

British Mission to Tell el-Amarna

# **Great Aten Temple Report on Recent Work (May–June, 2019)**



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## **Great Aten Temple, Report on Recent Work**

### **Background**

The site of the Great Aten Temple is a large enclosure containing the remains of two major stone buildings of the reign of Akhenaten (Figure 1). The larger of the two, towards the front of the enclosure, is the Long Temple (as termed by the current expedition; previously it has been referred to as the Gem-pa-Aten building).

The Long Temple was excavated by the Egypt Exploration Society in 1932, under its field director John Pendlebury. The excavation was completed within one month. The excavation confirmed that, after the end of the Amarna Period, almost all of the stonework had been taken away for re-use at other building sites (notably at El-Ashmunein). What remained behind were large areas of flat, white gypsum-concrete on which the stones had been laid. Impressions of stone blocks in a bed of mortar, or lines on the concrete marking where walls or other built features should go, preserve much of the plan of the building.

The plan consists of a monumental front to the temple: two sets of eight large columns on either side of a wide pavement in front of a pair of stone pylons set far apart. A stone staircase ran along the pavement, rising to a platform set between the pylons. Behind the front entrance stretched a sequence of open courts containing about 750 stone offering-tables. The length of the temple, from the front pylons to the rear wall is 190.7 metres; the width is 32 metres. These create a building of unusual proportions: very long and surprisingly narrow (Figure 10).

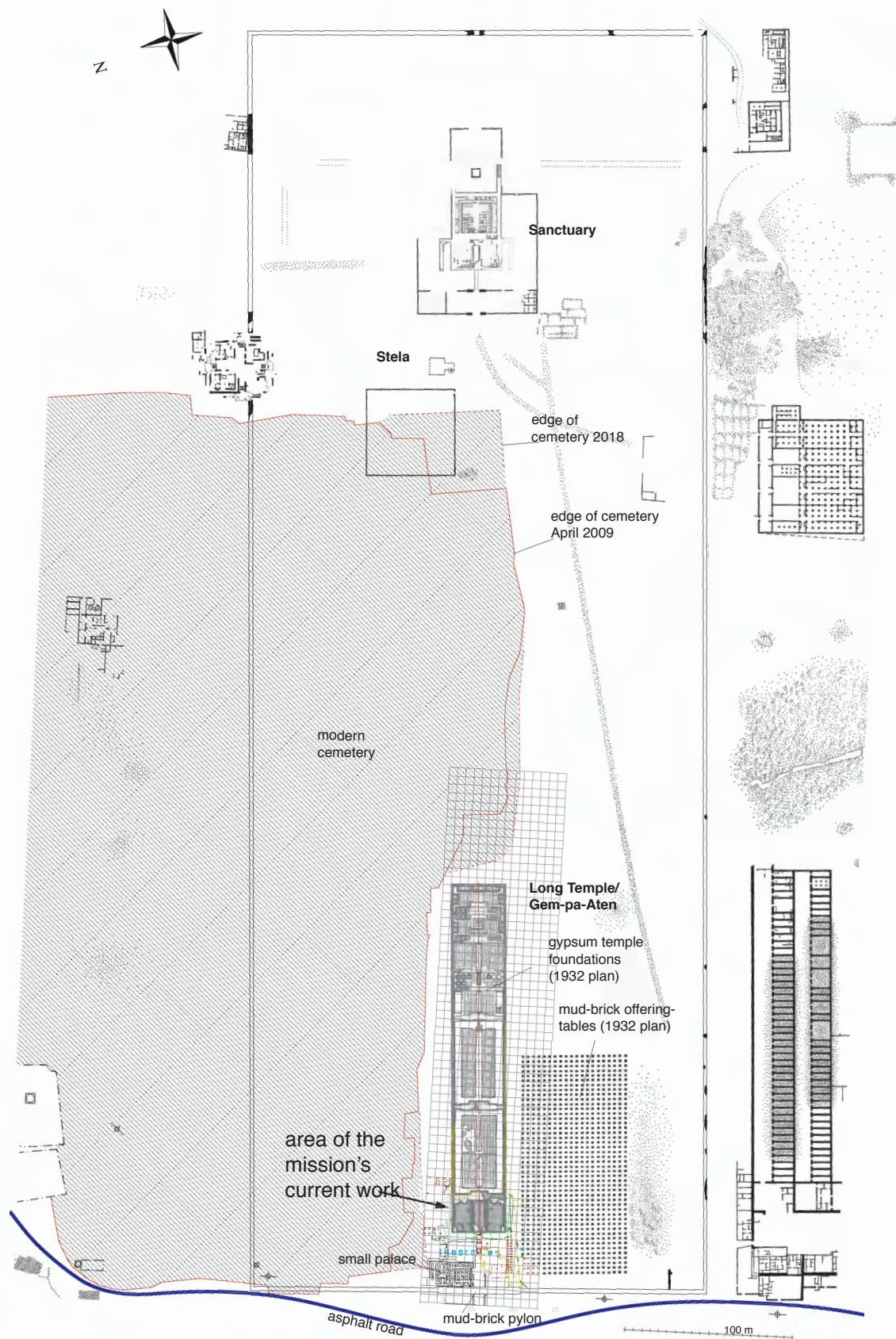
The foundation bed of gypsum-concrete lies below the present ground level and is still surrounded by the large spoil heaps of the 1932 Pendlebury expedition. Sand has covered the foundations, so that they are hardly visible or not visible at all (Figure 2). The cemetery which serves the village of El-Till Beni Amran covers much of the northern half of the temple enclosure. Some of its stone tomb enclosures are only about 20 m distant from the line of the northern wall of the temple. Before the current work began in 2012 the villagers were regularly throwing rubbish over the remains of the temple (Figure 3). Visitors (and villagers) passed the site of Akhenaten's main temple without realising that it was there.

In front of the temple and beside the mud-brick enclosure wall are the similarly made foundations for a small stone palace.

The architect for the 1932 excavation (Ralph Lavers) made a good plan of the temple but at a small scale. The speed of the excavation also meant that many areas of the surrounding floors, as well as important archaeological deposits, were not fully investigated. They were often buried beneath the 1932 spoil heaps.

### **Aims of the current work**

1. Generally to bring the existence and the nature of the Long Temple back into public view.
2. To achieve this by cleaning and landscaping the site; by marking the main walls and other features originally built from stone using new stone blocks, supplemented by cast white-cement circular pads to mark the positions of columns; by capping the remaining courses of mud bricks in the front pylons using newly made mud bricks of the same size as the original bricks.



**Figure 1.** Plan of the enclosure of the Great Aten Temple. It shows the main features within the enclosure and the location of the current conservation project.



*Figure 2. The site of the Long Temple in December 2006, before the current project began. The view is eastwards, along the line of the trench where the southern side wall of the temple had been.*



*Figure 3. Removal of rubbish from the front of the Long Temple, the first stage of work at the beginning of the 2012 season. Some preliminary removal, by hand, had been started in 2008.*



*Figure 4. View eastwards of the Long Temple at the end of the 2013 season. In the foreground the northern mud-brick pylon has been cleaned. Beyond it lies the site of a small palace of stone. The walls and column positions have been marked in new materials: Tura limestone blocks for the walls; white cement circles for the column positions. The back of the Long Temple is close to where the modern cemetery extends southwards.*

3. To give priority in this work to the front of the temple and to the outer walls, on north, south and east. It is hoped that, by giving the temple a firm and very obvious boundary, encroachment by the modern cemetery and the dumping of rubbish over the site will stop.

