CHAPTER 8

REPORT ON THE 1986 AMARNA SURVEY

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8.1 Introduction

The 1986 season took the contouring and ground check of the base maps across the Great Aten Temple and the whole of the ground to the north as far as the northern end of the North Suburb. Since the North City was the first part of the survey to be completed (in 1981), only the relatively featureless desert between North Suburb and North City remains for revision, and the end of the mapping project is thus in view.

The Pendlebury/Lavers treatment of the Great Aten Temple is one of the less satisfactory parts of their work, for the reason that much of the huge area was not suited to the kind of labour-intensive clearance and broad delineation of architecture that characterised the archaeology of their day. The temenos contains the remains of two major structures, the so-called Gem-Aten and the Sanctuary, which were excavated and planned in conformity to the standards and style of the 1930s Amarna work. It also contains several less substantial features, but these were treated only in passing in the *COA* III account. The limitations of this are particularly apparent in the fact that the only published plan of the Great Aten Temple as a whole is contained in the general sketch plan of the Central City which forms Plate I of *COA* III, and which was probably compiled from an aerial photograph with little ground control. Thus the plan made by the present survey, which will occupy much of Sheet no. 4, is the first proper general plan of the building. This will not complete the record, however. Some of the features can only be clarified by further excavation or more intensive surface survey. Furthermore, at one of the two major buildings, the Sanctuary, it can be seen that the Lavers plan is neither complete nor fully accurate. The importance of this is such that it has been made the principal subject of this chapter.

Further observations of interest were made on the ground to the north of the temenos, where it slopes down to the wadi which marks the southern boundary of the North Suburb, and where it approaches the modern village of el-Till. Recent digging for marl has left several exposures in a relatively thin covering of Amarna Period rubbish. The existence of this layer, as well as signs of a few unexcavated buildings further to the east, helps to document how this part of the ancient city was utilised. The publication of these notes and supplementary illustrations has, however, been held over for a future report.

8.2 The Sanctuary of the Great Aten Temple by Barry J. Kemp

The Sanctuary was excavated under Pendlebury's direction in 1933-4. The written account and illustrations, which include the plan of the remains made by Lavers, form part of *City of Akhenaten* III (5-10, Plates VII-IX, XXV-XXVI; also Pendlebury 1934: 129-133, Plates XIV-XVI). Pendlebury stripped off the loose covering of rubble to expose the lowest level of foundations, and these have since been reduced by weathering. Nevertheless, one major feature survives which has passed without comment, despite the fact that it is the most conspicuous one of all. This omission was first noticed during the first phase of the Amarna Survey in 1978. With the second phase now covering the same ground the opportunity was taken to look again at the Sanctuary and to add to a copy of Lavers' plan the necessary corrections and additions (Figure 8.1). These include a series of spot heights, related to one of the Amarna Survey's bench marks of 49.05 metres a.s.l. on the concrete base of the nearest electricity pylon (no. 68). Use was also made of a fine low-level aerial photograph taken in 1935, a small portion of which is reproduced here (Figure 8.6).

The Lavers' plan shows the remains of foundations from a stone building lying within an enclosure of mud brick. Herein lies the first correction. Not all of the brick walls are necessarily contemporary with the stone building, nor are they quite so regularly aligned as they appear on Lavers' plan. Moreover, in the south-east corner the Lavers' plan does not express the

