

## CHAPTER 9

## REPORT ON THE 1986 AMARNA POTTERY SURVEY

by

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**9.1 Introduction**

This season saw the beginning of a surface survey of pottery in the Main City, carried out by the author and Paul Nicholson of Sheffield University. The aims of this were to look at differences in the distribution of vessels over the site, and from these to begin to make associations between pottery types and types of building.

Initially the areas to be surveyed were chosen for their obvious relationship to identified structure types (i.e. temples, palaces, magazines etc.). We therefore concentrated on areas within the Central City, since here the variation amongst buildings is most obvious, and we could hope for corresponding ceramic variability. We also hoped to compare surface remains of disturbed and unexcavated areas within the same structures to see how far the latter reflected the former, as a way of assessing the reliability of the results. These disturbed areas we examined were of two kinds: those already excavated, and those disturbed by illicit digging in the search for antiquities. In the case of the former, the excavated areas themselves usually contain only drifted sand and a few sherds, but the excavators' dumps contain large amounts of material, and in almost all cases stand in direct and unambiguous relationship to the buildings from which they came. Of course, since the dumps are the result of excavation, it could be expected that the pottery was removed for study. However, it seems that sherd material, apart from complete, obviously reconstructable, foreign or otherwise unique pieces was ignored and dumped with the rest of the spoil. It was also therefore of interest to find out how closely the COA pottery records corresponded with the sherd contents of an area.

**9.2 Methodology**

Each area surveyed consisted of a 4-metre diameter circle, within which all sherds over 2 cms. square in size were collected. The circle size was chosen to be large enough (in most cases) to give a sample of useable size, but also to be small enough to make the collection and recording of the pottery manageable. Of the 24 area so far examined, 19 contained sufficient numbers of sherds to give, it is hoped, a representative sample of the material anciently in use in that area.

All sherds were recorded in each area surveyed, by fabric, surface finish, whether the original vessel was an open or closed form, and where possible by type of vessel, using mainly the groups used in the classification of material from the Workmen's Village (AR I: 134-139). This, however, was rarely possible except in the case of rims or bases, or where there was such an overwhelming preponderance of a single vessel type that all body sherds could be attributed to that same type. In most cases body sherds could only be classified at a general level, as, for example, "closed form red-slipped siltware", which could be from any one of several types of vessel.

**9.3 Survey results: the Central City**

The map, Figure 9.1, shows the locations of each of the surveyed areas listed below, and the bar charts, Figures 9.3 and 9.4, summarise the findings for each area, where sufficient sherds were present, according to the criteria stated above. The columns represent the following categories:

1. Siltware open forms (AR groups 2, 3, 4, 5, 6, 7, 8, and 11).<sup>1</sup>

<sup>1</sup> "Siltware" includes all fabrics prefixed I in AR III: 134-5; it was felt that a closer analysis of the fabric in the field would prove too cumbersome.

