

CHAPTER 5

EXCAVATION AND SURVEY IN THE CENTRAL CITY, 1988–92

by

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5.1 Introduction

Each year since 1987 has seen work carried out in the Small Aten Temple for the purpose of compiling a detailed architectural study which will, in time, be published as a separate monograph. Brief progress reports on each season have appeared in the editorial section of the *Journal of Egyptian Archaeology* and the Society's *Annual Report*. This chapter describes certain of the excavations carried out between 1988 and 1992 which were intended to investigate the relationship between the Small Aten Temple and the surrounding buildings and open ground on the northern and western sides (Figure 5.1). It incorporates the results of work supervised by Katherine Spence (1988–90), David Hills (1989), and Victoria Emmett (1992). Following the description is an attempt to set the findings within a framework of chronology for the central part of the city which leads to a discussion of how the plan of the city might have evolved.

The study of the Main Gate and Great Altar carried out in 1987 (*AR* V: 115–42) revealed a stratigraphy that we have used as a reference sequence for the other excavated areas. It suggested a three-phase development of the site (together with a fourth, destruction phase) which, with the addition of further observations, now runs as follows:

Phase IA - initial city foundation and erection of the Great Altar.

Phase IB - construction of the small altars around the Great Altar, planting of trees surrounding a mud-brick Sanctuary, and enclosure of the temple by a wall.

Phase IIA - construction of a new enclosure with three subdivisions entered through mud-brick pylons with mud-brick floored gateways.

Phase IIB - construction of the stone Sanctuary following demolition of the first Sanctuary and Great Altar.

Phase III - construction of the Main Gate and of some other gates in stone, destroying mud-brick floors in the process. This took place during the reign of Smenkhkara.

The work described here on the Small Aten Temple itself is confined to the western side where the brick enclosure wall is interrupted by the twin towers of the First Pylon and by two lesser gateways. In separate sections accounts are given of the two lengths of the enclosure wall, their two gateways, and strips of ground on both sides which have been cleared and carefully examined, as well as areas on both sides of the north pylon tower.

5.2 The forecourt behind the North Tower of the First Pylon

Pendlebury's excavations had shown that the temple forecourt had contained a large platform (the Great Altar, re-examined in 1987) and a field of small altars spread out on either side. During the 1989 season Pendlebury's extensive dumps which covered the northern set of small altars were removed. This allowed the examination of the shallow underlying ancient levels across the full width on the north side, two altars deep, and the full extent, from east to west, along the south side. In Figure 5.2 only that part of the area close to the pylon is included. The fragility of the remains was such that the outer row of altars on the north side had left no trace. It therefore became necessary to check the south side of the southern group as well. Here only a few flakes of mud remained of the south-east small altar recorded in 1932 [6176] (not included in Figure 5.2). This paucity of remains was made up for by the discovery of a developed stratigraphy in the centre of the group of altars, where the 1932 dumps had been located. The most revealing example of the small altar bases is [6148], which belongs to the westernmost row of the north

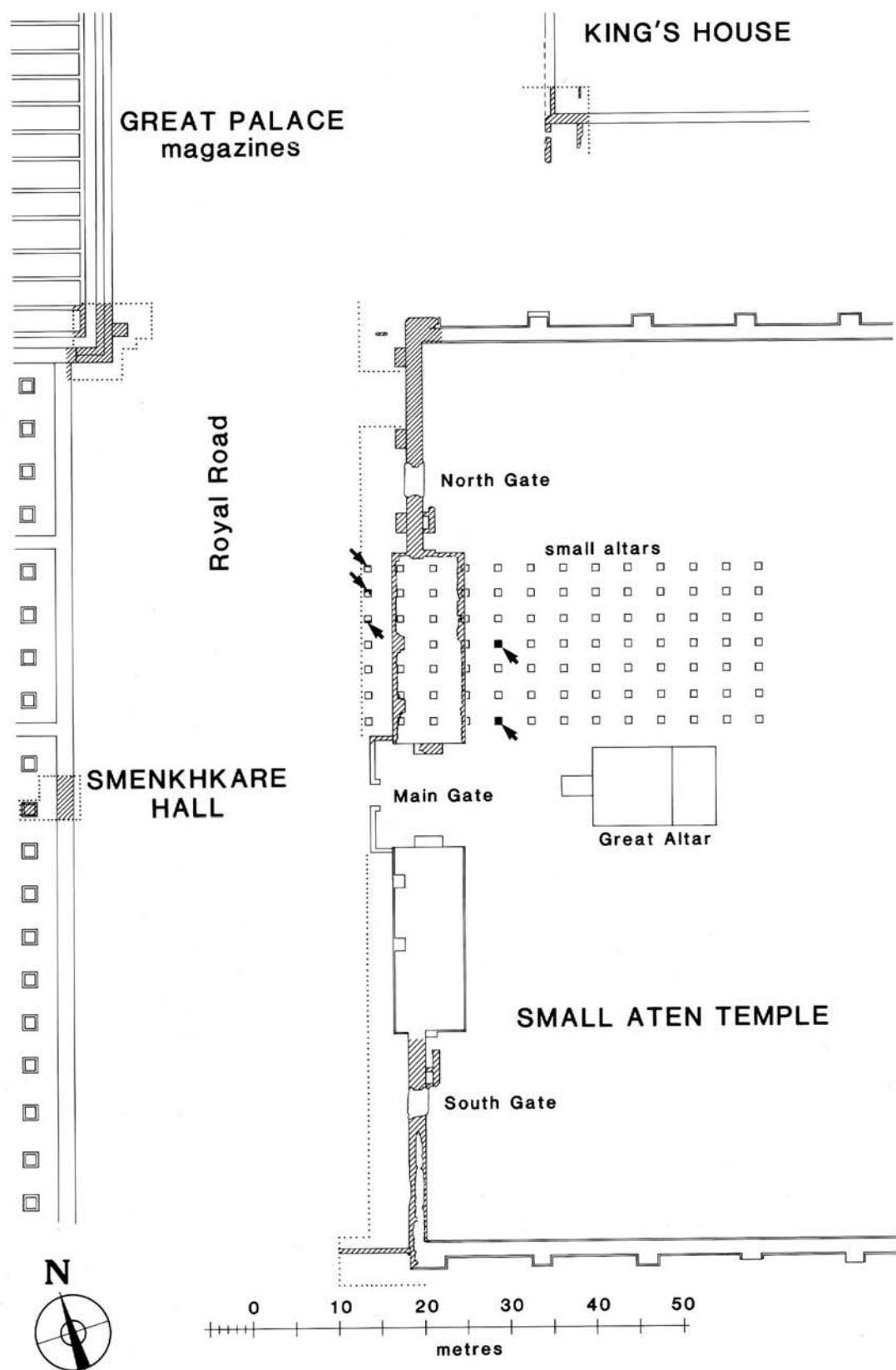


Figure 5.1. Summary plan of the excavations reported in this chapter. The northern field of small altars has been reconstructed from surviving traces. Arrows point to places, at the front of the temple, where critical areas of brickwork survive.

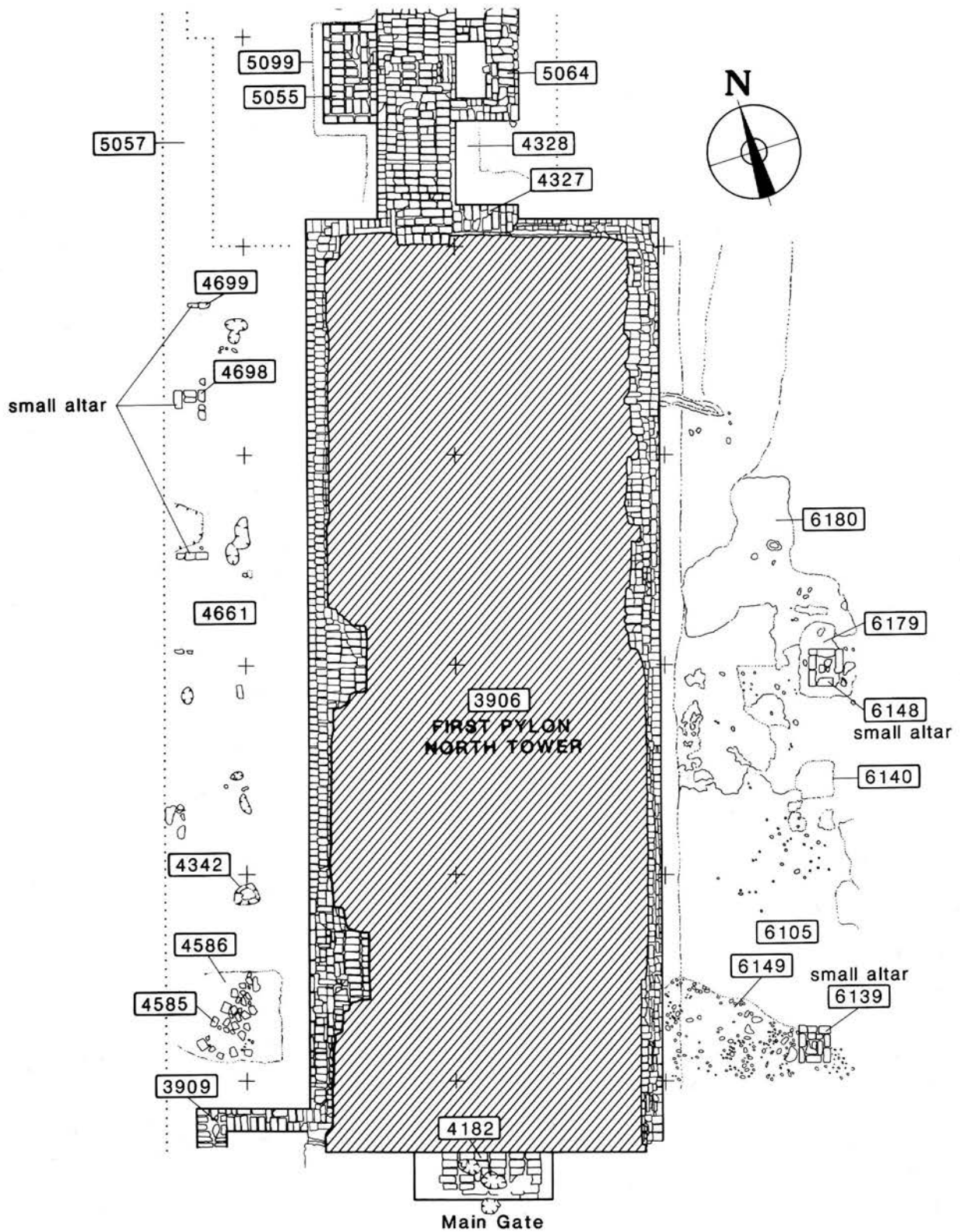


Figure 5.2. Plan of the north tower of the First Pylon and adjacent ground.

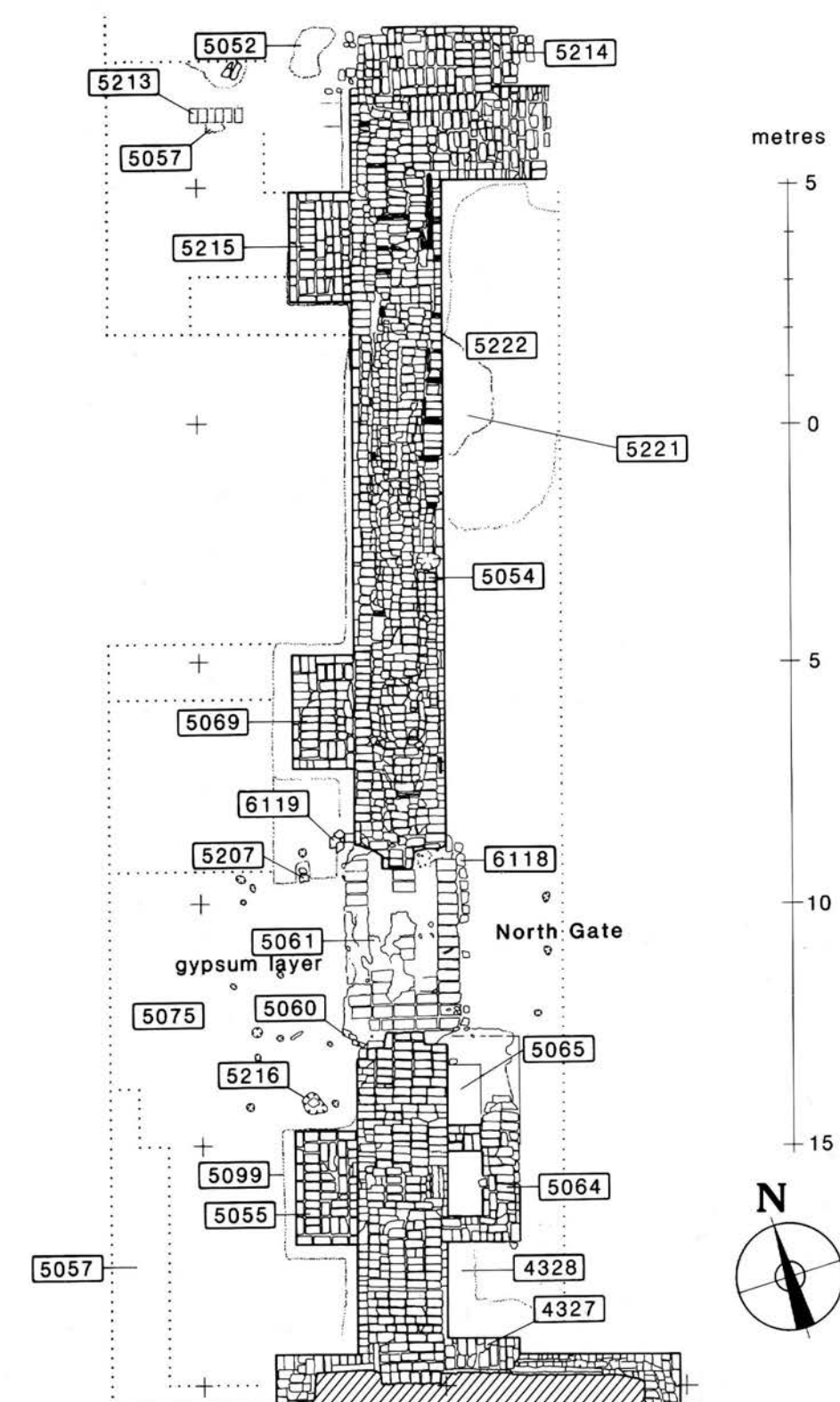


Figure 5.3. Plan of the north section of the west enclosure wall.



Figure 5.4. View to the north of the excavated strip in front of the west side of the Small Aten Temple. The remains of the small altar [4698] are in the foreground.

group. It had been reduced to its lowest course of bricks and had been buried in a layer of sand [6123] underlying a mud surface [6102] which, in turn, had been coated white [6133]. The altar itself had also retained a small amount of white plaster [6181] which joined a whitened floor [6179] that in turn overlay a further floor [6180, 6104] above a sand-gravel layer [6105].

The top mud surface [6102] covered a large part of the area and was marked with a number of fires and with pits, filled with incense, date seeds, and burnt pottery. This surface also seemed to abut one other small altar [6106] (not included in Figure 5.2). Significantly, only when the white layer is spread over it does the surface cover the small altars. The general underlying surface (a sandy gravel [6105] at the area around the Main Gate) covers a mud surface [6150] with large pebbles [6149]. This seems equivalent to the Phase-IA surface [3914]. This stratigraphy suggests that the small altars were built in the latter part of the first phase, Phase IB, on a mud floor which was whitewashed at the same time as the altars. They survived into Phase II, up to five rows across, and still saw some use, as is suggested by the pits containing incense, and the areas of ash. The floor by this stage was an unpainted mud surface. Finally, the outer rows of small altars were levelled off at the then ground level and the surface whitewashed. This could have been at the same time that the Great Altar was demolished, or at a later date, when Smenkhkara's gateway restricted access to the First Court.

5.3 Ground outside the North Tower of the First Pylon

A strip of ground, 3.5 m wide, in front of the northern tower of the First Pylon was examined in 1988 and 1989 (Figures 5.2. and 5.4). Three principal surfaces were revealed with filling material between them:

1. An upper mud floor close to the modern surface with brick tumble and broken gypsum laid over it [4585]. This is probably the Phase-II floor, with Phase-III and -IV floors closely packed on top of it. It survived in a limited patch only close to the Main Gate, where the Phase-II floor had already been seen to approach closely the Phase-III floor. This combined surface overlay a sandy fill [4586] and a sandy compacted surface [4344].

2. A thick floor of mud mixed with chopped straw [4661], which actually continued northwards almost as far as the North Gate (it was given the number [5057] over the northern stretch). It overlay a sandy fill [4662]. This floor probably corresponds to the thick Phase-IB floor which had been cut through by the foundation trench of the southern tower of the First Pylon and which was level with the bottom of the gypsum floor of the Main Gate.

On this mud floor the discovery was made of traces of mud-brick structures scattered across the width of the pylon tower. The best preserved was [4698], which was initially revealed and planned at the end of the 1988 season, and re-examined, with further scraping away of thinly preserved deposits, in 1989. It comprised the lower part of bricks which had been arranged in a small square. Traces of a whitewashed surface still adhered to the bricks on the east side. The conclusion is inescapable that this is the remains of a small altar. If the pattern of small altars known from the forecourt of the temple is extended westwards (as in Figure 5.1), beneath the line of the pylon, it corresponds closely to this and to the various other traces of mud brickwork which survived on floor [4661], including the line of bricks [4699]. It therefore looks as though, in Phase IB, the small altars not only covered an area that extended under the later Phase-IIA pylon but also extended beyond the front of the temple as it was later defined by the building of the pylons. Thus, to begin with, the temple ground extended further to the west.

3. A thin mud floor with date seeds and incense trodden into it [4676]. This surface is definitely cut by the pylon foundation trench and must correspond to Phase IA. Again it was clearly defined only close to the Main Gate, where a corresponding floor related to the Great Altar was found in 1987 [3412]. This surface overlay a sandy gravel surface [4677].

Another feature of Phase-IB floor [4661] is the row of shallow pits, 1.5 m from the face of the northern tower, which cut through it (the largest is [4342]). They also occurred, though less well defined, on the Phase-IA floor. Their fill contained a large quantity of pottery. It is probable that they belong to the construction phase of the pylon towers, as they seem to correlate with the series of puddles observed in the face of the pylon, and may even be postholes for the footing of wooden scaffolding.

5.4 The north section of the west wall

The northern part of the west enclosure wall [5054], which has a thickness of 1.95 m, was cleaned and examined in 1989 (Figure 5.3), and further work was done in 1990 preparatory to consolidation of the brickwork. A considerable number of bricks impressed with the *Hwt in* stamp were found, and much evidence for the insertion into the brickwork of timber beams running both parallel and perpendicular to the wall surfaces. Where the wall joined with the north tower of the pylon, a narrow brick buttress [4327] had been added, built on a conspicuous 14 cm-thick mud floor [4328] which abutted the actual pylon, over a sand layer [4329]. Similar ones occur beside the south pylon tower and beside the towers of the Second Pylon.

Between this buttress and the North Gate a brick cellular construction [5064] had been built against the inside face of the enclosure wall. It has exact counterparts inside the southern stretch of the enclosure wall, beside the South Gate (see below), and beside the towers of the Second Pylon. The wall, which runs parallel to the enclosure wall and 65 cm from it, was only partially preserved. From traces actually found, and from comparison with the other examples, at its northern end it would originally have turned in to join the enclosure wall on a line which corresponds to the inside face of the brick nib and probably to the inside face of the stone jambs which replaced them in Phase III (see further, section 5.5). The cellular form was completed by median and southern cross walls which were thinner than the east wall. The internal cross wall

had been built on a layer of sand [5065], probably wind-blown, that rested on the mud floor [4328], another sign that it was an addition. Traces were also noted at its southern end which implied that a thinner wall had been added which linked the cellular construction to the narrow buttress [4327] built against the pylon (referred to in the previous paragraph).

All four examples of these cellular constructions occur in pairs on the insides of walls which flank the towers of pylons; in each case a piece of buttressing of the same width has been added to the side of the pylon. Pendlebury described them as "niches apparently for sandstone stelae of which fragments were found. That to the north was blocked by a wall. The two small spaces in the thickness of the wall may have been for the sake of economy" (*COA* III: 93). Certainly the cellular plan implies that each was a foundation, although whatever it was intended to support did not require a matching counterpart on the other side of the gate, and was also not intended to be conspicuous. The closest parallels at other buildings formed the foundations for staircases. If this were the case here, the stairs would have begun from beside the gates and run up towards the pylon towers. The additional buttressing beside the towers could then have supported timber beams to bear continuations of the stairs actually within the bodies of the pylons. The intention would presumably have been to provide access to any roofing over the central gateways. This would have been an alternative to running the stairs wholly within the pylon towers, starting from the base, as was done in some other New-Kingdom temples. The surviving brickwork is, as just noted, an addition made when the temple floor had been laid, but there is no means of knowing what interval of time is represented. It should be noted that its southern counterpart had been bonded into the Phase-II wall (section 5.7).

Of particular interest are three rectangular mud-brick projections [5215, 5069, 5055] built against west face of the enclosure wall (Figures 5.5 and 5.7). Excavated in 1932 and recorded on Photograph A198, they were mentioned only as brick benches by Pendlebury (*COA* III: 93) and were not planned. They are (at 7.40/7.50 m) spaced rather more closely together than the buttresses attached to the other three sides of the enclosure wall (with slightly less than 10 m between them), and are also set in a different relationship to the actual wall corner; yet they were built similarly into the structure of the wall, with the same stamped bricks. Their absence from the enclosure wall south of the First Pylon is notable, given the symmetry of the building, and this reduces further the likelihood that they were buttresses intended to rise to the full height of the wall. They could have been considered necessary along the northern part as underpinning where the ground falls away, and so would have been concealed so as not to break the symmetry of the facade. However, the general lack of foundations elsewhere would suggest that underpinning was not considered essential.