4. To make a detailed archaeological record of the site through modern excavation and recording techniques. These are applied to the removal of the old spoil heaps (they contain many artefacts and fragments of decorated stone), and in the investigation of intact floor deposits which are revealing new information about the history of the building within the Amarna Period.

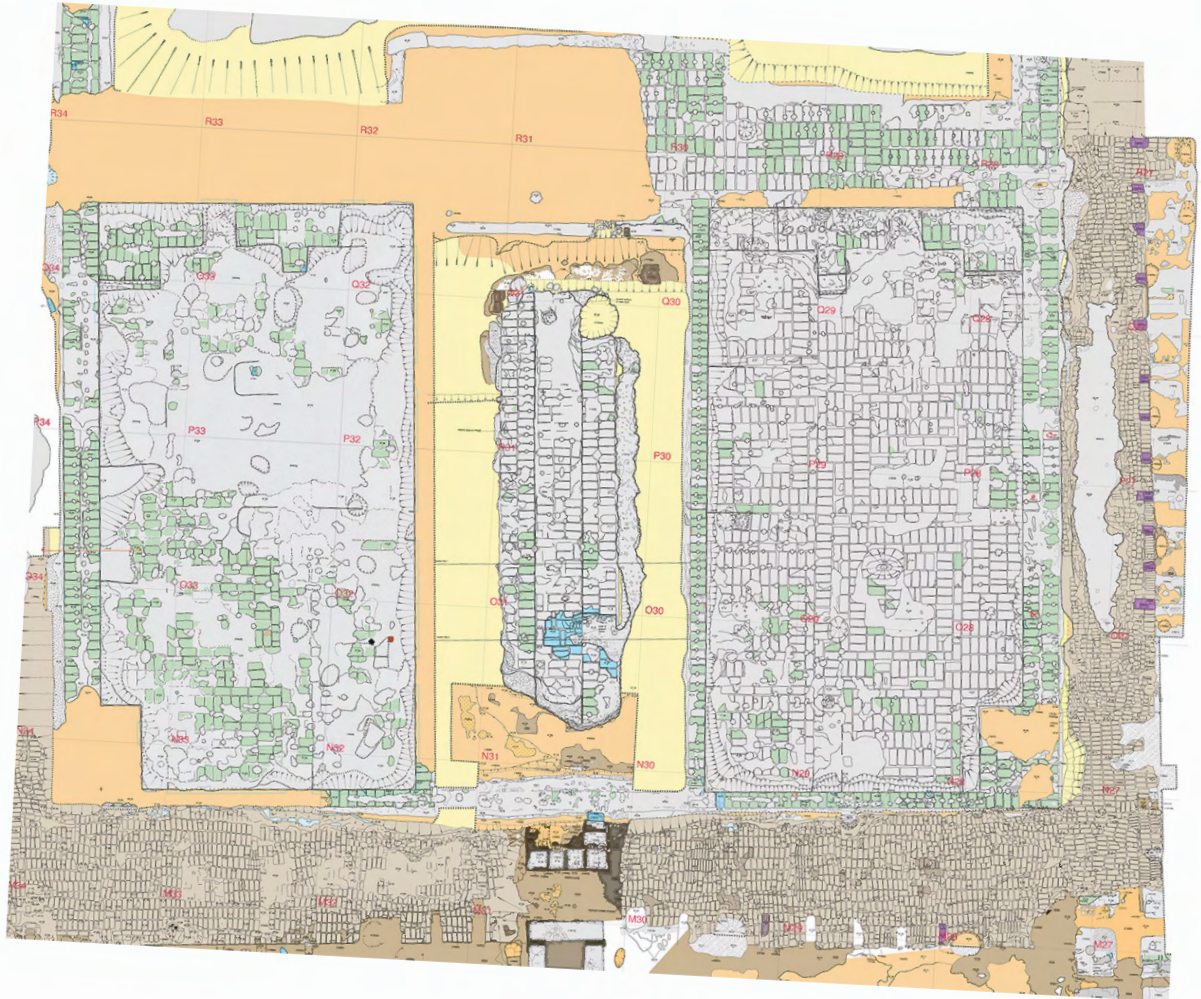
It is important that the building work is done in sequence with the archaeological work. Thus the builders must only begin a particular piece of building work when the archaeologists have completed their recording. So far this has worked well, helped by the fact that the builders are paid by the day and not by the piece of work.



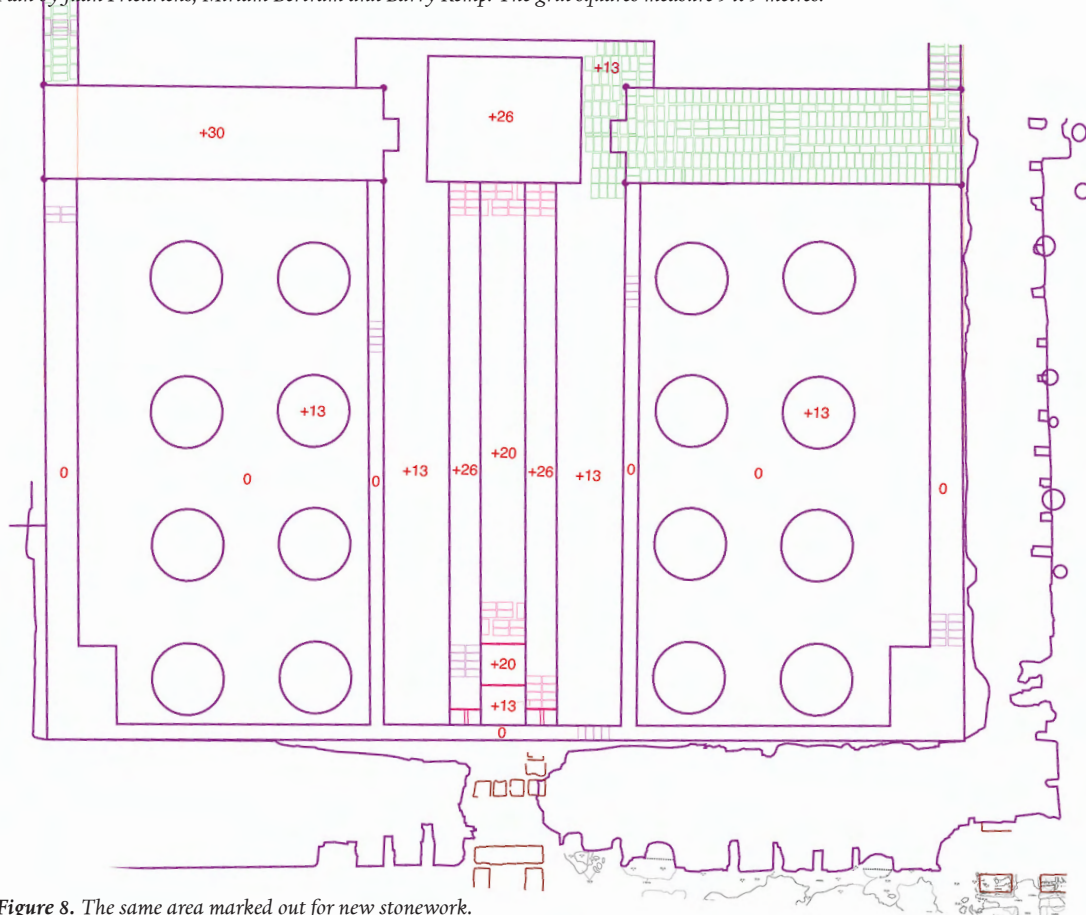
*Figure 5. Part of the foundations for the south pylon of the Long Temple. All that remains is a bed of gypsum concrete which retains the impressions of the lowest course of stone blocks. View to the south.*



