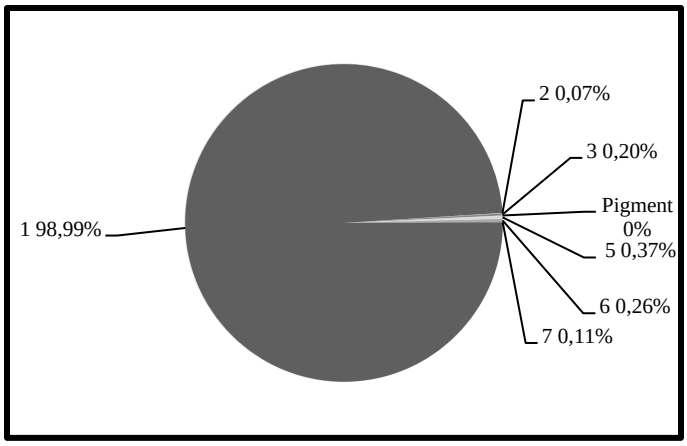

Figure 26: *General vessel types recovered from the pilot area (sector 2).*

Figure 27: *Pottery sample. Photographs by Andreas Mesli.*

Tell el-Amarna Incense recording Sheet

Tray N°	Context	Colour	Form
#566	Fill of foundation trench <19797> of the eastern enclosure wall [19907].	Dark ruddy-orange	Filaments, lumps
#566	Upper fill of pit <19705>.	Dark ruddy-orange	Filaments, lumps
#566	Lower fill of pit <19705>.	Dark ruddy-orange	Filaments, lumps

Tell el-Amarna Incense recording Sheet

Tray N°	Context	Colour	Form
#619	Trampled on the mud floor 19714. North of the ramp's framing wall.	Dark ruddy-orange	Filaments, lumps
#619	Trampled on and within the mud floor 19714. South of the ramp's framing wall.	Dark ruddy-orange	Filaments, lumps
#619	Upper fill of pit <20407>.	Dark ruddy-orange	Crushed lumps
#619	Fill of pothole <20387>.	Dark ruddy-orange	Crushed lumps
#619	Fill of pothole <20604>.	Brownish-orange	Filaments, lumps

Tell el-Amarna Seed recording Sheet

Tray N°	Context	Specie	Aspect
#619	Trampled on and within the mud floor 19714. South of the ramp's framing wall.	Date	Desicated
#619	Trampled on the mud floor 19714. North of the ramp's framing wall.	Date	Desicated
#619	Trampled on the mud floor 19714. North of the ramp's framing wall.	*to be determined*	Desicated
#619	Upper fill of the puddling pit <20517>.	Grape	Desicated
#619	Fill of pothole <20511>.	*to be determined*	Desicated
#619	Fill of pothole <20604>.	Grape and others	Desicated
#619	Upper fill of the dug fireplace <20607>.	Probable vegetable and others	Burnt
#619	Fill of the *in situ* pot O.44135 within pothole <20398>.	*Unknown*	Desicated
#619	Trampled on and within the mud floor 19714. South of the ramp's framing wall.	Date, baley, nabak, grape, and others	Desicated

Table 4. *Summary of the incense and seed collection.*

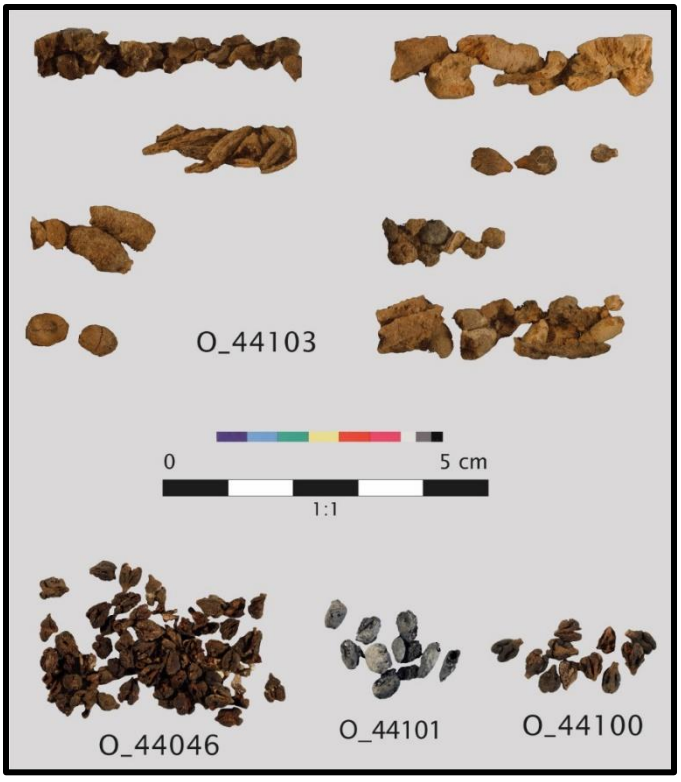

Figure 28: *Selection of seeds discovered in 2022.*

Conclusion and perspectives

In terms of the temple-life phasing, the excavation carried out in the far eastern temenos found only evidence of one phase whereas several have been observed, recorded, and discussed in the space between the front of the temple and the Sanctuary area.

