

## CHAPTER 3

REPORT ON THE 1986 EXCAVATIONS  
WORK INSIDE THE WALLED VILLAGE (2): GATE STREET 9

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The success of the excavation of Gate Street 8 in 1985 (AR III: Chapter 1) led directly to the excavation this year of the adjacent house to the north, no. 9. From the surface it could be judged that the walls stood to roughly the same height as in no. 8, representing probably the maximum of any surviving house within the Village. Modern disturbance was obvious, in the form of a partly filled pit which had been dug down against the south wall of the Middle Room; but this had been the case with no. 8, where, notwithstanding, the very depth of deposit had led to important areas of the house escaping robbery. The pattern of our excavation was similar to that adopted for no. 8. Following the removal of the unevenly heaped surface deposits, which exposed the tops of walls, each room was excavated by removing layers of fill across half of the width of the room. Where the fill was loose the layers were arbitrary units about 10 cms. thick, but wherever a consolidated surface appeared which looked as though it might be the top of an intact rubble layer this was brushed and separately recorded in the hopes that it might contain structural clues, such as had been amongst the most important findings of the previous season.

The final result differed significantly from that obtained from the neighbouring house, no. 8. The fill produced its quota of pottery and other material, including fragments of a faience vessel bearing the early didactic names of the Aten; certain additions have been made to our body of observations on the physical characteristics of the Village houses. But little of the original deposits or of the original floors survived; in their place in the Middle Room, at least, was a record of activity that is still enigmatic.

**3.1 The house Gate Street no. 9: basic features**

The same labelling system and order of description will be followed as was used for Gate Street 8 (AR III: 3; and see this volume, Figure 3.1).

**Front Room North** (c. 2.50 x 2.30 metres): the removal of the fill revealed that about half of the floor had been robbed, exposing the underlying natural sand [2579]. The untouched part, sealed by a layer of compacted rubble [2511] about 65 cms. thick, comprised a floor of marl plaster [2584] partly covered by a thin (c. 1 cm. thick) organic layer [2583]. Along part of the broken edge to the floor on the west extended a patch of ash which had stained an area of the adjacent marl plaster [2581]. Such ash deposits have been found before and probably represent debris from the time of the original builders.<sup>1</sup> No remains of structures within the room were noted. The west wall had initially been coated with gypsum plaster, subsequently covered by coarse marl plaster. Gypsum in this position could denote an original quern emplacement, but there were no tell-tale scars on the wall to indicate that one had ever been present. The absence of any sign of a quern emplacement in the house is unusual.

**Front Room South** (c. 1.72 x 2.49 metres): somewhat more than half of the fill and floor had been dug through by robbers, leaving an untouched strip running along the east side. At a depth of a metre or a little more lay an intact deposit of congealed brick rubble [2244] containing a few lengths of thin wooden poles, other pieces of which (subsequently destroyed) had left narrow brown stains on the wall behind. Poles and stains derive from roofing poles, but although 15 roofing fragments came from the loose fill of the room (which could have been dumped there from elsewhere), no pieces were found in the *in situ* rubble. It is always possible, too, that roofing material in this position could have come from the Middle Room. The congealed deposit had sealed a strip of the original floor, composed of stones set in marl mortar [2573, 2574], and

<sup>1</sup> Gate Street 8, AR III: 2, Figure 1.1, Front Room N., unit [1736]; Long Wall Street 7, 1979 excavations (unpublished); West Street 21, COA I: 89.

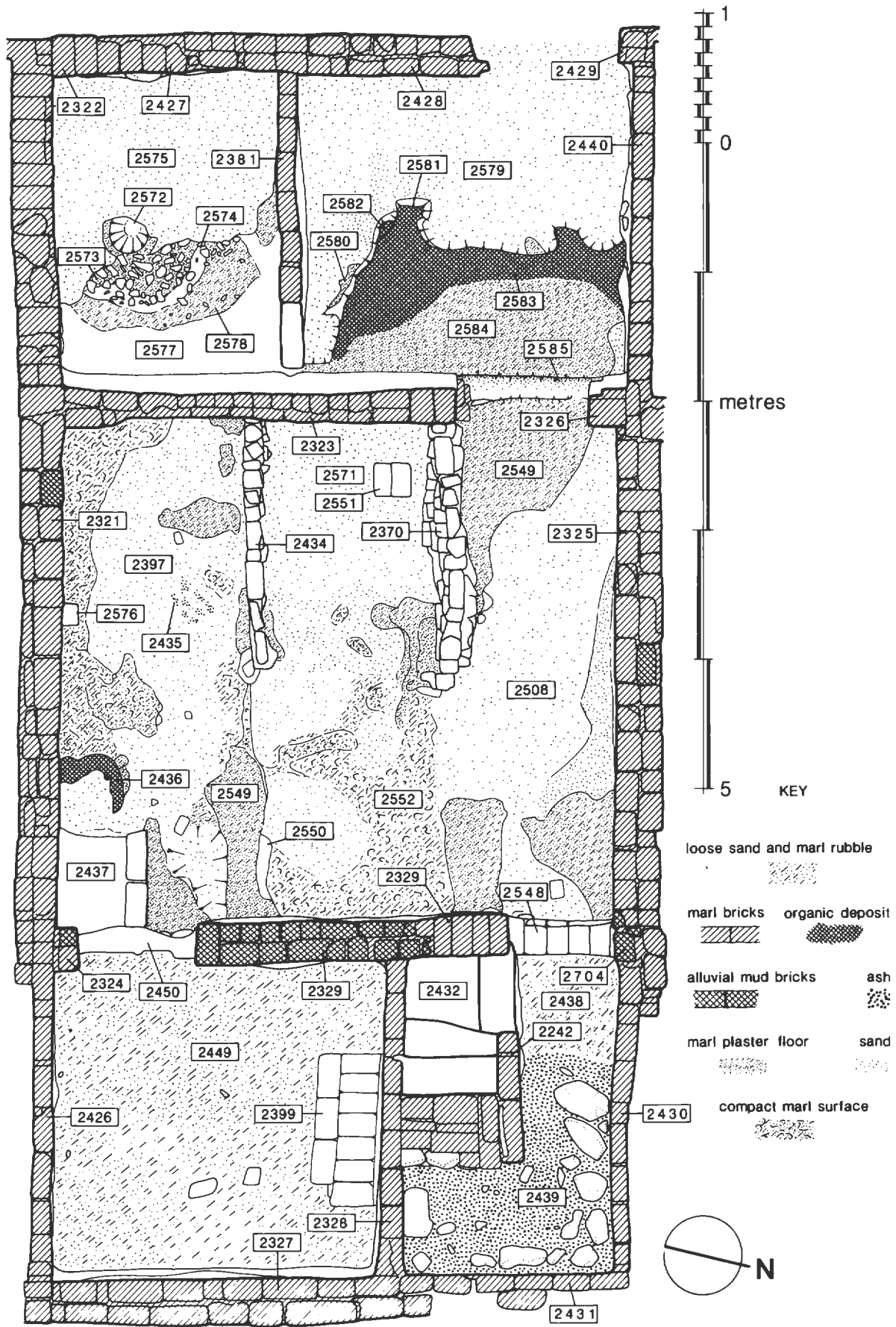


Figure 3.1. Plan of the house Gate Street No. 9 (original by Angela Tooley).

then plastered smoothly over with marl plaster [2578] and then again with alluvial mud plaster [2577]. Within this floor a limestone mortar had been sunk. The robbers had pulled it out leaving only an impression [2572], but had then discarded it so that it remained to be discovered in one of the adjacent fill units [2249]. The mortar had seen much use, presumably by a person standing beside it and pounding grain with a long wooden pole-like pestle.<sup>2</sup> In consequence the floor around the mortar had been progressively worn down, exposing the various layers of material that made up the floor as concentric rings. The west wall showed that an important change of layout had occurred during the period of occupancy. The front door to the house had originally been located here, thus close to the south end. It had been blocked up with marl bricks on a foundation of stones [2427] and plastered over. Since there is no sign that the doorway in the east wall [2323] was changed, as first laid out this house would have been one of a small number in which the front door did not lie opposite to the door into the Middle Room.