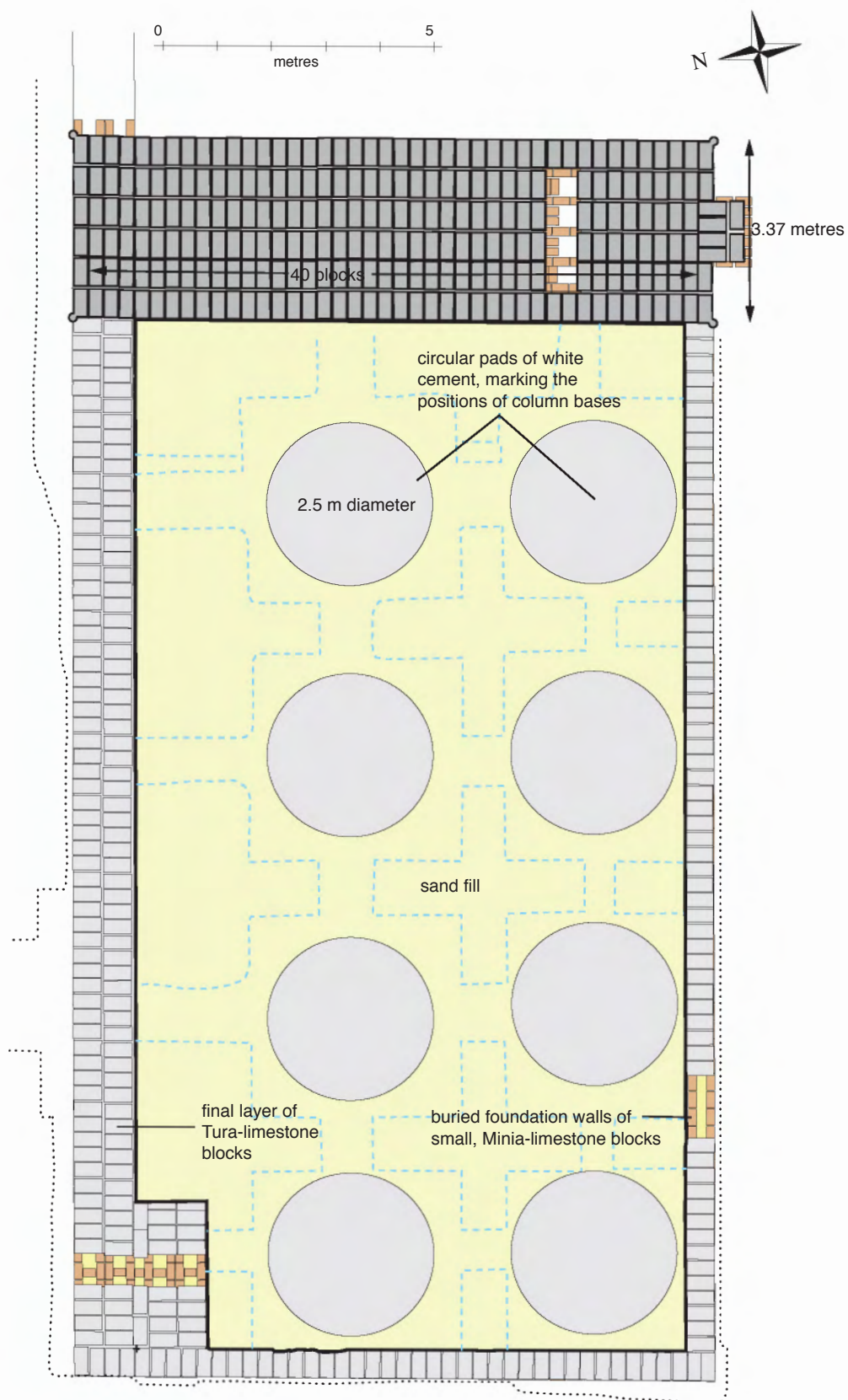
*Figure 6. Another part of the foundations for the south pylon of the Long Temple. On the right is the side of the gypsum-concrete platform which had been created to support colossal columns. View to the south.*



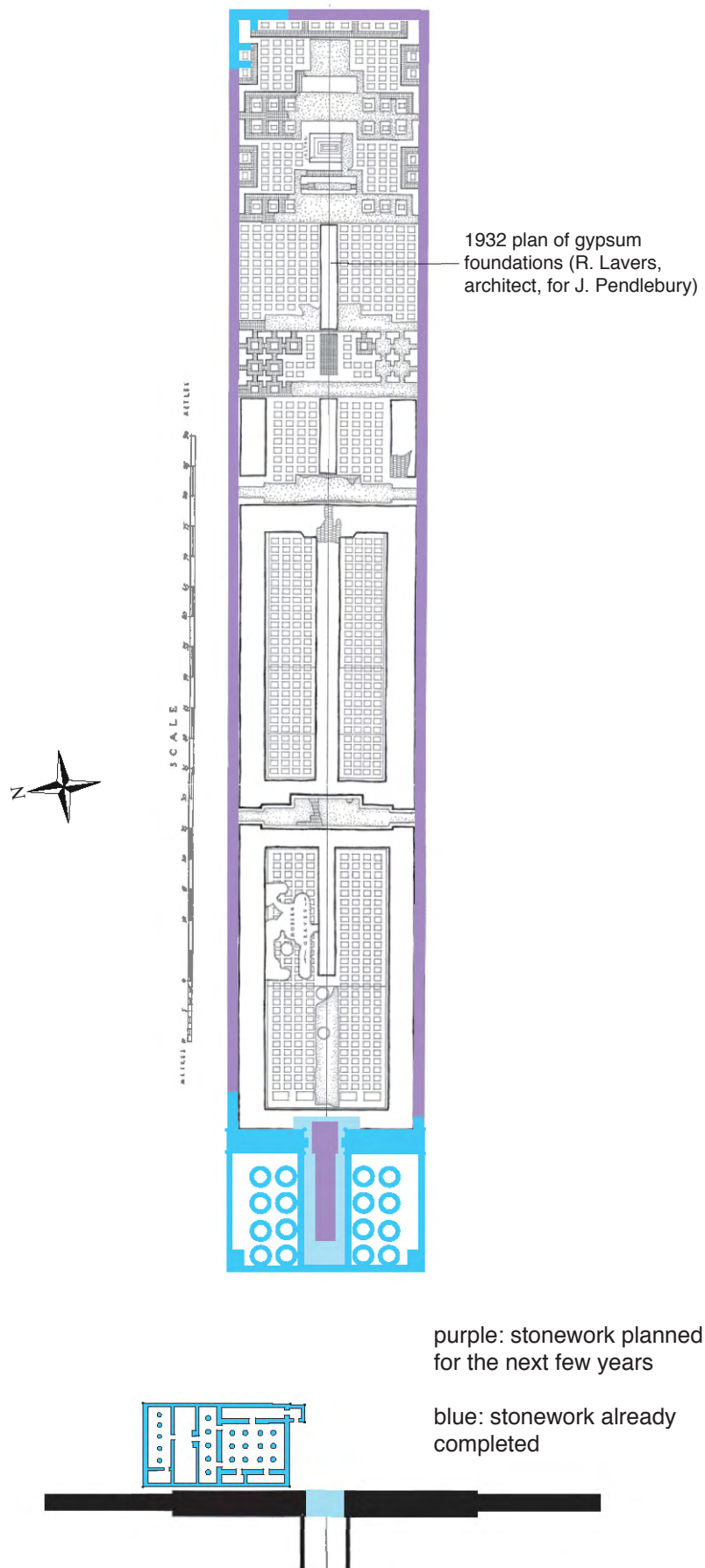
**Figure 7.** Plan of the foundations of the front stone pylon entrance to the Long Temple and of the twin sets of columns which stood in front. Plan by Juan Friedrichs, Miriam Bertram and Barry Kemp. The grid squares measure 5 x 5 metres.