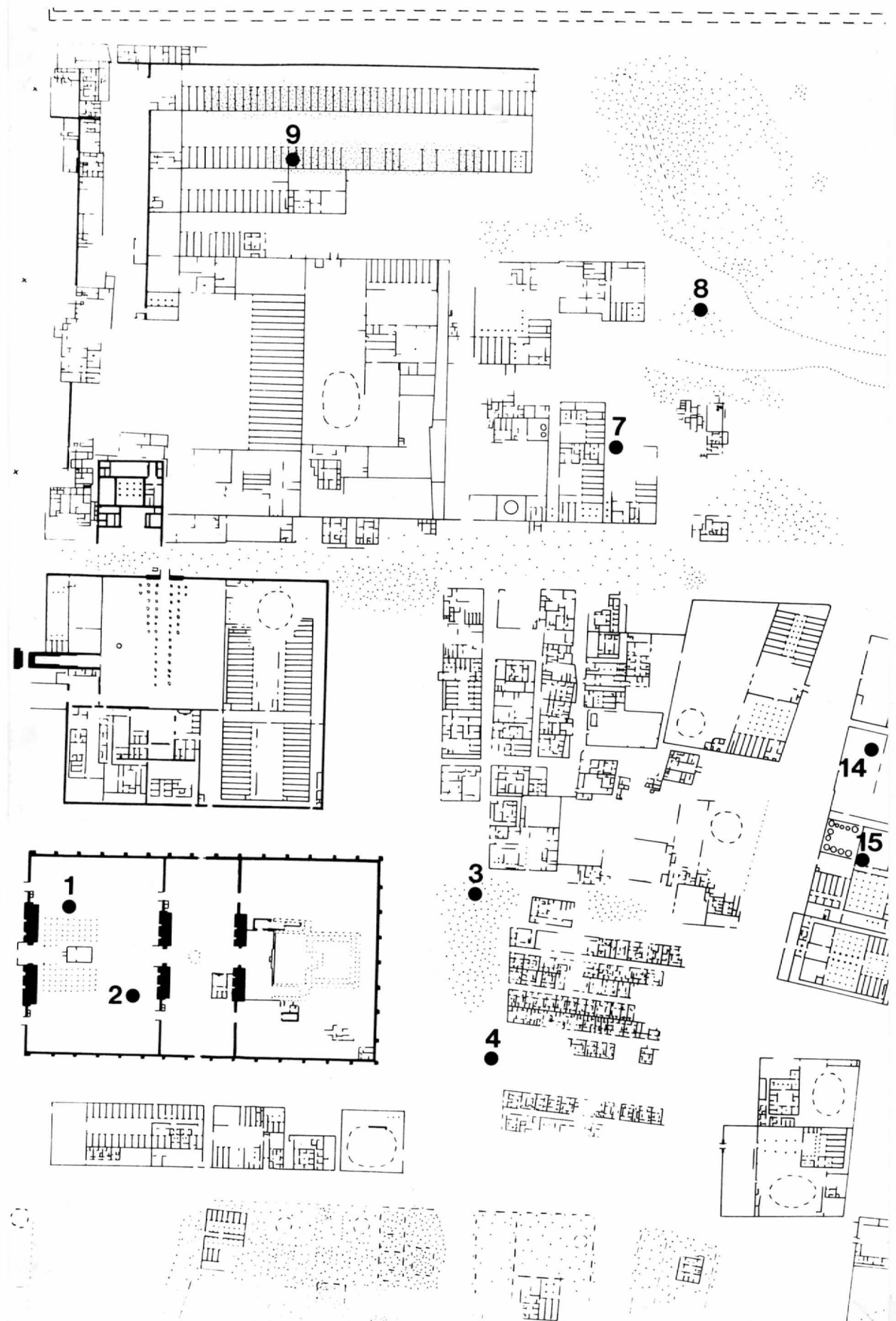
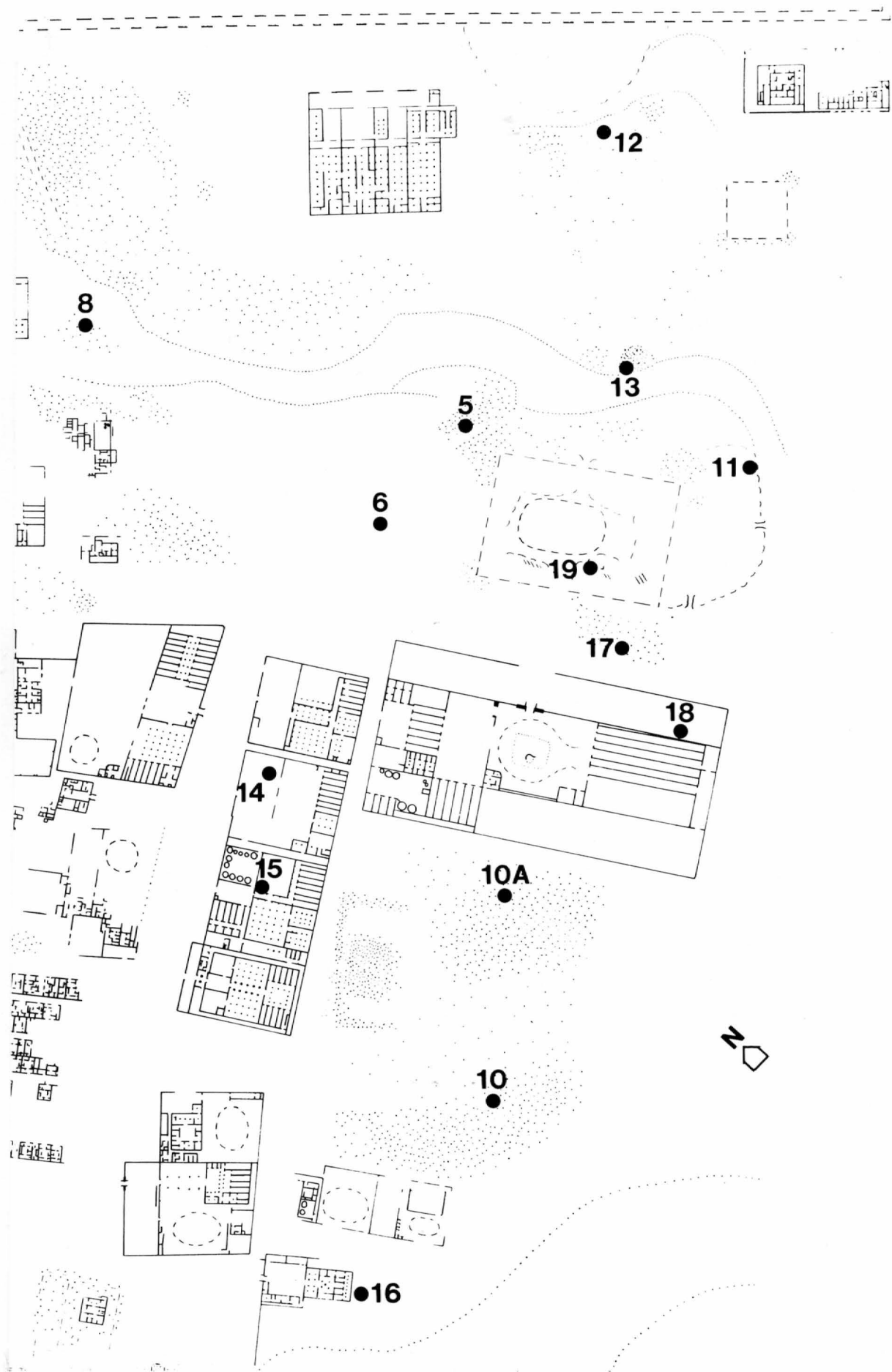
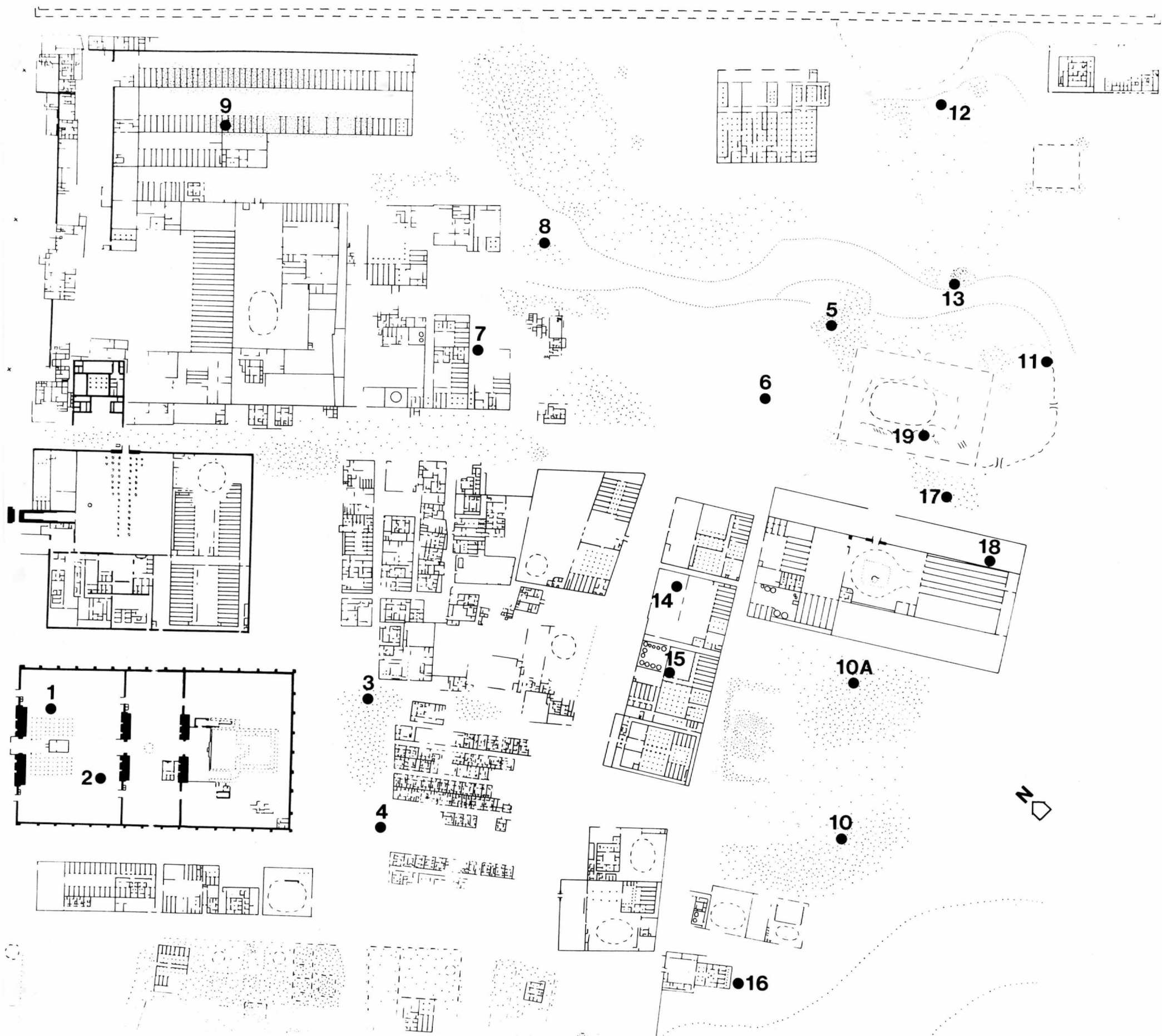


Figure 9.1. Map of the Central City showing locations of sherd survey areas.







2. **Siltware closed forms, unslipped** (includes AR groups 16 and 18, and also "beer jars").<sup>2</sup>
3. **Siltware closed forms, red slipped** (includes AR group 17, also some "zir" shapes and tall offering stands).
4. **Siltware closed forms, cream slipped** (various shapes. These are usually undecorated sherds from blue painted vessels).
5. **Siltware closed forms, blue painted decoration** (almost invariably on a cream slip).
6. **Siltware closed forms, exterior surface lost.**
7. **Siltware sherds, unidentifiable.**
8. **Breadcones and lids** (group 39; COA types XV.22 and 23).
9. **Marl clay vessels** (usually amphorae of groups 20 and 21; group 20 amphorae, where present in more than trace quantities, are indicated by cross-hatching).<sup>3</sup>
10. **Imports** (see AR II: 139-140 for a description of these fabrics; here Mycenaean sherds are also included).

Further more detailed breakdowns of these categories are given in the text where necessary.