Figure 3.2. The dividing wall between the Front and Middle Rooms, looking south and showing the batter. Note the dividing wall in the Front Room with rounded top at the left end (original access ?), and the rubble wall in the Middle Room.

The two Front Rooms had been separated by a partition wall [2233], originally about one metre in height (although the uppermost bricks had been lost to modern robbing; Figures 3.2, 3.5). It was presumably added after the change in the position of the front door, for it contained no proper doorway of its own, but at the east end a short length of wall 65 cms. above the floor had a smoothly worn surface and probably therefore marked the place by which access was gained, by climbing over. This was not a unique arrangement, for several houses dug in the 1920s had protected their mortars and/or quern emplacements by screen walls not provided with proper

<sup>2</sup> As depicted in tomb models, e.g. Winlock 1955: Plates 22, 23, 64, 65: no. 1; and in tomb paintings, e.g. Davies 1920: Plates XI, XIA.

doors.<sup>3</sup> The purpose may have been to exclude animals, although, as noted in the Appendix, animal feeding in this area was sometimes encouraged by the siting of feeding troughs in the Front Room. The thin organic layer in the Front Room North [2583] is a sign that animals were allowed here.

**Middle Room** (c. 3.86 x 4.30 metres): this offered a puzzling stratigraphic record. Prior robbery was visible from the beginning from a sand-filled hole against the south-west corner which had left some of the wall surfaces exposed. This had been true also for Gate Street 8, but those responsible for the hole there had not been able to reach floor level in the house. The room was excavated by stripping off the fill by layers across half of the room each time. The uppermost ones were loose mixtures of sand, dust and rubble. One spread of rubble, in front of the east wall [2329], could be identified as having come from digging actually into the brickwork of this wall which, being constructed of alluvial mud bricks, immediately revealed material that had once been built into it. Part-way down into the fill the rubble became much more compacted, to the point where it could be considered to form a surface worth planning (Figure 3.3). This principal intermediate planning stage revealed the compacted surface of rubble units [2342, 2394] covering the south-west quarter of the room and extending also over part of the eastern side of the room. From this plan the outlines of three robbers' pits were also visible: one in the south-east corner, one against the middle of the west wall, and the third running beside most of the north wall. In front of the east wall [2329] which, as just noted, had been attacked, there was only a small hole. The floor level was subsequently revealed at a further depth of between 40 and 60 cms. In the course of reaching it, one of the robbers' holes - that against the middle of the west wall - was seen to be defined on its north and south sides by retaining walls of the kind encountered at West Street 2/3 (one rubble wall is visible in Figure 3.2). Their alignments closely corresponded to the edge of the pit already marked on the plan of the higher levels. A further wall of this kind [2398] bordered the north side of the pit in the south-east corner. The surprise was to find that those parts of the floor not lying within the scope of the pits and thus covered by the congealed rubble layer had also been almost entirely removed. All that remained were a few patches of the original marl plaster floor [2549], a small area of bench [2437] in the south-east corner (where one of the pits had been dug), two isolated bricks [2551] from the western bench (also within the confines of a pit), and a patch of ash [2435] on sand [2397], and an organic deposit [2436], the last possibly deposits laid down before the house was built.

From the standpoint of evaluating the Eighteenth Dynasty evidence from this part of the house we have to accept that its archaeological fill has been totally disturbed. Our own processes of excavation have, nevertheless, uncovered an internal structure to the deposits which is not consistent with a single vigorous turning over, although it has to be admitted that some of the points appear to be contradictory. Thus it is possible to see two quite separate phases of robbery. The first led to the thorough digging up of the floor and the formation of a hard crust over the rubble cover; the second involved distinct pits being dug through this crust, partly lined with rubble walls at the bottom. Support for the idea that the first phase of digging was ancient can be found in the fact that the weathered crust which formed over the rubble lay well down inside the room, and appears therefore to represent a deposit which had not yet filled the house to the level of the present wall tops. The difficulty here is that the floor had been attacked on both sides of the walls, although preserved immediately beneath them, and attacked equally in areas which were covered by the congealed rubble layer. Then again, the relationship between the rubble walls and the preserved areas of mud floor gives the impression on its own that the walls were initially free-standing, built before any rubble had accumulated, and that the floor was hacked away from around them. As such they could be seen as the product of "squatters". This was the interpretation which arose during the course of the excavation itself. Set against this is the coincidence between the lines of the rubble walls and the holes in the rubble crust lying above. One would have to argue that later robbers were guided in their digging by accidental discovery of these rubble walls, perhaps thinking that they were tomb linings. We are certainly right to entertain the possibility of ancient destruction, since Woolley encountered something similar. In one house (West Street 21) he noted for the Middle Room: "Floor destroyed, no trace of divan or

<sup>3</sup> West Street 26: 40 cms. high; West Street 22: 50 cms. high; West Street 19: 60 cms. high at west end, 25 at east; Long Wall Street 12: 70 cms. high, though no features recorded behind it.

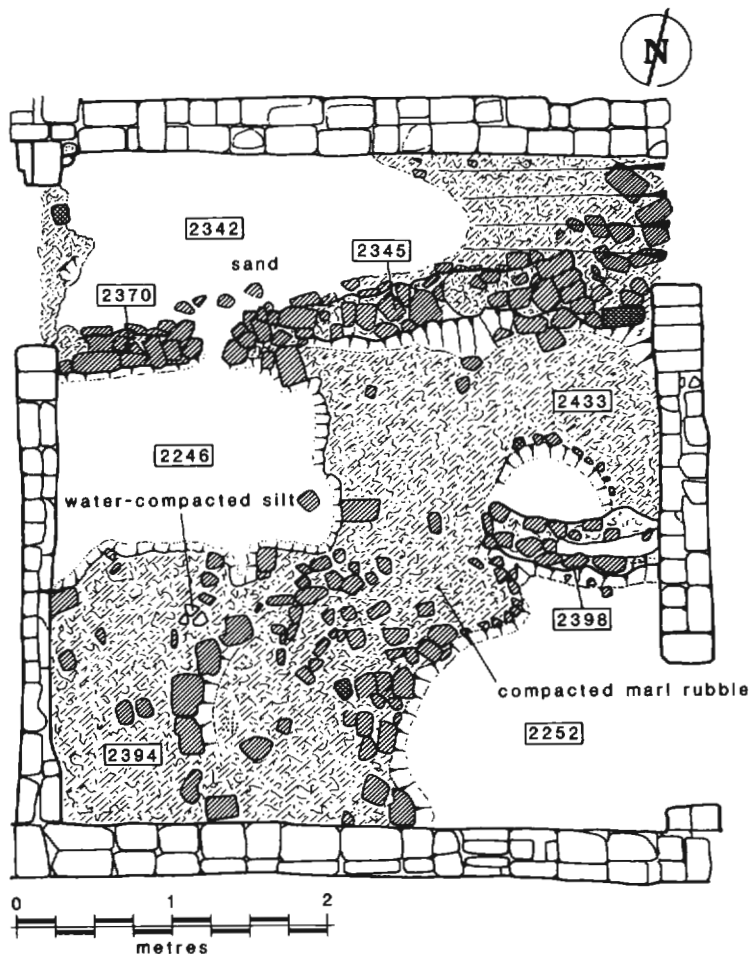


Figure 3.3. Plan of the compacted rubble surface in the Middle Room exposed midway in the course of excavation (original by Angela Tooley).

hearth”, and for Rear Room South (“bedroom”): the floor destroyed and the “doorway blocked by partition wall 0.45 m. high” (COA I: 89). In Long Wall Street no. 11 the floor of the Middle Room was likewise found to be much destroyed. When Woolley worked at the site, in 1922, no serious modern robbery had taken place. Whoever blocked the doorway (something done in Gate Street 8 and West Street 3) and destroyed the floors had done so long before modern times.

