

43 Analysis of pottery from Wroxeter Roman city

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43.1 ARCHAEOLOGICAL BACKGROUND

The Roman City of *Viroconium Cornoviorum*, modern-day Wroxeter in Shropshire (Figure 43.1), was the fourth largest town in Roman Britain. It owed its foundation to the Roman army, who had built a fortress at a major crossing point of the River Severn in the late 50s AD.

The civilian settlement that grew up around the fortress took over its site in about AD 90, when the twentieth legion moved to Chester (Webster 1988). *Viroconium* was probably established as the capital of the tribal canton of the *Cornovii* at this time, but its successful establishment seems to date from the visit of Hadrian to Britain in AD 122. The basis of the town's wealth is not clear, but several factors played a part. The territory of the *Cornovii* contained mines for lead, silver and copper and there is likely to have been a considerable market for cattle and sheep, which provided milk and dairy products as well as hides and wool for the army. Not the least factor in Wroxeter's success as a market lies in the fact that it is located on a major fording point of the River Severn, which is navigable, both upstream and downstream, and on two major roads. The one, now called Watling Street, came from London and terminated at Wroxeter, and the other went from the former legionary base at Gloucester to the legionary fortress at Chester.

The principal importance of Wroxeter to modern-day archaeology lies in the fact that most of the site was abandoned after the Roman period, and the only re-occupation was a small village around the ford itself. The only damage done to the town since that time has been ploughing and robbing for stone, the former activity only beginning in the post-medieval period on parts of the site. Although archaeological discoveries were recorded within the town from the eighteenth century, excavation did not begin in earnest until 1859. The site chosen by the excavator, Thomas

Wright, was a large fragment of wall, called "The Old Work", which was thought to be part of a public building. His excavations proved that it was part of the public baths, which he then uncovered and left open for the public (Wright 1872). Further excavations by Bushe-Fox just before the First World War led to the discovery of a series of town houses to the south-west of the baths site and on the west side of the road (Bushe-Fox 1912, 1914, 1916). To the north of these, D. Atkinson found the town *forum* which he excavated between 1923 and 1927 (Atkinson 1942). Thus within a century, the principal civic buildings of the town had been examined in detail. After the Second World War, the site of the baths (which had been further excavated by K.Kenyon in 1936-7 (Kenyon 1940)) was acquired by the state and consolidation of the site began. This involved clearing spoil heaps and excavating new areas of the baths to expose the whole site fully. Dr Graham Webster began this task in 1955 and continued his excavations on the baths site until 1985. In 1966 his assistant, Philip A. Barker, was asked to examine a small area of the site to the north-east of the Old Work, prior to the construction of a new custodian's house. Careful excavation revealed the outline of a timber building of a type not previously known from Roman Britain. At the same time, clearance of large areas of the baths to the north of the Old Work revealed further evidence for timber buildings in what had once been the baths basilica. Given this evidence, the decision was taken to excavate this area scientifically and P.A. Barker was appointed to carry out the work. The excavations continued on this site, known as the baths basilica or "*Wroxeter Palaestra*", from 1966 until 1985, with shorter seasons from 1986 to 1990. This paper will focus on the results of the excavations on the baths basilica site and will not include the results from the excavations conducted by G. Webster on the principal rooms of the baths.

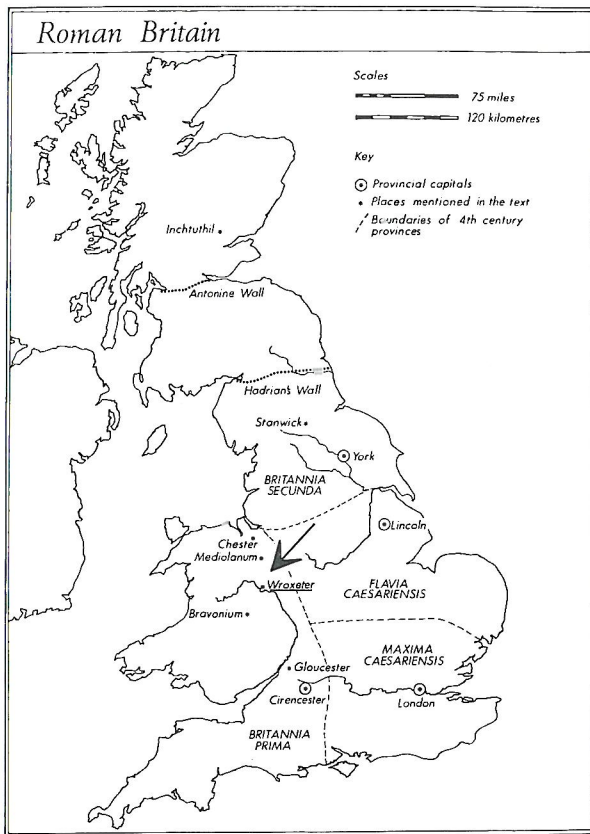


Figure 43.1: Position of the site.