The two northern benches have been eroded down to the same level to which the outer edge of the wall has been reduced. However, the wall behind the southernmost [5055], which is here better preserved, rises to well above the bench, the top surface of which had been smoothly eroded to a slight slope. These conditions imply that the bench had protruded above the ancient ground level but had not risen far up the wall. The benches could, therefore, have been plinths for statues or stelae. The resulting asymmetry to the appearance of the temple front would have emphasised the North Gate at the expense of the South Gate. This might have been because it was closer to the approach to the temple from the north, along Royal Road.

A true buttress [5214] seems to have been added externally to the wall at the north-west corner, though it did not project beyond the west face of the wall. Like the nearest buttresses which ran along the outside face of the north wall, it has a higher foundation level and was bonded into the wall above the original plinth level. However, the buttresses further along, notably those of the east wall, had been built as an integral part of the wall construction. This suggests either that the buttresses were incorporated as the building proceeded, or that the eastern end of the temple was a later addition built to match the western end. As part of Phase II there is a good mud road surface [5052], parts of which abut the west wall beside the northern buttress.

A strip of ground inside the temple, running along the east side of this wall, was also cleared in 1989. The principal surface was a mud floor [5222], 8–10 cm thick, found preserved at the north end where it had been protected by the angle of the wall. It overlay the foundation trench fill [5225] and a gravel layer [5224], and abutted the wall [5054]. It is equivalent to the 14 cm mud floor [4328] which, further south, abuts the north tower of the First Pylon and had run beneath the cellular construction beside the North Gate. Over this had been laid a floor of stone

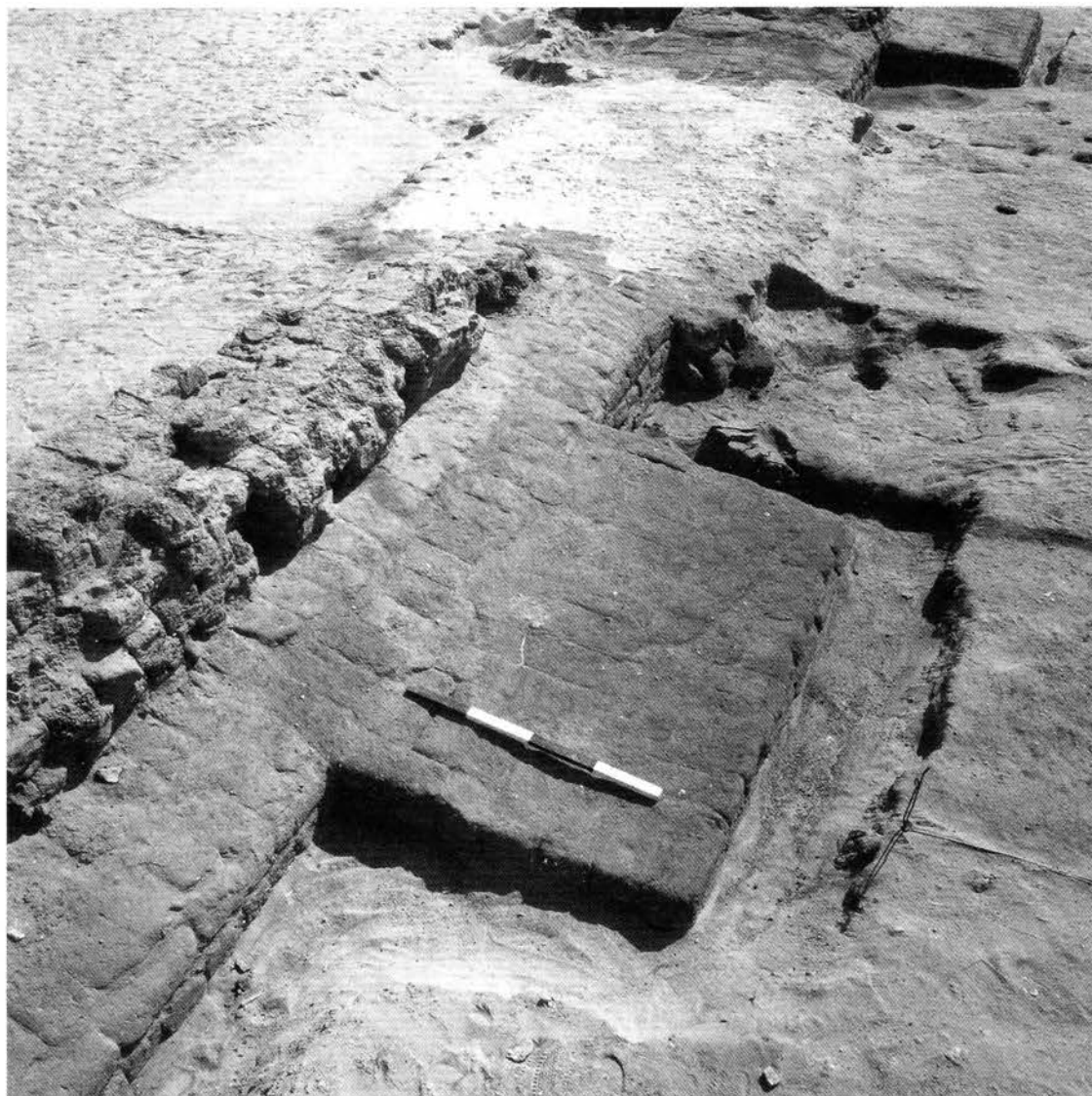


Figure 5.5. View to the south of the brick benches which flank the North Gate.

chippings [5221] embedded in mud which has been noted elsewhere inside the temple, and perhaps came to form the floor for most of the time that the temple was in use. Over this lay a further mud floor [5220], but this might be part of the destruction phase, as a mud floor was observed by Lavers overlying the North Gate (see below).

5.5 The North Gate

The North Gate was examined over the seasons 1988–90, the final one seeing a narrow trench cut across it to obtain a clearer picture of its internal stratigraphy (Figure 5.6). This revealed a history which has a partial analogy to that at the Main Gate, in that a seemingly all-brick construction of Phase II had been superseded by one of stone, presumably in Phase III.

Initially the brickwork of the enclosure wall [5054] had been laid continuously beneath the site where the gateway was to be. This brickwork became the threshold of the gateway, which was flanked by two brick nibs 3.40 m apart. Whether a wooden frame was then fitted in order to hold

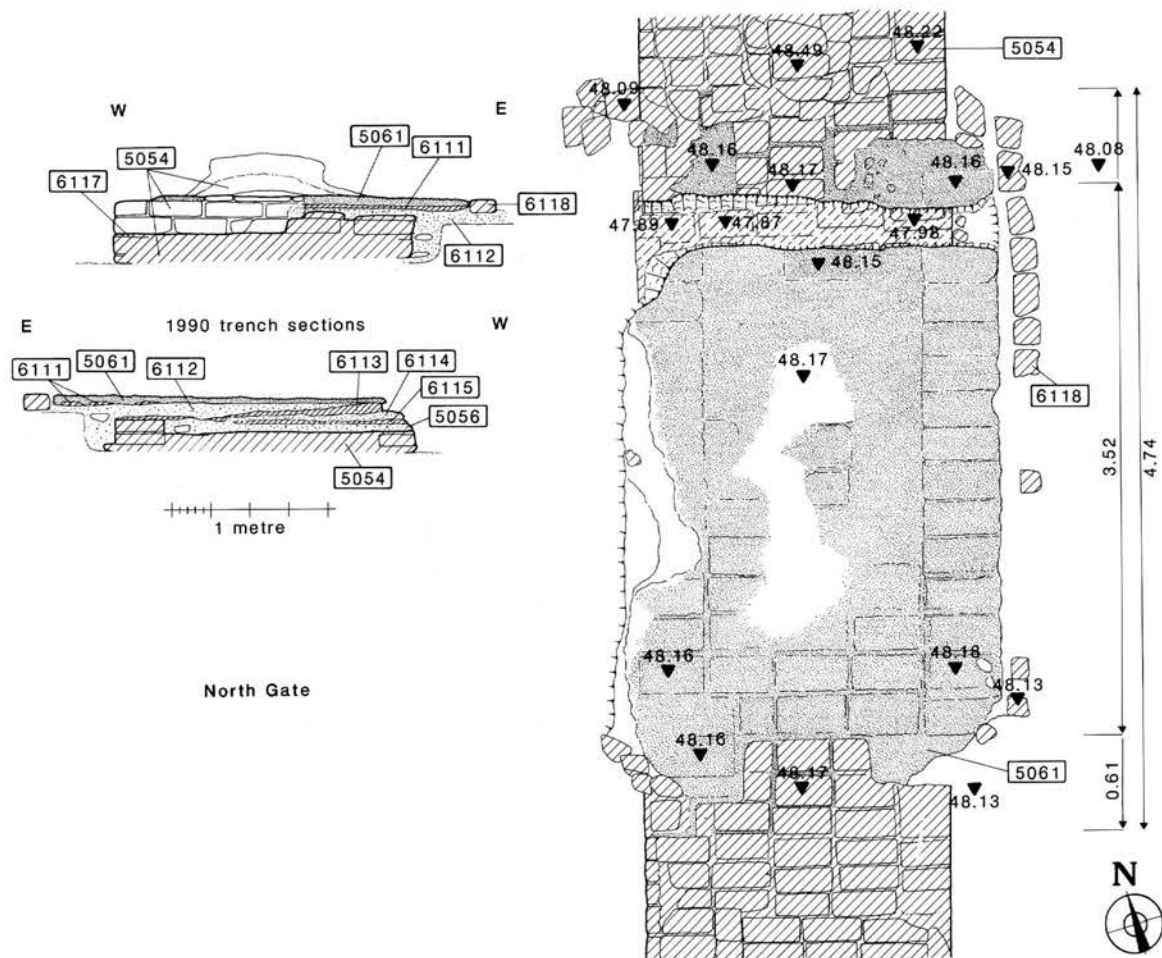


Figure 5.6. Detail plan of the North Gate, and section drawings of the north and south faces of the trench cut across the threshold.

pivoting doors is, as is the case with the other gateways, unknown (the gateways between the pylons were too wide to have been closed). The exploratory trench across the gate uncovered, on top of the brickwork [5054], a layer of mud mortar [6117] on which at least one further course of bricks had originally been laid before the modifications of Phase III. From the north section face it could be seen that two courses had actually been removed at this time.

The remodelling of the gate had been done by cutting out these two courses and then building the threshold up again with different materials. First came a sequence of sand and mud layers [6112, 6113, 6114, 6115, 5056], then a thin mud layer [6111], and finally a layer, up to 5 cm thick, of gypsum and stone chippings [5061]. Some of the bricks removed might have been placed in a line along the top of the external foundation trench on the east [6118]. Both here and at the South Gate the liquid gypsum filled the spaces between the mud bricks at the sides of the gate, giving the impression that they had been laid in gypsum and thus that they were of the same period as the gypsum concrete foundation. This would mean that both stages of the gateway were of Phase II. It was normal, however, for the vertical joints between bricks not to be filled with mortar as building progressed. The effect that we see was more likely the result of the brickwork at the sides of the gate having been cut back to make the gateway somewhat wider, and the gypsum of the new foundations then running down into the exposed joints between the course that was left at the bottom. This interpretation is confirmed both here and at the South Gate by patches at the edges where gypsum lies directly over the brickwork. The width of this gypsum concrete foundation bed would then have been around 4.7 m.

Stone blocks had been laid on the gypsum bed. These had left clear impressions at either edge but less so in the middle where, in one of Pendlebury's photographs (A128), the surface seems to be broken up, with the remains of a mud layer showing. The pattern of the impressions shows that five rows of blocks had been laid, to give a thickness of 2.30 m, the extra width being all on the inside of the gate. It is likely that the stone threshold was the base of a fully stone-lined gateway, the stone jambs being built over the base of the removed brick nibs. In Figure 5.6 estimates are given for the thickness of the jambs and width of the actual gateway. The blocks which would have formed the base of the stone jambs would have been laid directly over the cut-down brick jambs instead of over a separate layer of gypsum concrete. When they were prized up during the destruction of the temple, they would have come up with the gypsum bedding mortar still adhering to them. It would have been necessary, in order to retain the cellular construction [5064] (a staircase?), for the inside face of the southern stone jamb to have butted against its end. No masons' marks appear in the block impressions, some of which are as clear as those of the Main Gate, but this could be because they were just for a stone threshold, while the Main-Gate stonework was for a more important structure.

The gateways to Amarna temples were often approached up ramps of a very shallow slope contained between parallel brick wing-walls. The outside of the North Gate had probably been provided with such a ramp, but only a few fragments of brick survive from the wing walls, [5060] on the south and [5207] on the north. The placing of these wing-walls suggests that they antedate the stone gateway since, had they remained intact, they would have abutted it inside the line of its full width.

The new floor to the gateway coincided with the rebuilding of the ramp externally at a steeper angle. Traces of a further mud floor with gypsum in the surface (no longer visible) can be seen abutting the wing-walls in Pendlebury photograph A198. This phase is possibly associated with a pit [5216] which contained fragments of gypsum. It is either a mixing or refuse pit. As the ramp only reaches to just above the existing surface it suggests that the stonework was not very thick, perhaps only of one stone layer.

5.6 Ground outside the north section of the west wall

The strip of ground, 3.5 m wide, which was cleared and examined along the full length of the north tower of the first pylon, was continued in 1989 along the front of the northern stretch of the west enclosure wall, becoming 5 m in width as it did so. The conspicuous Phase-IB floor [4661] in front of the pylon continued north as the mud floor [5057], fading away as it approached the North Gate. Just as with the pylon, the enclosure wall had been built in a foundation trench [5053] cut through this floor. Deeper soundings dug in front of the North Gate revealed beneath this floor a soft sand layer with mud flakes in it [5209], a compacted surface with flecks of mud floor [5210] (perhaps the Phase-IA floor), and finally a sand layer [5075] in which a number of postholes had been cut. They had not been sealed by any surface, and contained in their fill pieces of broken mud floor, fallen there after removal of the construction posts. The only intact mud surface at the gate was that over the sand approach ramps.

An important discovery was made just outside the north-west corner of the enclosure wall (Figure 5.7). This was the very denuded remains of a row of mud bricks [5213] running out from the front of the temple, on a line with the north enclosure wall. A patch of hard desert close against the enclosure wall might represent compacted soil from beneath its foundations. A small patch of mud flooring abutted it, perhaps the same as the Phase-IB floor [5057]. This fragmentary cross wall could be part of the north side of the enclosure of the Phase-I temple which has otherwise been destroyed and which would have enclosed the ground to the west of the later temple forecourt.

5.7 The south section of the west wall and South Gate

No detailed study of the south tower of the First Pylon has yet been done. The full length of the southern portion of the western enclosure wall together with the South Gate were, however, examined in 1988 (Figure 5.8). Although erosion has eaten into the brickwork at just above plinth level, the core of the wall has been preserved to a considerable height as it runs south of the



Figure 5.7. View to the south of the excavated strip in front of the west side of the Temple.

South Gate. The foundations of this stretch of wall are very shallow, perhaps reflecting the slight but steady upwards incline of the ground as one moves south. Because of this lack of depth, erosion has actually cut into the plinth in the middle of the west face. No traces were found of external benches or buttresses corresponding to those in the north.

The actual point at which the west wall becomes deeper is where this southern section abuts the South Tower of the pylon. This was noted in a small excavation carried out in 1989. The Phase-II mud floor [4348] abuts what, for the whole length of the south end of the west wall, is the foundation course but which at this point changes from bricks laid on their edges to a row of three stretchers. Further excavation showed that these last three no longer rest on the clean sand but are on top of the foundation fill [5071] of the foundation trench [5073]. In the bottom of this, part cut through and part overlaid by the row of stretchers, is another course laid on its edge and set in mortar [5072] and resting on the clean sand at the same depth as the South Pylon foundations. The overall interpretation is that this part of the wall was built after the South Pylon and the discrepancy in levels due to the slope of the land was compensated for by stepping down the foundations at the point of junction.

Reclearance of the South Gate uncovered the remains of a gypsum bed for limestone blocks [4322] which had, at the southern end, left their imprint in the gypsum (Figure 5.9). The bed was more eroded than its northern counterpart. Its maximum width was 4.00 m on the outer, western side, its maximum breadth 2.20 m, the eastern edge having projected into the temple forecourt. The pattern of the blocks varied slightly from that in the North Gate, in that two courses of stretchers had formed the outer western edge instead of a single course of headers. The foundation bed was stepped outwards slightly on the west side, giving it an extra width. This could have been for stone jambs. An area of hard mud and mud lumps [5941] lay over the central area of the gypsum. Although in one of Pendlebury's photographs (A129) the gypsum seems higher than the mud, this is because the mud lay within a broad hole cut into the gypsum bed. In all likelihood it is a patch of rubble. At either end wet gypsum filled the gaps between the mud bricks, and also lapped slightly over the edges of their eroded tops which lay at the same level. The gypsum foundation had clearly been laid after the brickwork of the sides had been cut back. This is consistent with the two-phase history documented at the North Gate. Of outer brick

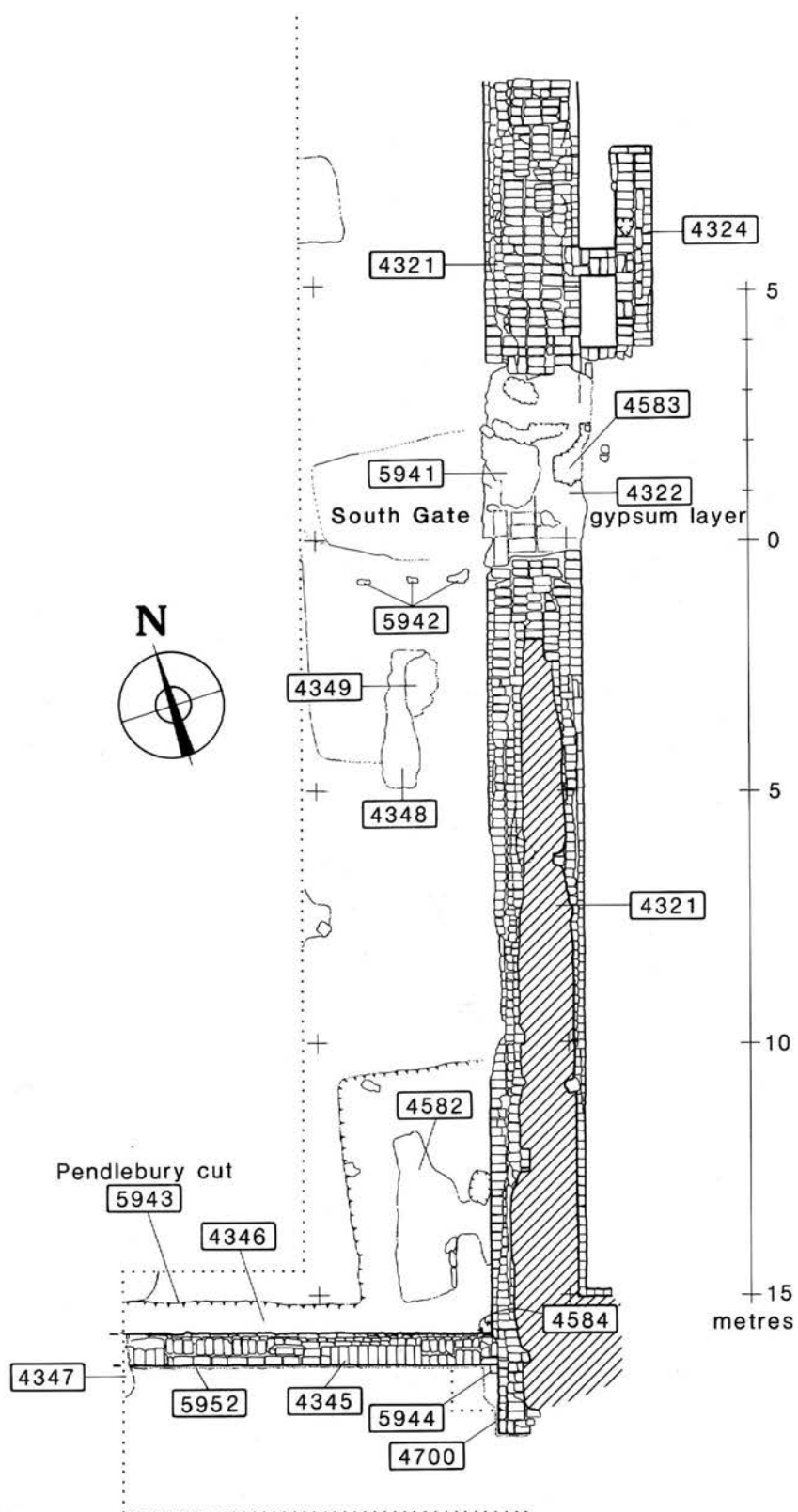


Figure 5.8. Plan of the south section of the west enclosure wall.