We already know that the site attracted interest some time after the end of the Amarna Period, probably late in the New Kingdom. At least three burials were made, one beside the Main Chapel (AR II: 14-17; AR III: Chapter 8), one inside the Middle Room of house Main Street no. 4, and the other in an almost identical location in Main Street no. 3, next door. In the first case we know that the walls of the Main Chapel were still standing and that relatively little debris had accumulated over the ground surface of the Amarna Period. We can expect the rate of accumulation within the houses to have been more rapid, and indeed, it would not have made sense to have placed the coffins in the two houses directly on an open floor. Presumably they were placed in pits dug into a partial fill of rubble. In neither of these two houses, however, was the rest of the floor destroyed. The whole picture of post-Amarna activity at the site is still shadowy, for the evidence easily merges with the results of modern illicit digging. In places untouched since antiquity, and Chapel 556 described below in Chapter 6 is another of them, we can see definitely that human activity of some kind did occur after the final abandonment of the village. But with Gate Street 9, at least for the time being, the verdict has to remain open.

**Rear Room South** (c. 2.30 x 2.50 metres): removal of the upper fill units of loose sand and



Figure 3.4. The doorway between Rear Room North (with staircase) and the Middle Room, looking north-west. Note the beginning of an inward curve at the top of the right-hand door jamb.

rubble [2076, 2226, 2228, 2232] exposed a consolidated surface of brick rubble, stones and a quantity of pieces of wooden poles [2243, 2245]. As with the Middle Room, however, once this and its underlying continuation [2384, 2385] were excavated it was found that the floor had been completely dug out, exposing the underlying natural sand [2449]. The only remaining feature was the base of a brick bench [2399], measuring 1.13 x 0.52 metres, against the north wall.

**Rear Room North** (c. 2.48 x 1.60 metres; Figure 3.4): the existence of a staircase had made robbery more difficult, to the extent that it seems to have been confined to the area of the steps and a small deep pit behind the supporting pillar. Otherwise the fill units and much of the floor remained intact. The staircase differed in its arrangement from that in Gate Street 8, on account of the reversal of the roles of the two rear rooms: in no. 8 the staircase occupied the larger room, whereas here it lay in the smaller. A brick pier [2242] had been built out from the dividing wall [2328], and the steps [2432] had been built to fill the space between it and the west wall [2329]. Four steps had been preserved, in a right-angled configuration. Alluvial mud bricks had been used

## 1986 excavation

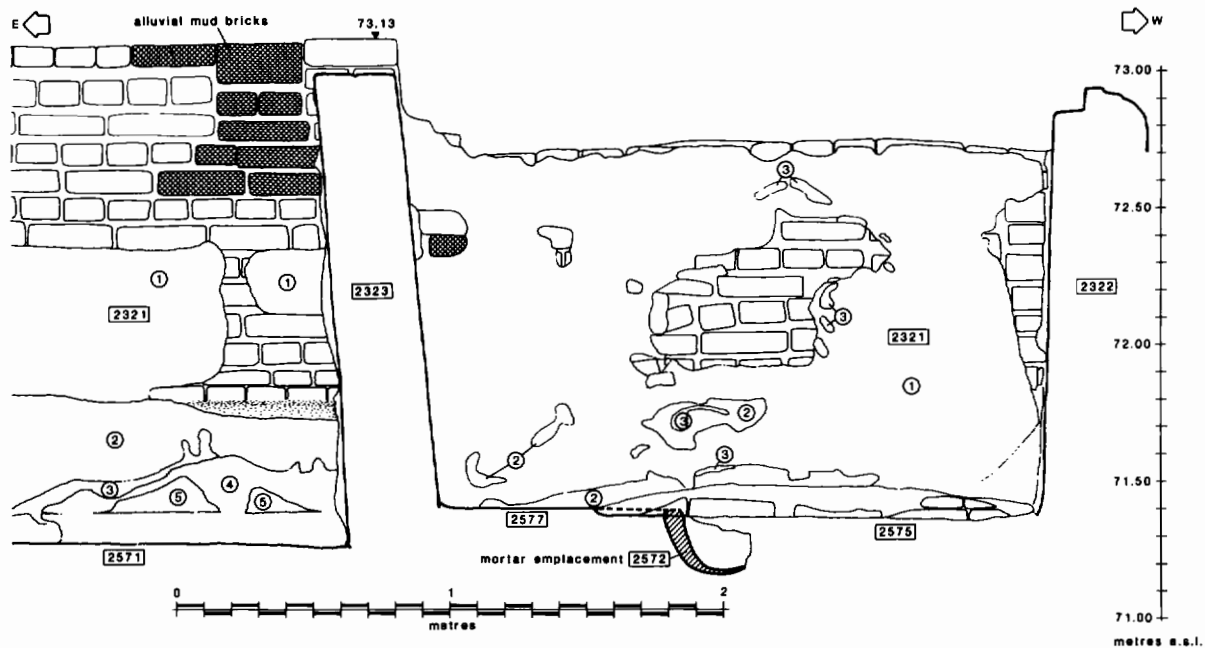


Figure 3.5. Elevation of the south wall of Gate Street 9, with section through the dividing wall between Front and Middle Rooms (original by Angela Tooley).

in their construction (Figure 3.6). As in no. 8, the steps would have continued southwards towards the rear of the house, leaving a small cupboard underneath. The brickwork around the top of the pier had been damaged so that nothing remained of the supports which carried the stairs over the cupboard. One piece of squared-off wood did, however, remain lying across the top of the pier. Removal of the rubble fill, partly loose material from modern digging [2077, 2229, 2248, 2343, 2546, and probably 2438] and more compacted rubble [2383, 2386, 2395], exposed a floor of large stones set in marl mortar [2439] bearing a coating of ash.

### 3.2 Oven fragments

Although the material filling the rooms was badly disturbed, more so than was the case with Gate Street 8, some comments are required in connection with points raised by the equivalent discussion in *AR III*: 1-25. The fill of Front Room N. was marked by an extensive deposit of ash mixed in with the sand and rubble, accompanied by some charcoal and also broken pieces from a cylindrical oven. It was encountered in a sequence of arbitrary units [2075, 2225, 2251, 2250, 2344] with a total depth of about 90 cms., commencing beneath the irregularly heaped surface debris, unit [2074]. Within unit [2250] most of the bricks themselves were charred. The whole deposit clearly derives from a cylindrical oven emplacement built against a wall. It might seem pointless, in view of its disturbance in modern times, to speculate as to where it had come from, until one realises how limited the options are. The pattern of robbery, involving the construction of little revetments to hold back the debris in deep pits, resembles that encountered in West Street 3. There a similar high-level deposit of ash and oven fragments had originated from an oven emplacement very close to where the deposit was found (immediately to the south of the deposit, see above, section 1.3). With Gate Street 9, we can exclude its own front rooms at ground floor level: such ovens are always built into a corner and leave traces on the wall, even when destroyed, and here there were no such traces even though wall surfaces were well preserved. We can exclude anywhere to the east (Middle Room for Gate Street 9) and to the west, since on this side the entire row of houses was excavated in 1922. Three possibilities remain: an upper floor over Front Room North, or an upper or lower floor in Front Room South of the still unexcavated house Gate Street 10. For the reasons already given the first possibility can be virtually excluded.