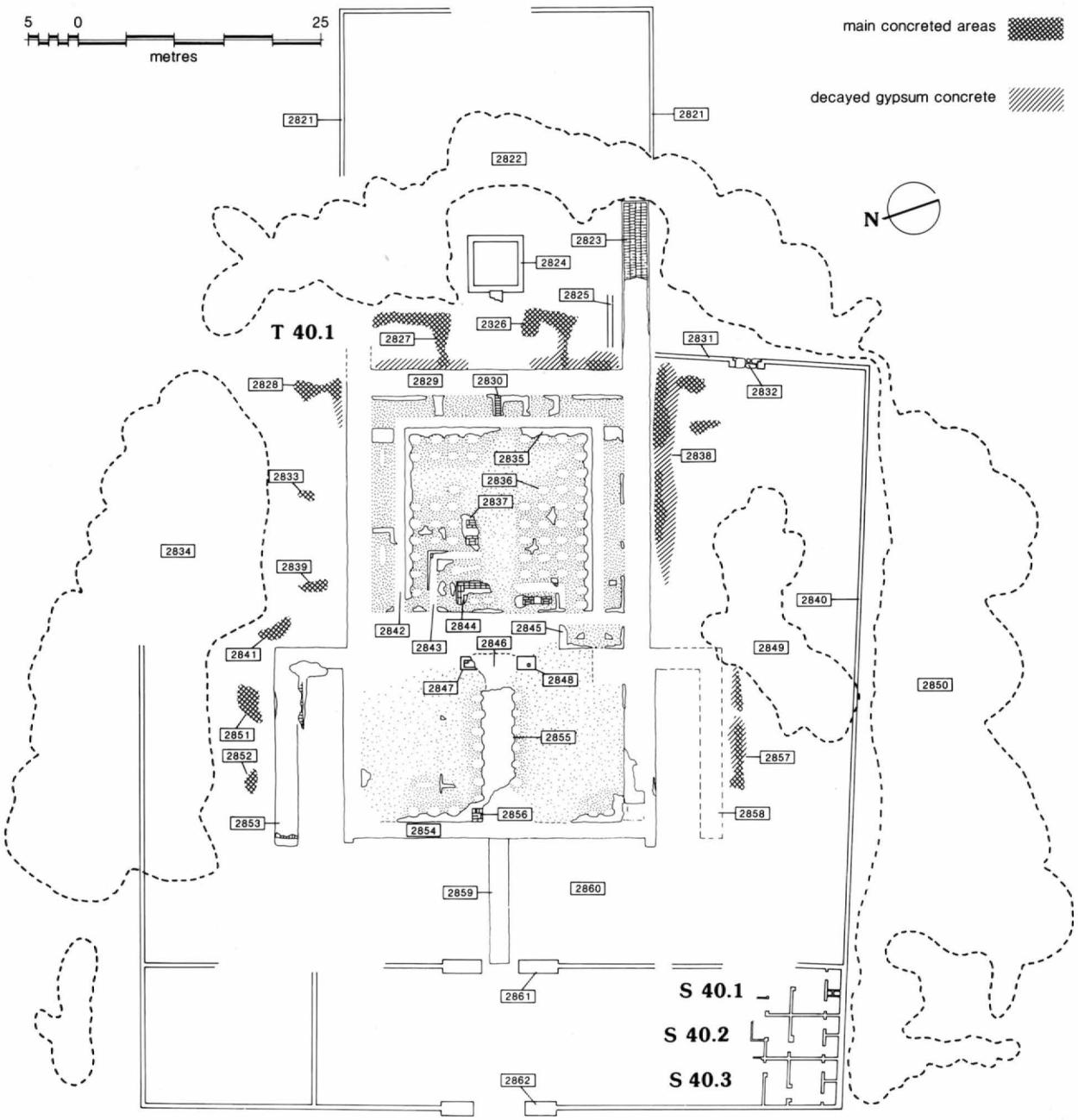

Figure 8.1. Plan of the Sanctuary of the Great Aten Temple, after Lavers, with additions and corrections from the 1986 Amarna Survey.

relationship correctly. Not only does the brick wall [2831] containing the doorway [2832] not follow the same alignment as the stone structure, the stone wall trench [2823] actually cuts through it showing that it is later. What effect this has on the overall interpretation of the Sanctuary's history is hard to assess without re-clearance. Lavers assumed that the wall fragment [2825] was part of the rear brick enclosure [2821], but this is not the case, and so the connection between the rear brick enclosure and the brick walls on the south [2831, 2840] is severed. Since these were also built on a different alignment we have to consider if, when the stone Sanctuary was erected, this part was demolished and removed from view. If this applied all the way along the network of brick walls it would also remove from this phase the two pairs of small brick

unit	top	nearest ground	height	width
[2826]	53.37	52.43	0.94	6.00
	53.15	52.43	0.72	6.00
[2827]	53.26	52.47	0.79	6.00
[2828]	53.57	52.83	0.74	5.00
[2838]	53.20	52.34	0.86	6.00
	53.25	52.27	0.98	
	53.29	52.27	1.02	7.00
	53.16	52.27	0.89	
	53.20	52.13	1.07	

Table 8.1. Spot heights and other measurements on and around the embankments, in metres.

pylons [2861, 2862] that lay across the axis at the front and the three small houses (S 40.1, S 40.2, S 40.3). But here we encounter the difficulty that when first excavated, the brickwork of the southern pylon towers and of the houses survived up to several courses, five to six in the case of the houses.[1] There is no simple solution to this.