**Areas 1 and 2:** Smaller Aten Temple, Front Court. Excavation dumps (1) and original ground surface (2).

In both areas too few sherds were counted to be useful (32 and 5 respectively). By comparison with excavation dumps in other parts of the site, however, the lack of sherds in Area 1 (which dump comes from the excavation of the offering tables and altar in the centre of the court) indicates that very little pottery was present or in use in the court. The COA report for the Smaller Aten Temple records only 2 vessels in this court, a bowl of type IV.2 and a meat jar (type XII.1; COA III: 103).

**Area 3:** Ancient dumps west of the Clerks' Houses.

A large proportion of the siltwares in this area were weathered beyond recognition, a feature that was found to occur in most of the areas of ancient dumps surveyed. As a result of this it is only possible to note that all categories were present except breadcones, and that the percentage of marl sherds is slightly higher than usual.

**Area 4:** Excavation dumps west of Clerks' Houses.

This area shows some similarity with Area 3, given that the more recent date of exposure of the material on the surface results in a higher proportion of identifiable siltwares. A wide range of vessel types can therefore be suggested; these include groups 5, 6, and 11 (the latter two in unslipped, red slipped, and red polished forms), 14, 16, 17 and 18, and in marl clays 7, 13 and 21. Breadcones are also present in some quantity. The COA lists of pottery from the Clerks' Houses show a similarly wide range of material, including bowls, jars and amphorae (COA III: 128-130).

**Area 5:** Ancient breadcone dumps.

The long spread of fragments of breadcones leading from the magazines of the Great Temple eastwards to the desert edge has already been noted (Kemp 1979a: 7-12). Only traces of other categories of material were present in the area surveyed, almost all unidentifiable siltwares.

**Area 6:** Ancient ground surface south-west of the breadcone spread.

Only 5 sherds fell within the circle, 4 of which were unidentifiable siltwares, and the other an imported fabric. One must suppose that this area was not in use for any activity that left pottery debris.

**Area 7:** Excavation dumps east of Q41.5

These dumps came from the excavation of the complex immediately to the west, Q41.5. The high percentage of breadcones is noteworthy. The COA report for complex R41.6 immediately to the south of the dumps notes the presence of "many" breadcones here, but notes none in either Q41.5 or the adjacent R41.4 (COA III: 112); since, however, the dumps in question appear to have come from the latter buildings one must assume that bread was also being baked in these magazines. No ovens were noted in any of the above-mentioned buildings. Otherwise, all categories of material are present. Groups noted were open forms groups 5 and 11, closed form

<sup>2</sup> See below, Area 11 for a description of this type of vessel.

<sup>3</sup> The term "marl" is here being used to designate vessels of both pure marl and mixed clays; in fact, any fabric that is not a silt or imported. See AR II: 135-9 for definitions of fabric types. For the purposes of the survey fine distinctions in fabric types have not been used.

group 18 and also fragments of one or more tall red slip offering stands, and marl groups 7, 13 and 14. The COA report does not list any pottery from building Q41.5 (COA III: 111); R41.4 contained bowls, meat jars, siltware jars and an amphora (COA III: 112).

**Area 8:** Ancient dumps east of R41.3.

The high proportion of breadcones in this area indicates clearly that this area is also part of the breadcone spread (see Area 5), now appearing on the ground to be separated from the rest because of wadi action. A slightly higher admixture of other classes of material may indicate dumping from other source(s), probably one or more of the nearby buildings.

**Area 9:** Magazine 15 south of the Great Aten Temple.

This magazine has not been excavated, but the appearance of the surface indicates that the contents have been turned over at some time. Breadcones make up almost the entire pottery repertoire. The COA excavations in the magazines also produced "many" breadcones (type XV.23), as well as considerable numbers of other types; most conspicuous amongst these are 18 meat jars. No trace of the marl fabric used for these jars was found in the sherd material from the magazine.

**Areas 10 and 10A:** Ancient pottery dumps.

Both areas lie within the sherd dumps noted by Petrie on the eastern edge of the city (Petrie 184: 15-17; for a plan see AR III: 94, Figure 6.2). He suggested that these had come from the palace because of the nature of the material incorporated in the dumps, which included a number of Mycenaean pieces. Mycenaean sherds are by no means restricted to the palace, but are also found, for example in the Clerks' Houses. However, although there is a high percentage of siltware closed forms of unspecific surface finish, the contents of the dumps resemble most closely the material from the dumps around the Clerks' Houses (Area 3), with a slightly smaller proportion of marl wares. In our survey, the 4377 sherds collected from both areas produced only one Mycenaean piece; and imported amphorae, which make up all the imported material in the other areas surveyed, were virtually absent.

**Area 11:** Modern disturbance of ancient ground surface.

This area of illicit digging lies on a steeply sloping surface on the eastern edge of the city, in an otherwise apparently unexcavated area. Because the sherds have been on the surface for only a short period of time there are many fewer unidentifiable pieces than usual.

Most noteworthy in the material is the relatively high percentage of breadcones. It is possible that these represent the end of the breadcone scatter, though how they come to be lying on a sloping surface and not on the flat surface below has to be explained. Also, the terrain between this point and the visible end of the spread does not suggest continuity between the areas.

The number of open forms is higher than in other areas. The vast majority of these are unslipped bowls of group 6, with wide out-turned rims and rounded or flat bases, often showing traces of burning and incense on the interiors. The commonest type was, however, one that does not seem to be recorded in the COA corpus; a crudely shaped unslipped hole-mouth jar with a heavy flat knife-scraped base, and an incurving rim (see Figure 9.2; this is based on field sketches of non-joining sherds). The drawing used to illustrate Group 15 in AR I: (Figure 10.1, p. 135), which is from Malkata, appears to be a vessel of this sort. Here this type is referred to as a "beer-jar".<sup>4</sup> Other groups present include 16 (*zirs*) and 18. The lack of blue painted vessels, and the scarcity of marl fabrics, are noteworthy.

**Area 12:** Ancient dumps south of Great Temple temenos wall.

These dumps were noted by Pendlebury, who found them to contain large quantities of statuary and architectural fragments, some with inscriptions. Because of this he suggested that the dumps originated from the adjacent Sanctuary court of the Great Temple, and had been created during the destruction of the Temple (COA III: 10, 11). Although Pendlebury extracted the kind of material mentioned above from the dumps, and obviously turned them over in the process, there is no reason to think that their pottery content was in any way materially altered by this activity.

<sup>4</sup> For this type of vessel see Holthoer 1977: 86-88 (especially his sub-family BB2) and Bourriau and Aston 1986: 34-35, and Figure 1. COA corpus type XV.3 illustrates a vessel with the heavy scraped base noted above, but with an everted rim, which Holthoer also classifies as a beer bottle of sub-family BB4.