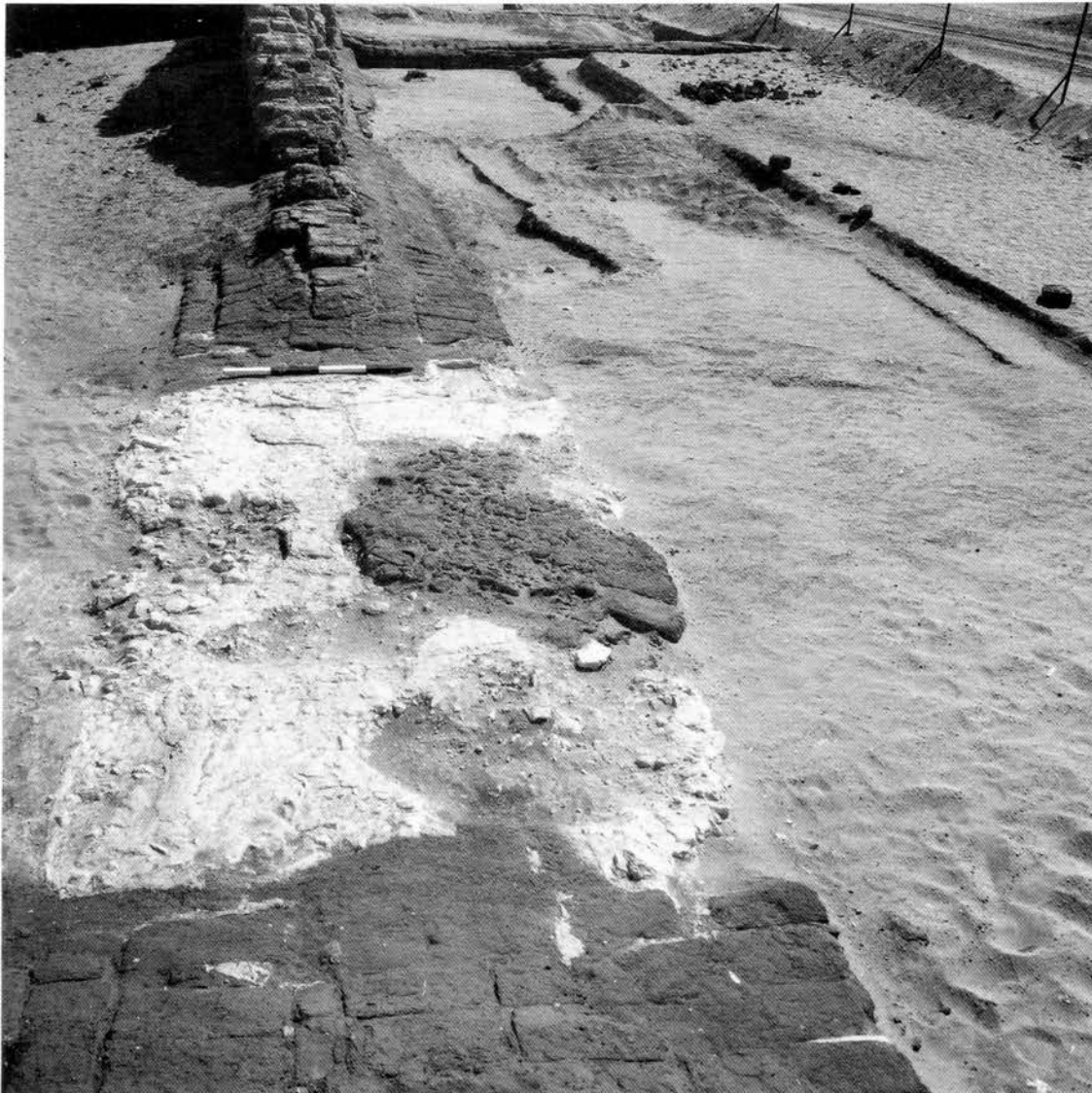


Figure 5.9. View to the south of the South Gate and southern section of the enclosure wall. In the distance is the east-west wall [4345].

wing-walls, a few traces remained of the southern one [5942], on a line which coincides with the maximum extent of the gypsum foundation.

The gypsum foundation layer rested directly on a sand surface [4583] without underlying brickwork. In this it differed from the North Gate, which had preserved the lowest courses of bricks from the initial gateway. It probably reflects the rising level of the ground at this point which reduced the foundation layer of the wall by two courses so that, when the cut was made for the gypsum foundation bed, the bricks were all removed. The general picture of these Phase-II gateways, north and south, is that they were probably simple openings with mud brick-floors and mud-brick jambs into which perhaps a timber doorframe was fitted.

Beside the gate, on the north inner side of the enclosure wall a short distance from the pylon, a brick cellular structure [4324] was cleared which matches one beside the North Gate, and others beside the Second Pylon. It consisted of a wall parallel to the enclosure wall but only 70 cm from it, and joined to the former by two cross walls which had been bonded with the brickwork of the

enclosure wall, suggesting that it was actually of Phase II. Of the third cross wall, originally at the north end, only the eastern corner survived. It had no internal floor and was of the same construction as the Phase-IIA walls. As with the one beside the North Gate, the fact that it was so poorly preserved beside the gateway prevents a proper assessment of whether this part had ever been the bottom of a flight of stairs running up into the pylon.

On the inner south side of the gate a Pendlebury trench along the base of the wall had been back-filled with quartzite and pink granite fragments, some carved with cartouches. They could be some of the fragments of "sandstone stelae" reported by Pendlebury in the vicinity of the gates (COA III: 93). Where the carvings originally stood cannot be ascertained.

5.8 Ground outside the south section of the west wall

A strip of ground c 3.50 m wide was cleared along the full extent of this stretch of the wall (Figure 5.9). A very shallow stratigraphy of hard surfaces and softer fills was preserved in isolated patches, in all cases separated from the temple enclosure wall by Pendlebury's trenching. Towards the north, close to the South Gate, a gypsum and mud floor mix [4348] (probably of Phase IIB/III combined, as at the Main Gate) lay directly over another mud floor [4349], probably of Phase IIA/IB. Another patch of preserved ancient layers was towards the southern end of the cleared strip. This consisted of a mixed layer of chippings and mud [4580] (presumably of Phase IIB/III) over a sand levelling layer [4581]. Under the levelling material there remained a 10 cm-thick mud floor [4582] over a sandy layer [4583] on to which the Phase-IIB gates and wall had been constructed. This floor corresponds to unit [4349] beside the South Gate. Its thickness also suggests that it is equivalent to the distinctive thick mud surface of Phase IB [3912] which was found in 1987 in front of the Main Gate (Figure 5.13) and had been cut by the South Pylon. More of this surface was located beneath the current main road in some of a series of pits dug by the expedition for posts to support a barbed-wire fence across the front of the temple. The pits in which it was encountered lay opposite the Main Gate and continued southwards for 25 m towards the South Gate until the rising ground prevented its detection in the bottom of the pits. The two excavations made on the west side of the road failed, however, to pick it up, although it presumably has its equivalents in the strata found.

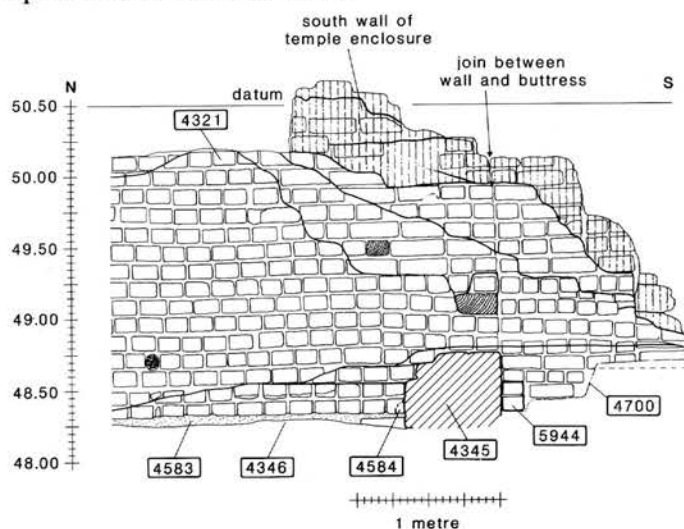


Figure 5.10. Elevation of the face of the west enclosure wall and south-west corner of the Small Aten Temple, with wall [4345] shown in section.

As at the south end of the temple, the clearance of a strip of ground in front led to the discovery of a wall [4345] running outwards from the temple corner, in this case the south-west corner (Figures 5.10 and 5.11). It was far more substantially preserved and, although omitted from the plans and notes in COA III, had actually been exposed in 1932. This can be seen from a



Figure 5.11. View to the east of wall [4345] and of its abutment with the temple enclosure wall.

contemporary photograph (A200), and the published aerial photograph, *COA* III: Pl. XXIV. Our own work was limited to reclearing Pendlebury's trench which had, close to the temple enclosure wall, turned into a broad excavation. The western end of this trench coincided with the modern barbed-wire fence which formed the limit of our own work. The wall, which is 65 cm thick, has in this way been exposed for 7.5 m of its length before it disappears beneath the modern road.

Its abutment to the Phase-IIA enclosure wall [4321] revealed that it had been constructed and joined to it at the same period, and (as has been noticed in many places in the Phase-IIA enclosure wall and pylons) had re-used whitewashed bricks in its foundations, presumably derived from the demolition of the Phase-I enclosure wall. Furthermore, a patch of mud plaster bearing traces of whitewash [4584] still remained in one corner, linking the two walls together. In the opposite corner where the new wall met the enclosure wall, and which represents the actual outside corner of the temple enclosure (excluding the corner buttress), very hard foundation bricks [5944] stood out slightly. They are similar to those found in the Main Gate and King's House and seem to have been used for setting out buildings. They form, in effect, the end of the plinth

beneath the enclosure wall [4321].

The projecting wall [4345] had been set in a foundation trench [5952] which had been cut to a depth of between two and three courses into a very hard sandy layer [4346] which formed the ancient desert surface and was here sloping upwards slightly towards a high point just to the south of the temple. The foundation trench of the enclosure wall of the temple [4321] had also been cut into it to a similar depth, although only a small part of it [4700] had survived close to the south-west corner. On the south side of the projecting wall the hard sand had been left in place, but an examination of what was left of the stratigraphy on the north side shows that this same layer had been removed in ancient times. Consequently, to begin with, the ground on the south was higher than the ground on the north and, whatever other function the wall may have had, it did, for a while, separate the two ground levels. Close to the temple, erosion has left the top of the wall sloping down from south to north, something which would have happened if the wall had been only a low revetment. Further out, however, the top of the wall becomes flat. There is some correspondence in this pattern of erosion to the extent of the adjacent ground dug by Pendlebury, which makes it possible that it took place after the wall had been exposed in the 1930s. The way that the wall eroded should therefore be excluded as evidence as to how high it had originally been. The contrast in thickness between it and the temple enclosure wall proper, and its lack of supporting buttresses, makes one think that it was not particularly high, but it was a very real boundary nevertheless.

Pendlebury's excavation had destroyed much of the stratigraphic connection between the wall and the deposits on the north side. Around the barbed-wire fence, however, close to the limit of our own and Pendlebury's excavations, a hard mud surface [4347] ran over the top of the wall. Since this is almost at the present level of the road, it is not certain whether it is an ancient surface, of Royal Road when it was extended southwards, or a modern one. On the south it overlay a sandy-gravel levelling layer [4579] over the natural hard sand [4346]; on the north it overlay the two floors [4580, 4582] already referred to. These layers, with the sand [4581] between them, had brought the ground on the north back up to the original natural level and probably allowed the projecting wall to be demolished so that Royal Road could run over it.

The existence of this wall complicates the history of how the Central City developed. The slight traces of a wall [5213] in a corresponding position at the north end of the temple clearly belong to a very early stage in building, probably of Phase I. The much better preserved wall [4345] at the southern end belongs just as clearly to Phase II. The question that this raises is: did wall [4345] replace an earlier one on the same line which would have been equivalent to the Phase-I wall at the north end? A length of enclosure wall of the Phase-I temple was actually uncovered in 1990 during reclearance of the southern enclosure wall of the temple. It had run parallel to but slightly outside the line of its Phase-II replacement. No trace of it was found in the vicinity of wall [4345], but it seems reasonable to consider that wall [4345] was continuing its line and its function in Phase II. We do not yet know for how much further westwards it ran. It could, for example, have marked off only a strip of ground in front of the Phase-II temple in a way which prevented users of Royal Road from approaching too close to the temple enclosure wall. If it ran for much further, however, it would actually have blocked the thoroughfare, as its presumed Phase-I predecessor would have done. Uncertainty also surrounds for how long it remained standing. Both questions need to be answered before we can accept that Royal Road did actually continue beyond this line before Phase III, thus before Akhenaten's death. The possibility that this wall (and its presumed Phase-I predecessor) can be picked up much further to the west (around the pavilions O42.1 and .2) will be taken up in the final section of this chapter.

5.9 Work on the west side of Royal Road, 1: the Smenkhkara Hall

The remains of walls running out westwards from the temple at the north and south ends and of small altars in front of the temple pylon point to the likelihood that the temple precinct at first extended right across Royal Road. In order to investigate this further, during March and April of the 1990 season some trial excavations were carried out on the other side of the road. The present line of Royal Road through the Central City carries regular traffic between the modern villages, as well as heavy lorries which serve quarries in the desert. It was not feasible, therefore, to cut long trenches across the road and so to follow directly the archaeological strata until they linked

Smenkhkara Hall

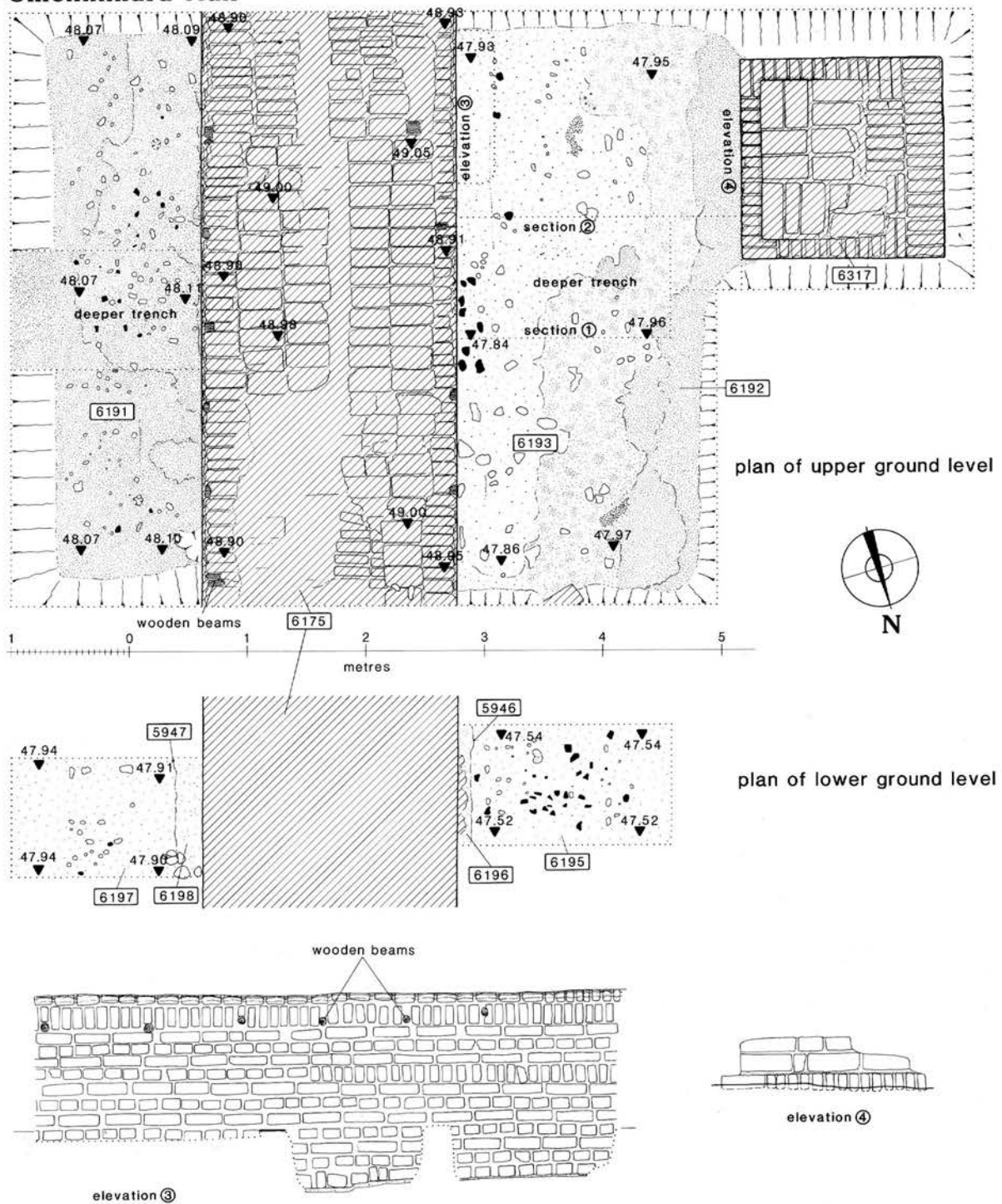


Figure 5.12. Plan of the excavation area across the east wall of the Smenkhkara Hall and elevation of the exposed west face.

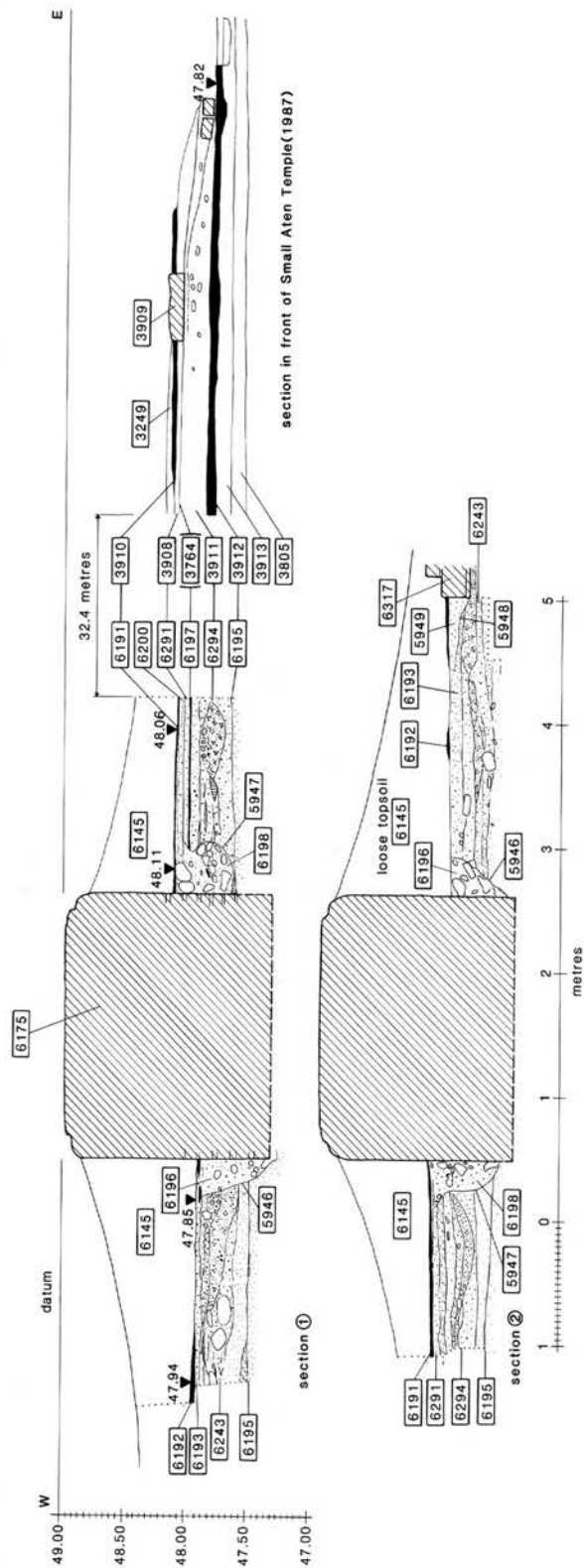


Figure 5.13. Sections across the west wall of the Smenkhkara Hall.

the various parts of the excavation. How they relate to one another across the excavation areas is accordingly based to some extent upon prior knowledge of the phasing of the buildings to which other kinds of evidence contribute. The task of linking the strata is made difficult by the variable depth of the deposits overall.

One area chosen for investigation was directly opposite the Main Gate of the Small Aten Temple, and straddled the east wall of the Smenkhkara Hall [6175] the top of which breaks the modern surface of the ground. Separate stratigraphic sequences were obtained for both the east and west sides of this wall, representing the outside and the inside of this building (Figures 5.12 and 5.13).

On the east side (and thus representing the edge of Royal Road) removal of the loose dusty topsoil [6145] exposed a clear mud surface [6191] which abutted the wall, an indication that this area had not previously been dug to a significant depth. Because of the looseness of the topsoil, which threatened all the time to run down into the excavation, exploration of the ground below this floor proceeded through the digging of a much smaller trench. The deposits revealed beneath the floor did not, for the most part, form an even horizontal series but rose and fell and sometimes lay in lenses. Thus the north and south sections of the trench do not match one another because the deposits undulate in all directions. The deposits were mostly sandy gravels varying in colour through yellow, grey, and brownish-red; rubble was also present to a modest degree, either as pieces of brick or larger natural stones or mixed in with the gravel. Most or all of the units are likely to belong to a single phase of dumping in which materials from different sources were being brought more or less simultaneously. As the excavation progressed, an attempt was made to give each element a separate unit number but, for the writing of this account, most of the numbers have been dropped and the greater part of the deposit treated as a single unit [6294]. Towards the top were thin deposits which did lie closer to the horizontal and, for these, separate numbers have been retained, although still the north and south sides of the trench do not quite match. They comprise yellow and grey sandy gravels [6200], [6291], and a thin mud floor [6197] which could only be picked up in the north section face. The entire sequence rested on a fine sand layer filled with pottery [6195].