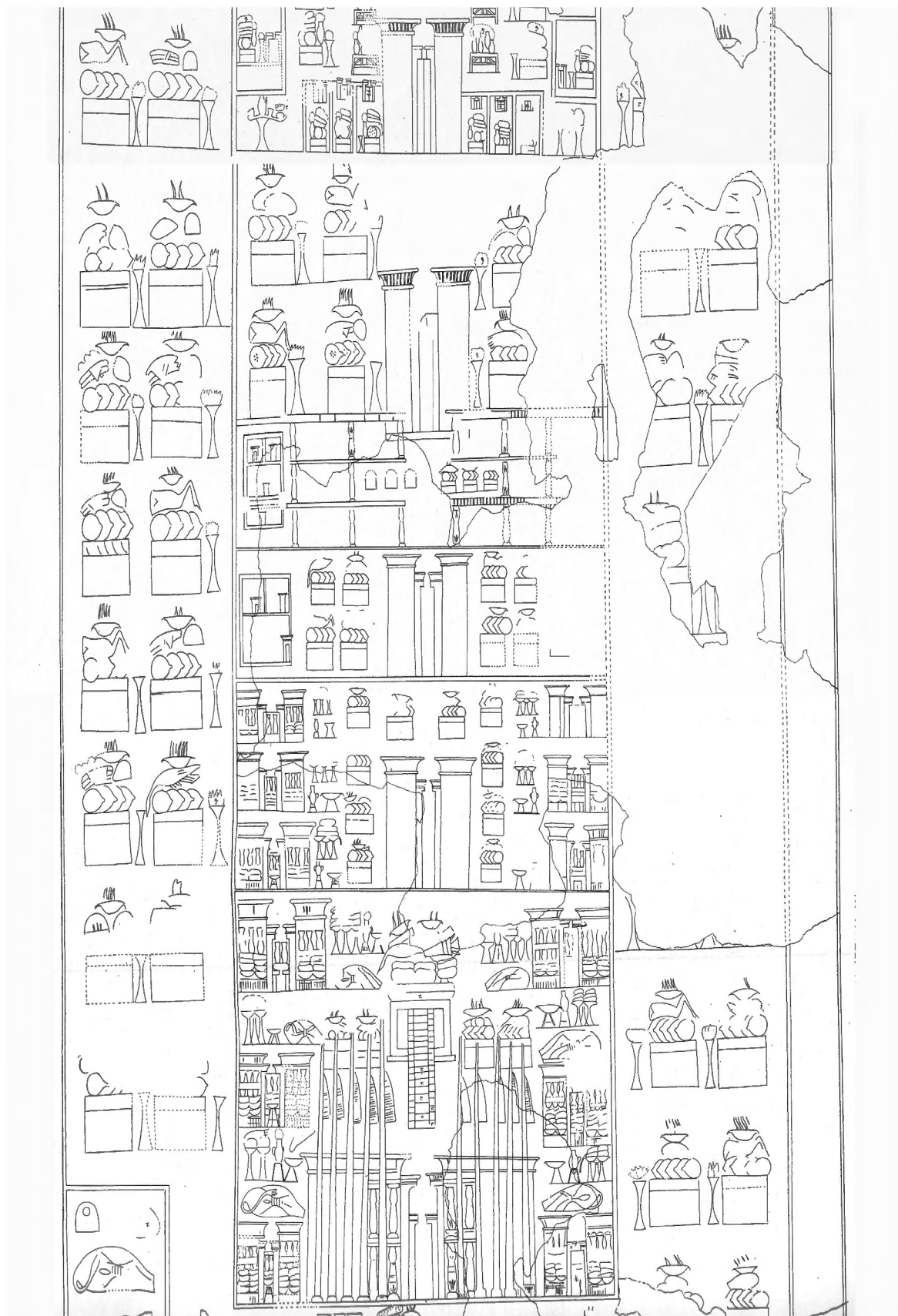
**Figure 8.** The same area marked out for new stonework.



**Figure 9.** Plan of the northern group of large column foundations, made for the builders for the 2014 season, showing the block pattern required and the locations of the eight column markers.



*Figure 10. Plan of the Long Temple, showing the extent of stonework already laid (end of 2019) and what is planned for the future.*



**Figure 11.** The front of the 'House of the Aten' (the Great Aten Temple) as depicted in the tomb of Meryra (no. 4) at Amarna. (After N. de G. Davies, *The Rock Tombs of El Amarna I*. London, Egypt Exploration Fund 1903, Pl. XII).

## **The enhancement of visitor experience**

The most frequently visited place at Amarna is the tomb of the ‘chief of seers’ Meryra (tomb no. 4). The scenes on the walls show the ‘House of the Aten’ (the Great Aten Temple) in great detail. It is shown twice: with the temple axis arranged vertically (Figure 11), and with the axis laid horizontally. In both cases the front of the temple is easily identifiable: a pair of pylons (with flagpoles) fronted by a group of large columns on either side. Another prominent feature is an offering-platform reached by a flight of stairs. This is shown as if in the middle of the courtyard behind the pylons.

Before the current work programme, when visitors left the tomb of Meryra nothing of the Great Aten Temple could be seen. There was nothing to which they could relate the tomb pictures. Yet this was the most important building at Amarna, the main temple dedicated to the cult of the Aten.