Much more important, however, is the omission from Lavers' plan of a conspicuous embankment of gypsum concrete which seems originally to have surrounded the Sanctuary on three sides. It is best preserved now on the south and east sides, running along the outer edge of the main outer foundation trench, and is well portrayed in some of the photographs of Pendlebury's excavations published in *COA* III: Plate XXVI.1, 2, and 4. Figures 8.2 to 8.5 show its present condition. On the plan, Figure 8.1, each main part is designated by a separate unit number. On the north side much less of it survives, but several definite patches with northward slope downwards can be identified, units [2828, 2833, 2839, 2841, 2851, 2852]. The last two run beside the trench of the north wing-wall [2853].

For several of the portions of embankment direct measurements can be given for its width, angle of slope and height above the ground outside the sanctuary proper. These are summarised in Table 8.1. In general we can say that the embankment was originally around one metre in height and six wide. Its inner faces run along the edges of the foundation trenches for the main Sanctuary wall [2829]. Since these have been almost totally robbed of their stonework in antiquity the effect is to make the embankment seem taller on this side than it really was. There is, in fact, a very clear stratigraphic break between the desert and rubble which marks the sides of the foundation trench and the almost white colouring of the embankment lying above. This shows up very clearly in the *COA* III photographs.

The material of the embankment is one that is very common on sites of stone buildings at Amarna: a concrete made from chips of limestone and some sandstone mixed with gypsum. Over a long period of time it weathers from white to brown, and exposed surfaces appear to take on an added hardness, so that the result is fairly durable. The embankment was perhaps mistaken in Pendlebury's time for rubble deriving from the destruction of the stonework of the Sanctuary, but if so this was wrong. Wherever portions are at all well preserved they display a constant and even slope downwards away from the walls of the Sanctuary, and, as the *COA* III photographs show, when viewed laterally it has an impressive evenness of thickness and disposition in relation to the underlying ground. It has to be accepted that it is part of the original building.

The portions of the embankment against the north and south wing-walls at the front of the Sanctuary [2853, 2857] have not survived very well, but on balance the traces seem to be sufficient for accepting that it continued as far as here. However, across the front of the temple nothing of this nature is detectable despite the survival of areas of brick pavement [2860]. It is unlikely, therefore, that the embankment continued across the front.

[1] Visible in unpublished excavation photographs: 1933-34, nos. A16, A17.

Figure 8.2. Remains of the embankment along the rear of the Sanctuary, looking north.

The preserved height of the embankment shows that it must have been part of the final building phase. This is implied equally by the coincidence of the embankment with the foundation trenches for the stone walls of the Sanctuary. The effect must have been to make the Sanctuary appear as if standing on a mound with inclined sides. The height of this apparent mound above the surrounding mud pavement would have been about one metre.

8.3 Reconstructing the appearance of the Sanctuary

Ancient buildings, especially public buildings, offer the challenge of reconstructing their original appearance on paper. Normally this is an exercise in logic tempered by a knowledge of the architectural style in question. One projects lines upwards from the ground plan, making a series of decisions as one proceeds, knowing often that a different decision is possible which would seriously alter the overall effect. With the Amarna public buildings, however, we are in the unusual position of having not only an excavator's ground plan to work from but also detailed and seemingly faithful ancient renderings of what the buildings looked like to contemporaries.[2]

[2] The principal scenes are: *RT* I: Plates XA, XI, XII, XXV, XXVII, XXVIII, XXXIII (Meryra); *RT* II: Plates XVIII, XIX (Panehsy); *RT* III: Plate XXX (Ahmes); *RT* IV: Plates VI, VII (Pentu); XVIII, XX (Mahu); *RT* VI: Plate XX (Tutu). Simplified drawings are in Badawy 1948: 169-181, and Badawy 1968: 165-170.

Figure 8.3. Remains of the embankment along the rear of the Sanctuary, looking south.