The sections reveal clearly the foundation trench [5946, 5947] in which the wall of the Smenkhkara Hall [6175] sits. It was cut through the whole sequence of deposits with the exception of the uppermost floor [6191] which ran across it and lapped against the wall. By contrast, at the Small Aten Temple the foundation trench for the outermost pylon towers was both narrower and shallower, and had been overlaid by at least two mud surfaces and a sand layer, with a combined depth of 20–30 cm (AR V: 122–5).

On the west side of the wall of the Smenkhkara Hall, thus inside this building, the excavation followed a similar course. Removal of the loose dusty topsoil [6145], which held several almost complete bricks, exposed a mud floor [6192] preserved only patchily though generally better towards the west. It lay about 25 cm below the upper floor on the east side of the wall. A small test trench was cut into it in order to expose the underlying strata, and this was subsequently extended westwards to include the base of the brick pier [6317] which lay on the edge of the excavation. As was the case on the east side of the wall, the floor was found to cover a series of irregularly-lying deposits of yellow, grey, and brownish-red gravel, sometimes mixed with dust, which have here been grouped together as unit [6243]. Beneath it was the layer of sand mixed with pottery [6195] which formed the bottom of the trench.

The upper mud floor [6192] faded away before it reached the face of the wall so that its relationship to the wall and foundation trench is not explicit. However, it did lap against the base of the brick pier and run across the shallow foundation trench [5948] in which the pier sits, thus demonstrating that it does belong with the Smenkhkara Hall and must be contemporary with the upper floor [6191] on the other side. From the fact that the wall's foundation trench cuts through the thick dump deposit of variegated gravels, it follows that originally this material ([6294] on the east and [6243] on the west) ran continuously across the excavated area. It further follows that the lower floor level on the west has been achieved by the removal of some 25 cm from the top of this deposit.

A correspondence across Royal Road with the sequence in front of the Small Aten Temple must start with the Phase-III date expected from identifying the building as the source of mud bricks stamped with the name of Smenkhkara (COA III: 60, 150, 194; on p. 150 their source is

said to have been some of the brick piers). Thus the top surface [6191], from under which the trench [5947] was cut, has to be Phase III and equivalent to the mud floor [3910] in front of the temple gate. Between them, across the intervening space of 38 m, the surface must have sloped down almost imperceptibly to the west. In front of the temple the very conspicuous Phase-IB mud floor had been buried beneath 20 cm of sand [3911] which was probably deliberately laid with the intention of raising the level of the ground. It had been cut by the foundation trench for the pylon (AR V: 125, Figure 6.9, section 2) and sealed by a mud floor [3764] which abutted the pylon (and which had not survived in front of the Main Gate where the section reproduced here in Figure 5.13 was drawn). It might have been laid, therefore, as part of a preliminary levelling up of the site prior to the major Phase-II remodelling of the whole temple. If it has a counterpart in the excavation against the wall of Smenkhkara Hall, it will be the mixed sand and gravel fill units [6294], which are probably part of an even larger programme of levelling which extended across the site of the State Apartments in the Great Palace and was necessary to compensate for a ground level which was beginning to slope down towards the river. The mud floor [6197] beside the wall of the Smenkhkara Hall would then be identifiable as the Phase-II ground level; the sherd-strewn ground surface [6195], which was the lowest level reached in the excavations, would be the equivalent of the Phase-IB mud floor [3912] in front of the Small Aten Temple.

Although the prime reason for this investigation was to extend our knowledge of the stratigraphy around the Small Aten Temple, it has also added some details to what we know of the architecture of the strange building which Pendlebury called the "Coronation Hall". The enclosing wall itself [6175] is of very solid construction, at 2.14 m even thicker than the enclosure wall around the Great Palace. Its brickwork had been braced with timber beams set perpendicularly to the wall faces at between 70 and 90 cm intervals. The foundation trench had been cut to a significantly greater depth than was normal, presumably because the builders knew of the amount of material that had been dumped. This care was necessary to ensure stability for a wall that ran for 135 m without lateral support (unless there are still the bases of buttresses to be discovered).

Inside the building we exposed only one of the multitude of brick piers [6317] that filled the hall. It was 1.34 m square and rested on a foundation 1.70 m square made from bricks set on edge which were buried c 18 cm beneath the floor in their own shallow foundation pit [5948] filled with sand [5949]. No trace was found of the vertical mud corner rolls that Pendlebury described. From the way that the mud floor [6192] lapped against the base of the pier, leaving only 2–3 cm of the top of the base exposed, we can conclude that no floor of mud brick was laid down and subsequently robbed. It is important to know this in view of the regularity with which brick floors were laid in buildings of importance.

A further point to emerge, already prefigured in the sections from in front of the temple, is the build-up of debris across the ground west of the temple, extending over the site later occupied by the Smenkhkara Hall. In order to reach firm ground for the foundations of the wall of the latter, the builders had to dig a foundation trench through this build-up to a depth of 40 cm, and then further still into the *gebel*. Pendlebury also dug below the floor of the Hall and encountered "quantities of earlier rubbish-pits and pits for trees" (COA III: 60). If the tree-pits had been dug into the *gebel*, then this would separate them from the floor of the Hall and thus remove one of the pieces of evidence that has been used to support the idea that the Hall was, in fact, a vineyard (Traunecker and Traunecker 1984–85; cf. Timme 1917: 18). However, we cannot yet be absolutely certain of this, although it would be surprising that Pendlebury did not notice the physical connection that should have existed between the tree pits and the piers.

The suggestion that the "hall" was a vineyard of the kind depicted in contemporary tomb and temple scenes is attractive in that it avoids the practical difficulties which arise when imagining this huge area of closely set piers covered by a flat roof. Perhaps the most pressing would have been the build-up of summer heat beneath the expanse of flat roof which is likely to have been broken only by ventilating windows set in the side walls of a central aisle with a roof at a higher level (as shown by Traunecker and Traunecker 1984–85: 295, Fig. 3, which is a reconstructed cross-section of the hall as roofed). The possibility needs to be considered, however, that the hall was erected as a temporary building for the celebration of a single event (perhaps, after all, the coronation of Smenkhkara) but, in the rapid run-down of ceremonial in the city in the period following Akhenaten's death, was never demolished. There is a good parallel for this at Malkata.

The celebration of Amenhotep III's first Sed-festival involved the building of a substantial brick edifice, the walls and ceiling of which were covered in paintings (with grapes on the ceiling). After the celebration the whole building was demolished and the rubble carried away and dumped in a separate place, perhaps (although not necessarily so) because it stood in the way of an enlargement to the great artificial basin of the Birket Habu (the evidence comes from Site K of the 1973 excavations, Kemp and O'Connor 1974). The case illustrates how the Egyptians were prepared to construct on a substantial scale for a temporary building. To see the Smenkhkara Hall as another case helps to explain why the building was allowed to intrude into ground that had belonged to the Small Aten Temple and why its design seems impractical. It remains, however, only a hypothesis.

5.10 Work on the west side of Royal Road, 2: the Great Palace

The line of the north wall of the Small Aten Temple, if prolonged westwards across Royal Road, coincides with the south-east corner of the Great Palace, where it abuts the east wall of the Smenkhkara Hall. The discovery of what could be the remains of a Phase-I temple enclosure wall [5213] on this line and running beyond the front of the temple, reported above, raised the possibility that it might be possible to pick up a continuation of it close to the Great Palace. In order to see if traces of such a wall remained, an excavation was carried out in March–April 1990 over the corner of the Great Palace and the junction with the wall of the Smenkhkara Hall (Figures 5.14–5.16). This also provided an opportunity for a second examination of the stratigraphy opposite the temple in the hope of being able to link the temple to the Great Palace. A previous excavator (presumably Pendlebury) had, for a very limited distance around the corner, dug a trench along the outer wall surfaces which had separated most of the stratified deposits from the wall (visible in a 1935/6 photograph, no. A24, also on the aerial photograph, COA III: Pl. XXIV). He had not, however, continued beyond the beginning of the buttress [6304] that lies close to the corner, and this left adequate untrenched space within the confines of our own excavation. Included within the excavation limits was also a small corner area of the building which lay inside the enclosure wall and to which Pendlebury gave the name *Palace Magazines*, a name that we have retained for convenience.

The clearance revealed that the walls which formed the south-eastern corner of the enclosure around the Great Palace had been built in two phases, an outer earlier-phase wall [6302], c 1 m thick, and an inner lining [6305], c 87 cm thick. The earlier wall had been pointed on its inner face with hard mortar, and bore traces of white paint preserved behind the later addition. An archive photograph (A24) shows whitewash over mud plaster on both the east and south outer faces of this wall as well, extending from ground to about the fifth course of bricks on the south face. Our own work recovered narrow patches of this whitewash at ground level between the corner and the buttress which also lapped on to the lower of two mud floors, where they had been cut by the old trench (Figure 5.15, elevation 3). This provides clear evidence that the Great Palace enclosure wall had been painted white.

The southern leg of the double-thickness wall did not, however, continue for more than 4.30 m west of the corner itself. At this point it is replaced by a wall of the same combined thickness [6307] which had been built in one piece and which continued westwards to serve as both a southern boundary wall to the Great Palace and the northern wall of the Smenkhkara Hall. The join between the two sections of wall was 35 cm east of the abutment with the eastern wall of the Smenkhkara Hall. The two sections differed in their materials. Both of the eastern walls [6302, 6305] used bricks containing desert marl which are now hard, whereas wall [6307] had been built from Nile-mud brickwork which has become soft, and also matches the brickwork of the Bridge and Phase II of the Small Aten Temple. The inner wall [6305], it should be noted, rests on a clear yellow bed of sand [6199] which spread across the intervening space to the Palace Magazine wall [6306], and was at a slightly higher level than the bases of walls [6302] and [6307].

The wall [6307] had been reinforced with timber beams built into the bricks along the courses which run parallel to the wall face. In the exposed end (Figure 5.15, elevation 5) it can be seen that a full brick header course along the south face of the wall is replaced by two pieces of cut timber lying side by side, and two poles of circular section (7 cm dia), also set side by side, are

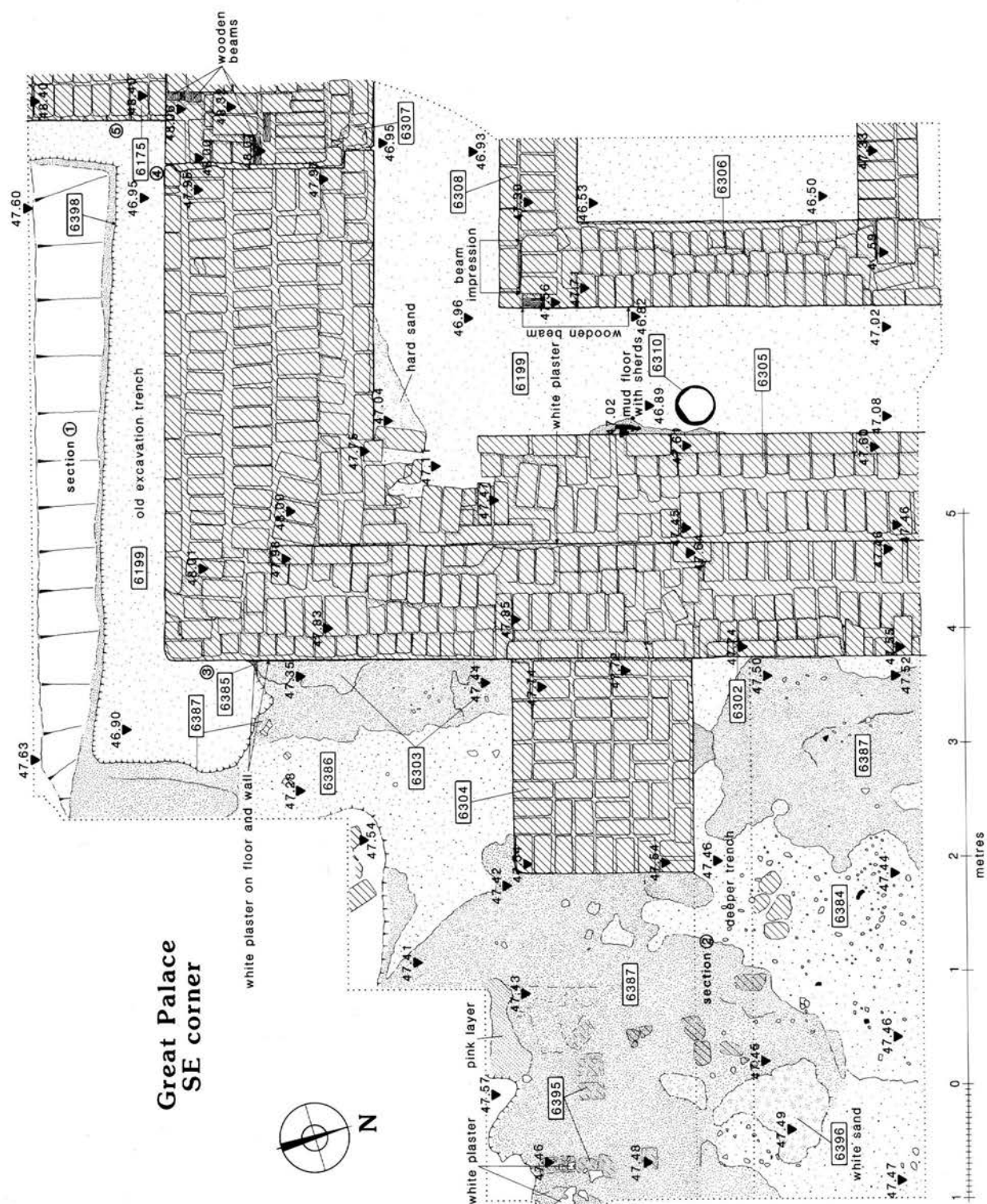


Figure 5.14. Plan of the excavation area at the south-east corner of the Great Palace and its junction with the wall of the Smenkhkara Hall.

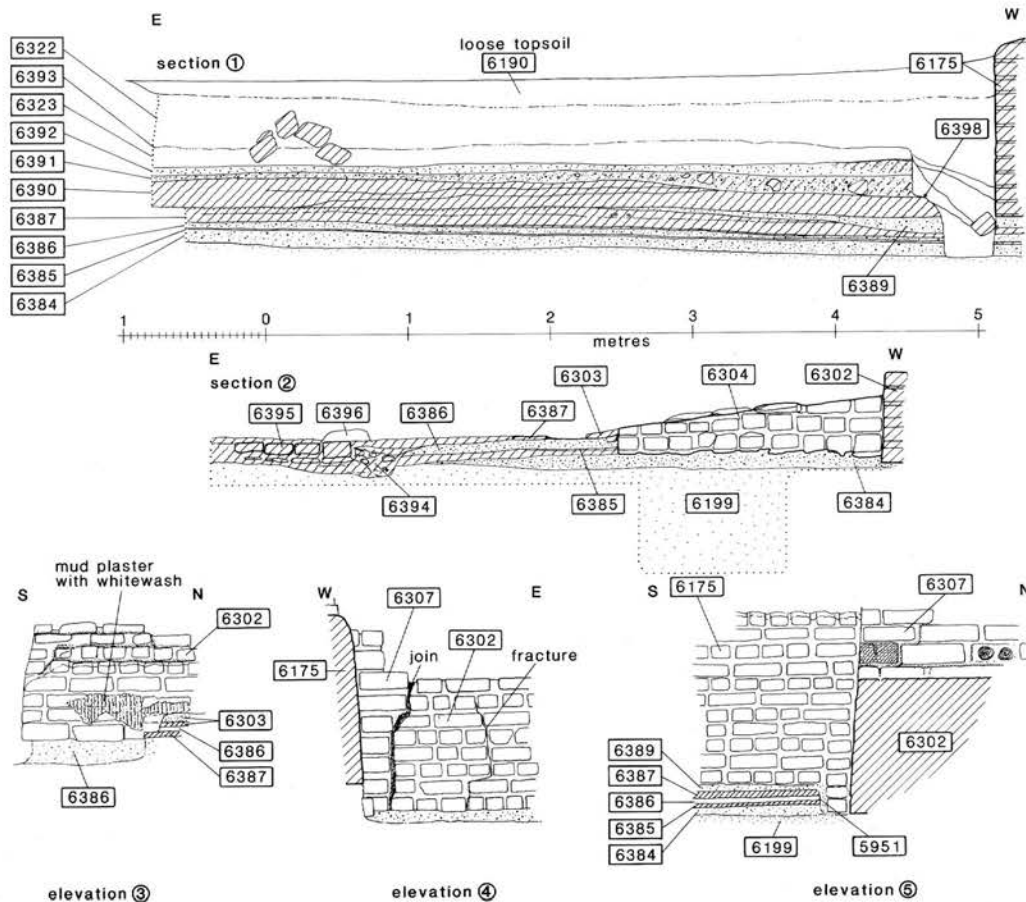


Figure 5.15. Sections and elevations which relate to Figure 5.14.

visible in the middle. Furthermore, a Pendlebury photograph (A74) shows what look to be traces of a corresponding rectangular beam running along the north face. The remains of timber reinforcement were also found at the corner of the Palace Magazine wall [6306] which runs inside, at a level which is not far from the preserved top of walls [6302] and [6305]. The possibility cannot be excluded, therefore, that timber had also been used in these latter walls as well, starting at a level somewhat higher than the preserved wall top. With the east wall of the Smenkhkara Hall [6175] we find a return to the hard desert marl bricks and a timber reinforcement of smaller circular poles built in at right angles to the wall at plinth level (exposed in the section of wall cleared in the trench already described, Figure 5.12).

It should be noted that the combined thickness of walls [6302] and [6305] (and also of [6307]) is the same as that of the Phase II-enclosure wall of the Small Aten Temple (although, as will be argued, this had not yet been built; it is also the thickness of the eastern inner wall of the North Riverside Palace). This thickness was presumably seen as necessary to achieve a certain desired height, although there was hesitation in achieving it, necessitating two stages of construction, with sufficient delay before the second was begun for the surface of the first to be plastered and whitewashed. The join between the two sections of the south wall of the Great Palace was not a straight vertical joint but, six courses from the bottom, steps back eastwards by a half course (Figure 5.15, elevation 4), to create a partial bonding between the two sections (the north face visible in the Pendlebury photograph A26). This, and the way that a brick of the older wall pair has actually been cut, shows that the older walls were actually removed to make way for their replacement. The implication is that the main southern boundary wall to the Great Palace [6307] was built on top of an earlier version of which the double-thickness wall is a remnant.



Figure 5.16. View to the north-west across the south-east corner of the Great Palace. The photograph gives a good idea of the present condition of the interior of the building.

This little piece of building history has to be read in conjunction with conclusions drawn by Pendlebury from his work along the east side of the Great Palace (*COA* III: 46–8). The group of buildings which he called the Magazines (represented in our excavations by walls [6306] and [6308]) contained much evidence for rebuilding. Certain internal walls were replaced in different locations and, along much of the western side, the facade was demolished and replaced about three metres further back, inside its building line. Pendlebury linked this with the erection of the huge stone halls which made up the State Apartments and, presumably as part of the same scheme, the building of the Bridge. This, too, had been constructed over some of the earlier brickwork, both that of the northernmost part of the Magazines and that of the east enclosure wall of the whole palace complex (equivalent to our wall [6302]). It should be noted that the bricks of the reconstructed west wall of the Magazines are also of the soft Nile-mud type used in the south wall [6307] and the Bridge. According to Pendlebury, however, this reconstructed west wall was not bonded with the south wall [6307]; the two were separated by a gap filled with hard mud and broken bricks (*COA* III: 48). Perhaps, too, it was at this time that buildings on the south side of the Great Palace compound were demolished, for Pendlebury found walls and column bases

beneath the later surface in the long courtyard which ran to the south of the State Apartments (COA III: 60). Although Pendlebury referred to them as "huts of the workmen", they could have represented a continuation westwards, at right-angles, of the "magazines" and other brick parts of the palace (and are sketched as such in Figure 5.22, p. 211).

Pendlebury also encountered the inner lining to the enclosure wall (equivalent to our wall [6305]), but seems not to have realised that it was a separate construction. A photograph from the 1935/6 season (A25) shows the reason why: the edge of the excavation was the narrow space between the wall and the Magazines. Thus the top of the wall and the outside face were not, for most of their length, cleared of sand and rubble (apparent, too, in the aerial photograph, COA III: Pl. XXIV). The northernmost part of the Magazines occupied a site placed slightly to the east of the others. This brought its eastern wall to within 50 cm of the enclosure wall [6302]. To allow for this, the inner lining [6305] was here stepped back by probably one brick's length (c 35 cm), the "lost" part continuing apparently at foundation level, for Pendlebury described it as a "low podium" on the inner side of the enclosure wall which, further south, "was built right up to its whole width" (COA III: 47; and detail visible in archive photograph A25). This implies that the northern Magazine building was laid out when no more of the inner lining [6305] than its foundations had yet been constructed, and thus that they were more or less contemporaneous, both predating the building of the Bridge.

Taken together, the newly made observations and those of Pendlebury point to three phases in the development of the south-east part of the Great Palace. The first comprised the building of the palace enclosure wall (in two steps) and brick buildings inside, of which only the Magazine part survives. How much more of the Great Palace was built at this stage is not known. It is always possible that there were brick forerunners to the State Apartments, although if this had been the case one would have expected something to have survived of their foundations. (A small but isolated brick building, building "Z", presumably of this phase, COA III: 54, Pl. XIII B, makes the potential for such preservation clear.) The second phase saw the development of the ambitious State Apartments of stone on gypsum-concrete foundations in the centre of the site, the erection of the Bridge, and alterations to the brick buildings (the "Magazines") which lay on the east side. These alterations extended to replacing the southern enclosure wall with a new one [6307]. Finally came the building of the Smerkara Hall which involved, as Pendlebury saw, cutting a doorway through the southern palace wall [6307] (COA III: 60).