Tourist visitors mostly spend one day at Amarna. With so many destinations linked by fairly long drives they are not likely to spend much time at the Great Aten Temple, although it lies beside the asphalt road which leads from the northern part of the site to the South Tombs. The current plan envisages that tourists will make a short stop beside the asphalt road and will see the site from a low viewing place which has been partially created from spoil heaps. They will not walk further into the temple. From the viewing place (and with the tomb pictures still fresh in their minds) they will see the shape and dimensions of the temple, how it is long but relatively narrow; they will see how the space in front of the pylons was made impressive through the erection of the sets of eight colossal columns on either side of a wide space; they will see the outlines of the offering-platform and its approach staircase, located between the pylons and not in the courtyard beyond (Figures 16, 17). They should be able to take in this information in a fairly rapid view — 10 minutes — from the clear and simple outlines of the new constructions.

## **Progress of the project**

The project began early in 2012 (after a preliminary removal of village rubbish in 2008). A series of work periods of up to two months long have continued through 2013, 2014, 2015, 2017 and 2018.

By the end of 2018, the marking of building outlines in new stone had been completed for the small palace at the front; the north and south pylon towers, the northern group of eight large column bases, a short length of the north wall of the temple; a portion of the distant north-east corner of the temple. The capping of the mud-brick north pylon with new mud bricks has been started and should be continued as resources permit.

The main results of the May–June 2019 season have been:

- to mark the positions of the southern group of eight large column bases;

- to lay paving blocks over the wide pavement between the pylons and over the wide space between the two sets of column bases.

It remains to lay an extra layer of pavement to mark the position of the staircase and associated platform between the pylon towers (Figures 8, 16–19).

### **Method of recreating the temple outlines**

The final product of the project is to have the main walls marked in new limestone blocks cut to the original block size, with a length of 52 cm (1 ancient Egyptian cubit) and a width of 22 cm. The heights of the ancient blocks varied somewhat. We have chosen an average figure of 26 cm. With only a few exceptions (so far only the north-east corner) only a single course of these stones will be visible. Where there are original corners (pylons and the outer corners at the rear of the temple and the corners of the small palace) special blocks are used which have an additional semi-cylindrical moulding added (Figures 13, 15). Several original examples have been found in the course of excavation.

The stone is limestone from the quarries at El-Tura, outside Cairo. The blocks are laid using a mortar of white cement mixed with white stone powder and a little sieved desert sand to match the colour more closely to that of the blocks.

The original foundation layer is up to 1 metre below the general ground level. It would be too expensive to use Tura blocks for the lower courses. In their place the lower part of the walls is built up using small blocks of Minia limestone set in black cement (Figure 12). The final step is to fill the sides of the foundation trenches so that the Minia blocks are hidden and only the Tura blocks show.

The column positions are marked with circular pads of white concrete made within a circular iron frame of 2.5 m diameter, resting on a square base made from ordinary local building blocks of Minia limestone (which are covered by sand and so not visible, Figures 13–15). For each circular pad, a grid of iron rods tied together with wire is laid down. The iron frame is then filled with a mixture of white cement, white stone powder, a little sieved desert sand and angular fragments of limestone.

The ancient builders surrounded their temple with a layer of mud-brick rubble to create a flat surface. This has been broken up by excavation trenches. The current work is gradually levelling the ground again to the original surface, in part by fresh sand (Figure 26).

The team which does the building work is from the village of El-Till, the leader being Shahata Fahmy Abd el-Sittar. He has been doing this work for the expedition since the 1990s. The work is supervised by B. Kemp.



**Figure 12.** Method of building up stone foundations to support the final, visible layer of new stone blocks. The deep foundations are filled with a network of walls built from Minia-limestone blocks. The Tura blocks are laid over the top.



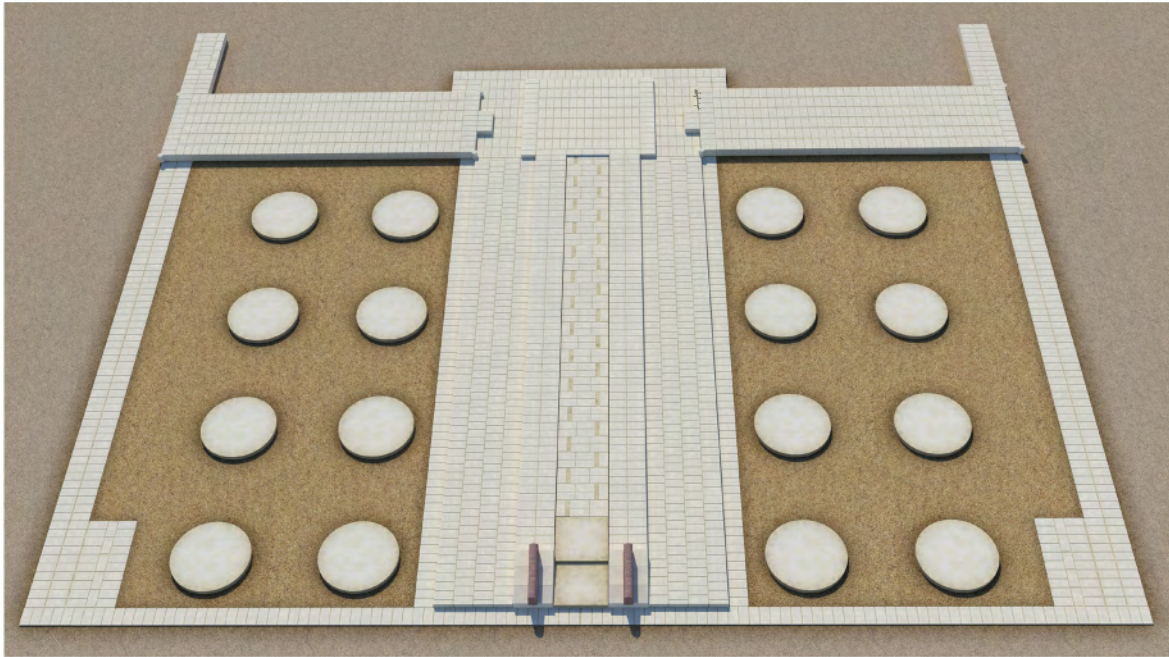
**Figure 13.** View of the final, Tura-limestone blocks marking the position of the southern stone pylon. The foundations for the eight large column markers are in the process of being made from local blocks. View to the south-west (end of 2018 season)