For information on details the positive value of these scenes is absolute, but as general portrayals they can become something of a hindrance, for when examined carefully it is all too evident that they are impressionistic rather than pictorially reliable. Quite apart from mutual inconsistencies, in the case of those showing an Aten temple individual features occur which the excavated evidence shows were to be found sometimes in the Great Aten Temple and sometimes in the smaller Hat-Aten temple. This statement contradicts the approach of the *COA* III team, which regarded all but one of the ancient scenes as showing the former only.[3] But this seems to have been a blind-spot, for quite specific identifications of some features from the tomb scenes can be made with excavated evidence from the Hat-Aten. These are: one or more pylons with multiple flag-poles, a large square platform reached by a ramp in the outer part of the temple, and a small isolated building containing a Window of Appearance.[4]

One is led to the conclusion that the scenes of Aten temples in the tombs are conflations of both buildings. They offer, therefore, only selective guidance in trying to visualise their original form. They cannot be ignored, and can indicate which of two alternative possibilities is more likely in certain instances, but generally the logic of the excavated data should take priority. Even so it has to be admitted that whilst Lavers sometimes overrode his own plans in favour of the tomb scenes to produce reconstruction plans and views which have a high fantasy element, any reconstruction is bound to be affected in this way. We can take a purist view and argue that the

[3] The exception is found in the tomb of Tutu, *RT* VI: Plate XX, see *COA* III: 96, Fig. 19.

[4] See Kemp 1976, especially pp. 91-92, and Fig. 2.

Figure 8.4. Remains of the embankment along the south side of the Sanctuary, looking west.

only honest course is to make a tentative reconstruction limited to those parts where the evidence is fairly straightforward. This would, however, produce very sketchy results indeed since, as will be argued shortly, Lavers recorded even less of the original building than he thought. If it is understood that a reconstruction is only a visual counterpart to a written hypothesis, the discipline of trying to wrest from the excavated data and from the tomb pictures a fairly complete reconstruction drawing can have some value. For the results are of more than architectural interest. They effect the way that we visualise Akhenaten's cult of the Aten, and thus, because of the stress that contemporaries placed on it, the way that Akhenaten wished his role to be perceived publicly.

One of the Pendlebury achievements in excavating the royal buildings in the Central City was a better appreciation of the nature of the foundations of badly robbed stonework. This was summarised in *COA* III: 6-7, in the form of an explanation of how the builders had gone about their task. It is, however, deficient in one crucial respect. As is now well known, in Ramesside times all stone buildings at Amarna were demolished and their stones taken away for re-use on other temple sites under construction. The demolition was done systematically and carefully, leaving remarkably little decorated stonework behind. Yet several of the sites are marked today by large quantities of pale-coloured rubble which is evidently not the product of smashing up the original building stones. Where does this rubble come from ? Pendlebury offered an explanation: "From the quantity of rubble all over the site of the buildings constructed in this way it seems as if at least the upper part of the walls consisted of a rubble core with a thin stone facing" (*COA* III: 7). The "rubble" that is referred to is, in fact, gypsum concrete that has been smashed up, and around the Sanctuary of the Great Aten Temple it is piled in huge dumps [2822, 2834, 2849,