Our own excavation at the south-east corner of the Great Palace has also supplied us with a stratigraphic sequence of ground deposits. It derives primarily from the section (no. 1) exposed along the south side of the excavations, supplemented by the section along the south side of a narrow east-west trench dug into the surface which formed the floor of the excavations (section no. 2). The levels have some similarities to those in the trench dug across the eastern enclosure wall of the Smerkara Hall described above, but are not identical. They will be described first, and then an attempt will be made to relate them to one another.

As exposed in section no. 1, the upper material consists of dusty sand [6190] and cleaner wind-blown sand [6322] most if not all of which has probably accumulated since Pendlebury's excavations, and also forms the uppermost of several similar layers which fill the old excavation trench [6398] beside the walls. Beneath this runs the following sequence of superimposed horizontal layers, all of them cut by the old excavation trench [6398]: a thin mud surface [6393] with fallen mud brick; an orangy-yellow gravel [6392]; a gypsum, mud, and gravel layer [6391]; a thick composite deposit [6390] made up of between three and ten mud surfaces; a yellow gravel layer [6389]; and another mud floor [6387], 5–15 cm thick, which is the prominent mud surface which forms the floor of the excavation west of the enclosure wall. Beneath this mud floor [6387] comes a gravel level [6386], and then a white-coated pinkish mud floor [6385]; finally a yellow gravel base [6384] over yellow sand that runs under the earliest wall [6302], these last two deposits probably the natural desert surface.

The supplementary section (Figure 5.15, section 2) begins primarily from the widespread mud floor [6387] which here has a small patch of a thin additional mud surface [6303] found intermittently against the palace enclosure wall and its buttress [6304]. The strata above this, as represented in the main section, were not present (apart from loose topsoil), though whether from their removal by Pendlebury or from changes in the composition of the ground as one moved outside the area in front of the Phase-I temple is hard to say (the aerial photograph which shows

Pendlebury's trench, COA III: Pl. XXIV.1, is not sufficiently clear to answer this). Beneath the main mud floor [6387] comes yellow gravel [6386], the mud floor [6385] and then the gravel [6384] and sand [6199] on which the walls were built. (The remains of brickwork [6395] incorporated into this section I will return to shortly.) The old excavation trench, where it ends as it turns the corner of the palace enclosure wall, provides a further useful stratigraphic detail (Figure 5.15, elevation 3). Here a surviving patch of white-painted external plaster of the earliest wall [6302] runs into a white-coated floor surface [6385/6387]. This is overlaid by the sand level [6386] and then the patchy mud floor [6303].

Although the stratigraphy has been partly cut by the old excavation trench, there can be little doubt as to how the various walls and strata relate. The lowest floors ([6385], [6387], [6303]) belong with the initial palace enclosure walls [6302]/[6305]. For the next stage — the replacement of the southern stretch of this double enclosure wall by wall [6307] — additional information is provided by the actual face of the old excavation trench (as recorded in Figure 5.15, elevation 5). This actually picks up the foundation trench [5951] for wall [6307] and shows it cutting through the floor sequence, with a half-brick lying in the bottom. Above the floors and a locally occurring layer of gravel [6389] comes the wall of the Smenkhkara Hall [6175], its mortar actually lying directly on the half-brick in foundation trench [5951] just described. The only real uncertainty attaches to the laminated mud layer [6390], which had been cut by the old excavation trench and petered out rapidly as one moved northwards. The wall of the Smenkhkara Hall is likely to have been sunk in its own foundation trench, probably only to the depth of a single brick course in this part; for the outside face of the lowest course was noticeably fresh and unweathered. As soon as one allows this, then a part or all of layer [6390] must have been cut through, and any deposits associated with the Hall must lie above this and be represented as part or all of the layers [6391]/[6392]/[6393]. The laminated mud layer [6390] would thus represent build-up through use and the passage of time during Phase II.

The excavation around the south-east corner of the Great Palace disclosed a further feature which might relate to the development of the ground in front of the Small Aten Temple. This was a hitherto unrecorded mud-brick construction [6304] which abutted the eastern outer wall [6302] of the Great Palace, 3.05 m north of the actual corner. It measures 1.60 m north-south by 1.90 m and, from the way the bricks along the eastern edge are laid and are abutted by ground deposits, it looks like a buttress. This structure cuts the whitewashed floor [6385] and is founded half a brick higher than the outer part of the palace enclosure wall [6302], is abutted by the sand level [6386] and by the mud surface [6303, 6387], and is also extremely worn, and made from soft Nile-silt bricks rather than from the hard desert marl of the wall it abuts. Some of the bricks seem reused, and are whitewashed and of a smaller size than those in the other walls in this area. It seems, in the final phases, to have been dismantled and/or worn down by traffic to the level of Royal Road.

One possibility is that this was a buttress added after the enclosure wall had been built, since the type of brick used does not correspond to any used in the eastern enclosure wall. Because the outer face of the enclosure wall along much of its length has never been cleared, except where interrupted by a sequence of pylons at the northern end, we cannot be sure that there were not others at regular intervals, although Pendlebury's comment should be noted, that a heavy buttress was observed at the extreme north-east corner of the Palace enclosure wall, symmetrically equivalent to the south-east corner (COA III: 35). These two buttresses could, of course, have been localized for the support of the corners only.

The alternative suggestion is that this brickwork marks the end of the Phase-I enclosure wall of the Small Aten Temple. This is supported by the faint traces of brickwork footings [6395] which lie a little to the east of the buttress and were later covered by a mud surface, presumably of the later roadway. These traces have a possible equivalent in the fragmentary cross wall [5213] (noted above) close to the north-west corner of the Phase-II temple wall and on the same alignment. They might belong to the same wall, which would then have continued the line of the Small Aten Temple enclosure wall across to the line of the Great Palace. If this interpretation is correct, then it follows that the original south wall of the Great Palace would have intruded only slightly into this space and would have helped to define it. As will be suggested in the chronological discussion at the end of the chapter, the eastern mud-brick part of the Great Palace was perhaps erected in the interval between the Small Aten Temple phases I and II, thus during

the time that the temple precinct extended across the later line of Royal Road. The buttress [6304] would then have marked the join, for a time, between the Phase-I temple enclosure wall and the wall of the Great Palace. When, ultimately, the wall was removed to open up Royal Road, the buttress might have been kept for longer.

5.11 The King's House

Pendlebury gave this name to the large house-like building which stands on the opposite side of the street which runs past the north side of the Small Aten Temple. It must have been turned over early in the nineteenth century, for Wilkinson and Lepsius were able to plan exposed walls during their visits in the 1820s and 40s (AS: 10–19). Petrie excavated it in 1891/2 and numbered it House 13. His method of work was presumably a combination of trenching along walls and emptying the fill of one room into another (Petrie 1894: 23, Pl. XL.13). In the 1931/32 season, over about twelve days, the building was partially re-excavated on the central and eastern sides by Pendlebury, who renumbered it P42.1 (COA III: 87–89, Pls. XLVI.3, 4). A diary entry for 21 December 1931 (EES archive, doc. 1.1) records the start: "Mahmoud begins Petrie's House 13, so as to determine plan of part unshown in Petrie. Discover however that the whole of Petrie's plan is fictitious and decide to re-dig house, though not necessarily to floor level."

The principal published result was a fresh plan made by Lavers, which forms part of the overall plan of the "Royal Estate" (COA III: Pl. XVI). However, the present appearance of the site, taken in conjunction with aerial photographs of 10 and 17 March 1932 (COA III: Pl. XLV, and one unpublished), leaves no doubt that Pendlebury removed the fill and exposed the walls over somewhat less than half of the area planned by Petrie, although the aerial photographs suggest that some trenching was done over the remainder in order to check the positions of key walls. As a result, Lavers' plan over this part is essentially a redrawing of Petrie's. It was his intention to complete the work in the 1936/7 season and, to this end and whilst at Amarna towards the end of the 1935/6 season, he included it in a series of planned undertakings intended to bring the work in the Central City to a conclusion. This final scheme to round off the Society's work at Amarna, accompanied by a sketch map, survives in the EES archive (IV/1/1, letter dated 15 February 1936). Although three days were all that were considered necessary for the King's House, this part of the scheme was never carried out. Thus something like half of the house proper remains now as it was left by Petrie.

In the 1991 season a small trial excavation was carried out over the south-west corner of the King's House, partly to assess the condition of the building and partly to see if any stratigraphic evidence survived which might relate it to the sequence described in previous sections (Figures 5.17–5.19). The western side of the King's House stands at the top of a steep sandy slope which runs down to Royal Road. Excavation of the corner of the enclosure wall [6753] quickly revealed that the elevation on which it stands is a natural knoll of compact sand which was felt by the builders to be sufficiently firm not to require buttresses or a revetment. Instead the wall on the west side was built on the floor of a shallow shelf cut into the slope to a depth of about 50 cm on the higher side. The front edge of this cut [6766] showed up clearly in the excavation. On the south side, in order to follow the slope, the foundations were stepped up as the wall ran eastwards, and so the foundation cut rapidly dwindled to almost nothing.

On to this bed a single foundation course of bricks was laid, 1.10 m wide, above which the wall proper [6753] was built, at a reduced width of 95 cm, leaving the foundation course projecting as a plinth on the inside. The lowest courses were made of superb quality desert marl bricks, perfectly formed and extremely hard, comparable only to some setting-out bricks used in the Phase-IIA Temple. The western wall has suffered two kinds of damage. The western face has a concave weathered surface which runs about 50 cm back from its original line, a sign that erosion by wind-blown sand had eaten a deep horizontal groove along the base of the wall, doubtless leading to the outward collapse of the overlying brickwork. The relatively unweathered top surfaces of the bricks, however, are probably the result of one or more courses having been deliberately removed in more recent times. It is likely that this was the work of villagers digging out bricks for re-use or for *sebakh*, but the hole in the south-west corner of the building looks like the work of someone searching for foundation deposits, perhaps even Petrie.

King's House SW corner

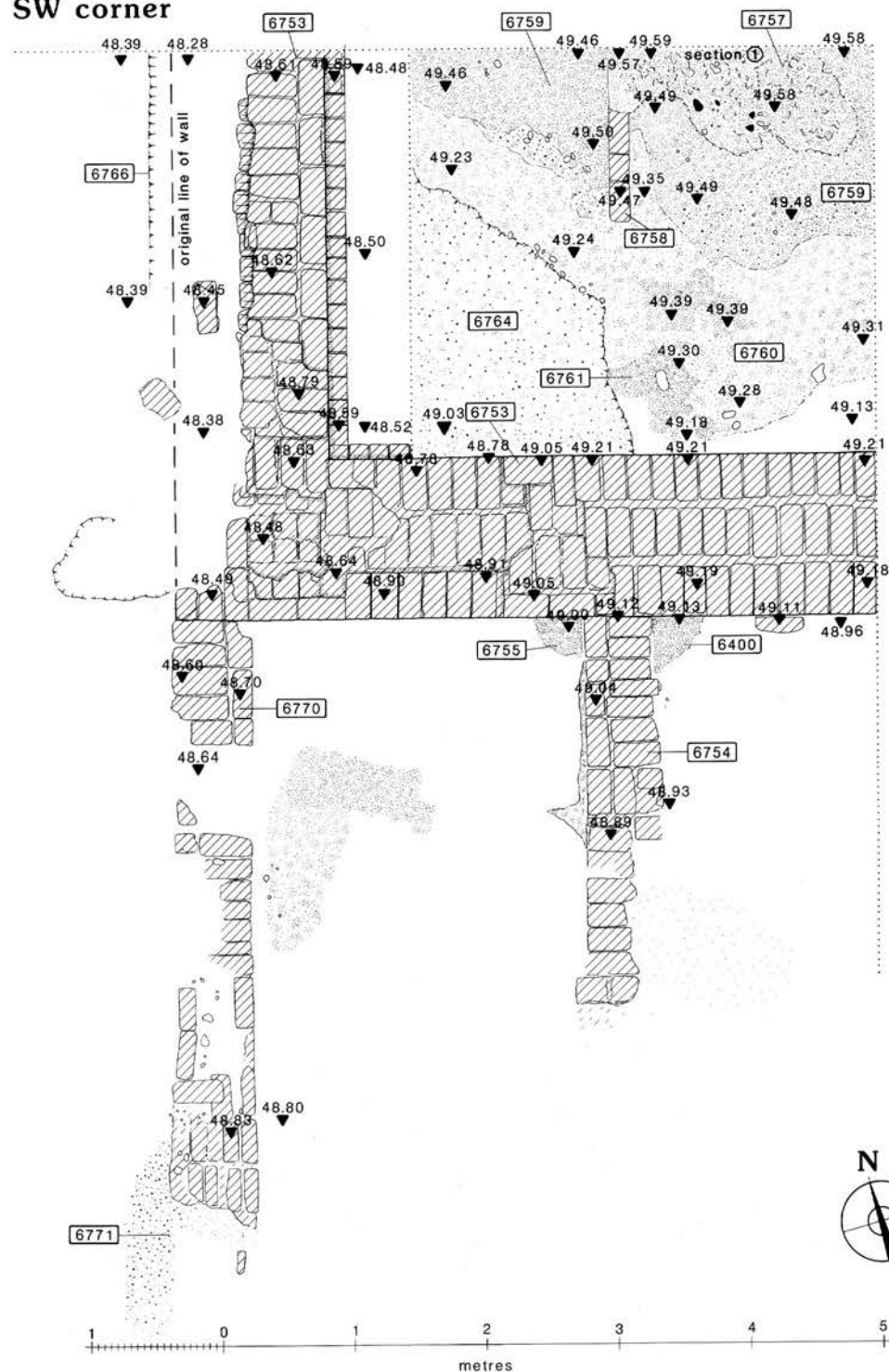


Figure 5.17. Plan of the excavation area over the south-west corner of the King's House.

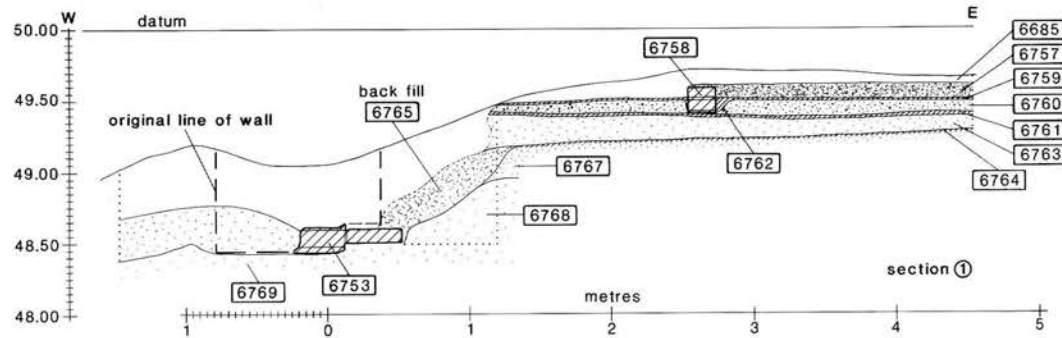


Figure 5.18. Section along the north side of the King's House excavation.

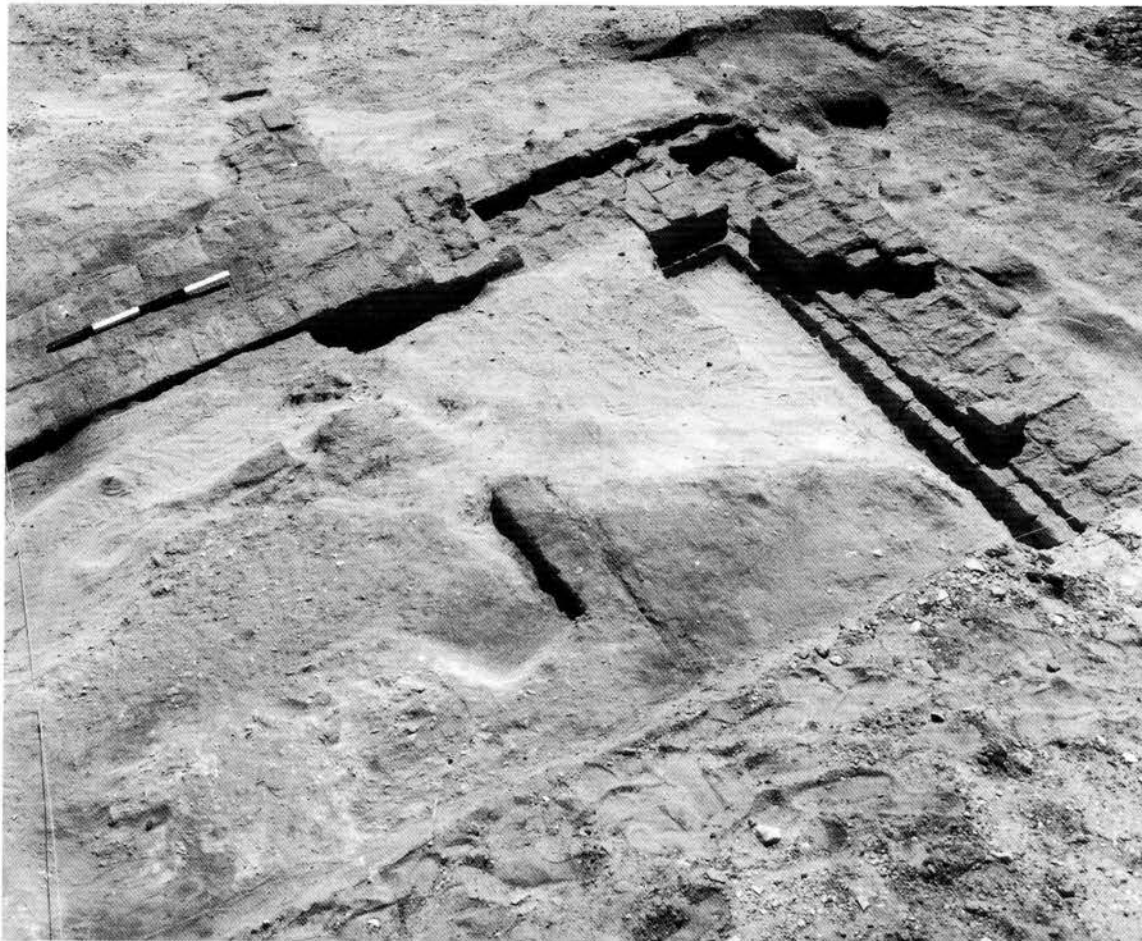


Figure 5.19. View to the south-west of the excavations over the south-west corner of the King's House.

Behind this wall the foundation trench had been back-filled with sand [6765]. The first of a series of superimposed surfaces, a mixture of gravel with mud flakes [6764] which could represent the construction phase of the building, covered the foundation trench in a small patch on the south side. The first good quality mud and straw floor [6761] was directly above a 12 cm layer of yellow gravel [6763], and is clearly good enough to have been an occupation surface. It is unfortunate that a combination of weathering and what is probably Petrie's trench along the wall faces has destroyed the connection between wall and floors above level [6764], so that it is

not possible to ascertain directly whether all of the floors postdate the wall. However, it has to be considered a possibility that this first floor [6761] belongs to the first phase which saw a short-lived predecessor to the King's House built on the site (see final sections below).

In the Petrie-Lavers plan an open court, c 11 x 20 m, occupies the south-west corner of the King's House, and it is a small corner of this which the 1991 excavation exposed. A second and more substantial mud floor [6759] over a gravel layer [6760] presumably represents the principal surface of this court. A north-south mud-brick wall of single half-brick thickness [6758] had subsequently been built into a shallow foundation trench [6762] cut into both of them. The mud floor built up around it, and its final surface [6757], containing white stone dust and with sherds pressed into it, ran over the top. This shows that the wall had been removed during the lifetime of the building and explains why no trace of it occurs on the earlier plans.

On the exterior of the south enclosure wall two further lengths of north-south wall were uncovered. One [6754] abuts it 3.1 m to the east of the corner, and originally was about one and a half bricks thick. Its foundation layer extended out 3.5 m into the street and stopped only where water erosion had removed the street level. It is abutted on one side by a mud surface [6400] and on the other by one with limestone flakes [6755] on gravel. The initial thought was that it was a flanking wall to a gateway whose threshold had lain above the remaining brickwork of the enclosure wall. This hypothesis seemed to be supported by its alignment with the interior wall [6758] and with the presence of a doorway at the symmetrically opposite eastern corner. The discovery, however, of a second wall [6770] which extended across the street to the south directly from the west corner rendered it implausible. This position precludes it from having been the second flank wall to an entrance. It abuts the first course up from the foundation level of the enclosure wall and was in turn abutted by a gypsum and gravel surface [6755] on a built-up layer of yellow sand [6769]. This wall extends out for nearly five metres across the street, and does suggest that the street was closed off at some stage after the construction of the King's House. A very thick layer of pottery and gypsum [6771] seems to have been dumped against the side of the wall, possibly the waste from a whitewashing session.

The brickwork of these walls was eroded and soft. The eastern wall [6754] certainly looks as if it abutted the enclosure wall; in the case of the other one the erosion of the west face of the enclosure wall makes the connection less certain. The clear evidence found by Pendlebury of an earlier building on the site of the King's House (see the concluding sections) is bound to raise the question over any walls in unexpected places, that they, too, might be part of this first design. With these two walls the case is not proved, but it is also true that they do not easily fit into the layout of the Phase-II constructions. No sign was found of walls in corresponding positions on the north side of the Small Aten Temple enclosure wall, which one would expect if the walls had run right across the street. The effect if they had continued southwards would have been to block, at least partially, what appears otherwise to have been a street, giving it a greater degree of privacy.