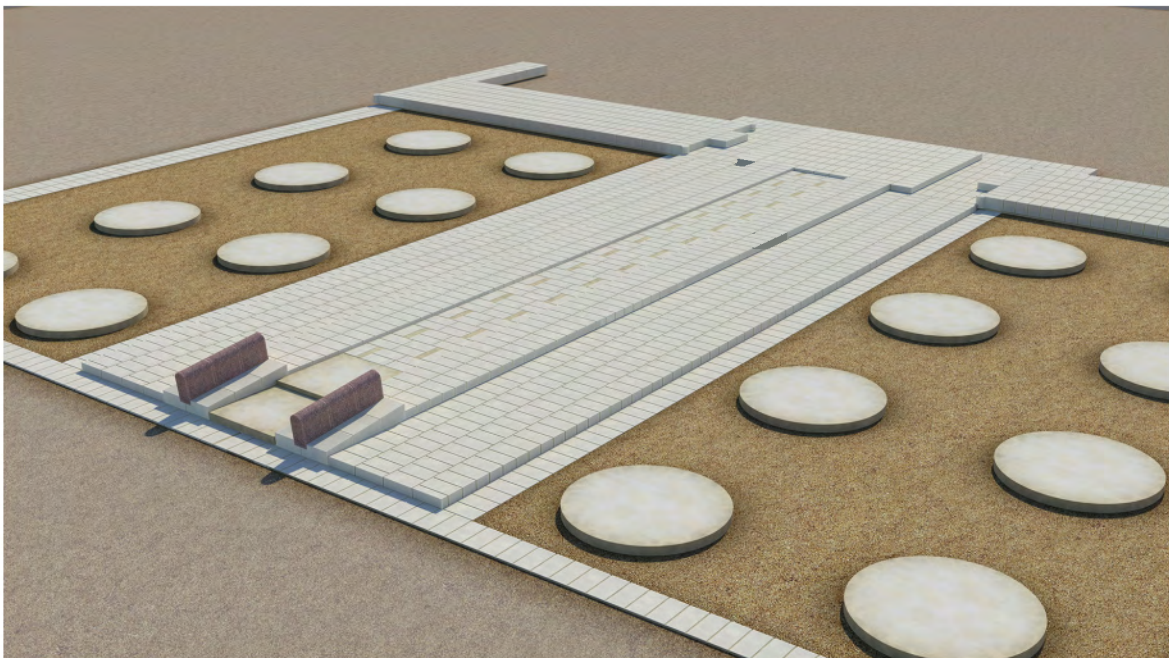
*Figure 14. One of the circular pads or markers of white concrete being made in front of the location of the northern stone pylon at the Long Temple. View to the south-east, 2015 season.*



*Figure 15. The eight circular pads or markers of white concrete in front of the location of the northern stone pylon at the Long Temple. View to the west, 2018 season.*



**Figure 16.** Visualisation of the finished scheme to mark the front of the Long Temple in new materials. At the nearer end of the staircase leading to the platform between the pylons two lengths of balustrade flanking two shallow treads or steps are included. Artwork by Paul Docherty.



**Figure 17.** Visualisation of the finished scheme to mark the front of the Long Temple in new materials. At the nearer end of the staircase leading to the platform between the pylons two lengths of balustrade flanking two shallow treads or steps are included. Artwork by Paul Docherty.



**Figure 18.** Reconstruction of how the front of the temple might have looked. The staircase rises to the platform between the pylons (not shown). View to the east. Artwork by Paul Docherty.



**Figure 19.** Reconstruction of how the front of the temple might have looked, with the pylon entrance included. The chosen time is sunrise on one of the two days in the year when the sun rose on the axis of the temple. View to the west. Artwork by Paul Docherty.

## Detailed report of progress, spring 2019



*Figure 20. Sunrise at the Great Aten Temple as the work of reconstruction begins.*

The work at the Great Aten Temple began on Saturday, May 18th and ended on Thursday, June 6th, 2019. The participating archaeologists were Barry Kemp, Miriam Bertram and Juan Friedrichs. The Ministry of Antiquities inspector was Khaled Mohammed Said. The work divided into three parts:

- 1: continuation of the laying of new stones to mark the outlines of the ancient temple;
- 2: landscaping the surrounding ground using freshly delivered sand;
- 3: exposing more of the ancient foundations of the northern and southern outside walls of the original temple.

The regular team of builders from the nearby village of El-Tell, led by Shahata Fahmy Abd el-Sittar, was engaged, numbering 11 men. For the other tasks an additional 9 men were employed. Two night guards were appointed for the duration of the work.

### *1. Continuation of the laying of the new stones*

In the autumn of 2018 the work had stopped with both north and south pylons completed, as well as the eight square foundations for the northern group of eight circular markers representing the positions of the colossal columns which had been originally erected in front of the pylons.

The spring season of 2019 began with the casting of the eight column bases, using an iron mould 2.5 m in diameter (Figures 21–23). One column base was cast each day. As with the northern set of bases, each time the mould was put into position a grid of iron rods, wired together, was laid inside, resting on small stones so that it was lifted part of the way into the body of the column base. A mix was prepared of white stone dust, small limestone fragments (aggregate) broken by hammer, sieved desert sand and white cement. This was poured into the mould until it was full, and the top surface was smoothed. The mould was lifted before the work ended each day. Each column base was then watered each day for several days to help the concrete set evenly throughout its thickness.

The eight column bases stand on an ancient foundation platform of gypsum concrete which had been surrounded on three sides by stone walls (and on the fourth by a pylon). The surrounding walls of the southern set of column bases was completed on the west and north sides, using a course of Tura-limestone blocks of the ancient size.

As the work on the column bases continued, the builders also began to lay paving-stones in the wide space between the two pylons (8.42 x 4.95 m). The foundations had been finished in autumn 2018, consisting of a network of

walls made from small Minia-limestone blocks set in black cement, the spaces between the walls being filled to the top with sand (Figure 12). The paving-stones are also of Tura-limestone, cut to half of the thickness of the building blocks, thus with a surface of 52 x 22 cm and a thickness of 13 cm. The builders laid them on a bed of sieved sand, filling the gaps between them with mortar made from a mix of white cement, white stone dust and sieved desert sand (Figure 24). Where the paving-stones had to surround the rounded corner mouldings of the pylons they were cut to the appropriate rounded profile with an electric disc-cutter.

The plan for setting out the ancient temple design envisages filling the space between the two sets of columns with a continuation of the same paving. The evidence from the ancient foundations suggest that it was 13 cm higher than the level we have chosen for the ground level to accompany the column bases. The entire space was covered with a bed of sand to an even depth, about 8 cm below the top of the surrounding walls. This buried the raised foundations of the ancient stairway and balustrade supports. The workmen then spread 5 cm of concrete made from gravel, sand and black cement over the whole area (Figure 25). A further 3 cm of sand provided the bed for the paving-stones. By the end of the season a little under half of the area had been completely paved with limestone.

This is not the end of the work in this part of the temple. The plan is to add a further layer of paving-stones to mark the outlines of the rectangular platform between the pylons and the sides of the staircase which ran the full east–west length of the paved area which ran up to the pylons (Figures 16, 17).



*Figure 21. Preparing to cast the first of the southern column-base markers, using an iron mould 2.5 m in diameter. A grid of iron rods is laid within the mould, supported on small stones to ensure that it is set half way through the thickness of the concrete fill. Three members of the building team sit breaking pieces of limestone into sharp-edged fragments to form the aggregate element in the concrete mix.*



*Figure 22. The iron mould for the circular white concrete pads which mark the positions of the ancient column bases, now half filled with a fresh mix of white concrete.*



*Figure 23. It is possible to cast one circular column marker each day. On the right, workmen are breaking pieces of limestone into smaller fragments for adding to the concrete mix.*



**Figure 24.** The space between the rebuilt pylons receiving a paving of limestone paving-stones. On this will be laid a rectangular outline to represent the offering- and solar observation platform that stood between the pylons.