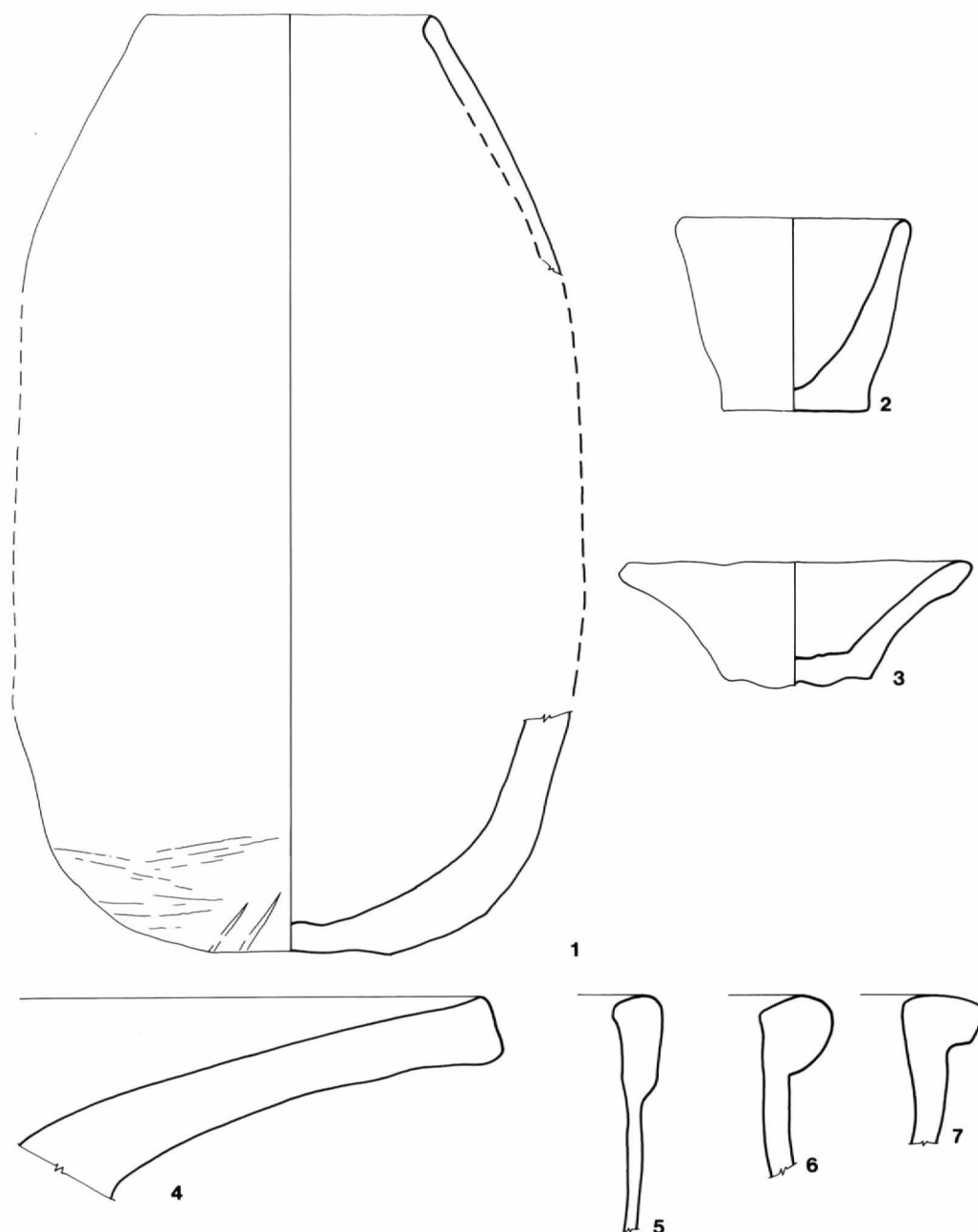


Figure 9.2. Pottery from the sherd survey at half-scale, drawn from field sketches.

In many ways the pottery from these dumps bears considerable resemblance to that of Area 11, with the exception of the breadcones. In both cases there is a higher-than-usual percentage of open forms, and again, these are primarily unslipped group 6 bowls, frequently showing signs of burning and incense on the interiors. Also amongst the open forms were a number of tiny "offering pots" (see Figure 9.2), of unslipped siltware, which made up 2% of the total assemblage. Unslipped closed forms are the largest single grouping, made up of "beer jars" and group 18 vessels in roughly equal numbers, to judge by the diagnostic sherds. Amongst the red slipped sherds some were distinguished as coming from tall offering stands. The area shows a similarly low proportion of marl wares as Area 11; groups present are 13 and 21. A single marl sherd shows the remains of polychrome painted decoration, applied to the surface of the vessel after firing.

Although none was recorded in our survey area, we noted the presence of a number of fragments of ring-handled siltware lids with holes pierced through the walls just below the handle, which possibly could have served as covers for bowls in which incense was burnt.

The COA excavations report two kinds of vessel from the dumps: bowls of type IV.5 “some containing a resinous material”, and XV.22, “very many, some with a nicked band round the base” (COA III: 20). We were unable to identify any of the latter from our survey. The object register notes the presence of “many miniature clay vases” (op. cit.: 13), presumably to be equated with our “offering pots”.

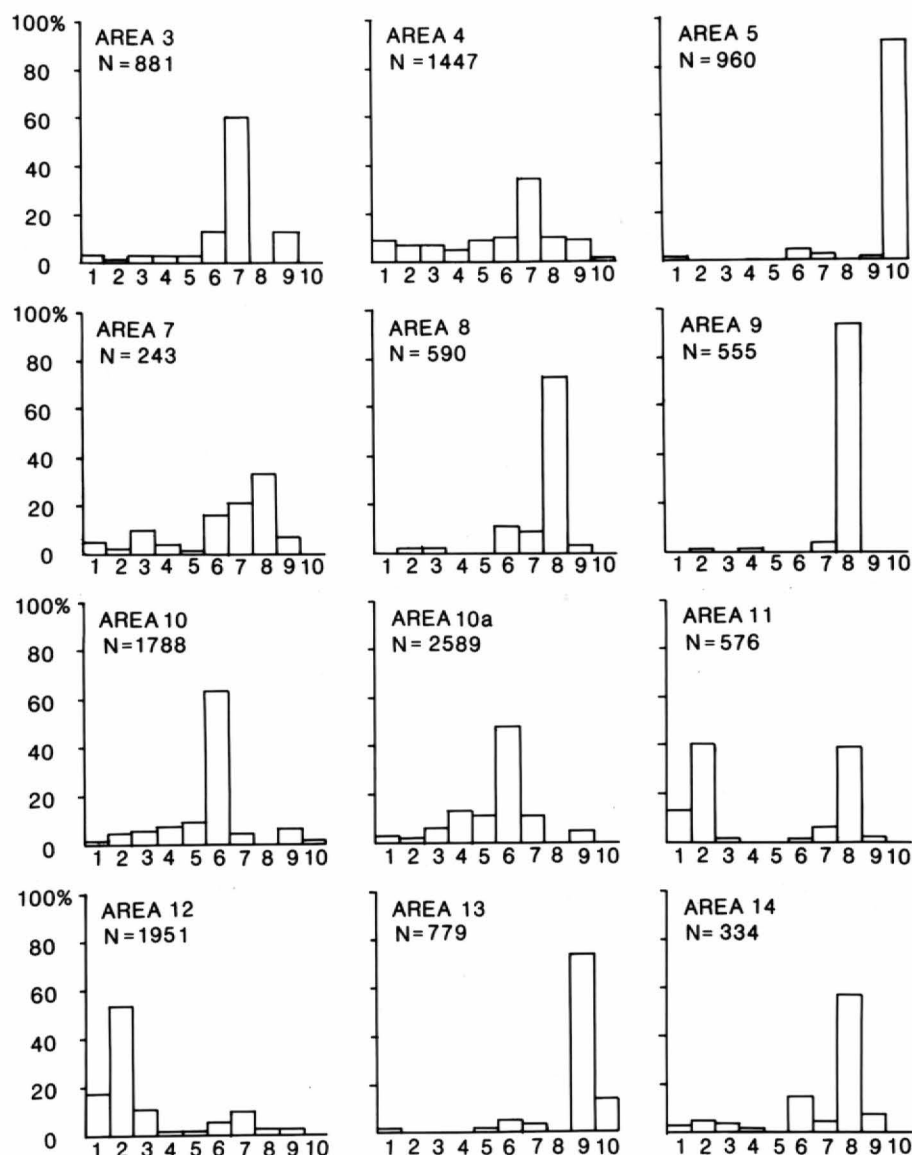


Figure 9.3. Bar charts of sherd types from the sherd survey areas.