5.12 Street separating the King's House from the Small Aten Temple

Between the two buildings runs a street nearly 25 m wide. Halfway along the north side of the Small Aten Temple a door opens on to it, representing one end of a north-south axis which divides the middle court of the temple. Across the street the alignment is continued by a doorway in the south side of the King's House (AS: Sheet 5, correcting COA III: Pl. XVI, where the King's House is slightly misplaced eastwards). In 1992 the temple side gate was cleared together with a strip across the street, somewhat to the east of the axis joining the gates.

As planned by Lavers, the side gate of the temple contained two small brick nibs. These have not survived, leaving the gate as a gap in the wall, floored with mud and without trace of a threshold. The strip across the street revealed only a very even hard-packed surface of desert sand and gravel mixed with a good deal of mud. There was insufficient time to re-excavate the doorway into the King's House, but two observations were possible which alter its status as given by Lavers. One is that it was clearly set in a slight thickening of the wall, presumably to give a pylon-like appearance. The other is that the site of the threshold of the doorway is a shallow depression, which could mark the position of a robber trench for an original stone threshold (several parallels for this have been noted in the North Palace). This doorway was probably,

5.13 Towards a stratigraphic history of Amarna

The recent work in and around the Small Aten Temple has enabled us to take up and develop an aspect of Amarna first documented in detail by Pendlebury at the Great Aten Temple. This is that the Central City, as it was left at the end of the Amarna Period, was not wholly laid out according to a single scheme but went through a history of development. This involved not only major changes to the design of individual buildings but also to their spatial interrelationships. Our new evidence from outside the Small Aten Temple is still only very limited, but it points the way towards a study of the city which has chronological depth and which, in turn, sharpens a strategy for gathering further information through limited soundings and clearances.

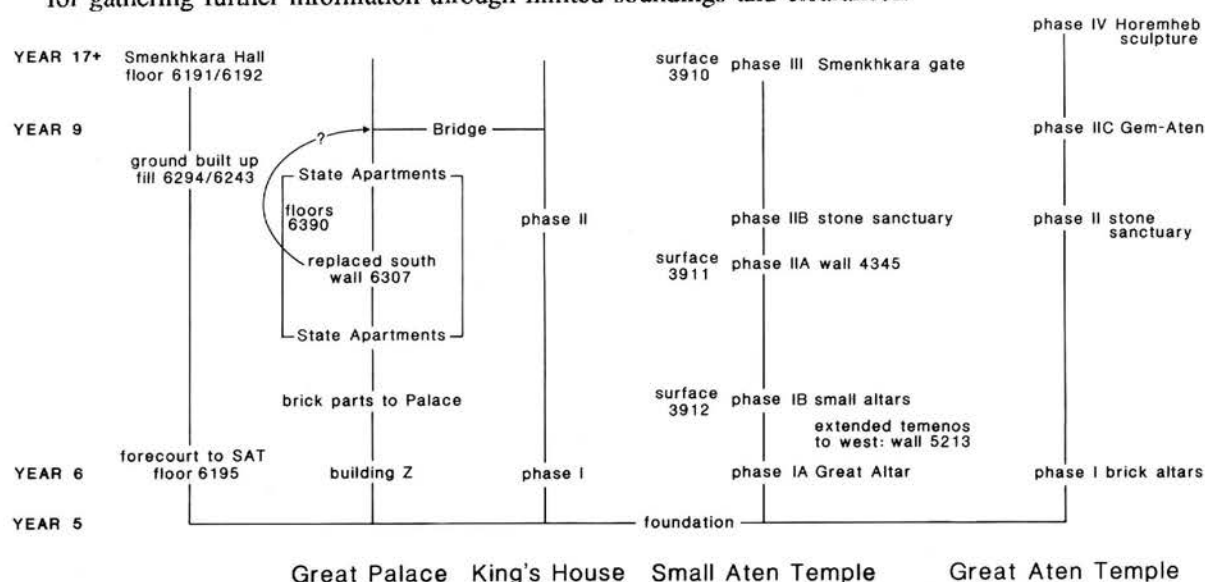


Figure 5.20. Diagram to show the relationships between phases of some of the principal buildings in the Central City.

At several of the main buildings we now have evidence, from both our own and Pendlebury's work, for a phase which predates the principal one, and also for significant modifications within the lifetime of the latter. Certain stratigraphic and constructional links can be suggested which begin to bind the whole into a stratigraphic matrix (Figure 5.20). Furthermore, the evidence for phasing at the various parts can be used to construct a series of plans of the Central City which indicate how it might have appeared at different times in its development (Figures 5.21–5.24). Some of the projections are admittedly hypothetical, but they are intended to show how our picture of the city is still far from closed. The evidence can be summarised as follows:

Small Aten Temple. To an early phase seems to have belonged the large mud-brick altar (the Great Altar, later demolished), a sanctuary surrounded by a grove of trees planted in tree pits (like those in the Great Aten Temple but here not correctly reported by Pendlebury), and enclosing walls that formed both a sanctuary precinct and a temple enclosure. This extended much further westwards across the line of the later Royal Road and ran perhaps almost as far as the river bank. The field of small altars subsequently added around the Great Altar also predated the main temple enclosure.

In Phase II the temple enclosure was rebuilt. The main part, now fronted by pylons, was considerably foreshortened by the siting of the front of the temple on a line which enabled Royal Road to run past it though not necessarily beyond it. The outermost pylons cut across the small altars, the Great Altar was demolished, the second pylon was built over an earlier cross wall, and the third pylon across the Sanctuary enclosure. The side walls were built just to the inside of the earlier enclosure wall but, on the south, the line of the original long enclosure continued to be marked by a probably low wall, which effectively blocked off the line of Royal Road. This makes it possible that the ground in front of the new pylons, running westwards towards the

river, continued to be part of a processional avenue to the temple. It is also possible that more of this southern wall can be traced. When Pendlebury excavated the Smenkhkara Hall, he also found the foundations of two stone pavilions (O42.1 and .2) against its western wall, towards the southern corner. They lay askew to the axis of the Hall and evidently faced an incoming major thoroughfare set at an angle to the north-south axis of the Central City. They also lay within a complex of mud-brick walls which clearly are not all of the same period. Although it involves the assumption that some of the alignments of Lavers' plan are incorrect, it is worth considering that, amongst them, is a continuation of the south wall which defined the ground in front of the Small Aten Temple, and that the pavilions were intended to give access to this space. This would imply that they, too, predate the building of Smenkhkara Hall. Further examination of this area is desirable in order to clarify the wall relationships.

The new walls of the Small Aten Temple were built from bricks some of which bore the same *Hwt-Itn* brick stamp as has been found in the King's House (a further example was found in 1994 in the dais in the eastern hall) and bakeries to the south, building P43.1 (COA III: 150). The stone Sanctuary seems to have slightly post-dated the brickwork of Phase II (a Phase IIB has thus been designated for this), as the mud sanctuary walls seem not to have been destroyed immediately, although this might have been only a constructional sequence, stone being a slower medium to work in. At all events, the remains of the stonework bore almost only the early forms of the name of the Aten (COA III: 185; our own work has not changed these results).

In Phase III the Main Gate between the First Pylons was renewed in limestone by Smenkhkara, possibly along with other principal gates. A small outer court with gateway was also added to the front of the Main Gate.

King's House. Pendlebury uncovered, in the area of the eastern magazine block where his own work was most extensive, a well-preserved set of foundations, comprising walls and column bases, for an earlier building of large size. In the main house Pendlebury's excavations were limited to the throne room and adjacent areas to the east and south, and might not have extended to a thorough examination of the ground beneath the floors. Consequently it is possible that more of this earlier building remains to be discovered and so its real extent is not yet ascertainable. Our own excavations in the south-west corner have revealed three layers of flooring. Unfortunately, most of the surfaces in this part had been separated from the enclosure wall by trenches, presumably cut by Petrie, which have rendered the relative dating of these floors uncertain, although it is likely that the lowest relates to this early phase. In the outline plan for the early phase (Figure 5.21) an enclosure wall has been assumed for this precursor to the King's House, which takes in as well the isolated brick building later buried in the foundations of the Great Palace (see below) which stands exactly opposite.

As just noted, stamped bricks link the building of the Phase-II King's House with the Phase-II Small Aten Temple. Their virtual contemporaneity is also assured by elements in their plans. At the side entrance in the southern wall of the King's House enclosure the ancient ground surface across to the corresponding side entrance in the north wall of the temple (exposed in a north-south strip cleared in 1992) was broadly level and continuous. The exact alignment across this space of the two entrances suggests, on its own, a structural association, in which the King's House wall must be of the same date or later, given that it is unlikely that a temple would be laid out with its cross-axis aligned to an already existing secular building.

Bridge. Although we have not as yet carried out our own detailed examination, certain aspects of its relative chronology seem clear. Pendlebury's own investigations led him to conclude that the Bridge was inserted into the existing western enclosure wall of the King's House, and that the "lowest terrace" which, with its four magazines, abuts the Bridge was also quite possibly a later addition (COA III: 86). Indeed, he reports finding that the paving and fill of the ramp leading up to the Bridge overlay "an earlier brick paving and some whitewashed structure." Our own observation that the bricks of the Bridge, of straw-rich Nile silt, differ from the bricks of that part of the King's House which we examined in 1991 supports the separation of the Bridge from the rest of the building. These bricks, it should be noted, are similar to those used for the rebuilt south wall [6307] of the Great Palace. (This creates some ambiguity as to its correct placing in the matrix of Figure 5.20). It was on this eastern side that the Pendlebury excavations retrieved, from beneath the brick paving of the ramp, a jar-label dated to year 9 (as well as one of year 7; COA III: 160). This is a useful chronological marker. Pendlebury also noted that the paintings on

the Bridge had included an early form of the name of the Aten (COA III: 56), but the re-examination of the surviving fragments reported on in Chapter 14 of this volume (pp. 404–5) casts doubt on whether Pendlebury's description really applies to paintings from the Bridge.

On the west side, the ramp up to the Bridge has different relationships to the two parts of the Great Palace through which it passes. Pendlebury was quite definite that the Bridge had been inserted into the already existing range of brick buildings which forms the east side of the Great Palace enclosure and includes the so-called Magazines and North Harim; on the other hand, the continuation of the ramp, where it became a double-ramped entrance into the State Apartments, was clearly part of the original design of this major stone building. How the Bridge fits into the evolution of the city will be discussed below.

Great Palace. The evidence for an initial construction on this site is slight. In order to achieve a level foundation for the stone-built State Apartments over sloping ground it had been necessary to build up the floor with a thick earthy fill. If a brick version of the State Apartments had previously been built we might expect some trace of it to have been preserved in this fill. All that was found by Pendlebury was a brick building of medium size and uncertain significance which looks too small to have been a palace in its own right (building "Z": COA III: 54, Pl. XIII.B.Z). However, although there is quite an appreciable difference in level between the ground beneath building Z and the King's House, both are on more or less the same east–west alignment, and it is possible that they formed two separate elements within a single enclosure which, like the Phase-I enclosure of the Small Aten Temple, ran across and well to the west of the line of Royal Road. In Figure 5.21 an enclosure has been drawn around them although at present this is wholly conjectural. A pre-existing route which linked the two would explain why it was that the only surviving entrance into the main part of building Z (its walls were well preserved) was exactly on the line of the later route which included the Bridge across to the King's House.

It is possible, too, that the Bridge provided an intimate link between two buildings which had a degree of parallelism; because it would seem that, for both the King's House and the State Apartments, a north–south alignment was important. In the case of the former this was marked by the pylon entrance, the avenue between trees, and the fact that the north outer wall was, in part at least, painted (confirmed by a preliminary examination by F. Weatherhead in 1993). In both cases the core of the building stood at the rear of a large open space.

As just noted, the Bridge is likely to have been contemporary with the stone-built State Apartments but later than the mud-brick eastern range of buildings the creation of which defined one side of Royal Road. It remains unclear when, in the overall sequence of phases, the brick portions of the Great Palace were begun, whether in Phase IB or II (see further below).

Building P41.3 (COA III: 106, Pl. XVIII). This building lay on the southern edge of the large complex which Pendlebury labelled "magazines between the Royal Estate and the Temple", a part of which was given over to the preparation and storage of food. The ground plan has the appearance of a substantially built residence. By its solidity and lack of congruence with surrounding walls it stands out as a building apart, and this raises the question of whether it was contemporary with the rest of the complex. It has already been suggested (AS: 62) that it might have predated the constructions which lie around it, which would perhaps put it into the category of a Phase I-building. If, on the other hand, it is a later insert, it might be connected with the establishment of Royal Road and the associated east–west road that runs back to the Barracks. This would imply, however, that the surrounding complex was already in existence before Phase II. These are questions that can only be resolved by further examination of the building, something which we have not attempted.

Great Aten Temple. Pendlebury's excavations established the existence of an early phase towards the front of the later enclosure. The identifiable elements were a small group of pedestals and basins on the later temple axis, and two parallel and closely spaced lines of limestone bases. He suggested that the latter might have been for sphinxes, of which fragments were found outside the later entrance (one example was catalogued, no. 30/20). Closely-set double lines of sphinxes provide an implausible solution, however, and the bases are more likely to have been altars or offering-tables. Although some were removed when the stone building of the second phase was erected, others must have been left in place; for a photograph of the time shows one of them still standing (COA III: Pl. XXV.3). With these features went a whitewashed mud floor. A straightforward explanation is that this double line of altars formed an avenue that pointed

towards the Sanctuary at the rear. It is conceivable, however, that they formed part of an approach to a large altar which lay much closer, on ground subsequently covered by the front of the Gem-Aten building. This hypothetical altar would have been equivalent to the Great Altar which stood close to the field of small altars in the Small Aten Temple (an association also repeated in the altar court of the North Palace).

Pendlebury also ascribed to this early phase the brick chapel which had preceded the stone Sanctuary at the rear of the enclosure. This would have consisted of a square mud-brick altar, a mud-brick enclosure in front of it which perhaps bore some resemblance to the far more damaged Phase-I enclosure at the Small Aten Temple, and a grove of trees through which one approached the altar. This early temple may well have had its own huge enclosure, the foundation trenches for which, somewhat inside the line of the later enclosure wall, are still visible. It should be noted, however, that the rear line of this early large enclosure runs very close to the back of the brick altar and would have excluded the rear projection of the Sanctuary enclosure wall which runs behind the altar (AS: Map 4 shows these relationships).

At the Small Aten Temple, the construction of the Great Altar was followed seemingly shortly afterwards, and still during Phase I, by the erection of the field of small altars around it which were then retained through the life of the building. A similar but much larger field of small brick altars was also laid out on the southern side of the Great Aten Temple but only as part of the remodelling of this temple in its second building phase (although Pendlebury himself included them in his Third Period). Their role in the Aten cult has been variously interpreted but, whatever it was, their extended chronology makes it difficult to ascribe them to a single celebratory event, such as a Sed-festival (Uphill 1963: 123-7). If a Sed-festival were the reason, a particularly acute problem of chronology is posed on account of the early date of the small altars at the Small Aten Temple. They would then have to represent a lesser celebration at Amarna of the festival celebrated at Karnak on a grand scale, which is thought to have occurred before the date of the foundation of Akhetaten. It seems preferable to see them fulfilling a regular need in the offering-cult of the Aten. Badawy (1962) took the altars at the Great Aten Temple to be part of an expression of a symbolic order related to Egyptian seasons. If this approach is valid it ought then to be applicable to the field of altars at the Small Aten Temple although Badawy excluded them from consideration. Assmann (1972: 125) has put forward the idea that they were the symbolic embodiment of the unification of the "one and the many" in the cult. At a more practical level, the altars at the Great Aten Temple can be seen as a means of regular presentation to the Aten of large-scale food-offerings, followed by distribution to part of the city's population (AS: 51, Fig. 11, 55; Kemp 1994; a similar linking of the altars to a large civilian population is present in Frankfort's earlier suggestion, Pendlebury 1933: 630, that each altar represented an Egyptian town). This would associate them with the building of the extensive range of buildings on the ground between the two temples which included the huge bakery. If this pattern is extended to the small altars at the Small Aten Temple, however, it creates the difficulty that they clearly predate the building, in Phase II, of the corresponding bakery on the south side.

Phase II of the Great Temple is associated with the larger mud-brick enclosure and the creation of the stone Sanctuary in a similar fashion to what was done at the Small Aten Temple. The near-identical form alone of the stone Sanctuaries speaks of simultaneous development; both were decorated primarily during the time that the early form of the Aten's name was in use (COA III: 185). The use of sandstone wall blocks in the Small Temple might suggest a marginally earlier date, although both Sanctuaries employed sandstone for colossal columns.

Pendlebury created a third phase at the Great Aten Temple. This consisted of the stone Gem-Aten building and its associated pavilion, as well as the large field of altars, all located towards the front of the enclosure. His reason for separating these buildings from his second phase lay not in the archaeology of the site but in the greater use of the later form of the Aten's name in the small number of cases where Aten-cartouches were preserved. This appears to be a valid distinction, and in our scheme would become Phase IIC. The Gem-Aten, it should be noted, employed papyrus-bud columns made from local limestone.

So far unique to this building (the Great Aten Temple) is evidence for constructive activity subsequent to Tutankhamun. It has the form of several fragments of limestone sculpture which bear the name of Horemheb (COA III: 4, 12; Bierbrier 1982: 9, Pl. 1; Bierbrier 1993: 7, Pl. 1), and which can scarcely be other than a donation to a cult in the temple (one with a changed

identity, perhaps to Amun, as suggested by Pendlebury?). One could claim that this represents a Phase IV.

Smenkhkara Hall. The chronological position of this building is firmly fixed. Our own stratigraphic study shows it to have been an obviously late addition to the site, and it then becomes natural to associate it with the bricks stamped with the name of Smenkhkara which Pendlebury seems to have found in loose debris on the site. Prior to its construction, and thus throughout the period of Akhenaten's residence at Amarna, the ground was open and had apparently belonged to the Small Aten Temple. As discussed in section 5.9 (pp. 188–9), it is conceivable that it was intended to be only a temporary building.

5.14 Historical markers

Changes to the form of the Central City have to be considered in relation to the historical chronology of the Amarna Period, poorly documented though this is. The historical markers for the beginning and end of construction at Amarna are the foundation of the city in regnal year 5 of Akhenaten and the apparently brief reign of Smenkhkara which must have commenced at or close to the end of Akhenaten's final year on the throne, year 17. It is plausible to consider that both were celebrated by festivals of inauguration. In the case of the former the two sets of boundary stela suggest that a year was allowed to elapse between the choosing of the site and the actual ceremony of foundation (in year 6). Within the remaining eleven years is very little that is certain, although we might consider it very unlikely that the king would have allowed many years to pass without seeking an occasion for a reinforcement of the vision which led him to construct the city in the first place. There is the change in the didactic name of the Aten in or after year 9 (Murnane and Van Siclen 1993: 169, 213, n. 66 is a recent reaffirmation of the hypothesis, although it is disconcerting to find that both early and late forms occur with neat symmetry on Akhenaten's sarcophagus, Martin 1974, Pls. 6–9). Some scholars have sought to link the change with the celebration of a second Sed-festival at Amarna. Future celebrations are, indeed, promised in the earlier proclamation (Murnane and Van Siclen 1993: 45, 179; also in texts from private houses, Borchardt and Ricke 1980: 346, Inschrift 8; Seidlmayer 1983: 201–3), but the evidence that one was actually celebrated remains elusive and open to dismissal (Hornung and Stachelin 1974: 36–7, 72, note 76; Gohary 1992: 29–33). One does well to remember why people are so certain that Akhenaten celebrated a first Sed-festival and his father a total of three. For the former we have the testimony of numerous stone blocks from the building in East Karnak where it was celebrated; Amenhetep III's festivals are commemorated by a broad range of sources (Hornung and Stachelin 1974: 33–6), amongst them the temple at Soleb, the tomb of one of his high officials (Kheruef), and the wording of jar labels from his palace at Malkata. All three categories of evidence — carved stone blocks, scenes from tombs of royal officials, and jar labels — are well represented at Amarna (Hermopolis in the case of the blocks), and the general absence of pointers to a Sed-festival amidst this material is conspicuous. One possible case can now be cited, however. A single block presumed to come from Hermopolis and recently purchased by the Metropolitan Museum of Art in New York (1991.257.24) bears a fragment of a scene of multiple carrying-chairs which has a close parallel in Sed-festival scenes from Akhenaten's buildings at East Karnak. This still leaves a surprising gap in the supporting evidence. In the case of the jar labels, which at Malkata provide substantial testimony for Sed-festivals, the negative evidence from Amarna deserves some weight. The question of whether a Sed-festival was celebrated at Amarna still really remains open. This does not exclude the possibility that the Aten's name change was made the occasion for a special celebration.

Although we do not know the circumstances behind the changes to the writings of the name and epithets of the Aten, the scholarly consensus that it took place within a fairly narrow timespan, conventionally set at year 9, is of great value for reconstructing the history of building at Amarna. For the buildings in the Central City we are at present relying on the tabulated results presented by Fairman (*COA* III: 184–5), although in time we hope to produce a revised and expanded list. Fairman's list shows that the early form of the Aten names outnumbered examples of the later form by about ten to one. If these figures were a representative sample, they would imply that much of the stone construction was carried out in the space of three years, between years 6 and 9, which is feasible. Parts of the State Apartments and perhaps much of Gem-Aten in

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the Great Aten Temple enclosure were still to be erected. There remains, however, much work to be done on the study of Amarna stonework.