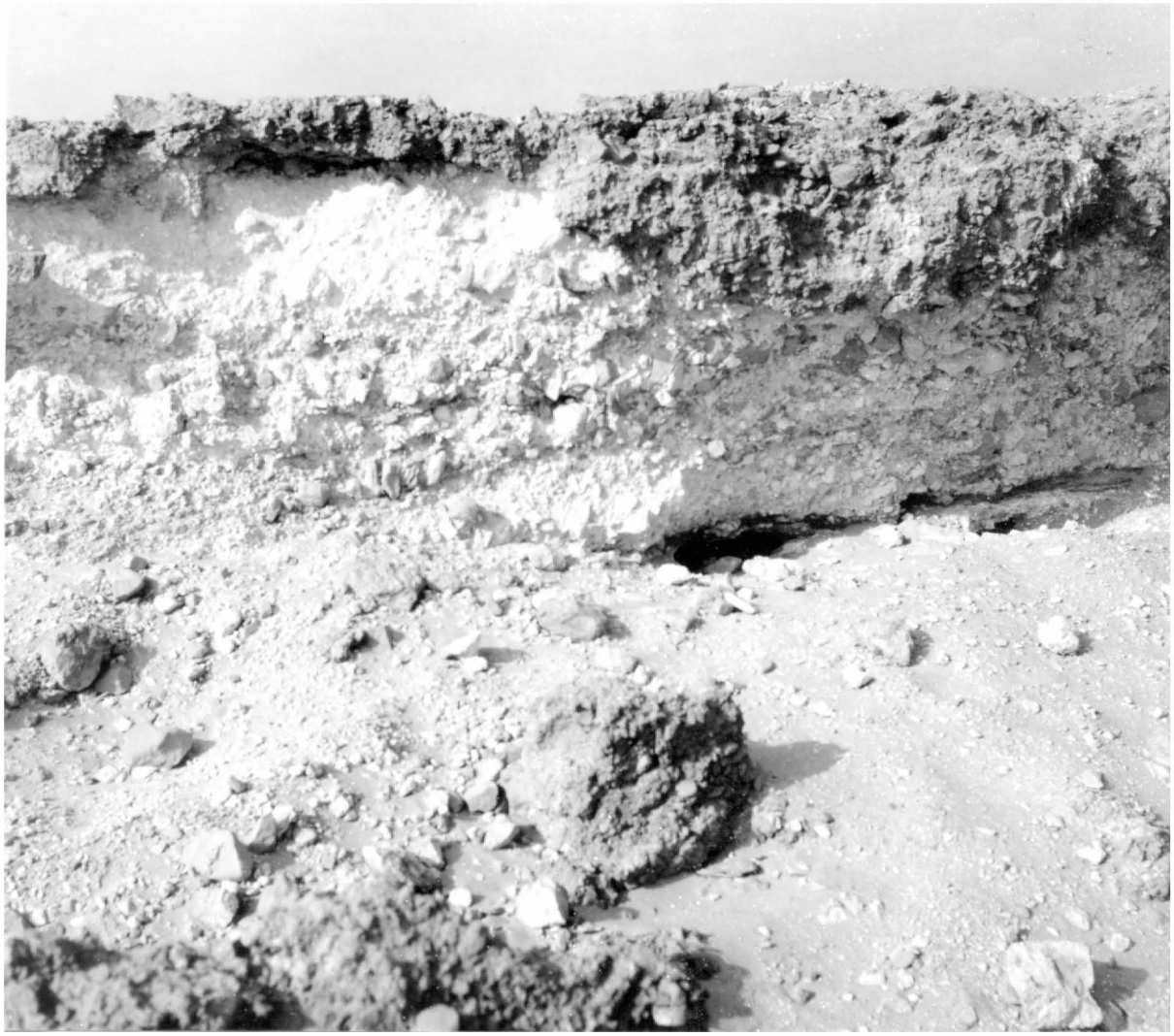

Figure 8.5. Detail of the embankment on the south side, showing the darkened weathering crust that has formed on the top of the gypsum concrete, and the horizontal division lower down between the base of the concrete and the top of the natural desert.

2850]. Although now mixed and diluted with much sand, the volume seems to be far in excess of such a fill for walls which were not particularly thick. In view of the sloping bank of the same material that runs around the outside of the Sanctuary, it is preferable to see this rubble as the remains of an equivalent filling inside the building, which not only replaced the loose surface sand and gravel that the builders first removed before laying their foundations on a hard desert surface, but also raised the floor of the Sanctuary up at least as high as the top of the surrounding embankment. Thus the whole building was constructed on a low elevated platform made by filling up the spaces between foundations of walls and offering-tables with gypsum concrete (or partially so, for some excavation photographs suggest that the lowest material in the fill was loose sandy rubble). We can gain an idea of the result from one place in the Great Aten Temple where portions of concrete platform have survived: in the front part (the Per-Hai) of the so-called Gem-Aten building, where three rectangular blocks of concrete separated by the trenches of robbed walls are still a conspicuous feature. Parallel remains can be found on the site of the Great Palace. When in ancient times the stonework was removed much damage must have been done to this platform, particularly since each of the many stone offering-tables seems to have had its own independent stone foundation descending to hard desert.

Figure 8.6. Aerial photograph of the Sanctuary of the Great Aten Temple taken in 1935 after the completion of Pendlebury's excavations in 1934.