Work inside the Walled Village (2)

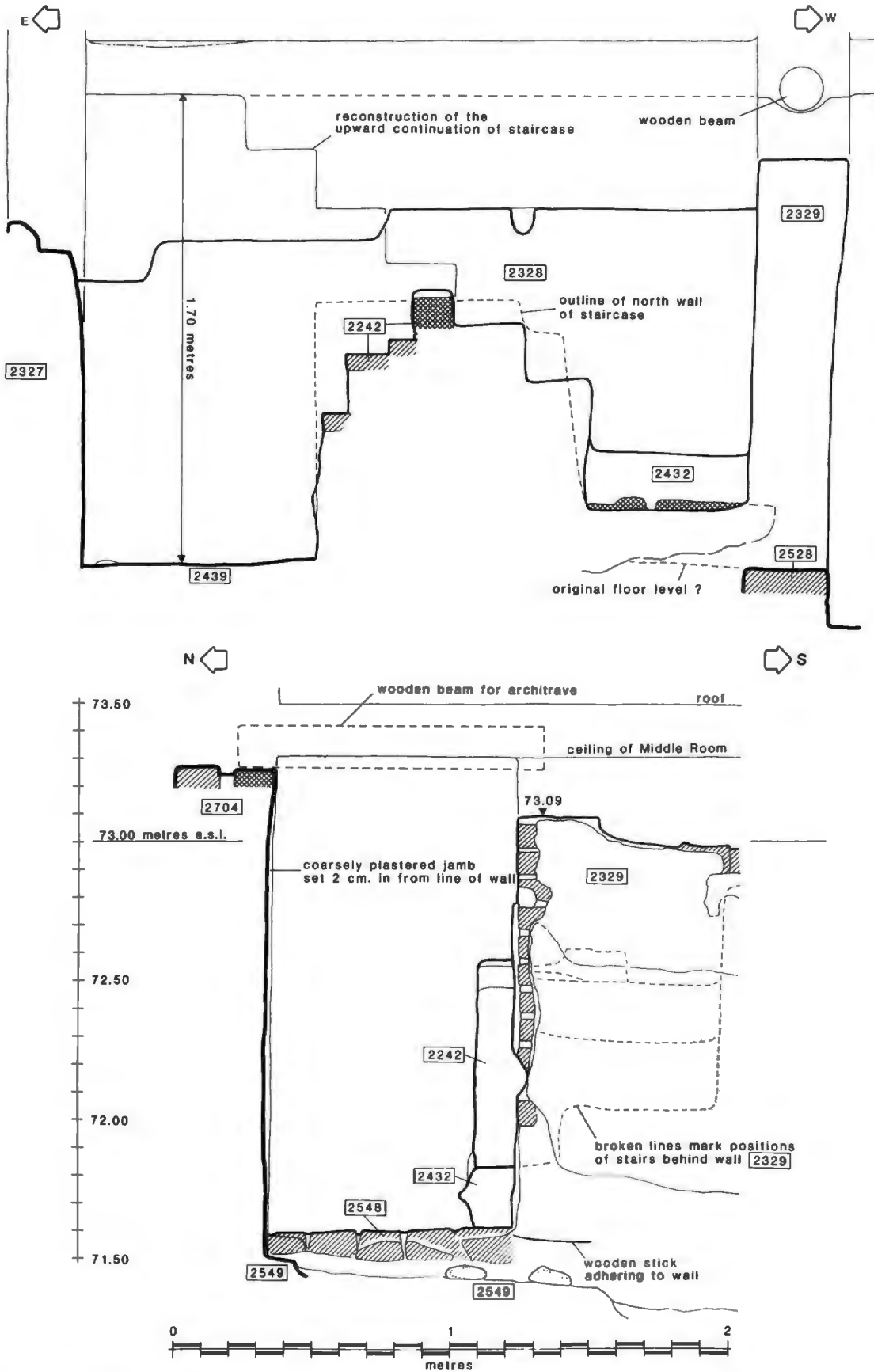


Figure 3.6. Elevations of the staircase of Gate Street 9 (originals by Angela Tooley).



The other possible explanations have to be compared with the general record of how features were disposed around the houses in all the known examples. This is dealt with in the Appendix, below. A comparative study of all the Workmen's Village data strongly implies that Gate Street 10 was a "Type B" house, i.e. one with a staircase leading from the Middle Room towards the front of the house, which would therefore have been stoutly roofed and could have been the location for the house's oven.

### 3.3 Particular structural features

It has been common in working both inside and outside the Village to find walls built without too great a concern for accuracy, either in the horizontal or the vertical directions. The wall [2323] which separates the Middle Room from the Front Rooms, however, has such an even and conspicuous inner slope of about 5 from the vertical as to suggest that it is deliberate. It is not a result of subsequent movement of the masonry, for the corners show no particular incidence of cracking. Furthermore, the slope or batter was maintained across the doorway [2585] in the door pillar [2326] on the north. We are thus probably entitled to see the slope as intentional, and this implies in turn that it was meant to be the real facade to the house. It was suggested in AR III: 19 that in some of the houses the front rooms could have been left unroofed, so that they formed, in effect, a tiny courtyard. This would fit well this particular feature of Gate Street 9; otherwise the pretensions of the owner in providing the main part of his house with a battered facade would have been almost entirely hidden. This does not, of course, preclude the possibility that a lighter roof of, say, mats was rigged up over the mortar emplacement in the south which, as noted above, was screened from the entrance to the Middle Room - thus the real front door to the house - by an entrance-less wall.

Some attention was also devoted in AR III: 14-19 to the original height of the ground-floor roofs, and also (pp. 21-25) to the possibility that a second floor had, in some of the houses, been constructed over the Middle Room. For the former, a similar procedure can be followed around the stairway in Gate Street 9 (Figure 3.6). If we allow a 60 cm.-deep landing at the top for left or right access to the roof we have a ceiling height for the rear rooms of about 1.70 metres, assuming that a final step took one from the landing up on to the roof itself. This is slightly lower than the estimation for Gate Street 8 (1.80-2.00 metres). The closeness of some of the surviving brickwork to the original ground floor roof is also suggested by the slight inward curvature (and strategic use of alluvial brick) at the top of the north jamb of the door leading from the Middle Room to Rear Room North (Figures 3.4, 3.6). The wooden lintel may have rested only a little distance above. The stairs had no point unless to lead to a used roof area, and since this house is one of a large number without an oven on the ground floor we can at least consider it possible that an oven lay on the roof, perhaps over the Rear Room (see the Appendix, below). A possible second storey over the Middle Room, postulated for Gate Street 8, is, however, a separate question. Unlike Gate Street 8, the record of roofing fragments is no help. The total score from all parts of the house was relatively low: 84 fragments, mostly with impressions of poles, but some with impressions of reeds and loose grass. There were no examples of the kind with reed impressions in a mortar of a grey colour such as had been found in the Middle Room of Gate Street 8 in the previous year. All except two were found in the loose fill. The two from *in situ* rubble, unit [2511], were found in the eastern part of the Front Room North. This same room contained the largest concentration, 42 from various units of the loose fill. These same units contained ash and oven fragments, and it has already been argued that this whole deposit comes from the robbery of the front room of Gate Street 10, a probable "Type B" house with roofed front area. The Middle Room deposits produced only 11 fragments. These numbers are low by comparison with those from the disturbed fill of West Street 2/3 cited in Chapter 1. In trying to account for this one is taken back again to the enigmatic later history of the house which, if nothing else, points to more than the usual degree of disturbance which perhaps resulted in more of the roofing fragments becoming too broken up to be recognisable.