Finally, two of the rock tombs contain a scene of reception of foreign tribute dated to year 12 which was presumably a major event in the lives of the tomb owners. We cannot tell, however, if it was a ceremony of sufficient magnitude to have had an effect on the buildings in the Central City or not.

5.15 Stages in the development of the Central City and questions of urban planning

Some of the alterations to buildings in the Central City that took place during the Amarna Period were of sufficient magnitude to have temporarily prevented the use of individual areas and so to have disrupted the ceremonial and religious life of the city. The question that then arises is whether these rebuildings represent local alterations which reflected considerations peculiar to each building, or whether they were parts of considered schemes to change the form of the Central City as a whole and hence its overall meaning. Is what lies behind the changes true conceptual planning or a more traditional process of piecemeal evolution?

The attempt at an answer has to go beyond the study of archaeological detail and to reach out to what might have lain in Akhenaten's mind and to the place that we allocate Amarna in the history of urbanism in Egypt. Pharaoh's responsibility for creating new towns already had a long history in Egypt (Badawy 1967). In the Middle Kingdom it sometimes manifested itself in whole towns or palaces laid out on a grid plan aligned to the four cardinal points (Kemp 1989: Chapter 4). The practice implies a ritual of foundation similar to that performed for temples and thus the view that settlement creation was a religious act.

The New Kingdom was a time of urban renewal and creation but along somewhat different lines. The conquered territories of Nubia became the theatre of town building that is best known to us. The starting-point now seems generally to have been the foundation of a stone temple, naturally done with a foundation ceremony, and local circumstances dictated that the accompanying town was included within the enclosure wall. Thus, although alignment to the cardinal points was abandoned in favour of one that was perpendicular to the local course of the river, the towns were still initially the result of a religious ceremony. In Egypt proper (or, at least, in Upper Egypt, the only part from which we have excavated evidence) New-Kingdom towns dispensed with enclosing walls and thus with the most potent means of imposing a preconceived order on what was to be built. In general, the act of creation seems to have been withdrawn from residential quarters, and local pragmatic considerations allowed to prevail. At Amarna land for private houses was parcelled out along a number of routes of access which generally followed local topography and lines of convenience. This must have been like the divisions of fields along a canal or river bank.

If the scope of urban planning retracted in the New Kingdom, from whole communities to layouts of palaces and temples, the scale of what was attempted was seemingly more ambitious than in the past. The result was the processional city governed by long-distance alignments to link royal and divine buildings, sometimes, as at eastern Thebes, revealing that an existing topography of sacred places took priority and dictated how the alignments should run. The two factors of scale and of processional alignments should be at the forefront of considering how Amarna took its shape. Of antecedents, the only one of which we have significant knowledge is Thebes itself, and even here our knowledge is only partial. The fact that we know virtually nothing of the residential city is perhaps not so important from this point of view; a more significant omission is our ignorance as to the layout, and uncertainty as to locations, of the royal palaces which we should expect to have been located around the temple complex of Karnak. Nevertheless, there is still something to learn from the comparison. In Figure 5.25 an outline (with reversed alignment) of the main elements of Karnak as it was in the Eighteenth Dynasty has been superimposed on an outline of the Central City at Amarna. It shows a striking correspondence in general scale and building interrelationships.

The layout at Karnak is one that would have been very familiar to Akhenaten. Although the individual temples at Karnak had different associations from those now created at Amarna, the result must have had something of the same feel to it. It was an inescapable mental model. The comparison also carries with it the possible implication that the palaces at Thebes in the

Eighteenth Dynasty lay along the north-south alignment of the stone temples just as they did at Amarna. This has already been suggested for palaces of Hatshepsut (Gitton 1974; Van Siclen 1982: 17, Fig. 11) and Amenhetep II (Van Siclen 1986: 44, 53, note 5).

Another scheme that Akhenaten would have known was his father's huge project at western Thebes, which included his mortuary temple at Kom el-Hetan, the huge artificial basin of the Birket Habu, and the palace, small temple, and accompanying settlement at Malkata. Although large in scale, the use of stone was confined to Amenhetep III's mortuary temple; even the Amun temple of Malkata was constructed of brick. The axes of its principal feature, the Birket Habu, had provided alignments for the brick buildings which were constructed on the flat reclaimed ground around the western corner. These are now largely buried but included the North Palace, and also the Amun Temple, even though this was built on the desert edge. Otherwise, the irregular topography of the desert was allowed to dictate departures from the alignments, so creating the impression of general irregularity which the present condition of the site leaves. The Birket Habu and Malkata lay beside, although at a distance of a kilometre from, Amenhetep III's mortuary temple, which faced towards the river with an approach marked by the three pairs of colossal statues of which the Colossi of Memnon were the outermost. Although this land is now under cultivation, it is hard to see how, from basic topographic considerations, there could have been a processional route to link the front of the mortuary temple to the Malkata complex. This site seems not to have been, on its own, a model for Akhenaten. Only in respect of the deployment of an army of workers to transform a landscape does there seem to be a point of comparison, unless one finds a faint echo in the layout of Maru-Aten with its central pool, and in other possible constructions at the southern end of Amarna (see Chapter 15, and especially p. 431).

The basis of comparison between Thebes and Amarna should not, however, be left at the level of built environment. Akhenaten's new place, Akhetaten, was not a city although it contained one. As defined by the boundary stelae, Akhetaten was a complete section of the Nile Valley, from eastern to western deserts. There is no parallel for this which is specifically defined, but again it is possible that Thebes provided Akhenaten with a model. This is to be found in the use of the term "House of Amun/Estate of Amun", on the ground of which the mortuary temples on the west bank were also built. If it did serve as an inspiration, it was obviously modified by the major difference in topography; for, whereas at Thebes the high desert which offered a home to the royal tombs and hence dictated the location of the mortuary temples was on the west, at Akhetaten it lay on the east and, in being on the same side as the city proper, provided a more compact overall layout. One can say that Akhenaten was combining at Amarna the basic concept of Kamak, the scale of landscape transformation familiar to him from his father's great works at Malkata, and the broader Theban topography laden, as it was, with religious associations.

On the eastern desert plain Akhenaten set out to create a sacred landscape. On the first set of boundary stelae, for which year 5 now seems to be reliably established (Murnane and Van Siclen 1993: 35, 48, 149), a formal proclamation lists a series of desired constructions and shows that he set out with a mental picture of what the royal aspect of the city would be. The constructions comprise a series of shrines, palaces, and tombs which together make up a ceremonial centre. The king made a second visit to Amarna in year 6, celebrated by a proclamation carved on the second set of boundary stelae. On this occasion his journey of inspection began from "the pavilion of matting that his Majesty had made in Akhetaten, the name of which is 'The Aten is Content'" (Murnane and Van Siclen 1993: 100, 173). We do not know if this was situated at the northern end of Amarna, at the site of the Central City, or somewhere else, but the implication is that no brick palace was yet ready for occupation. On his way from wherever it was, he interrupted his journey to make a "great offering" of food and incense "on this day of founding" (*ibid.*: 101, 174). This journey, it should be noted, was by land and not by river. One interpretation that can be placed on the early phase of construction in the two temples in the Central City is that they belong between the first and second proclamations and provided the setting, a series of working buildings, for the formal ceremony of foundation which is recorded in the second proclamation. An obvious possible site for the "great offering" is the Great Altar in the Small Aten Temple. Within a very short time from this moment the Phase-I King's House was made usable; indeed, it is only the reference to the royal tent in the second proclamation that stands in the way of making it, too, one of the first group of constructions. It is, of course, possible that it served only

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to shelter the royal entourage around the actual time of the foundation ceremony and was not actually a palace.

From the overall spread of royal buildings, it is clear that one influence on location and on alignment was the curving line of the river bank. The effect of this is plain in the change of axis signalled by the pavilions O42.1 and .2, which may have been part of the extended temenos in front of the Small Aten Temple (Figure 5.22), in the alignment of Maru-Aten, and presumably in the location of the "Lepsius Building" (Chapter 15, p. 412), the alignment of which we are unlikely ever to know. The main early buildings in the Central City — those which excavation has revealed as having a Phase-I component — share a common but different alignment, which was also extended to Kom el-Nana, the North Palace, and the Desert Altars. Although it is possible that an astronomical sighting might lie behind it, a convincing scheme can be proposed which originates in the local topography (see below, section 5.16). The effect was to give Amarna two alignments set at a slight angle to one another. The layout of Karnak at this time included buildings along processional routes which also reflect two angles of alignment (Figure 5.25). In Figure 5.21 I have projected back into the Central City at this initial stage the angular route which followed the river bank as it ran southwards, which would have given to Amarna a dual axis not dissimilar to that at Karnak.

It is only with Phase II that we find the long north-south axis developing in the Central City. Again this could have been a product of the overall topographically derived scheme which is proposed at the end of this chapter (section 5.16). A key building which helped to convert the axis into Royal Road was the Great Palace. It would not be surprising to find, in an undertaking of this magnitude, that changes of plan occurred during construction, and such are evident towards the south-east corner. Here the brick magazines had been completed first and then had to be cut in size to accommodate the State Apartments; for reasons that we as yet do not know the southern brick enclosure wall of the palace was largely rebuilt. Such little of the decoration as survived from the State Apartments and was studied by Fairman shows mainly the early form of the Aten cartouches (*COA* III: 185). This implies that perhaps only three years had elapsed since the second proclamation, an interval of time that must be the minimum allowable for the completion of such a huge scheme. Given the priority in construction of the brick enclosure wall and magazines, the start on these has to be pushed back as early as the beginning of Phase II of the Small Aten Temple, if not earlier (Phase IB?).

Important parts of the Great Palace are now covered by cultivated ground. Hitherto the general assumption has been that Royal Road provided the principal means of access to all of the main buildings, including the Great Palace itself. The eastern range of brick buildings of the Great Palace, with its own throne room (Weatherhead 1992), formed a self-contained palace although its elongated shape implies that it was intended from the beginning that the State Apartments would be constructed alongside it. Indeed, as noted above, it is possible that, to begin with, these brick palace buildings turned westwards and occupied ground which was subsequently cleared when the Smenkhkara Hall was built. An entrance to the brick apartments from Royal Road seems natural enough, but the apparent lack of an external entrance to the State Apartments which does justice to its scale and grandeur and pays attention to its marked north-south axis is surprising. The northern side to the great courtyard, the part labelled Weben-Aten by Pendlebury and Fairman, has been partially lost to the encroachment of agriculture. It is open to consideration, however, that the deep foundations to this part, instead of deriving from a religious building which looked southwards, actually mark the main entrance. Pendlebury himself, in visualizing the Weben-Aten as "consisting essentially of two imposing pillared constructions flanking a portal that led from a northern court, now completely lost under the cultivation" (*COA* III: 34) was not far from this view.

A grand entrance from outside might then have stood at the end of the real royal processional way from the north which would have followed a line somewhat to the west of Royal Road as it has survived. Once Royal Road and this possible parallel way had come into existence, the two Aten temples fronted on to a roadway that ran past them. In the case of the Small Aten Temple it seems likely that, just as at Karnak, a processional route also ran down to the river's edge, perhaps ending in a quay, and remained in use throughout Akhenaten's reign. We cannot then exclude the possibility that the Great Aten Temple also communicated with the river bank. Although these suggestions are at present highly speculative, it is equally the case that the

received picture of the Central City is based on the assumption that what lay in areas now inaccessible was less important than those features which have survived. This might not have been the case at all.

The evolution of the Central City had passed through rites of foundation (year 5) and consecration (year 6). Three principal parts of the Central City (Great Palace, King's House, and Small Aten Temple) now took what was to be virtually their final shape at around the same time, subsequent to the start of year 9. Since temple completion in Egypt was traditionally celebrated with a dedication ceremony (that of "giving the house to its lord") we might expect a third major rite, of celebration, to be held at this time. At present it seems not to be possible to identify it within the corpus of scenes and texts from the Amarna Period. To judge from the forms of the Aten names recorded (*COA* III: 184–5), stonework continued to be added to the Great Palace, and the major stone buildings towards the front of the Great Aten Temple had yet to be completed. This presumably led to a further rite of dedication later on.

The final evolution of the Central City took place in the time of Smenkhkara, perhaps timed for a festival of inauguration. The surviving evidence comes from the Small Aten Temple and its original greater precinct and relates to two constructions. One was an aggrandisement of the existing temple front, in the form of a broad stone portal between the pylons, and the simultaneous stone lining of the North and South Gates. The dating depends on a single ring bezel found accidentally incorporated into the foundations (*AR* V: 126). This raises the question of the date of the stone linings to the broad gateways between the second and third pylons. Were they also inserted at this time, or had the front pylon alone been left with a brick pavement? At present this cannot be answered.

The second construction was the great pillared hall of brick which was now built across the ground which lay in front of the temple and which had formed its outer precinct. This obliterated the route that I have postulated ran from the river bank to the temple, and left the temple accessible only from Royal Road. It was presumably at this moment that the south precinct wall [4345], which abutted the south pylon tower, was levelled and a mud floor [4347] laid over the remaining stump, a layer which would have been the actual surface of Royal Road which now ran straight past the front of the temple. The stone portals O42.1 and 2, which I have suggested belong to Phase II, were kept, their presence helping to dictate the location of the new hall. Although it occupied ground which had previously belonged to the Small Aten Temple, the hall was clearly an extension to the Great Palace and, as far as we can see, accessible only from it. In order to make it an integral part of the formal parts of the Great Palace, it is possible, as already noted, that a westwards-running wing of the brick palace buildings was demolished to make way for the long and relatively narrow court which fronted the new hall.

At this point, as far as our knowledge goes, the development of the Central City came to an end. Yet there is a general consensus that the official abandonment of the city did not take place until at least the second year of the reign of Tutankhamun. Although his name occurs amongst the blocks from Hermopolis, it is still surprising that no building initiative associated with him can be identified in the Central City, one perhaps intended for the celebration of his coronation. Was the Smenkhkara Hall retained for this purpose, or is it simply the case that Tutankhamun's coronation took place outside Amarna altogether?

5.16 The broader topographic context

The results of this study suggest that more than one layer of understanding, which seems to have had a topographic basis, was being applied to the development of the plan of Akhetaten. Three stages in the site's evolution can be identified:

1. A simple orientation derived from the line of the river.
2. A processional route, not parallel to it, that overlaid and developed this orientation and, at the same time, developed a plan that was analogous to contemporary Karnak.
3. A move away from this to accommodate the complexities of residential urban form.

There remains to consider how (or if) this evolution fitted into a broader scheme in which the formal limits of Akhetaten, as defined by the Boundary Stelae, played a part.

The first set of three stelae to be cut (X, M, K) announce the intention to establish Akhetaten as a monument to the Aten, defined by the stelae and eastern cliffs. Given the importance which Akhenaten attached to the process of designating the boundaries to Akhetaten, it is reasonable to search for a scheme which was used to place the principal buildings within it. In Figure 5.26a and b I have proposed a simple pragmatic scheme based on the landscape itself. I have taken a line which joins the northern and southern boundary stelae of the first set (M and X), bisected it, and then run a second line perpendicular to it eastwards across the Amarna plain from the point of bisection. The result is not perfect, but I find it hard to dismiss as coincidence. For the bisection passes very close to the axis of the Small Aten Temple (and its Great Altar) and then more or less through a pinnacle on the high desert plateau directly above a point a little to the south of the Royal Tomb which is crowned by a single small stone hut. To judge from a few sherds noted by Kemp the hut is of the New Kingdom. I have used modern contour maps as a basis for this construction, but the positioning of the boundary stelae is not the result of modern instrument survey but of placing by means of aerial photographs and other sources (including Timme's survey). This creates a margin of uncertainty (especially for X, the northern stela), but not, I think, one that significantly affects the overall result. One also has to allow for inaccuracies in the original setting out by Akhenaten's surveyors. Their limits of tolerance are illustrated by the divergence in the adjacent axes of the Desert Altars and Stone Chapel (Figure 15.25), and in working on such a large scale and probably having to take sightings and measurements across the river, errors would be easy to make and would not readily have been checkable.

The intention was presumably to link the Royal Tomb (or more generally the burial area for the royal family, which extended on both sides of the Wadi Abu Hasah el-Bahari) with the ritual heart of the city, creating a powerful analogy with the topography of Thebes. Thus, as was the case with many New-Kingdom temples, the natural topography of the Nile Valley, rather than external (e.g. celestial) reference points, would have provided the key alignment.

The second set of stelae is in two groups spread across the edges of the low desert on both sides of the river. Their texts reinforce the initial dedication a year later, in year 6. They mark, in effect, the celebration of the act of measuring the full boundaries of Akhetaten, an act which was analogous to the ceremony of Stretching the Cord by which kings traditionally laid out a temple axis. The texts provide exact measurements between the north and south stelae and require that those to be erected to match them on the west be set at the same distance apart. It was perhaps at this moment that a second parallel axis was established, the one which was to become Royal Road, by means of a second perpendicular construction, this time from in front of the Great Altar and extending northwards and southwards.

The framework so created might then have been used as a guide for locating other key parts of Akhetaten; for a further set of relationships can also be discerned which seems to depend on the initial scheme. This is presented in Figure 5.26c and d (for the southern group, see the discussion in Chapter 15 and the maps, Figures 15.1 and 15.2). Along the initial north-south line (which became Royal Road) was the approximate pairing of Kom el-Nana and the North Palace. The east-west centre line as laid out is approximately 50 m to the south of the centre line of the Small Aten Temple. The distances from the Small Aten Temple centre line to Kom el-Nana and to the North Palace are 2950 and 2840 m respectively. If this point of division was adjusted to the true centre line it would be much closer to true equidistance, although if this was a factor in the laying out of the site it would imply that the discrepancy became visible and was taken into consideration.

Further out in the desert came the Desert Altars and el-Mangara, and behind them the two groups of rock tombs, taking as their centre point not the original centre line but the plateau which divides the Amarna plain into two separate parts. To the west of the north-south starting line the pairing was dislocated by the irregular course of the river, so that the North Riverside Palace (which, for all we know, could have contained a religious building; the key part has been lost to river erosion) was balanced in the south by Maru-Aten and the "Lepsius Building". No account has been taken here of the "River Temple" beside el-Hagg Qandil in view of the doubts as to whether it ever was a temple (section 15.8). This developed scheme also introduced an interplay between the two prime ordering elements at Amarna. One was the north-south alignment which was, in part, made permanent by the creation of Royal Road. The other was the radial configuration in which the Central City now served as the hub of a distant ring of sacred

enclosures.

It is argued in Chapter 15 that each of these outlying buildings might have been, or might have contained, a solar temple (designated as a "Sunshade of Re") which, with its supporting foundation, was a possession of a female member of Akhenaten's family. If this was the case, the colonizing scheme which I have outlined could be seen as achieving a spread of temples to the supreme deity analogous to the West-Bank temples at Thebes, each of which combined a cult of a form of Amun with a cult of the ruler who built it. The analogy with Thebes becomes thereby more complete.

The final stage of the scheme involved the establishment of the three stelae on the west bank specifically dimensioned to be equivalent to those on the east. This further definition of the boundaries of Akhetaten corresponded with the dedication to the Aten of the riverine land and habitations which were thus enclosed. The sacred topography now extended to a representative portion of Egypt and its people (Figure 5.26d).

The essence of Akhenaten's scheme was an analogy borrowed from Thebes, both its sacred centre at Karnak and its broader topography which extended to the west bank. By a simple yet elegant procedure a New Thebes was created. Thebes provided for the life and death of the king, the widely separated parts of the area linked by processional festivals. At Amarna this topography was recreated but by bringing together the elements of the Theban east and west banks. The result was the symmetrically divided site, its primary orientation centred on a temple and a tomb. The discontinuities of this paradigmatic order reflect the thinking of the time. Instead of an axial or symmetrical plan the articulation was entirely through a series of horizons of different intensity which were responsive to a landscape that had been made sacred through having been chosen by the Aten. For this reason it remains elusive to attempts at rational ordering while, at the same time, presenting a powerful sense of order. The continued importance of architecture as an ordering device in society can be seen in the recognition even today of this concealed but present order.