The Wroxeter *Palaestra* site was an area covering 140m by 40m. The principal focus of the excavation was the baths basilica, a hall of about 65m by 22m in size, with internal colonnades separating a north and south aisle from the wide central nave. Attached to the east wall of the main building was a two-roomed rectangular building, referred to as the annexe, whose function was unclear. To the north and west of the basilica, there was an external portico which covered the area between the west and north streets delimiting the *insula* containing the baths. The north wall of the basilica continued to the east as a free-standing precinct wall which turned southwards at a point 12m from the eastern street defining the *insula* on this side.

Within the area formed by the north and east free-standing walls and the baths, was a courtyard which is thought to have been a service area. The eastern limit of the excavation was composed of three distinct elements, consisting of a section of north-south street and, on either side of it, the eastern frontage of the baths *insula* and the western frontage of the neighbouring *insula* (6). The northern limit of the site was divided into two areas; the east-west street to the north of the basilica and the southern frontage of the next *insula* (2).

Because of the large area under excavation, the site was divided into five areas of excavation, Sites A to E, the divisions between each site generally reflecting archaeological distinctions on site (Figure 43.2). Within each separate site, however, other subdivisions have been made. For example, Site B covers the annexe and the precinct (or service area) which are archaeologically quite distinct. Site D covers the nave, north and south aisles, and north and west porticos of the baths basilica. Site C, located in the north-east corner of the area, covers parts of the east-west cobbled street, the north portico and *insula* 2. Site E covers much of the frontage of *insula* 2 and the east-west street, while Site A covers parts of the north-south street, the west frontage of *insula* 6 and the east frontage of *insula* 5. These distinctions are important because they affect the question of whether any confidence can be placed on stratigraphic and phasing links across the site.

43.2 COMPUTER PROCESSING OF THE POTTERY

Work began on the processing and data recording for the pottery in 1972 when Pamela Irving (then Clarke) began devising the initial fabric and form type series upon which all later work has been based. It was recognised early in the project that the quantity of material made manual processing unwieldy and was well-suited to computer methods. In the mid 1970s, P.Irving and P.A. Barker approached Susan Laflin who has been advising on the computing side of the project ever since. The form and aims of the study were presented by P. Irving at the 1979 CAA conference (Clarke 1979).

Between 1981 and 1983 Dr Stephen Pierpoint was employed full-time to complete the recording of the pottery excavated between 1968 and 1981, under the supervision of P. Irving. A site-based Commodore PET was used to record the bulk of this data on cassette tapes. During this recording process, he added to the already established fabric and form series and introduced categories for sherd size and abrasion.

This project has continued for many years, and throughout this time, the problem of different contributors working at different geographical locations (Wroxeter, Birmingham, London, Worcester, Cambridge, Essex and Suffolk) and with different time constraints has meant that the various stages of processing have had to be carried out independently. This has required the transfer of data from one system to another on several occasions. The continuing development of