If we accept the evidence for a second storey on some houses we are not compelled to extend this feature to them all. In some of the West Street houses, for example, the east and west walls of the Middle Room were of only a single brick's width in thickness, and we may consider this insufficient to have supported a wall of nearly four metres in height. With Gate Street 9 two

structural factors have to be considered. As will be discussed in the Appendix, Gate Street 9 shares with Gate Street 8 and Long Wall Street 6 (all excavated by the current expedition) the peculiarity of having the east wall of the Middle Room built with far more alluvial mud bricks than any other part. Indeed, as the plan and elevation show (Figures 3.1 and 3.6), they seem to have been placed with particular care, since they are confined to the central part of this wall only, and did not extend as far as the doorway into Rear Room North. In building a short wall like this it would have been normal to lay the courses one at a time. The pattern here strongly implies that the alluvial bricks were quite deliberately selected for the central part of the wall only. There is no visible reason for this in the ground floor. If these houses possessed an upper room we can look for some feature which required extra care in wall construction, a brick dais against the central part of the wall being the most obvious.

The other factor is the inward slope of the west wall (Figures 3.2, 3.5). It was not possible to determine, without partial demolition, to what extent the west wall was keyed into the south wall. The junction had, however, remained firm for there was no sign of serious cracking or slipping of brickwork. As the front elevation shows, the north and south walls of the house (which were also north and south walls respectively of Gate Street 8 and 10) leaned inwards, squeezing wall [2323] between them. If we wish to add an upper room over the Middle Room we have to envisage this sloping wall continued upwards for a further 1.80 metres or so. Towards the top the entire thickness of the wall would have been outside the line of its foundations at the bottom. At the current top of the south side wall of the house, where it meets this west wall, a patch of alluvial mud bricks has been inserted. One could interpret this as the beginnings of extra strengthening, perhaps involving timber ties, to stop the upward continuation of the west wall from collapsing inwards. This has to remain, however, speculative, although one has the impression that if there was no upper storey to Gate Street 9, the outward slope of the north wall of Gate Street 8 could have been a threat to the stability of both houses.

### 3.4 Appendix: general review of the Workmen's Village houses by B.J. Kemp

The Peet and Woolley excavations of 1921/22 cleared and recorded 36 complete houses within the Walled Village.<sup>4</sup> The current excavations have added four more: Long Wall Street 6, Gate Street 8 and 9, and West Street 2/3. The results from the latter bear directly on the older work, and make it worthwhile to consider the Village in general. The published notes of Peet and Woolley are often relatively full, and Newton's plan recorded much detail.<sup>5</sup> Nevertheless, the level of detail sometimes falls just short of what is needed for a clear picture of what each house contained. A degree of uncertainty thus attends some of the identifications of features.

Peet and Woolley attempted to portray the typical house, and their description stands up reasonably well, although, as will become clear, their understanding of what constituted a "kitchen" needs revision. But having fixed in one's mind a picture of the typical, the next step is to consider the range of variation, for here archaeology begins to construct a profile of society in certain basic respects. The planned nature of the village imposed a physical constraint on the villagers themselves. It is within the nature of such places that they are founded on administrative decisions to allocate space according to an external view of what ought to be typical for the families involved. Here the assumption was that accommodation was required for 69 households of a single common status, and 1 household at each of 2 more elevated levels of status. In reality, however, the households inevitably differed in size, preference and determination towards self-improvement. In the main city of Amarna, where this kind of administrative constraint did not exist, the combination of personal circumstances produced a continuous gradient of house size and a wide degree of variation in other associated factors.<sup>6</sup> Within the Village it found a significant outlet in the construction of chapels, which should be seen as adjuncts to normal living-space, and a much more limited one in the way that individual families treated the core houses which they had to build on the plots of ground allocated to them within the walled enclosure. The result was considerable variation within the narrow limits available, a variation that was the result of innumerable minor domestic decisions made within the privacy of each house. The variation may appear to be arbitrary, even random. But the social sciences are built upon the assumption that within a sufficiently large sample personal vagaries occur inside limits, and in fact form patterns of recurrence which are the raw material for profiling the society in question.

Before examining this variation some comments are necessary on the correct identification of features. The discussion of section 1.2 in Chapter 1, and especially Robert Miller's appendix to that Chapter, has established with reasonable certainty that a simple act of domestic hygiene left ash and burn-marks associated with quern emplacements, and that many of the "hearths" and "ovens" of Peet and Woolley's report are, in fact, quern emplacements. Real ovens came in two forms: a cylindrical one made from a preformed cylindrical lining of dried clay which was built into a corner by packing bricks and mortar around it; and a simple box-like construction of bricks, used particularly for the making of bread in moulds. A good example still with most of its original fill of bread moulds was found this season in the annexe to Chapel 556 and is described below, in Chapter 6. Where Peet and Woolley refer to "mortars" they are undoubtedly correct, but in some cases the context implies that what were really also mortars were described as something else, such as a stone "bowl". Limestone troughs and mangers are frequently referred to in *COA I*. Our own work, especially outside the Village, has firmly underlined that they were, indeed, in widespread and regular use for animal keeping; and where animals are involved we have to consider pig as well as goat.

The most obvious variation in design is the location of the staircase. In 9 houses this occupies the north part of the Front Room, leading off from the Middle Room directly, whereas in the remaining cases it occupies one of the Rear Rooms. Peet and Woolley divided the houses into two groups on this basis, calling the former Type B and the latter Type A. All examples of Type B occur in the three easternmost streets, i.e. Main Street, Gate Street and East Street, to the

<sup>4</sup> Not including West Street (25), left as an open workshop for West Street 13, nor the two houses Long Wall Street 1 and 2 of which only the rear chambers were dug.

<sup>5</sup> The original does not survive, but it was photographed on to a glass-plate negative, no. 22/88, from which an excellent large-scale print can be made in which some of Newton's details can more readily be seen.

<sup>6</sup> Discussed by Kemp 1977; cf. also Crocker 1985.

extent that Newton hypothesised, in the reconstructed outlines of unexcavated houses, that they would recur along the full length of Gate Street and East Street. However, the two houses dug in the current work in Gate Street turned out to be of Type A, so that the incidence of Type B within this block of streets is probably between one third and a half. The advantage to be gained from this design would have been convenience, a straight staircase being easier to mount and to descend, particularly when carrying a load, than the twisting Type A staircases. But it was convenience bought at the expense of a part of the Front Room floor space.

The placing of the stairs in the front had a significant effect on the general organization of the house. In *AR III*, Chapter 1, it was suggested that in some of the houses the Front Room was in fact a small courtyard, the real house facade being the front wall of the Middle Room. The configuration of Gate Street 9, with the apparently deliberate batter on the front wall of the Middle Room, lends some support to this. So also does the record from West Street 2/3, where the annexe on the south, **Area viii**, containing the quern emplacement and thus equivalent to the Front Room in normal houses, seems to have been roofless, although the adjacent part, **Area ix**, perhaps used for weaving, was covered with a light roof of mats on poles. In houses of Type B, on the other hand, we are obliged to accept that the Front Room had a solid roof, since this was the area to which the stairs led in the first instance. If this was the case, we might expect to find the choice of Type B plan having some other effect on the placing of individual features. One such can be observed. Of the total number of houses of both types 87% (33 out of 38)<sup>7</sup> possessed quern emplacements. In 70% of cases it was in the Front Room; in 30% of cases in a Rear Room. However, if we subdivide the figures according to the type of house, with houses of Type B the proportion with quern emplacement in the Rear Room doubles (to 62.5%), leaving only 20% (5 cases, two of them, West Street 23 and Long Wall Street 8, anomalous buildings) in a Rear Room in Type A houses. It is also worth noting that whereas there was a general tendency to site the quern emplacement against the opposite side of the Front Room to the doorway from the street, in the 3 houses of Type B with quern emplacement in the Front Room, 2 are set immediately opposite the door to street. We can explain these figures by saying that, either for reasons of better light or of better ventilation in view of the dusty nature of the work of milling, there was a preference for siting the quern emplacement in a roofless area or, where in Type B houses convenience to the street door was an overriding factor, the preferred compromise was opposite the street door.