**Figure 25.** The paved area between the pylons is being continued westwards between the two sets of column bases. Because the underlying ground is uneven (from the presence of the foundations of the staircase to the offering-platform) the usual layer of sand is covered by 5 cm of concrete to prevent the paving-stones from sinking unevenly. Further sand is spread over this.

## *2: landscaping the surrounding ground using freshly delivered sand*

The large stone temple was originally surrounded by flat ground which had been built up with a thick layer of mud-brick rubble. The older excavations and the recent excavations have dug into this layer extensively. The older excavations heaped up the resulting spoil towards the edge of the main area of work. As the present excavations have proceeded, as far as possible the new spoil has been used to fill the trenches and pits, but this has still left an irregular surface. In order to transform this into a flat surface corresponding to the ancient ground level a large amount of sand is brought to the site and used to create the desired level surface (Figure 26). This also has the effect of burying the foundations of our own walls, which are built from Minia-limestone blocks and not intended to be seen.



**Figure 26.** One of many deliveries of sand used to build up the ground level to what it would have been in the Amarna Period. The stone wall in the foreground is a retaining wall only. The final ground level will be flush with the top of the stones.

## *3: exposing more of the ancient foundations of the northern and southern outside walls of the original temple*

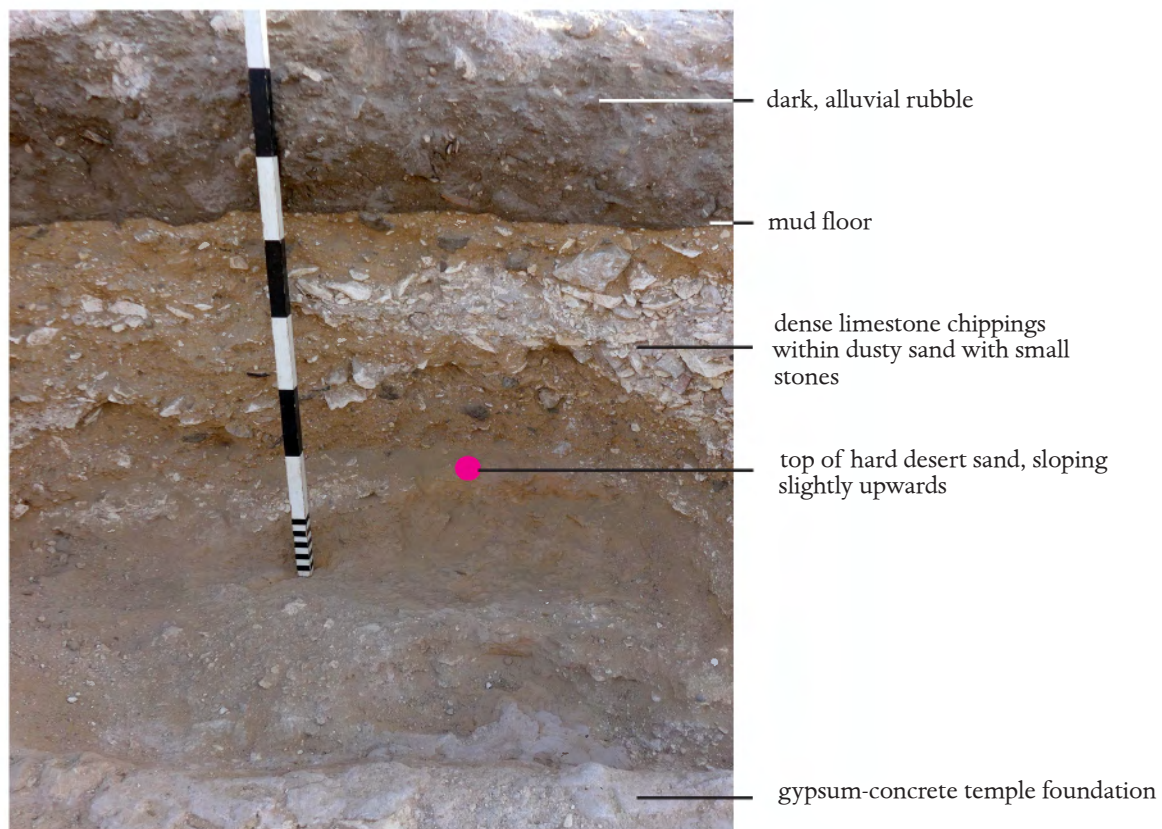
The longer-term plan is to mark the full length of the north and south outer walls of the temple and to join them by marking the rear wall. The length of the long walls is c. 200 m, and of the rear wall 40 m. The foundations of the north-east corner have already been exposed, and fresh stonework laid above them.

In the current period of work two groups of workmen were employed to dig out the fill of the north and south wall trenches. The gypsum-concrete foundation layer had been exposed in 1932 but had then been covered by sand blowing in. A length of 5 m of the north trench, starting with the corner of the north pylon, had been excavated in previous seasons and filled with foundations in Minia-limestone blocks. A further 15 m was cleared this time, revealing what was left of the gypsum foundations (Figure 27). When the stone blocks of the original wall had been removed after the end of the Amarna Period much of the concrete had been lifted along the centre of the foundations as well. This left two parallel strips along the sides of the wall trench. These preserved the edges of the mortar from the lowest course of blocks. In places, where this had broken away, lengths of the black painted architect's line were visible. This is of great help in knowing where to lay the new wall blocks so that they follow the ancient lines exactly.



*Figure 27. The line of the temple's north wall. A 15 m length has been cleaned of the sand that had blown in since 1932, exposing again the gypsum-concrete foundations for the original wall of limestone blocks. Juan Friedrichs makes a plan at 1:25 scale. In the foreground is a new foundations of blocks which will be continued eastwards and on which one or two courses of Tura-limestone blocks will be laid.*

A study of the stratigraphy revealed in the trench walls provided more information on the nature of the surrounding ground. On the south side the evidence confirmed the picture already obtained: that the first court of the second temple, with its offering-tables, had been built in a pit cut into the desert. The ground level had then been raised by filling the pit with sand mixed with small stones, pieces of mud brick and occasional sculpture fragments. A wide and thick layer of this remains in place. It had been covered by a layer of gypsum concrete which had provided a foundation for a pavement of limestone blocks (now missing). On the north side (Figure 28) the remains of a corresponding layer of concrete began the visible stratigraphic sequence. This covered a stratum of dark levelling-rubble, c. 15–17 cm thick on average, which continued for much of the 15 m length of the new trench. Beneath it came a layer (c. 40 cm thick) of levelling material, mostly sand but with more added debris including patches of chippings and gypsum dust. The undisturbed desert finally appeared only a few cm above the floor of the trench. It is to be expected that we are seeing the debris that was put into the side of the wall trench after the lowest courses of blocks had been laid. When the excavations are resumed a short trench will be cut at right-angles to record the adjacent stratigraphy more thoroughly.



**Figure 28.** Sequence of deposits on the north face of the trench for the north wall of the temple.

Similar work was started in the south wall trench for a distance of 10 m beyond the south pylon. The well preserved gypsum-concrete foundation layer continued for a short distance but then reduced itself to two side strips, as in the north. Halfway through the season the men in the trench were redeployed to the building work and so the clearance had to be left unfinished.