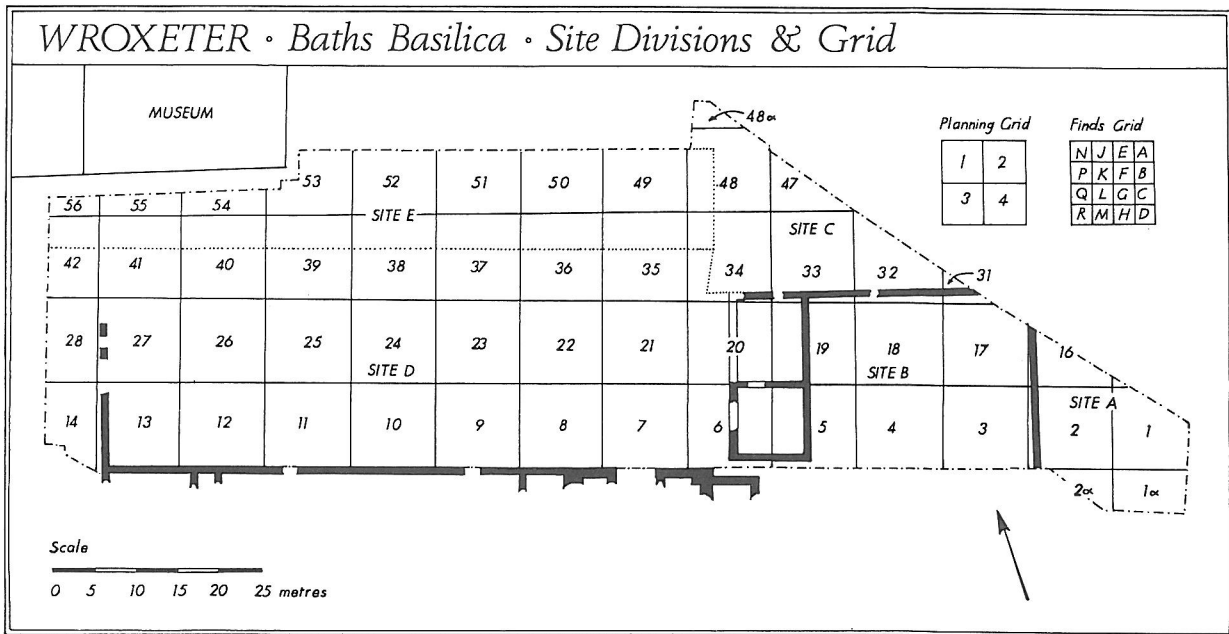


Figure 43.2: Relation of Sites A to E and Standing remains.

IT technology over the life span of the project has also contributed. Thus, although the data capture was carried out at Wroxeter on the PET, it was always intended that the analysis should be completed on the DEC20 mainframe at the University of Birmingham. Consequently, Anna Rochfort devoted her M.Sc project to solving the problems of data transfer from PET to mainframe and its conversion to the format for input to the Rapport database. This software was used by S. Pierpoint to transfer the bulk of the pottery data into the database, and this stage of the processing was described in a paper at the 1983 CAA conference (Pierpoint & Rochfort, 1983).

At the same conference, another student project (Laflin & Sutton, 1983) described DEC20 software for display of surface data, which was used to study the distribution of pottery from Layers 1 and 2. The work was described by S. Pierpoint at the 1984 CAA conference (Pierpoint, 1984) and included in his draft for a Level III archive report on the pottery. It was intended to analyse the whole site in this way, but continuation of the work was delayed after completion of the first stage in 1983. Further excavations between 1983 and 1989 unearthed more pottery to be added to the database. An additional data transfer became necessary when the DEC20 was replaced and the entire database had to be copied, first to the Multics system to preserve it while the DEC20 was removed and then onto its replacement VAX system.

In late 1989, A.D.Services (a partnership formed by R.P.Symonds, A.Roper, S.M.Wade and F.Buxton) was asked to record the new material excavated since 1983, and also to update the existing pottery database to which the new material would be added. The recently-excavated pottery was from the lower levels of the site and was likely to be contemporary with the Basilica, and so the work on the new material was given a high priority. In order for A.D.Services to update the existing database, it was downloaded onto ASCII files on IBM-compatible floppy disks. The data was in the form of an alphanumeric string of characters, with each line containing information about each sherd, or group of sherds, in coded form (Table 43.1).

For this stage, it was decided to use software from Borland, since the spreadsheet Quattro Pro and the relational database Paradox 3 were easy to integrate. The first task was to interpret the records using the Data-Parsing tool within the spreadsheet. Because of memory limitations and the maximum spreadsheet size, this task had to be done in blocks, processing two floppy discs at

BBB-	BS--	H3-	18M-	B	US----	17	2	-----	D---	2	3	0	0	0	0	7	0	0
BBB-	BS--	H--	18Q-	B	102-1A	2	1	-----	D---	1	3	0	0	0	0	8	0	0
BBB-	BS--	H--	18Q-	B	111----	2	1	-----	D---	1	3	0	0	0	0	7	0	0
BBB-	BS--	H--	18N-	B	174-1B	5	1	-----	D---	2	3	0	0	0	0	7	0	0

Table 1: Example of ASCII Data from Wroxeter:

a time. Once in spreadsheet form, this information could easily be transferred to the database program, and the blocks of information added together into one database table containing around 83,000 records.