A close link existed between quern emplacement and limestone mortar, since one use of the latter was to pulverise the grains prior to milling.<sup>8</sup> The mortars were normally sunk into the floor; more occasionally, as in West Street 3, they were built into a little structure against a wall. They are a feature more vulnerable to removal with little trace than quern emplacements or ovens, and we should probably not read anything significant into the fact that there are fewer recorded than there were quern emplacements (25, two of them uncertain identifications; add West Street 2/3 and possibly Main Street 8 and East Street 1).<sup>9</sup> The connection is not merely one of association of tasks, but also of actual physical proximity: 17 occurred in the same room as the quern emplacement, 4 in a different room, and in 4 more cases there was no emplacement at all (one of them Gate Street 9). Of the 4 in a different room, one of them is the anomalous house Long Wall Street 8, see below, whilst the other 3 are Type B houses, 2 of these where the quern emplacement has been constructed at the back. West Street 2/3 is another case where the mortar has been separated from quern emplacement by preferring a location near the front door. We can detect, therefore, a marginally stronger preference still for siting the mortar near the street door. One reason for this could have been convenience in respect of the delivery and storage of grain. This presumably came in sacks, most easily kept in the Front Room.

Another element also has to be considered, however: that of animal keeping within the houses. In 11 of the houses one or more limestone feeding-troughs was found (and West Street 23 should be borne in mind, since it had been converted into an animal pen, see below). Wherever there

<sup>7</sup> The number 38 is the total of "standard" houses fully excavated by all expeditions, including Long Wall Street 6 and Gate Street 8 and 9, but excluding East Street 1, Long Wall Street 1 and 2, and West Street 2/3.

<sup>8</sup> Cf. *COA I*: 64-65, Plate XVII.5, 6; Winlock 1955: 28, Figures 22, 64, 65.1; Filce Leek 1972, 1973.

<sup>9</sup> In the appropriate place in Main Street 8 is recorded "a circular depression (diameter 0.55 m.)"; similarly with East Street 1: "depression, diameter 0.45 by 0.25 m. deep, for a stone bowl?".

was only a single trough it occurred in the Front Room (6 in Type A houses and 5 in those of Type B, reflecting a higher incidence of troughs in normal houses in the eastern three streets than in those of the western three). In 4 of these cases the troughs were found loose, or their position is not marked on the plan; of the remainder, 4 are placed as close as was practicable to the mortar,<sup>10</sup> 2 are separated by the natural line of access across the room, and in the remaining case no mortar is recorded. Proximity to a quern emplacement may have been less important. These were normally present in the Front Room, but in three houses of Type B where the quern emplacement had been put at the rear of the house, the trough remained in the front (in one case where no mortar is recorded at all). Nevertheless, some connection is probable between animals and quern. West Street 23, at the end of its life, was not a house at all. It had been built (or converted) into an animal pen. Yet it still contained a quern emplacement, in its Rear Room South. The same may be true with Main Street 11, where almost the whole of the ground floor was given over to animal keeping and which may have served as a subsidiary building to Main Street 10, next door. With West Street 2/3 it has already been noted how the emplacement stands in a room floored with stones on which is a layer of animal dung. The pigs kept in the special buildings outside the Walled Village were fed, for at least part of their lives, on whole grain (*AR* II: 178-182), and no quern emplacements were built outside (not even in the chapels). There is evidence from sources unconnected with Amarna, however, that milled grain was used as animal feed, at least for poultry, and even perhaps in the form of bread. Two of the Rhind Mathematical Papyrus problems (nos. 82 and 82b) deal with the conversion of grain to what seems to be meal in respect of the the feeding of geese.<sup>11</sup> This is one topic where further clarification is required. A tantalising feature that was possibly relevant evidence was described in East Street 1. It was built against the quern emplacement, at a point which must have been more or less between the legs of the miller: "a low brick coop 0.33 m. by 0.15 m. by 0.11 m. high with entrance in front and hole in top: barley husks inside: perhaps a cage for a small animal ?" (*COA* I: 70).

Another of the basic house elements is an oven, and, as already noted, they came in two forms: circular with a prepared lining, and rectangular. Despite the wealth of evidence from tomb models and tomb paintings, much remains uncertain on the subject of basic domestic cookery practices. We can see from the bone record of the current excavations that meat and fish were regularly eaten by the villagers, frequently chopped into portions on the bone in the case of the former. If and when this was boiled it is likely that metal vessels were used, since little of the pottery shows signs of external burning (despite burn-marks being one of the points of reference in the cataloguing of the thousands of sherds from the excavations), but whether boiled or roasted a fireplace of some kind was obviously needed. An even greater necessity arose from domestic bread baking. The presence of a quern emplacement implies further progression towards baking bread either for eating as such or as a step in brewing. Baking in the New Kingdom was still done in two ways: to produce flat loaves baked on a clay platter (of Group 2, see *AR* I: 135-6, equivalent to the *COA* corpus, types II.4-6); and within cylindrical or hemispherical pottery moulds (of Group 39, equivalent to *COA* corpus type XV.24, and see Jacquet-Gordon 1981). The relationship of the two types to beer-making is still unclear. In terms of the present state of evaluating the results of the current work it can be said that a little mould baking was done in the houses, but that there is a much stronger association with the chapels (*AR* I: 31-33, and see especially Chapter 9), particularly enhanced by the discovery this season of a complete set of moulds in place in a box oven in Chapel 556 (see Chapter 6). For convenience a box-oven would indeed seem far more suitable than a tall cylindrical one for baking moulds (a distinction apparent in the Meketra model, Winlock 1955, 29, Figures 22, 23, 64, 65.10, 11), but this is something that requires clarification, not least because in the "magazines" in the Central City (in reality bakeries) where huge quantities of bread moulds exist Pendlebury recorded only circular ovens. At the institutional level we have to remember that milling and baking could be treated as separate operations involving different groups of people and presumably different premises. Texts make this fairly clear. But such a separation seems far less likely at the basic household level.

<sup>10</sup> I have included Main Street 8 here, where the presence of a mortar is probably to be inferred in the south-west corner of the Front Room, see above.

<sup>11</sup> Peet 1923: 124-5. Whether we should understand "bread" literally in Problem 82, instead of more generically for "prepared feed" depends on how one reconstructs ancient poultry practices.

Since mortar and quern were normal in houses, implying that milling was not done by a specialised group, it is reasonable to expect that the process for which most milling was intended - bread baking - was also a normal household responsibility. However, when we examine the house plans an obvious discrepancy arises in the numbers of ovens recorded.