Acknowledgements

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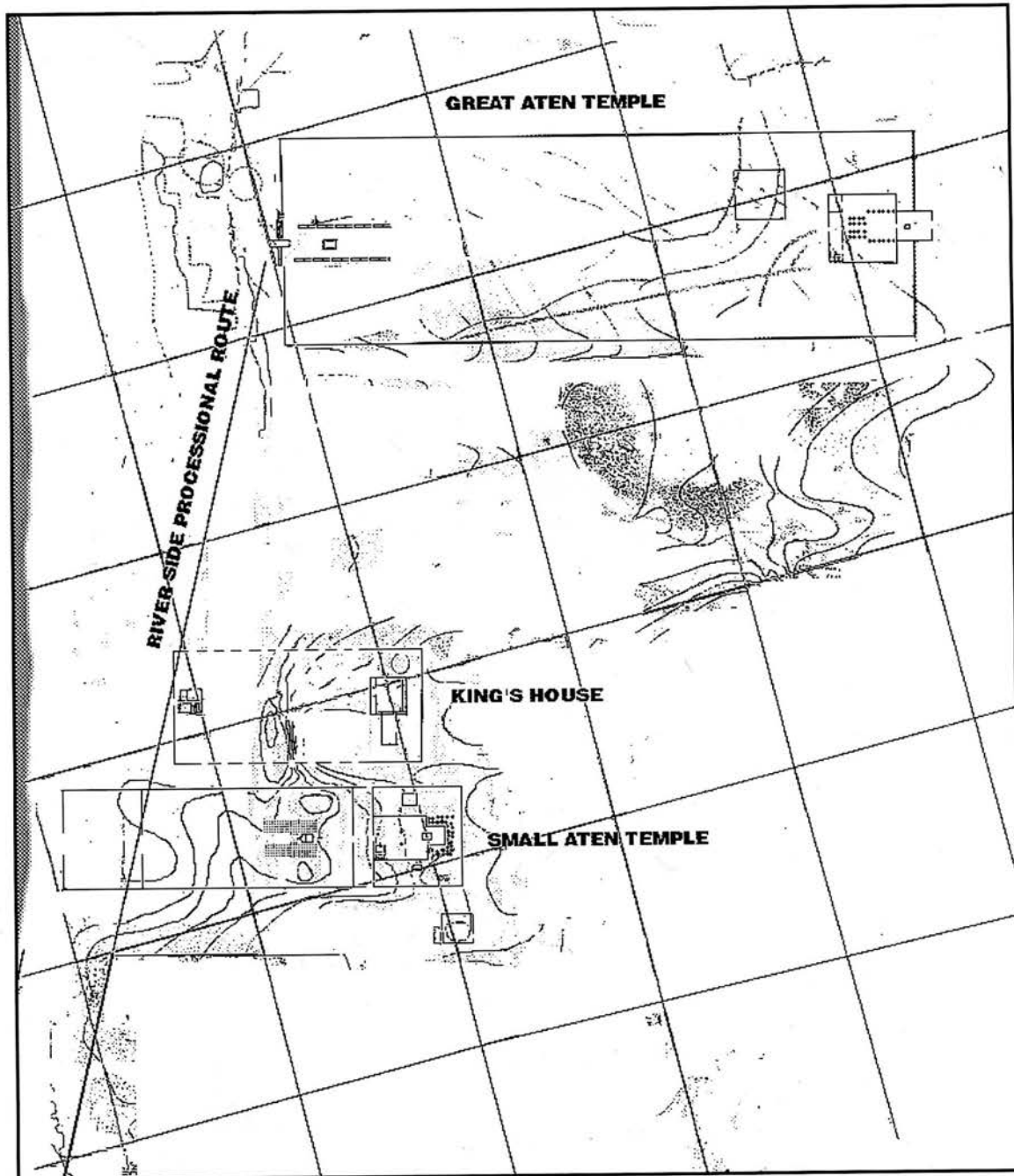


Figure 5.21. Reconstructed schematic plan of the Central City at its inception (Phase I).

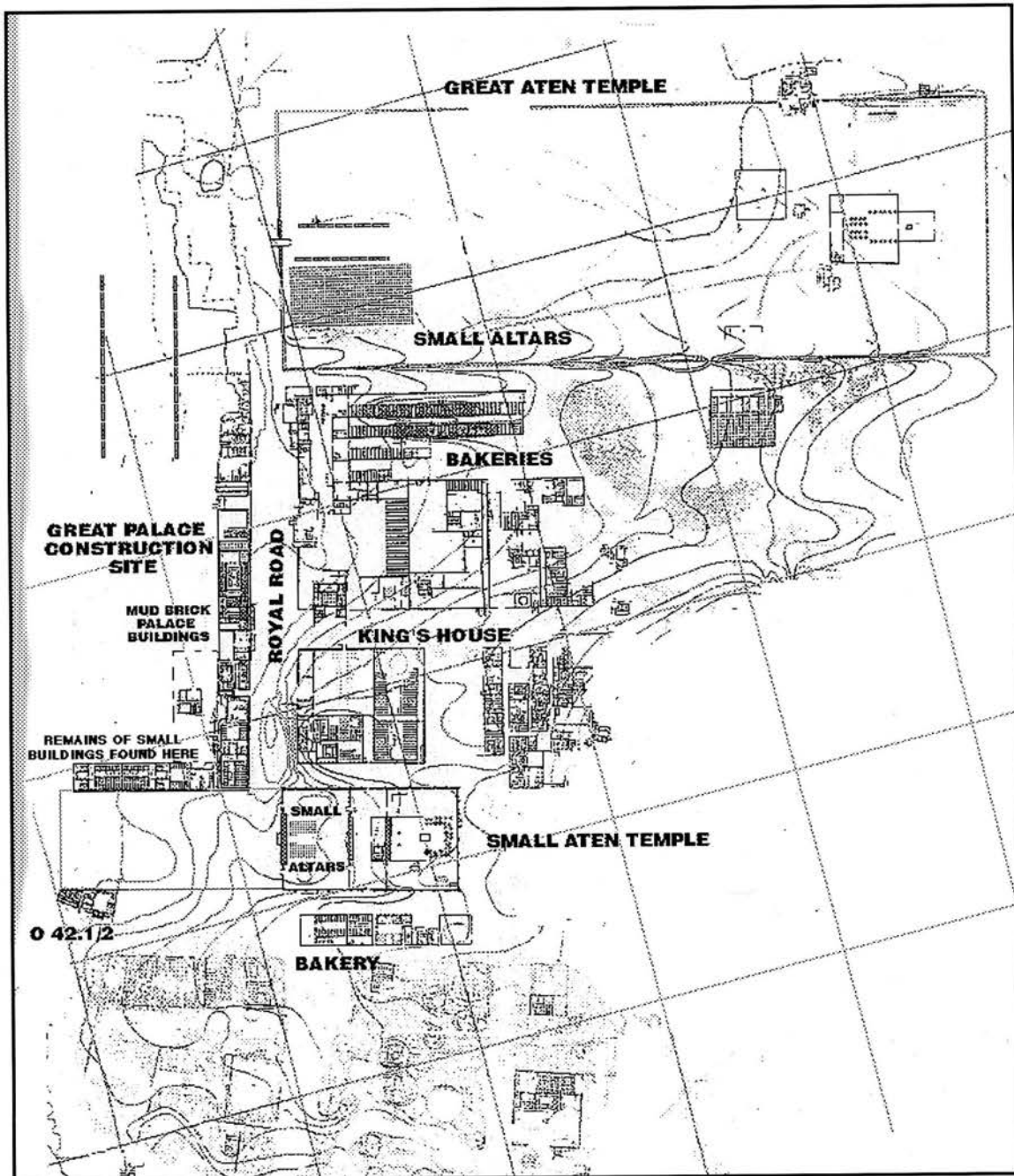


Figure 5.22. Reconstructed schematic plan of the Central City in Phase II.

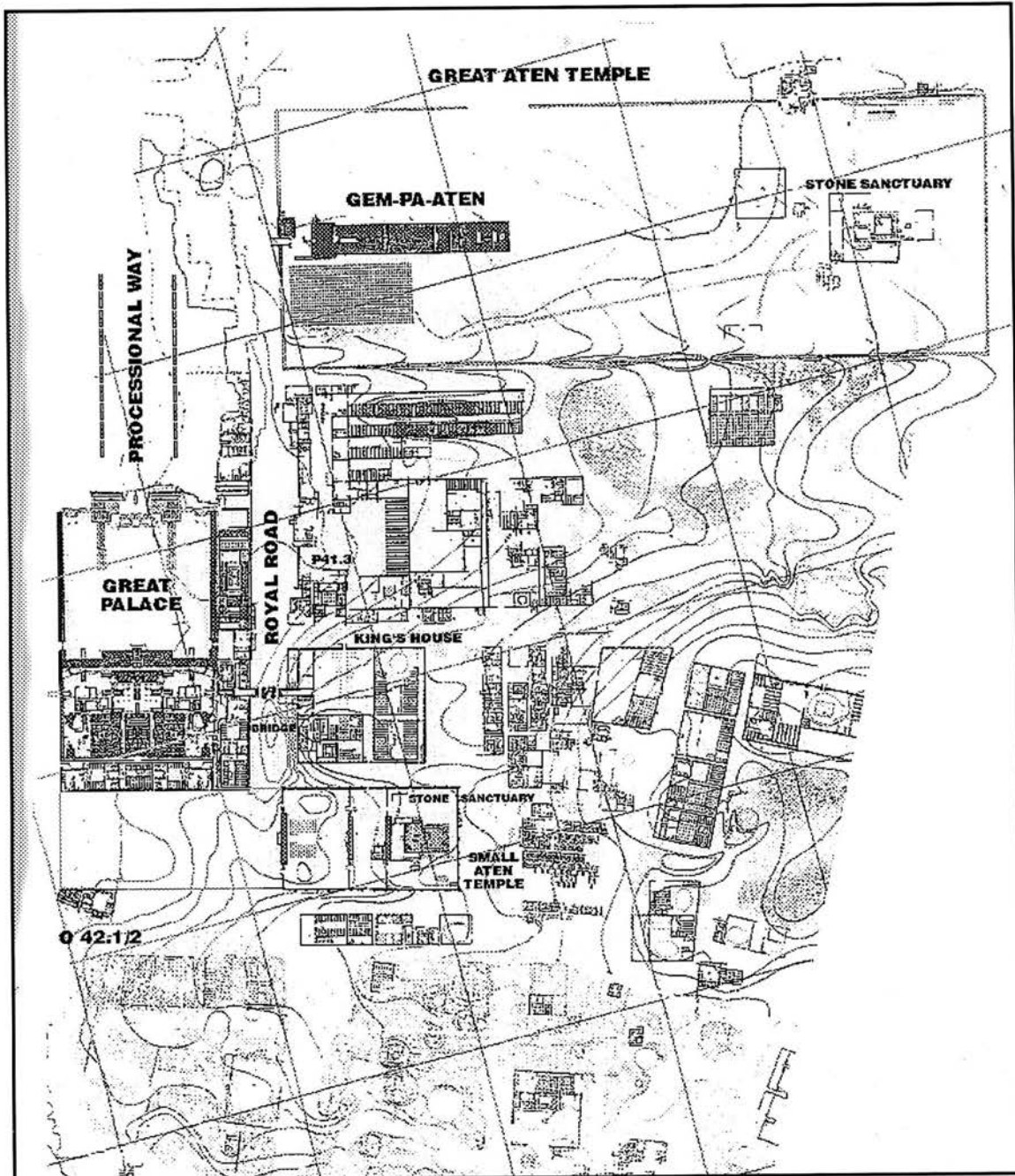


Figure 5.23. Reconstructed schematic plan of the Central City after completion of the major stone buildings.

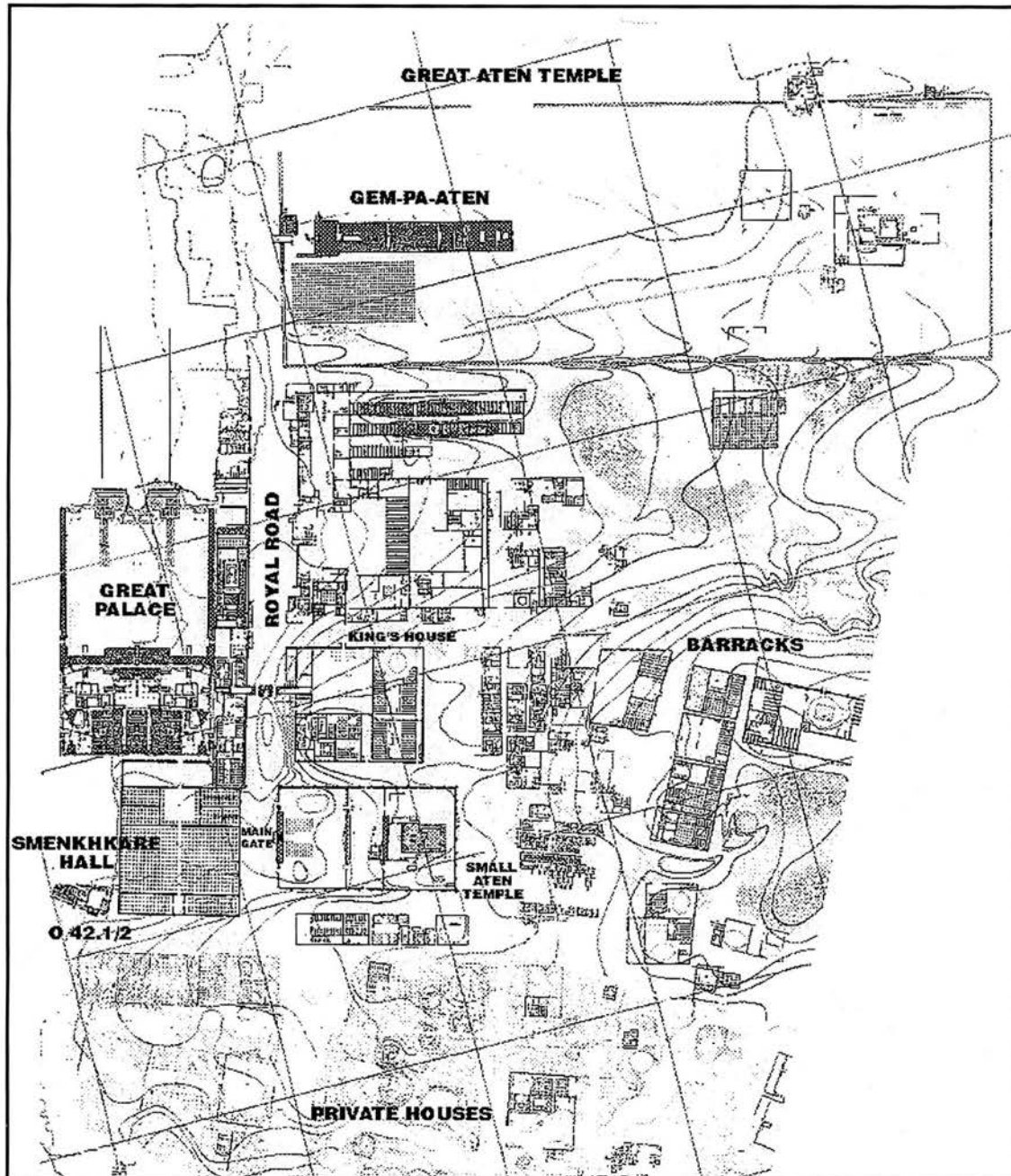


Figure 5.24. Reconstructed schematic plan of the Central City in Phase III.

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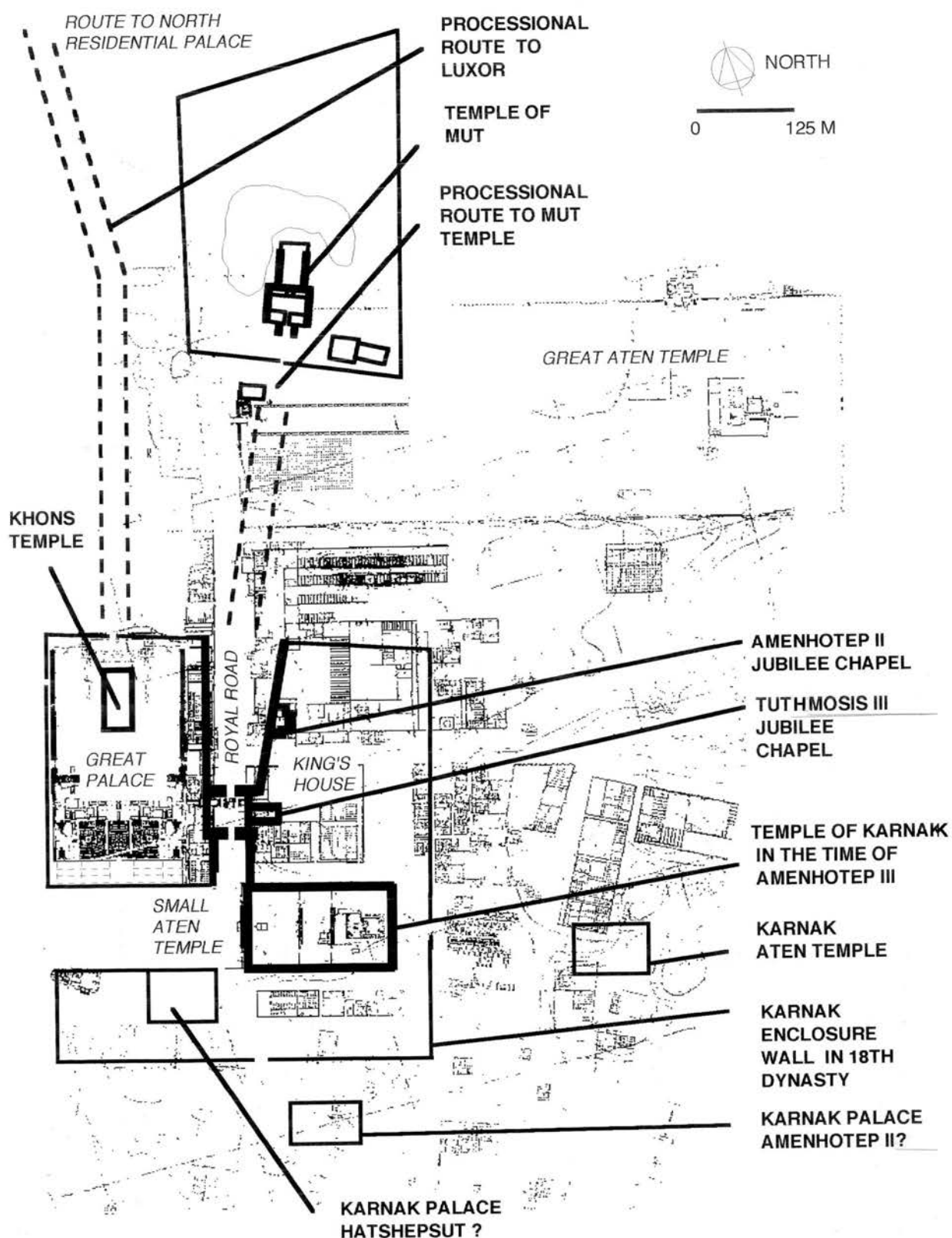


Figure 5.25. Plan of the Central City on to which has been superimposed an outline — reversed about its north-south axis — of Karnak in the late Eighteenth Dynasty.

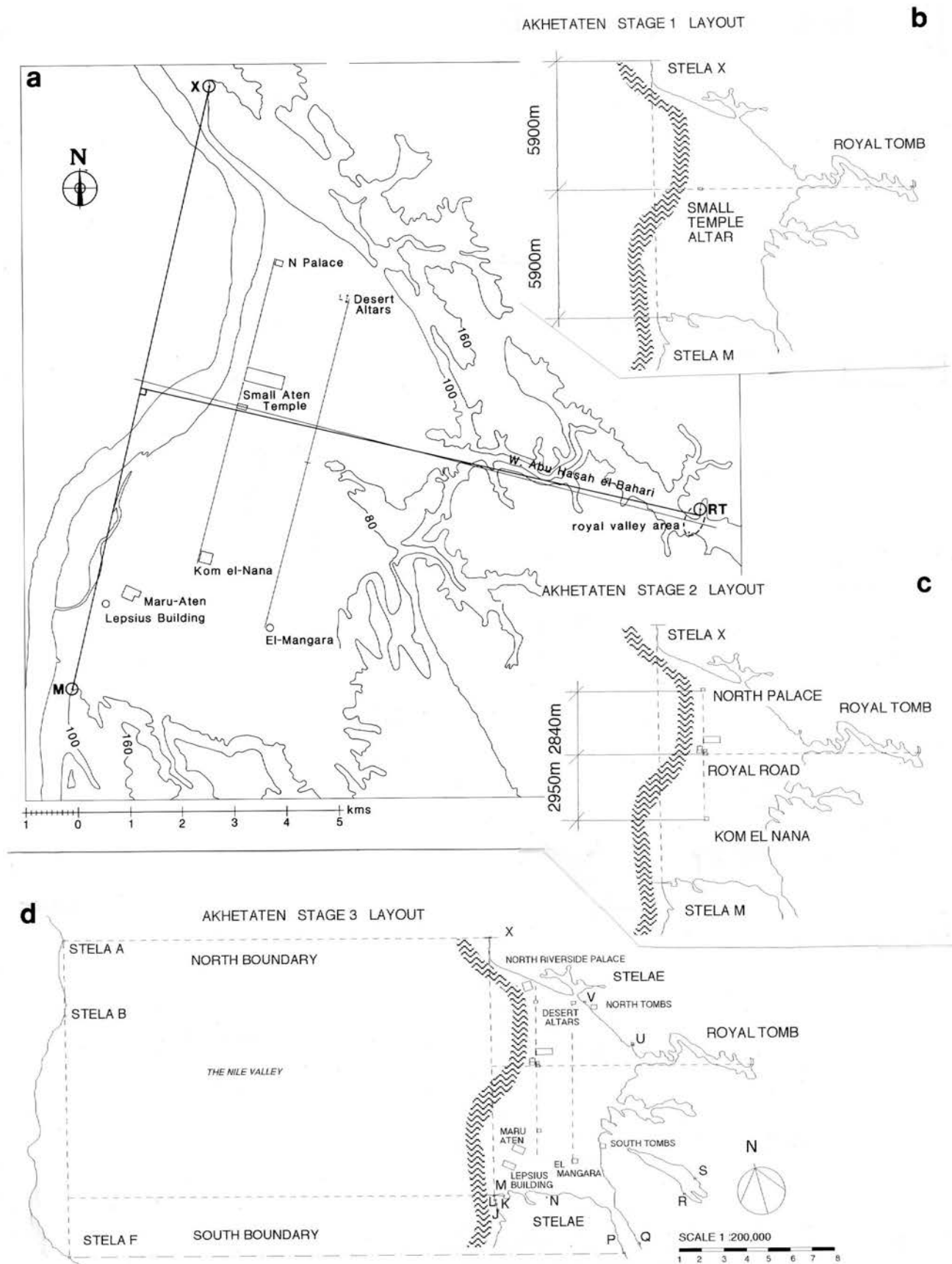


Figure 5.26a–d. Hypothetical stages in laying out Akhetaten.

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