Various editing processes were carried out at this time. For example, after converting the ASCII files, the filler "-" character was stripped out. (This had been included because of a quirk in Commodore Basic, which treated a null entry as an interrupt to terminate the program.) The data relating to the proportions of rim and base present (EVEs) were changed from a percentage (ie. 1-100%) to a fraction of 1 (ie. 0.00 to 1.00 — one EVE equals one "complete" vessel). A more important task was to rationalise the system used for numbering the contexts. The context numbers as used on site are in the form: D532-1a. Every feature, layer or change of soil type was given a context number prefaced by a letter indicating the area of the site. A deep context, such as a robber trench or pit with more than one layer within it, was divided into D532-1, D532-2, etc., for each layer. If the layers were very thick, they were dug in spits of about 3-4cm, so that D532-1a is the first spit in the first layer of context D532. Occasionally large contexts, such as D251, were subdivided. These were given context numbers in the form D251A, D251B, etc. These were entered originally as a single text string, but to relate these records to the separate table of site information, it was necessary to split this field into three parts: a context number, a sub-context, and a layer/feature.

Information about the phasing and stratigraphy of the site was not recorded with the pottery, and so a second table, containing the phasing information for the site, was generated from lists produced by Roger H.White. The text files containing the phasing information were processed in a similar manner to the pottery data and the resulting table provided all of the site data not only for the pottery table but also for those concerning small finds and coins.

Once the database had been created, the next task was to verify the data. This involved ensuring that the codes used in the database were valid. Obviously the numerical fields, such as weight and sherd count, could not be verified. Many other fields used codes to represent the information and for each of these fields, an equivalent single column table was created that contained all valid codes. By performing a "look-up" operation on each field, errors in the database were located and corrected where possible. The absence of a paper record, and of the pottery itself, meant that in some cases the correction of

the error was difficult. However, in most cases, the error was a simple case of mis-typing on entry, and the correct entry was fairly obvious. Some errors in pottery fabric codes could be remedied by assigning the relevant entry to one of the "collective" fabric categories (with advice from R.P.Symonds or S.M.Wade).

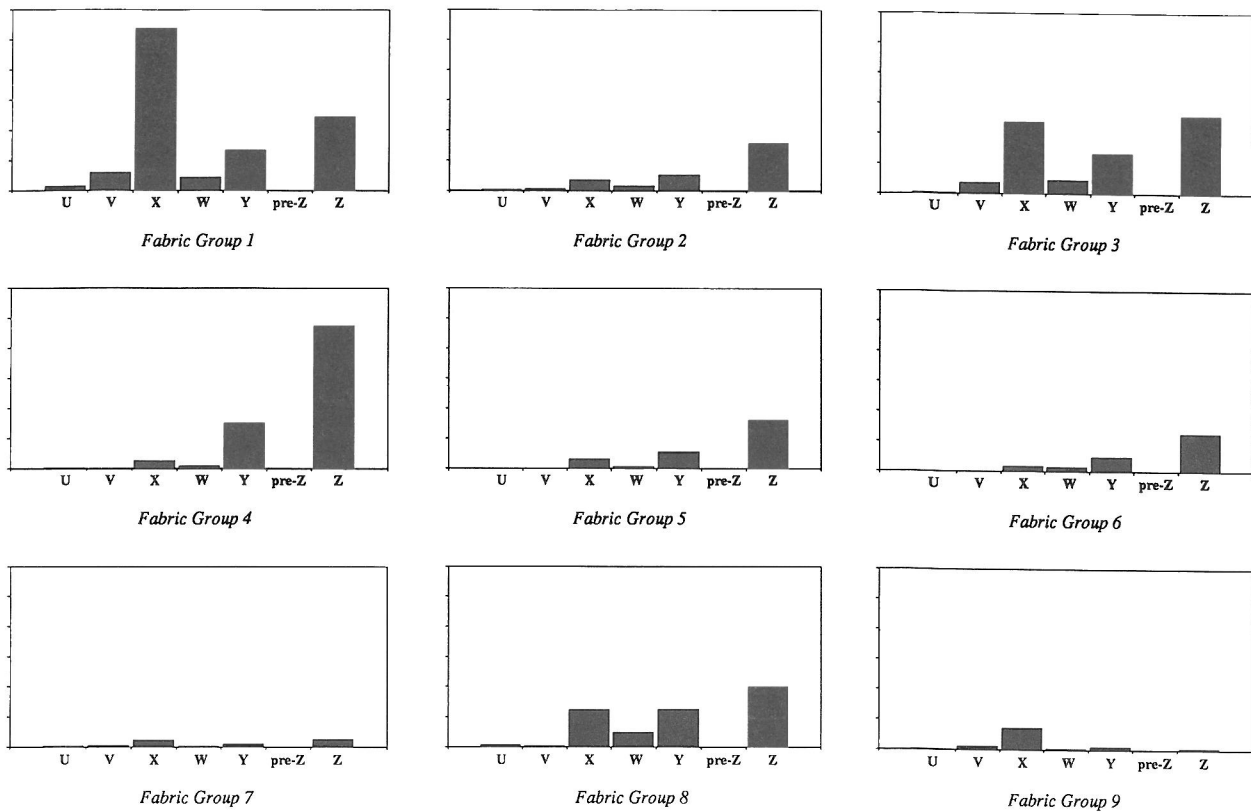
Probably the largest part of the work carried out by A.D.Services was the recording of the material unearthed since 1983. In order to ensure continuity, the fabric and form type series devised by P.Irving were used. The new material represents approximately 15% (by weight) of all the pottery excavated. The new material was recorded initially onto paper records, over a period of several months, and then computerised. Once it was confirmed that all the codes in both the original data and the newly recorded data matched, the two files were integrated into a single database table.