The number of houses with any kind of construction to contain a fire, thus proper cylindrical ovens and more rudimentary box-ovens, is only 22 (58%) (plus West Street 2/3). The number of houses with cylindrical ovens is even fewer, namely 17 (45%)<sup>12</sup> (18 with West Street 2/3), thus only half the number of those with quern emplacements.<sup>13</sup> One possible explanation for this was put forward in *AR III*: 20-21, namely, that in some houses the oven was on the roof. The evidence was primarily the deposit of ash with some oven lining fragments found within and on top of collapsed roofing fragments filling one of the Rear Rooms of Gate Street 8. It is possible that Peet and Woolley found similar evidence in at least two houses. In West Street 26 they record for Rear Room North: "Much burnt ash in room, probably from roof only: no trace of cooking arrangements" (*COA I*: 91); in Long Wall Street 9, in Rear Room South, evidently a bathroom, they record: "Layer of ashes over whole floor" (*ibid.*, 84). In neither case is any kind of fireplace recorded. We can, of course, test this idea by seeking a correlation between houses without oven and those without staircases, for absence of stairs would have removed the option of siting the oven on the roof. There are 5 of the latter: 3 do indeed possess an oven of some kind (2 cylindrical, in Long Wall Street 8, and West Street 2/3; and one box-oven, in Main Street 2); the other 2 cases (Main Street 3 and West Street 23) were probably not proper houses at all. However, the numbers are really too small for this line of argument to have much weight. We can perhaps, however, draw some support for this hypothesis from East Street 1, the unusually large house in the south-east corner. This possessed a quern emplacement and probably had originally had a mortar close by on the west. However, there is no oven, only "ashes and marks of fire on wall face" in the south-east corner (*ibid.*, 70). This seems hardly an adequate baking facility for the largest house.

On the positioning of ovens, there was a strong preference for one of the Rear Rooms, in all cases except one (West Street 13) in the same room as contained the staircase when this lay in the rear of the house. Only 5 houses had any kind of hearth or oven in the Front Room, and of these there is only a single example of a cylindrical oven, in the anomalous house Long Wall Street 8 (see below). This has a bearing on this year's record from Gate Street 9, where the remains of a cylindrical oven were found high up in the disturbed fill of the Front Room North. There must be a strong presumption that it comes from the unexcavated Gate Street 10, and from an oven on the roof of a Type B house.

The excavation in 1985 of Gate Street 8 also raised the possibility of a properly built upper storey over the Middle Room of some of the houses (*AR III*: 21-27). This cannot have applied to all houses, either because they had no staircase (5 examples), or because the north-south partition walls, which would have had to take the weight of nearly four metres of vertical brickwork, were of only a single stretcher course of bricks in thickness (5 examples, all in West Street). Apart from the direct evidence from Gate Street 8 we have Peet and Woolley's evidence of painted plaster which seems not to have belonged to the ground floor. There are 4 of these houses (plus possibly West Street 20, where "a small fragment of mud plaster painted bright blue, probably from a roof structure" was found in the Front Room). Two are of Type B houses (Main Street 1 and 10) and two of type A (Main Street 9 and Long Wall Street 11). In all cases where the plaster came probably from a wall it lay either in the Front or Rear Rooms, implying that the walls of the upper Middle Room had collapsed outwards. In Long Wall Street 11, whilst some plaster lay in the Front Room, a quantity was found in the Middle Room, too. This, however, had been "plastered on to wooden poles", which means that it probably derived from the ceiling of the upper room. An upper storey would also help to explain Gate Street 12, where human accommodation had been reduced to the Middle Room (which lacked a dais) because Rear Room

<sup>12</sup> Given as 16 in *AR III*: 21. East Street 11 had not been included, but I am now inclined to interpret Peet and Woolley's description as referring to a cylindrical oven.

<sup>13</sup> West Street (25), the annexe to West Street 13, has been excluded for the reason that it seems to have been an industrial furnace. West Street 13 had its own cylindrical oven (given in the house description but not marked on Newton's plan).

South had been used as an animal pen. Main Street 11 is an even more extreme example in this respect, but to the extent that one can consider that it functioned as an annexe to Main Street 10 (see below).

A third category of evidence could be relevant here. Of the four houses excavated by the current expedition, three had utilised alluvial mud bricks for the rear wall of the Middle Room (but not the front wall). Even with only three examples it is a striking recurrence. The one case which did not, West Street 2/3, did not possess a staircase. This is one type of evidence which was not recorded by Peet and Woolley. Alluvial mud bricks were used very sparingly, except for the Village Enclosure Wall. They had no consistent use in the chapels, for example, and rarely appear in the houses above the foundation course level. There is no obvious feature within the Middle Room itself to explain it. One could argue that it was done to help support the staircase, the lower part of which was constructed against this wall, except that the wall against which more of the staircase was constructed - the east-west partition wall - was built in our three cases from marl bricks. If this feature was needed to support an unusual weight on the ceiling at this one end only of an upper storey, one could find an answer by postulating a brick dais along this wall, beside the entrance from the staircase, corresponding to the preferred placing on the ground floor. If this were so then we would be obliged to restore an upper room over the Middle Room of Gate Street 9 which does, as pointed out above, raise a structural problem. It is unfortunate that work in the main city is unlikely to clarify this problem on account of the much greater homogeneity of brickwork.

Making better use of upstairs' space was one solution to the problem mentioned at the beginning of this section: the Village was conceived as providing housing for a set of identical families, a condition unlikely to occur in real life. Another more drastic solution was to take over another house or housing plot. Peet and Woolley noted that this had happened with West Street (25). The ground was markedly irregular and the plot had been taken over by the owner of West Street 13, who had used it as a workshop and animal pen. A similar fate had befallen West Street 23, in the north-west corner of the Village. Evidently before a house had been seriously contemplated (some of the walls were rough and unplastered) it was turned into an animal pen, though equipped with a quern emplacement. We can suspect that the owner lived opposite, in West Street 26, since this is the only house in the near vicinity to contain a limestone trough, with a second one outside in the street. A third plot probably not used as a house is Main Street 3. It possessed few domestic features at all: no stairs, quern emplacement, mortar, hearth or oven. The Front Room contained a pair of the grooved limestone blocks which may have been used to help support a weaver's loom (*COA I*: 60-61, 75), and one adjacent wall had been painted (with a scene of Bes figures, see Kemp 1979b). Peet and Woolley imply, with their phrase "remains of at least three successive layers of fresco", that the north wall of the Middle Room may have been painted, too, a unique occurrence. The bareness of this set of rooms makes it more likely that it served as an enclosed workshop for an adjacent house, perhaps Main Street 2, which also had no staircase although it possessed most of the other domestic necessities. A further possible pair is provided by Main Street 10 and 11, which actually intercommunicated beneath the Type B staircase in the former. Both houses possess stairs, quern emplacements and ovens, but the ground floor of no. 11 is distinctly odd. The evidence of feeding-troughs and tethering-stones showed that the Front Room, Middle Room (which lacked dais and hearth) and Rear Room South had all been used as animal pens. The only other explanation is that the owners had restricted their living-space entirely to the first floor. Perhaps we have here the domicile of two related families partially sharing their accommodation.

The final anomalous house is Long Wall Street 8. Although without stairs,<sup>14</sup> each of the three basic elements of food preparation - mortar, quern emplacement and cylindrical oven - has been spread out to occupy a different corner room, with the cylindrical oven uniquely in the front of the house, in a room reached separately from the Middle Room. Since both of the adjacent houses are reasonably well-equipped and thus offer no obvious reason for sharing with no. 8, I can suggest no reason for no. 8's unusual layout.

<sup>14</sup> *COA I*: 84 calls the Rear Room North "Kitchen and Staircase", but then describes the various features (including a quern emplacement against the "south" instead of against the north wall, an example of mistaken orientation of which there are several other examples) in such a way as to leave nothing suitable for a staircase.

The Village, although seen by administrators as consisting of so many identical households, contained a society with some degree of internal structure and variety. This must have been manifested as much in chapels and other structures outside the village walls as in the houses themselves. But despite the limitation provided by the attempt at architectural uniformity it is worth asking: can we detect a pattern to internal variation? To attempt this using just the architecture and main fittings, each house has been given a basic score on the presence or absence of a restricted list of elements. The individual house scores are shown in Figure 3.7, and the average score for each street is shown at the top. The three western streets, and particularly West Street, score generally lower than the three eastern ones, although it should be noted that the score for Long Wall Street is slightly depressed by the influence of the anomalous house, no. 8.