#### *4: carved stone fragments from the trench excavation*

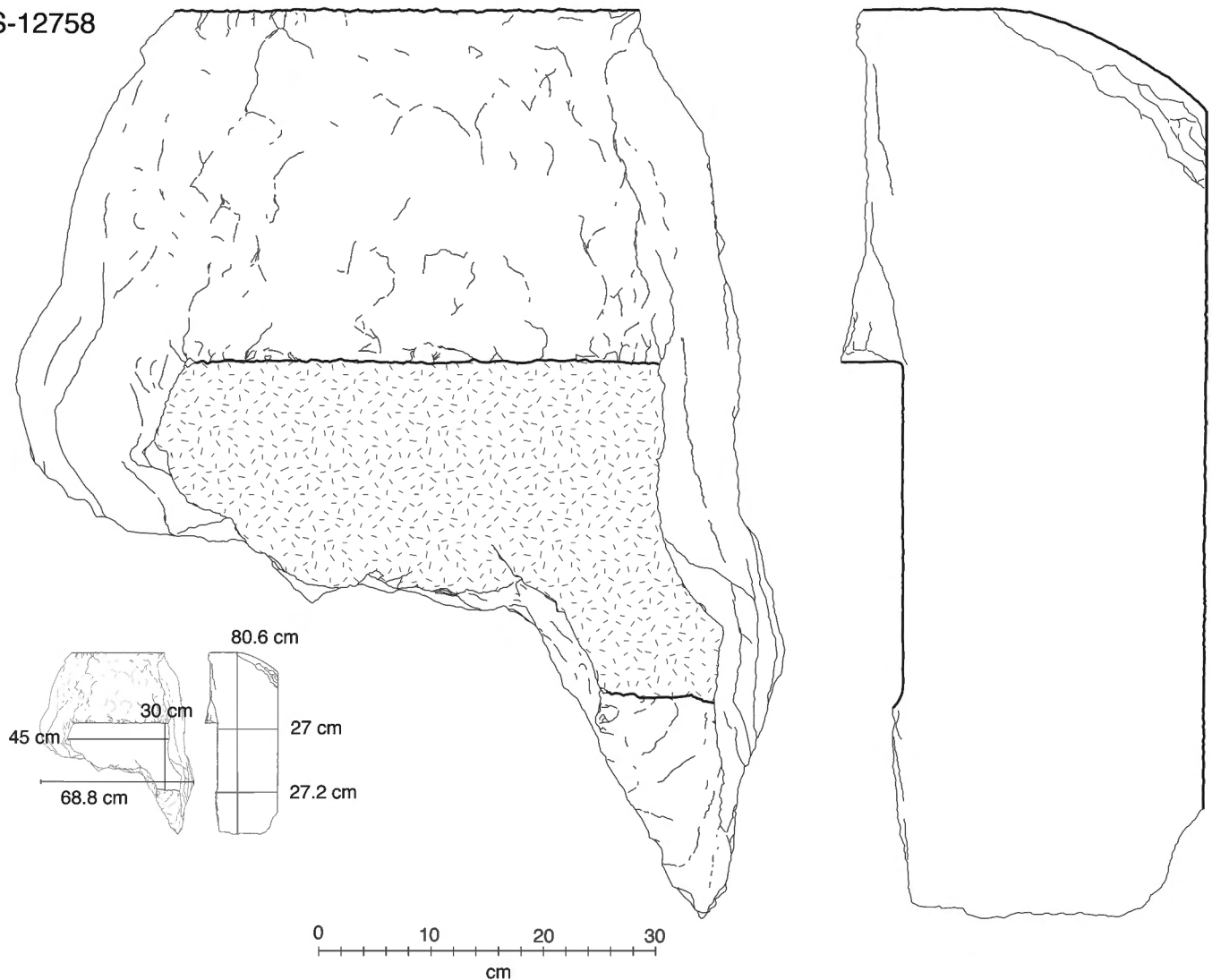
The removal of sand from the 15-m long stretch of foundations for the northern temple wall produced several sculptured pieces from the sand fill. Several of the larger pieces were found in a group [19104], and seemed to be embedded in firmer sand (mixed with small stones) than the looser sand which had blown into the trench since the 1932 excavation. Most notable was a large and heavy piece of indurated limestone (S-12758, Figure 29), measuring 68.9 x 80.6 cm, with a maximum thickness of 32 cm. It had been shaped by hammering. The only area on the front which retains its original surface is flat and has been smoothed but not polished, the kind of finish one finds on surfaces which act as backgrounds to finely polished sculptural elements. At first sight it could look like part of a basin. The extreme thickness of the side and base makes this unlikely, however. The alternative is that it is part, either from the top or the side, of a naos containing a sculpted item, of which only one small area of rising edge remains. It could have been a stela or even a statue. If it were the former, the empty space between it and the top would be unusual when one considers smaller examples of stelae within frames where the frame touches the stela top.

**S-12759** (Figure 30). U34/U35 (19101). Indurated limestone. Fragment probably from a column or column base, the surface being shallowly convex. The top surface is at right angles to the decorated surface but without a polished surface, probably because it is the top of a block, to be joined to another. The upper part of the decorated surface is occupied by a horizontal band, slightly convex but ending below with a sharply defined groove. The

lower part of the decorated surface is occupied by the sharply cut outline of the head and neck of a goose, probably part of the hieroglyphic group *s3 Rr*, 'son of Ra'. Width: 6 cm. Height: 5.8 cm. Depth 2.3 cm.

**S-12760** (Figure 31). T34/T35 [19104] in (19101). Ordinary limestone. Block decorated on both faces. One face is crossed by a horizontal bar from a cavetto cornice, the surface above beginning a slight outward curvature. Below is a broad lightly sculpted horizontal band with traces of blue. This had run across the top of a deeply carved sun-disc of which only a section of the top survives. To the right are the beginnings of two vertical columns of hieroglyphs which contained the formula *[nb] pt nb t3 [m pr itn m] 3ht-[itn]*. The general design resembles that in e.g. Davies, *Rock Tombs I*, Pl. XVII. On the reverse face only a narrow vertical strip of the design survives. A large feature on the right side had been carved to protrude from the face but has been largely knocked off. Was it a uraeus? Two horizontal bands, which had been painted blue, approach it but then end, the upper with a curved end. At the bottom is the beginning of a vertical column of text of which only a circular sign (a sun disc?) survives. Both ends of the block are flat and finished, and bear the remains of gypsum mortar. Traces remain on the left end of red paint, perhaps from a quarry mark. Width: 22.5 cm. Height: 24 cm. Depth (including cornice bar) 31 cm. Original thickness of the wall: 25 cm.

**S-12758**



**Figure 29a.** Great Aten Temple fragment S-12758. Drawing by J. Friedrichs.



**Figure 29b.** Great Aten Temple fragment S-12758. Photo by B. Kemp.



**Figure 30.** Great Aten Temple fragment S-12759. Fragment of carved, convex surface, indurated limestone. Photo by B. Kemp.



**Figure 31.** Great Aten Temple fragment S-12760. Block of ordinary limestone, carved on both sides. Photos by J. Friedrichs.