After two seasons, ten squares have been excavated in the vicinity of the East Gateway, following the east-west axis of the temple. The results document the existence of the (public?) eastern entrance accessible from a mud-brick ramp and threshold which seems to lead people towards the backdoor of the Sanctuary. The campaigns have allowed the exposure of evidence of activities having taken place on the sides of the pathway, but their nature remains unclear. So far, no trace has emerged of a built structure of any kind, even one of wooden poles. Only pits and potholes were noticed.

The 2022 excavation also focused its attention on an area where large, concentrated spreads of sherds have been noticed. The examination revealed the presence of numerous hollow structures (pits, postholes, and unlikely potholes) which contained a significant quantity of pottery along with botanical remains and fragments of jar-sealings, the composition of which differs from those uncovered elsewhere at the Great Aten Temple. The structures seem to gradually diminish in the direction of the temple axis, leaving an untouched mud-floor surface. In the current stage of knowledges, the structures found in the pilot area appear to characterise a practice of rubbish disposal connected to activities related to the Sanctuary, located only *c*. 20 m west. Finally, the excavation seems to demonstrate that the ground surface was raised during the Amarna Period, presumably after the remodelling of the Sanctuary.

The current British mission to Amarna aims to understand why there is so much empty space surrounding the stone temples and how the entire area functioned with respect to the rest of the temple. To provide answers, further investigations are planned for the next years. The mission is also investigating wider perspectives through the study of the ceramic assemblage and the seed collection. It is hoped that the vessel types and their fabrics will give information on the functional use of the pottery and also the relationships with foreign as well as other Egyptian settlements (or regions). This should be assessed by looking at the range of local and foreign vessels along with those imported from other Egyptian regions, in particular the western oases. The study of botanical remains, especially the seeds, should indicate the consumption, food-production and, more widely, the ancient environment of the temple compound.

Overall, the project aims to understand and to document the zone within the framework of the temple precincts, its connection with the rest of the city of Amarna and its interconnection and interaction with its close and more distant neighbours.

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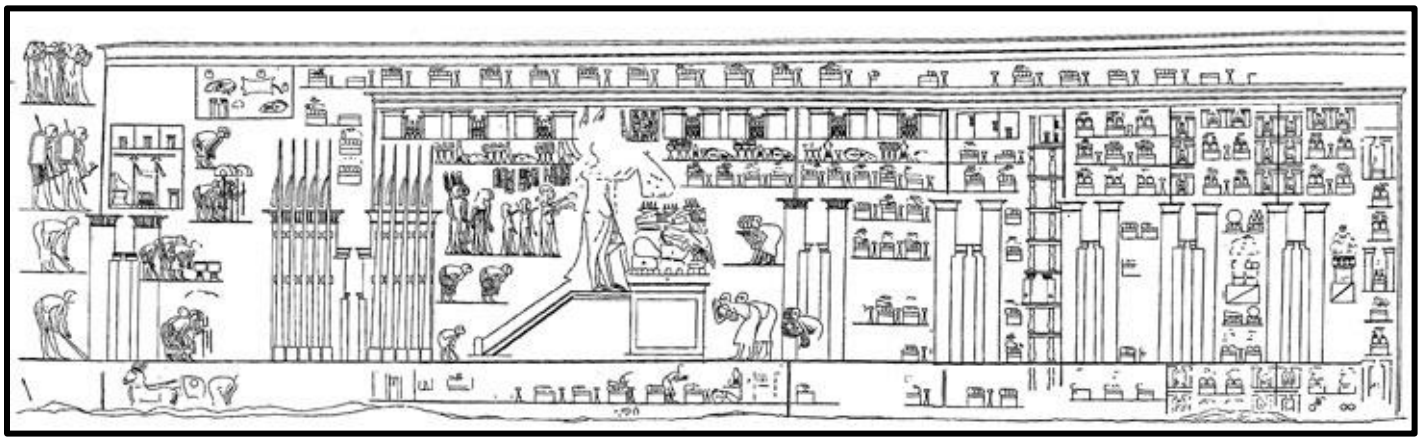

The Great Aten Temple as depicted in the tomb of Panehsy, Wikimedia

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