Petrie was the first archaeologist to work at the Sanctuary. He entrusted the task to Howard Carter, and the aim seems to have been simply to search for sculpture: "The site of the temple, or shrine, which was entirely excavated by Mr. Carter, is marked by heaps of broken pieces of mortar and stone; and the cores of the walls consisting of mortar and chips still remain to shew the position. Mr. Carter turned over nearly all of this without finding anything more than two or three blocks of the great stele" (Petrie 1894: 18). By the end of Pendlebury's work, whatever was left of the concrete foundations, except the embankment, had been removed. There is, however, a possible discrepancy in the history of the site to be accounted for. An aerial photograph taken in 1922 shows the site of the Sanctuary as, presumably, Carter and Petrie had left it. The photograph is not as sharp as one would like, but one can see the site covered with a low mound of pale debris pitted with holes. There is, however, no sign of a dump to one side. This appearance is consistent with the "turning over" which Petrie mentions and which was a common practice of his. Pendlebury includes a photograph of the site before his excavations in *COA* III: Plate XXVI.1. It is taken from the rear, just east of the piece of concrete ramp labelled [2827] in Figure 8.1. It shows a thin cover of chippings, reduced to almost nothing on the south side where some of the plaster flooring is already visible. On the left of the picture the line of the embankment on the south side appears. Furthermore, behind the photographer there must have been a tall heap of debris which is casting a long shadow. This is the dump which Pendlebury ascribed to Petrie and which is marked as such on Lavers' plan.[5] These features are not evident on the 1922 photograph, which, in particular, reveals no trace of "Petrie's dump". One cannot be absolutely certain, but there must be a strong suspicion that between 1922 and 1933 the Sanctuary was illicitly dug in a very thorough manner. Pendlebury himself noted recent interest on the part of the villagers of el-Till: "A feature of the site used to be the quantity of cut and carved stone on the south side. This was removed by the villagers in the summer of 1933. From a previous, admittedly superficial, examination, however, nothing of importance has disappeared" (ibid., 6, note 2; cf. Pendlebury 1934: 129, note 1; 133). The villagers's removal of pieces may have extended to an excavation which threw up an extensive spoil heap on east and north. Even so, Pendlebury's pre-dig photograph seems to show a patch of the gypsum concrete platform, towards the right of the picture, well within the confines of the Sanctuary walls.

Once it is appreciated that a thick platform of concrete has also been lost it follows that the relative levels of some of the remains of foundations are not necessarily a guide to the actual levels of their respective features as they appeared on the platform, i.e. elements that were raised or sunken as they were laid out on the floor of the foundation pit did not necessarily correspond to raised or sunken levels on top of the concrete platform.

The reconstruction begins with a low platform overall, and there need be no doubt as to what principally lay on it: a large number of small rectangular stone offering-tables. The tomb pictures are valuable here, for they show that this is what the numerous rectangular foundation marks supported. The slightly sunken strip [2859] running perpendicularly to the front then becomes the foundation trench for an access ramp. Making the basis of the Sanctuary into a low platform then frees one from the necessity of making the Sanctuary into an entirely enclosed building, for the wall that rose from the main foundation trench [2829, 2854] could have served only as a retaining wall. In our reconstruction (Figure 8.7) the front part of the Sanctuary has been left as an open platform supporting offering-tables. The foundations of this part include a strengthened concrete strip running along the axis [2855]. This has been interpreted as the foundations for a second ramp, which then necessitates raising the rear part of the temple to a greater height. This is one of the more speculative elements.

Beyond this we reach the principal difficulty. The tomb pictures show a pylon entrance accompanied by a columned portico containing statues of the king and queen, and Pendlebury does record finding pieces of broken column at just this point. However, the major surviving features were two rectangular foundation blocks constructed with unusual care from limestone and granite [2847, 2848], intended to support a single vertical element in each case, which was fitted into a 25 cm. square hole "stained green with remains of patinated bronze which had evidently formed the lining. They were 6 metres apart and a large balk of wood lay between them" (*COA*

[5] An unpublished Pendlebury photograph (1933-34, no. A10) taken early in the course of excavation and looking from west to east shows the outline of this dump in the background.