#### Area 13: Modern disturbance of ancient ground surface.

Our attention was drawn to this area because of the modern disturbance, which had revealed a number of distinctively decorated pieces. Since the surface pottery in the vicinity was weathered through exposure, it was decided to include a small area of disturbance in the surveyed area.

The area is remarkable for its high proportion of marl clays and imported wares, and in particular, for the number of marl sherds showing polychrome painted decoration applied, after firing, to the vessel. The fabrics of these and the other marl wares without exception are III.2 and

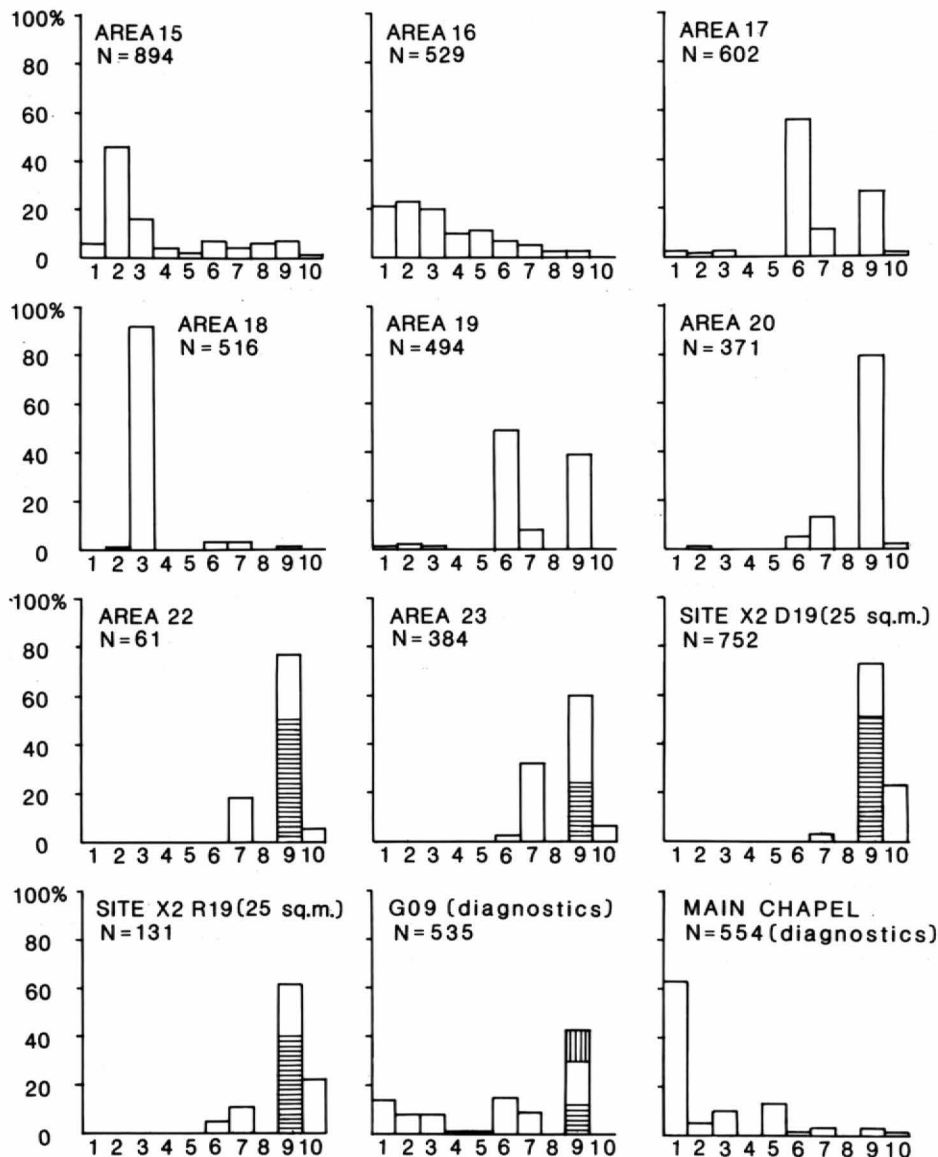


Figure 9.4. Bar charts of sherd types from the sherd survey areas.

III.3. A total of 33 decorated sherds was found, but this figure should certainly have been higher since most of the pieces had been exposed to a high degree of weathering. Of the decorated sherds frequently only red paint survives, since it appears to have been applied in a thinner coat to the pot than the blue, green and yellow paste-like pigments, which flake easily away from the surface. Where the red paint only remains, the regularity of the design is such that it suggests the use of stencils; however, none of the sherds showing this type of decoration is of sufficient size for the methods used to be unequivocally stated. The rims of the painted marl vessels, and also of most of the "unpainted" ones, are unlike those encountered in the Workmen's Village, and suggest large biconical jars with wide mouths (see Figure 9.2 for field sketches of the most common rim types). The rim diameter of the vessels is approximately 24 cms. The cream slip on these vessels often covered the vessel interior. Amongst the marls there were also sherds of what appear to be offering tables or stands, some of which also show traces of polychrome decoration (see Figure 9.2). A few sherds came from group 21 amphorae.

The imported wares were all of fabrics IV.2 and IV.3, both of which appear to be used for tall cylindrical amphora forms, possibly COA type XVI.5.

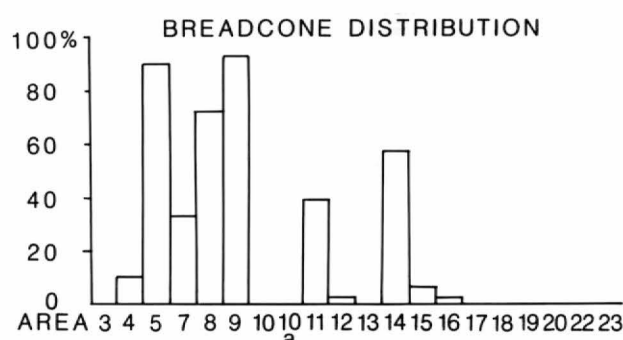


Figure 9.5. Bar chart showing distribution of breadcones over the various areas of the 1986 survey in the Main City.

**Area 14:** Area of modern disturbance in R42.9A.

The most unusual feature of this area is the high proportion of breadcones therein, which certainly implies the making of bread in the immediate vicinity. Whilst neither breadcones nor ovens were noted as found by the excavators in this area, the presence of long partitioning walls in the magazines on the east side of the building which are found associated with bread-making activities in the Great Temple magazines may indicate a similar activity here (Kemp pers. comm.; cf. *COA* II: 45, 74, 75, comments on houses T36.42, U33.6 and U33.6, and Plate XIV); or material from the ovens in the adjacent building R42.9C may have found its way into R42.9A. The *COA* report mentions types III.1, 2 vessels of type XV.6, and one of XXII.12, a type which does not exist according to the pottery corpus (*COA* III: 137).

**Area 15:** Excavation dumps in R42.9C.

It is unclear from which part of this building these dumps originate. They are possibly from the digging out of a series of magazines in the south-west corner of the house, or from an underlying pit. The sherds from the area are large and little weathered. Most conspicuous are the number of unslipped closed forms, made up principally of "beer jars". Red slipped forms include jars, probably of groups 14 and/or 17, and tall offering stands; amongst the cream slipped wares are included a number of fragments of *zirs* with a chalky whitish external coating. Open forms are made up of several groups: 6 (unslipped, with traces of burning and incense), 11 and 5, as well as a few fragments of small offering pots, and group 7 bowls. Marls include one fragment of meat jar.

The *COA* report lists many pots which came from the pit underlying the magazines; all are closed forms, and include *zirs*, meat jars, breadcones and amphorae (*COA* III: X).