Two useful points are made by this exercise. Firstly it suggests that the relative lack of objects found in the West Street houses could be the result of a generally poorer population living there rather than a sign of earlier abandonment. This question needs to be examined further in the light of a study of the small finds.<sup>15</sup> Secondly it helps to identify the existence of some degree of differentiation within this enclosed society. Some households were doing better than others. One element may even have been that the occupants of West Street were differently employed, perhaps as guards rather than as tomb labourers.

Social and economic studies gain much from comparing similar bodies of data. The next step is to look outwards, to the excavated houses of the main city. Two elementary comparisons are readily available. The basis of one is the only other group of houses laid out on a grid plan, the "Clerks' Houses" in the Central City (*COA* III: 122-125, Plates XX, XLIX.4). The one published photograph shows that the walls of many were standing almost as high as those at the Workmen's Village. Despite this not a single oven, mortar or quern emplacement can be recognised. We can find an explanation for this by choosing to see them as offices rather than as houses, although a full consideration of pottery and small finds is needed as well. The other approach is to use the Crocker index of Amarna house data<sup>16</sup> to compile a list of houses of equivalent floor area scattered through the whole city, for the standard Village house of 50 square metres, for a range of 63-64 square metres for West Street 2/3, and 129 square metres for East Street 1. The list comprises 9, 9 and 5 examples, respectively. The comparisons could be made far more numerous by enlarging the scope slightly, e.g. from 50 to 48-52 square metres, but this small sample is reasonably representative of the various different past excavations.<sup>17</sup>

The examples derive from the still unpublished E.E.S. excavations of 1923-24, for which only photographic copies of plans and lists of objects survive; from *COA* I-III, and from Borchardt and Ricke 1980; thus from all the main sources of information. It soon becomes apparent, however, that the situation at the Clerks' Houses is repeated. Features which recur in the Workmen's Village houses are only very sparsely represented, if at all. We must allow for three possible reasons: small houses in the main city, being generally less well preserved than those in the Workmen's Village, have suffered so much more from natural destruction and robbing; the older excavation records are simply omitting a lot of detail; the economic structure of the city was different, allowing for much less of the self-sufficiency which so marks the Village, replacing it with greater interdependence both amongst groups of families whose houses formed contiguous blocks with shared facilities, and through greater reliance upon purchase in city markets.

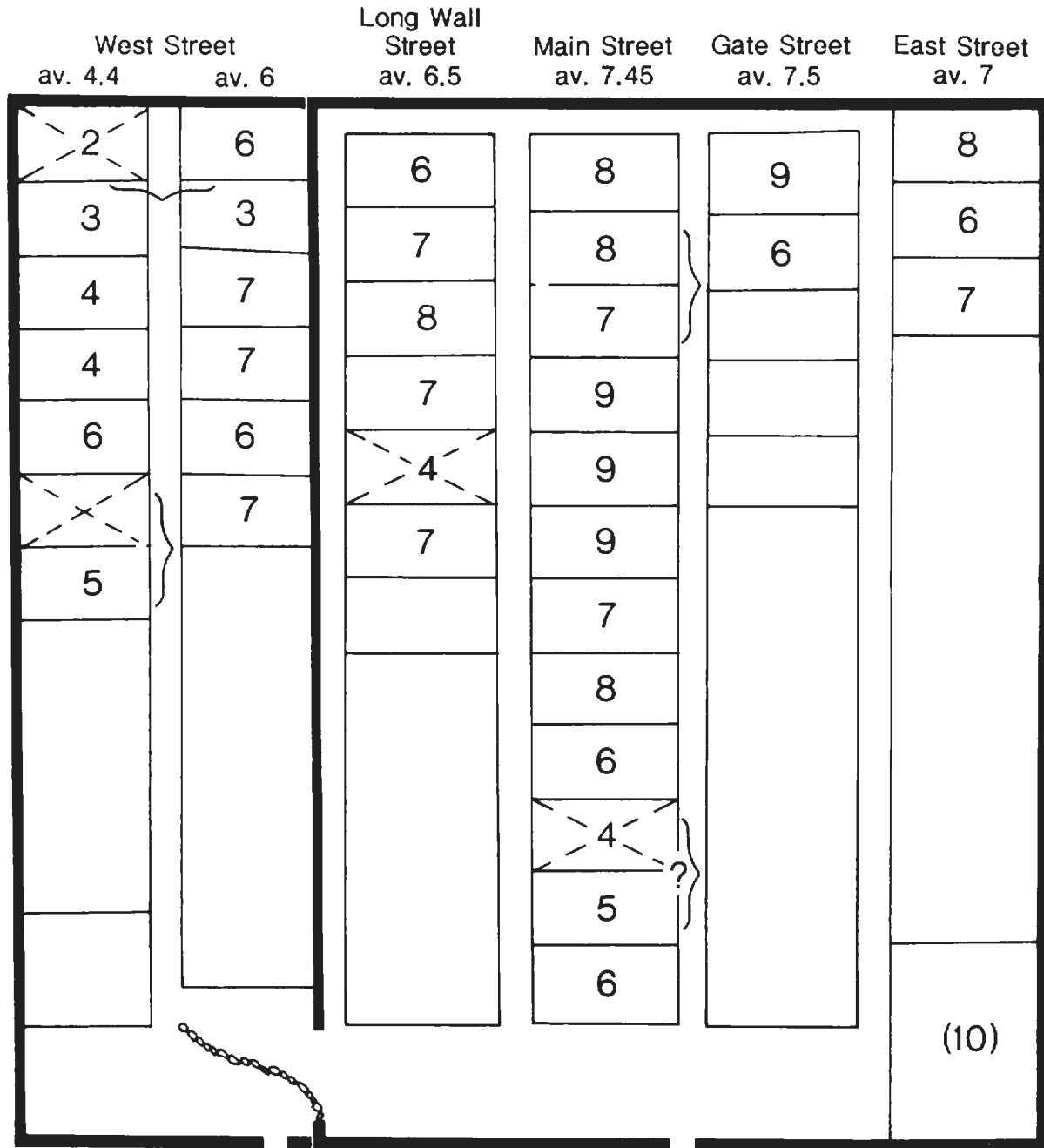
The last possibility - structural differences in the economy - has to be given the greatest weight for the time being. And it is, of course, the very kind of subject to which modern archaeology can be profitably directed. The Workmen's Village sets up a basic model of New Kingdom life with a great emphasis on self-sufficiency. This now becomes the standard for future comparisons from new work in the main city.

<sup>15</sup> Currently being undertaken by Ian Shaw as part of a broader research project on artefact distribution at el-Amarna.

<sup>16</sup> Deposited at the University of Cambridge, cf. Crocker 1985.

<sup>17</sup> Houses at 50 square metres are: R45.25, R45.39I, Q49.21B, U36.33, N49.33, N50.27F, P49.10A, Q46.09C, P47.16B. Houses at 63-64 square metres are: R45.40, V36.02, P46.29, Q42.14, R45.30, Q47.07B, N49.17, N50.16, N49.04. Houses at 128-130: N50.08, Q44.10, U32.01, U33.01, Q47.13.





numbers represent scores in terms of structural features present

bracketed pairs of houses indicate possible single enlarged properties

'crossed' houses were probably not normal residences

Figure 3.7. Outline plan of the Walled Village. The numbers are scores based on the presence of structural features, as follows: stairs to roof from rear of house; stairs from Middle Room (two points); shelf supports in rear room; north-south partition walls two bricks in thickness; bed alcove; wall painting; painted plaster in fill; manger; loom-beam socket; stone bath; quern emplacement; mortar; hearth; bench; column base; limestone cavetto cornice. Because of disturbance and robbery subsequent to 1922 no scores are given for the four houses newly excavated.