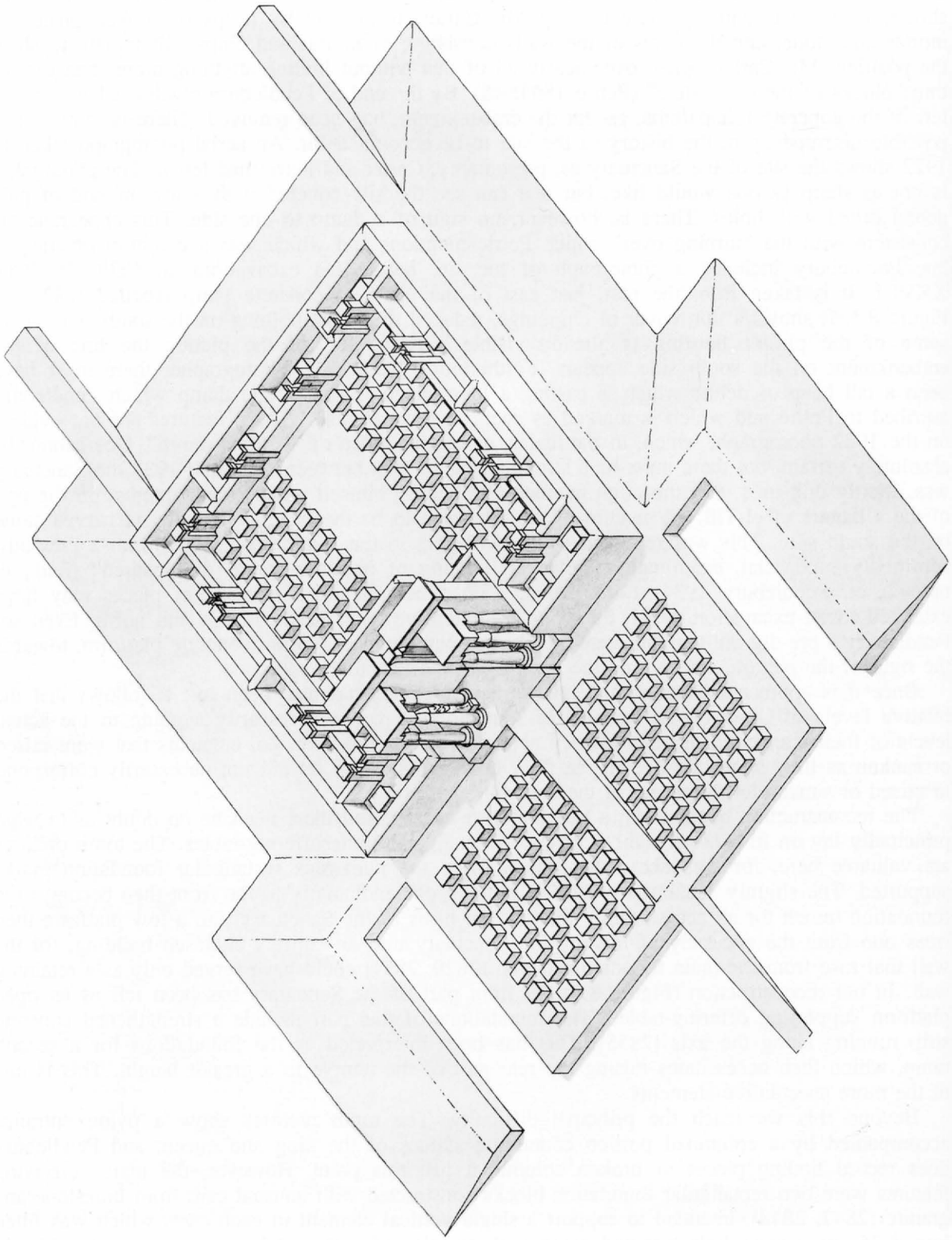

Figure 8.7. Reconstruction of the Sanctuary of the Great Aten Temple (original by B. Kemp).

III: 8, and Figure 1, and Plate XXVI.3). Pendlebury interpreted them as pivot-holes from a massive doorway in the pylon. But apart from the fact that pivots as deep as this are not required by the nature of ancient Egyptian doors and would be without parallel (cf. Koenigsberger 1936: 34-40), the spacing also creates a problem, which Pendlebury recognised, but solved with a facetious answer: "in the days before hinges a huge wooden door with a leaf 3 metres broad could be hung only with difficulty and, when hung, could not have been opened or shut. In the restored plan and isometric drawing we have assumed that these sockets were a builder's error, or rather that they had been constructed to prove to His Majesty that not even he could have a door that size!" (ibid., 9; cf. Pendlebury 1934: 131). From their spacing, depth and solidity of construction, however, they seem better suited to supporting tall wooden masts or flag-poles which were free-standing rather than placed against a pylon which could offer some further support higher up. Although this is not a conventional setting for flag-poles (and it must be recalled that nothing similar was found beneath the emplacements for flag-poles that occur in the conventional positions in the Hat-Aten temple), two of the chapels in the Workmen's Village did have vertical poles in just this position (*AR* I: 17-19, Figures 2.3-2.5; *AR* II: 13, 3, Figure 1.2).