**Area 16:** Excavation dumps east of R43.2 "House of the King's statue".

The most conspicuous features of this assemblage are the high proportion of open forms and of red slipped wares. Unlike other areas with many open forms, in Area 16 these are made up almost entirely of red slipped, and frequently polished pieces, mainly group 6 bowls and group 11 hearths. There are also a number of unslipped hearths or those with a red rim band only. Red slipped closed form wares are for the most part untypeable, but sherds of groups 16, 17 and 18 occurred. Unslipped closed forms include "beer jars" and group 18, and also a number of sherds with white gypsum plaster coating, at least some of which come from a tall offering stand. The percentage of blue painted siltwares is also somewhat higher than that encountered in other areas.

There is a good parallel for the pottery from Area 16 in that of the Main Chapel at the Workmen's Village. In the latter, the bulk of vessels were group 6 bowls and hearths, usually red slipped; gypsum-covered offering tables were present, as well as blue painted pottery. Figure 9.4 gives the diagnostic pottery from the Main Chapel in the same format for comparison (however, see below for the problems encountered in doing this).

The *COA* excavations record no Egyptian pottery from the east end of the building, from which it seems most likely that the dump pottery came.

**Area 17:** see below.



**Area 18:** Disturbed area in excavation dumps north of stables in Police Quarters, R42.10.

The material from this area is unusual in that over 90% of the sherds are from red slipped closed forms, specifically groups 14 and 17, to judge from the rim sherds. The COA report on this building only locates pottery finds to a limited extent and nothing is noted from the part of the building from which the dumps originated (COA III: 137-8).

#### **9.4 Survey results: the supply route to the Workmen's Village**

The following six areas were sampled as part of an investigation into the route by which water was carried to the Workmen's Village. Work at site X2 (Chapter 7) suggested that the very distinctive sherd material there was the result of breakage of vessels whilst in transit; since there was no reason to suppose that breakage would be restricted to the area closest to the Village but could happen at any stage along the route, it was felt worthwhile to walk over the desert between the Village and the city looking for similar concentrations of broken vessels, and to examine wells along the eastern edge of the city for occurrences of the same distinctive fabric types (Figure 9.6).

**Area 17:** Ancient ground surface, south side of well in square S42.

As usual with ancient surfaces, the sherds here were badly weathered and therefore in most cases unidentifiable. The marls were, however, better preserved, and present in rather greater quantities than usual. Almost all of these could be attributed to group 21 amphorae, and a few to group 20.

**Area 19:** Modern disturbance of debris in well in square S42.

This area bears close resemblance to Area 17 in that again most of the siltwares were so weathered as to be unidentifiable, and also in the high percentage of marl clay sherds. It may be that this deposit represents dumped or disturbed material originating from the ancient ground surface, although the sherds appear somewhat larger. From rim and handle sherds, some belonged to group 21 amphorae, others to amphorae with horizontally placed handles. Identified siltware groups were 11, 16 17 and 18.

**Area 20:** Ancient ground surface, adjacent to well in square R45.

This is a building from the unpublished 1924 season of excavations directed by F.L. Griffith (Griffith 1924: 302). Amongst its principal features are a large courtyard containing a prominent well depression, and a pylon entrance which faces east, towards the open desert. Again the percentage of marls in the sherd sample was far higher than usual. Most of these belonged to group 21, with only a tiny number belonging to group 20. Imports were entirely of fabrics IV.1,2 and 3. Because of the eastward-facing layout of the court the desert to the east was examined for sherds which might form the beginning of the trail leading to the Workmen's Village, but none was found.

**Area 21:** Original ground surface in square R45.

Too few sherds were recovered from this area to be useful statistically; however, as in the previous area, the majority of these were marl clay wares.

**Area 22:** Ancient surface en route from Workmen's Village to Main City.

The continuation of site X2 towards the Main City was eventually identified running on a hard-packed surface along a wadi bank, close to the modern route between the modern dig house and the Workmen's Village. An area of this surface was chosen arbitrarily for survey as a confirmation of the nature of the pottery trail. As in the previous area, few sherds were recovered from the surface. However, in this instance, although the bulk of the sherds are marl clays, this assemblage showed the same distinctive fabric distribution as site X2, where marl clays of fabrics III.2, III.3 and III.1 are outnumbered by fabric IV.1b. A few sherds of fabric IV.1 were also recovered, but none of other imported types.

**Area 23:** Ancient surface adjacent to well in square Q48.

The trail of broken amphorae eventually led back to an area containing a well and the remains of a building with stone architectural fragments. It has not been excavated, and has now been given the designation Q48.4. The area adjacent to the well was covered with potsherds which, when sampled, turned out to have a sizeable proportion of fabric III.11 sherds, though not in as great quantities as site X2 or Area 22. It is therefore possible that water was drawn from the well in amphorae of group 21 (which as already shown are most abundant around wells) and