Beyond this point one still has to find room for the columns of which fragments were actually found. A pair of pylons is difficult to insert on the line of the foundation trench [2842] which crosses from north to south because it shows nothing of the thickening that was necessary to accommodate the inward slope of the pylon face to the line of the wall that approached it from the side. The Lavers restored plan ignored this. In Figure 8.7 two tall sections of wall with insignificant batter and thus not true pylon towers have been placed at the rear of the columns to obviate this difficulty.

The rear part of the Sanctuary has an inner line of foundation trenches [2842], which offers more than one possibility for reconstruction. One could, for example, treat it as the retaining wall for a further tier of the platform with no added height to turn it into a free-standing wall. A crucial piece of evidence against this is the foundation plaster from a short cross-wall at the back [2830]. One could still treat this as a casemate wall which did not protrude above the surface of the terrace were it not for the tomb pictures. They are consistent in arranging the altars into subdivisions entered by doorways. A wall pattern of some kind is therefore indicated for this part, although the walls need not have been very high. The foundations for the cross-wall [2830] show that this wall was only 60 cms. thick, and made from a single course of blocks laid as headers.

The remaining elements are the projecting walls at front and back, the former [2852, 2858] laid out like wings, the latter [2823] continuing the line of the sides of the Sanctuary. The solution adopted here is to keep them no higher than the terrace so that they become extensions to it. Although the effect is odd, it is less so than to place walls of full height on these alignments, and one can set the musicians, dancers and "audience" for the king's visits on them (they would have been about two metres wide). The rear extension walls presumably related to the square brick platform at the rear [2824] which still rises well above the surrounding ground level and was therefore visible when the Sanctuary in its final phase was in use. Unfortunately the concrete embankment has been destroyed just where it passes in front, so that we cannot judge if it was interrupted in some way. This element remains most enigmatic.

The correctness or otherwise of some of the elements in the reconstruction of Figure 8.7 is probably not very important. The overall design, however, becomes part of the basic material by which we form our impressions of Akhenaten's style of rule. In the Lavers' reconstruction, although the temples were open to the sky, they retained the traditional atmosphere of seclusion by being entirely surrounded by high walls which would, for most of the day, have kept the interiors in shadow. In the new reconstruction a good part of the temple is entirely open, and elevated, making the king's entry into an extension of the semi-public drama of the king's progress that seems to underlie the tomb pictures. If we keep the walls of the rear part reasonably low we also remove the principal source of internal shadow and make the whole more fitting to the worship of the sun's disk. It would also better convey the air of openness to view which the tomb pictures suggest.

One further observation remains to be made, on the general standard of construction of the stone buildings at Amarna. This has often drawn unfavourable comments, but these may be misguided. Akhenaten's builders chose an adventurous experiment in constructional methods that had the same interest in rationalising large-scale projects as had the choice of reinforced

brickwork in the Twelfth Dynasty pyramids. The key element was the use of gypsum concrete in the platforms that were an essential feature of Akhenaten's formal buildings. When properly laid between foundation walls of stone it set into a hard rock-like mass, examples of which, as noted above, can still be seen at the front (Per-Hai) of the Gem-Aten building. Indeed, a further refinement was found at Maru-Aten: "the use in the foundations of large blocks of concrete cast in moulds and measuring 1.50 m. by 0.60 m. by 0.35m." (*COA* I: 113). Accompanied by the use of the well-known small-size stone blocks it represents a serious and intelligent re-appraisal of constructional method of the kind that has found much favour in the modern world. Furthermore, the care taken to ensure that each offering-table and internal wall had a proper pile-like stone foundation descending to hard desert subsoil gives the lie to the idea that carelessness and lack of foresight characterised the work. The reduction of these buildings to heaps of rubble was the result of thorough and determined demolition rather than structural weaknesses. They were designed and built to last for a long time.