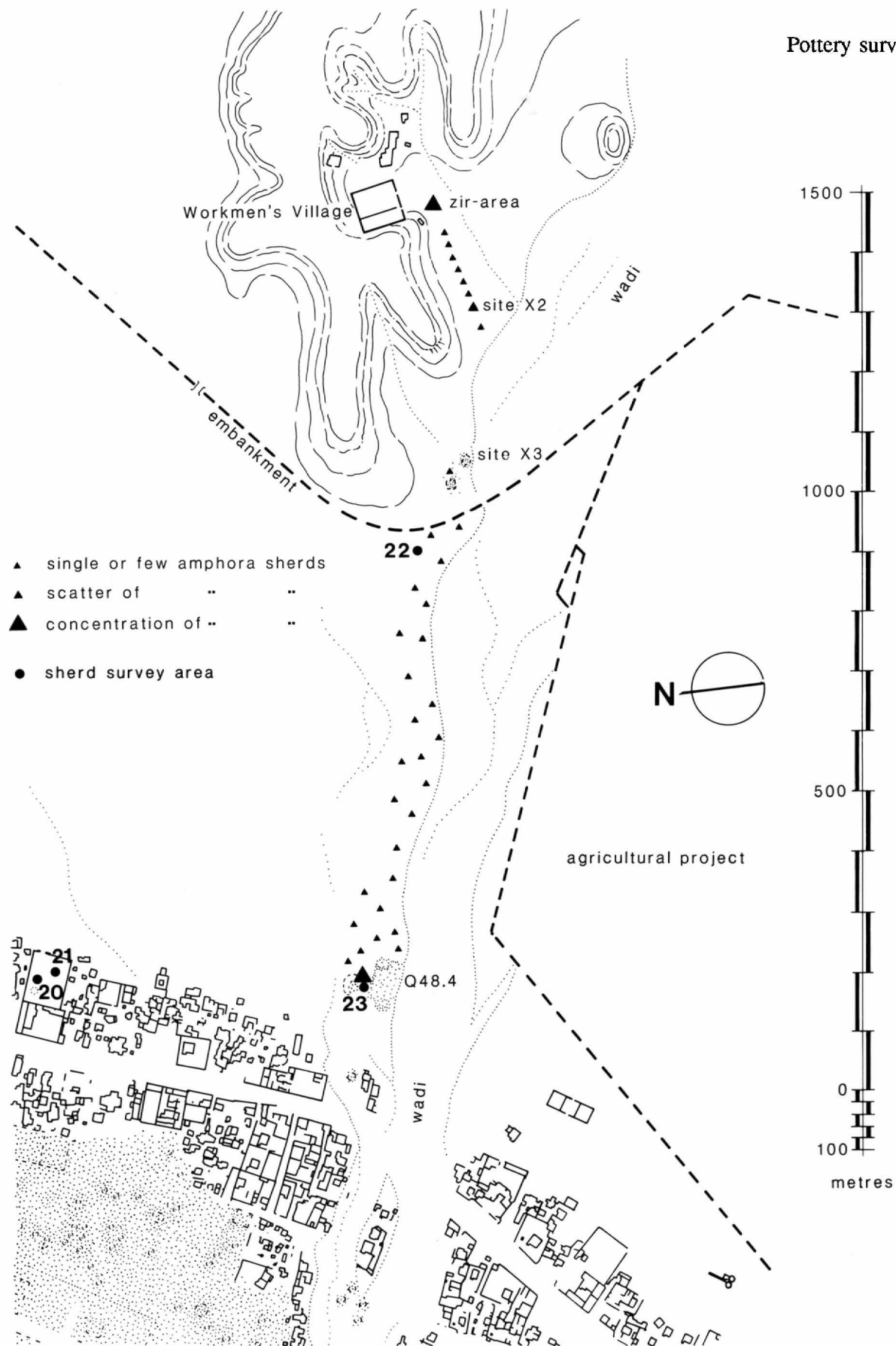


Figure 9.6. Map of the ground between the Main City and the Workmen's Village, showing sherd evidence for the ancient water supply.

transferred to group 20 amphorae for transporting to the Village; or that water drawn from the well for purposes other than providing the Village was carried out in group 21 amphorae, and the Village supplied in group 20 types. Either way, in this area the substantial numbers of non-group 20 marl vessels which do not occur in X2 or Area 22 have to be explained. The proportion of imported vessels is also lower, but is made up entirely of fabrics IV.1 and a previously uncatalogued fabric, designated IV.4 as in the other 2 areas (see Chapter 7, section 7.7 for a description of this fabric).

Finally, bar charts of the distribution of fabrics in two 5 by 5 metre squares in Site X2 are given for comparison, and one of square G9 in the *Zir*-Area. The Site X2 squares are based, as in the rest of the survey, on the collection of all the material in the area; in the case of G9, the data are based on diagnostic sherds alone. It should be borne in mind that this results in a somewhat skewed distribution in which small open forms are over-represented because of the greater number of diagnostic sherds produced on breakage, and larger vessels with only a low diagnostic to body sherd ratio are under-represented. In the diagram, cross hatched and plain areas represent group 20 and group 21 amphorae respectively; the area with vertical hatching indicates other marl vessel types. Also for the purposes of this diagram, sherds of imported vessels of fabric IV.1 are "lumped" with those of fabric III.11 in column 9 of the bar chart, because these fabric distinctions were not being made consistently at the time the sherds were recorded.

Given these restrictions, the occurrence of a substantial number of diagnostic sherds belonging to group 20 amphorae, some of which are undoubtedly of fabric III.11, would suggest that the *Zir*-Area is the final destination of the amphorae traced from the Main city and through Site X2. On arrival, however, it seems most likely that the water was decanted into the many *zirs* standing in the area, and possibly into the other types of vessels recorded here: meat jars, group 21 amphorae, vessels of *COA* type XI.7, as well as siltware biconical jars (groups 17 and 18); see *AR* I: 146-152 for a more detailed discussion of the pottery from this area. No vessel types other than *zirs* were found in emplacements in the area, although a number of elongated depressions could have held amphorae; it may well be that the group 20 amphorae sherds are, as in Site X2, the result of breakage on delivery. Alternatively, the other types of vessels could have been for storing other types of commodity, or be remnants of the vessels that the villagers used for transporting goods between the *Zir*-Area and their houses, animal pens etc. The large number of group 21 amphorae fragments may suggest a connection with water carrying, since as already noted these vessels appear to be associated with wells in the Main City. We are in a strong position, therefore, to deduce from the archaeological evidence alone that the Village was supplied with water by convoys of amphorae often of the Canaanite type (Figure 9.7). How this was accomplished, using donkeys, is perhaps illustrated in the tomb of Mahu at Amarna (Figure 9.8).

## 9.5 Conclusions

A major point of interest in carrying out the survey was to find out how closely the pottery records from the *COA* excavations tied in with our results. Obviously, there are difficulties in doing this, particularly when a comparison has to be made between sherd data on the one hand, and that derived from complete vessels on the other (for example, our red slipped siltware closed form body sherds could come from any one of a number of vessel types listed in the *COA* reports). Also, the frequent lack of specific provenance information in the original reports hampers interpretation. Certainly we have found discrepancies between the two sources: these occur both in the types of vessels found within an area, and in the quantity of material as reflected in the *COA* reports compared with sherd numbers recorded in the survey.<sup>5</sup> By far the most common types recorded in the Central City excavations are the conical breadmoulds (type XV.22 and 23) and the amphora XVI.1; substantial numbers of a few other siltware jars (XV.1, XV.3, XV.4 and XV.6) and meat jars (type XII) also occur. In our survey breadcones were also abundant, as were body sherds which could have come from the other siltware vessels, but amphorae of type XVI.1 and meat jars are conspicuously lacking (this is based on both the lack of diagnostic sherds of

<sup>5</sup> A case in point is the "House of the King's statue" R43.2, from which only 7 vessels are recorded (*COA* III: 142), whereas the 4-metre circle alone contained over 500 sherds.

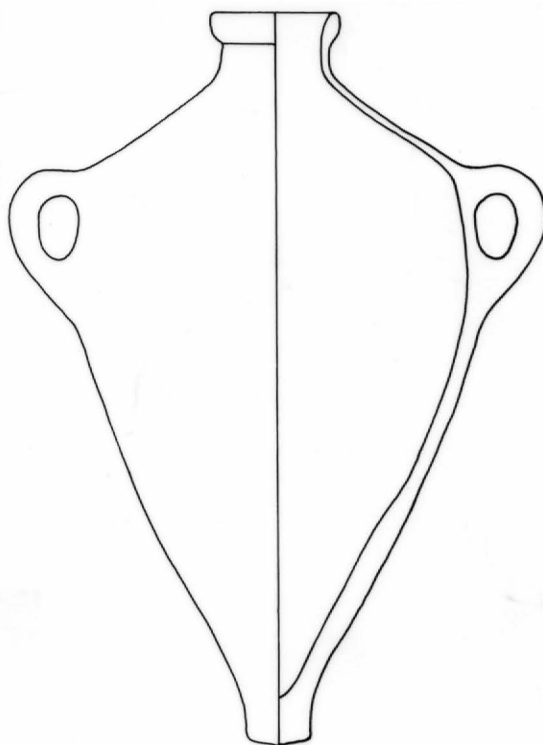


Figure 9.7. Outline drawing of a typical "Canaanite" amphora from Amarna, group 20 (=COA corpus type XVI.1=COA I: Plate LII, no. XLIII/260). The scale is 1:6.

either type, which are easily recognisable, and the lack of sherds of the fairly distinctive fabrics which go with each shape). However, in the case of the Great Temple magazines and the Workmen's Village it was noted that meat jars were found buried in floors (COA III: 30, 31); one wonders to what extent this is true of other areas in the Central City, and what other vessel types could also serve the same purpose.<sup>6</sup> It is especially tempting to see the relatively wide-mouthed amphora used in this context, as is attested in one house in the North Suburb (U35.2, COA II: 32); in the same room a meat jar was also found sunk into the floor. It may well be then that the seemingly disproportionate numbers of, say, meat jars, noted in the excavation report as compared with those noted in our survey reflect abnormal conditions of preservation, resulting in the recovery of a far greater number of complete buried vessels than of other types.

Because of the lack of these two types in the survey material, it is worth noting here that their distribution, as far as it can be traced from the excavation reports, suggests a slightly different usage for each type. Meat jars are found in the Great Temple magazines and the adjacent magazine block, the Smaller Aten Temple and its magazines, and also in a few of the larger buildings; but they do not occur in the palace, Clerks' Houses, or on the whole in the Offices. The amphorae are more widely distributed, but are not found in either temple or their magazines.

Breadcone distribution, on the other hand, can be traced from both the survey results and from the COA reports. From the former, they can be seen to occur in ten areas (Figure 9.1). Of these, Areas 5, 8 and 9 are directly associated with the baking carried out on an industrial scale for the Great Temple, as, presumably, is Area 7. The breadcones in the latter area are associated however with the baking taking place in the magazine block between the Temple and the Royal estate, rather than the Temple magazines themselves. COA also notes the occurrence of the type throughout this magazine block south of the temple, and surface observation in the course of the survey confirms that at least the central part of the block has large numbers of breadcone fragments on the surface. It is interesting that Area 12, the Temple dumps, contains relatively few

<sup>6</sup> A sunken vessel of type XIII.3 is noted in the Great Temple magazines (COA III: 30).

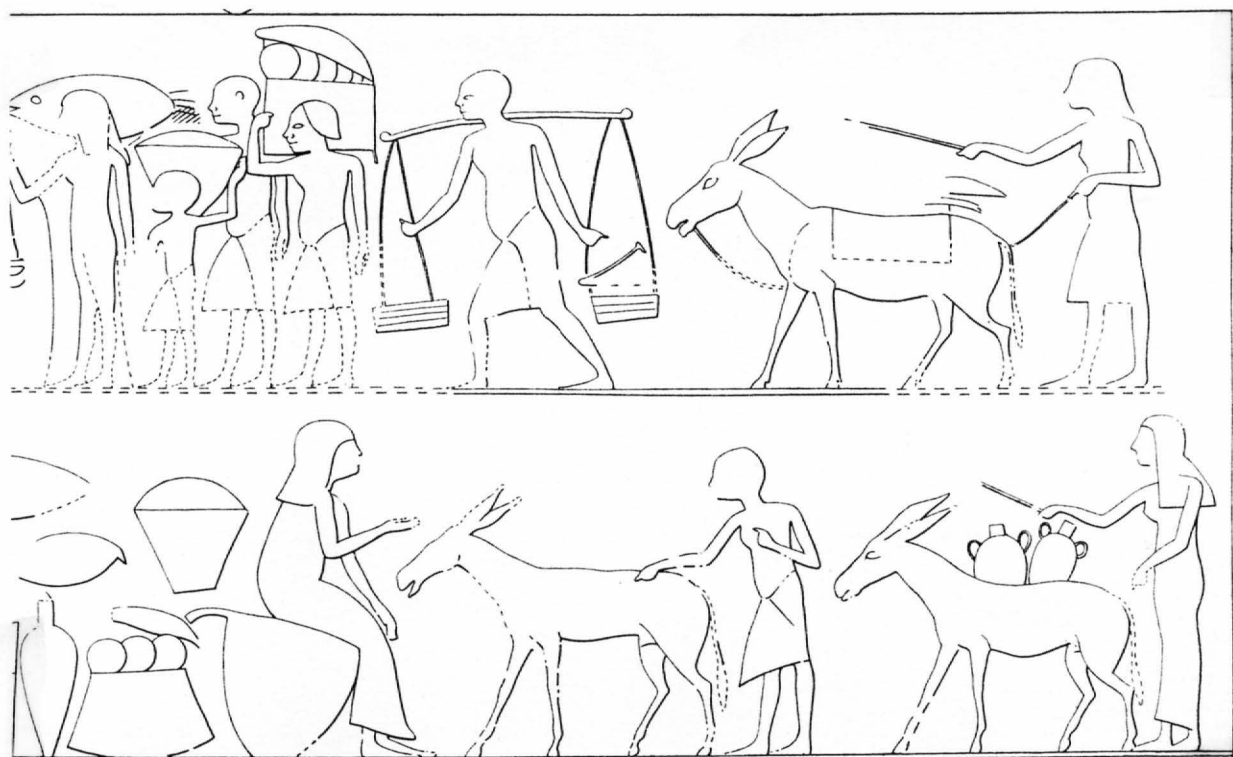


Figure 9.8. Part of a scene from the tomb of Mahu at Amarna, showing a convoy of provisions, including a donkey bearing two amphorae, apparently of the Canaanite type (part of *RT IV*: Plate XXIV).

cones and confirms the fact that the bread was unmoulded outside the temple before use. The remaining areas containing breadcone fragments in quantity are Areas 11 and 14. The former is somewhat puzzling, since the area does not seem to be associated with a structure or to be a continuation of the breadcone scatter. Area 14, however, clearly falls within, and apparently is associated with, R42.9A, part of the "Military Quarters". The *COA* report does not mention the occurrence of breadcones in this part of the building, but does record them in the adjacent R42.9C and E (*COA III*: 137), where ovens were also found. Our survey also found breadcones in the former of these; no area has yet been surveyed in the latter. Finally, Areas 4 and 16 were each found to contain a small proportion of breadcones. The occurrence of those in Area 4 is odd, since it seems clear that they came from the Clerks' Houses; no other domestic association for the type is known (see below). Those associated with Area 16 strengthen the comparison with the Chapel in the Workmen's Village. Jacquet-Gordon has pointed out that this particular type of breadmould is almost invariably associated with the functioning of temples - interestingly, the only exception she finds to this is at Amarna (Jacquet-Gordon 1981: 19-20 and Figure 5). The references to the occurrence of breadcones at Amarna in a domestic context are in fact ambiguous, to say the least, in that nowhere are breadcones specifically listed as found in houses in residential areas of the city. Given the overwhelming numbers of breadcone sherds associated with the temples and their magazines (and their occurrence in association with the chapels at the Workmen's Village), it seems probable that the association between the moulds and structures of a religious nature was maintained in the Amarna period. This suggests two points. The first of these is that the magazine block between the Great Temple and the Royal Estate also provided supplies for the Great Temple; the second is that the so-called Military Quarters may have been something rather different, and of a religious or ceremonial nature. The occurrence of incense bowls and offering pots in Area 15 may support this. The only exceptions to this are the breadcones in Area 4, and their occurrence in the Record Office, Servants' Quarters and the

Military Barracks, noted in the *COA* report. In none of these cases is their association definitely with domestic usage; the Military Barracks and the Record Office are certainly official non-residential buildings, and so little remains of the Servants' Quarters that, coupled with the lack of specific provenance information on the location of the moulds found within this part of the Royal Estate, it is not possible to associate them with ordinary dwellings. Only in the case of Area 4 does a possibility of domestic association remain.

What then can be said to be the results of the first season of surface survey? It has shown without a doubt that areas can be characterised by widely varying pottery assemblages. Where the nature of one of these areas is known, it can be suggested that other areas showing similar assemblages have the same or similar function; and specific vessels can be associated with certain structure types. For example, the occurrence of certain types of amphorae in large numbers around wells has now been documented from several locations and can therefore be suggested as a characteristic of well-heads; unslipped group 6 bowls containing incense possibly are a feature of the religious structures. The similarities between Area 16 and the Main Chapel at the Workmen's Village may also suggest similar usage.

Beyond this, the surface distribution of pottery types can give an indication of the nature of unexcavated areas, even if only in a general way. Thus, Area 13 can be seen to be distinctive in its sherd content: the number of imported amphorae, and the decorated jars suggest a storage area associated with a prestigious and wealthy establishment: the palace is the most obvious of these. Or in the case of Area 23, the pottery points to a link with the Workmen's Village, and taken in combination with data from the latter source, specifically with the water supply route.

Most importantly, however, the survey begins to give an insight into the role of pottery as it works within the context of a society, and feeds back into the larger archaeological goal of the interpretation of ancient societies.



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