For publication there has been some re-arrangement of both type series. In the case of fabrics, it has been necessary to amalgamate appropriate fabrics into larger groupings to present the quantified data in tables, histograms and distribution plots. In the case of forms, the original ordering, reflecting the sequence in which the pottery was first classified, has been replaced by an ordering and re-numbering relating to the vessel-shapes, and progressing, generally speaking, from open to closed vessels. All of the new codings have been incorporated into the final version of the database. These codings were incorporated by means of a look-up table using the existing fabrics/forms codes together with their corresponding new codes.

In order to interpret the distribution of pottery on the site, statistics can help to give a picture which is not immediately obvious when dealing with a database of 99,000 records (Figure 43.3). Relative proportions of different fabrics or forms can be easily seen from simple histograms, which are very easy to produce using Quattro Pro. Histograms showing the proportions of a single fabric group or form across the phases can also lead to further conclusions about the site, or about the pottery itself.

The data was transferred back to S Laflin at the University of Birmingham for analysis of the spatial distribution of the pottery across the site. For the transfer, the pottery database and site database files were converted to ASCII comma-separated files. In order to reduce the number of disks required for the transfer, a file compression program called PK-ZIP was used to compress the ASCII files into self-extracting .ZIP files.

WROXETER NAVE
Fabric Distribution by Phase (by weight)



All Histograms have the same fixed Y-axis (0—12,000g)

Figure 43.3: Example of Histograms.

On receipt of the data discs at Birmingham, several weeks were spent on various technical problems, such as finding enough space on the hard disc of the PC to “un-zip” the large data files, choosing a suitable time of night to copy the files across to the mainframe, and various interesting responses on the VAX mainframe which were not solved but disappeared when more resources were allocated to the user name. Once these had been overcome and the data installed in an Oracle database on the VAX, it was possible to start the spatial analysis of the data.

Subsets of the data were extracted using the SQL query language and the resulting data files processed to calculate totals for the 2.5 m squares. The main processing required before the data could be plotted was the conversion from the grid entries to (x,y) coordinates. The grids, as shown in Figure 43.2, are numbered from right to left across the site while the finds grid, superimposed on each of the major grid squares, uses letters in sequence from top to bottom and right to left. So the find position of a sherd of pottery

could be of the form “27k” or “48αm” and these had to be recognised and converted to standard (x,y) coordinates. Then the totals for each square could be calculated. The resulting data files were arrays 24×56 and could easily be transferred back to the PC for interactive processing by the SURFIT package. This software was written at Birmingham and described at the CAA 1991 conference (Laflin & Perry 1992). It provides a wide range of display methods for survey data recorded as a rectangular array of spot heights as well as facilities for scaling and hard copy. Several methods of output were discussed, and it was agreed that the mosaic output provided the best form of output for this data.

There are several methods of measuring pottery distribution from a site such as this. At an early stage, plots were produced for the two most common types of pottery (Severn Valley Ware and Black Burnished Ware) using sherd count, sherd weight, EVEs (Estimated Vessel Equivalents) from the rim sherds, EVEs from the base sherds and an average of the last two. All the

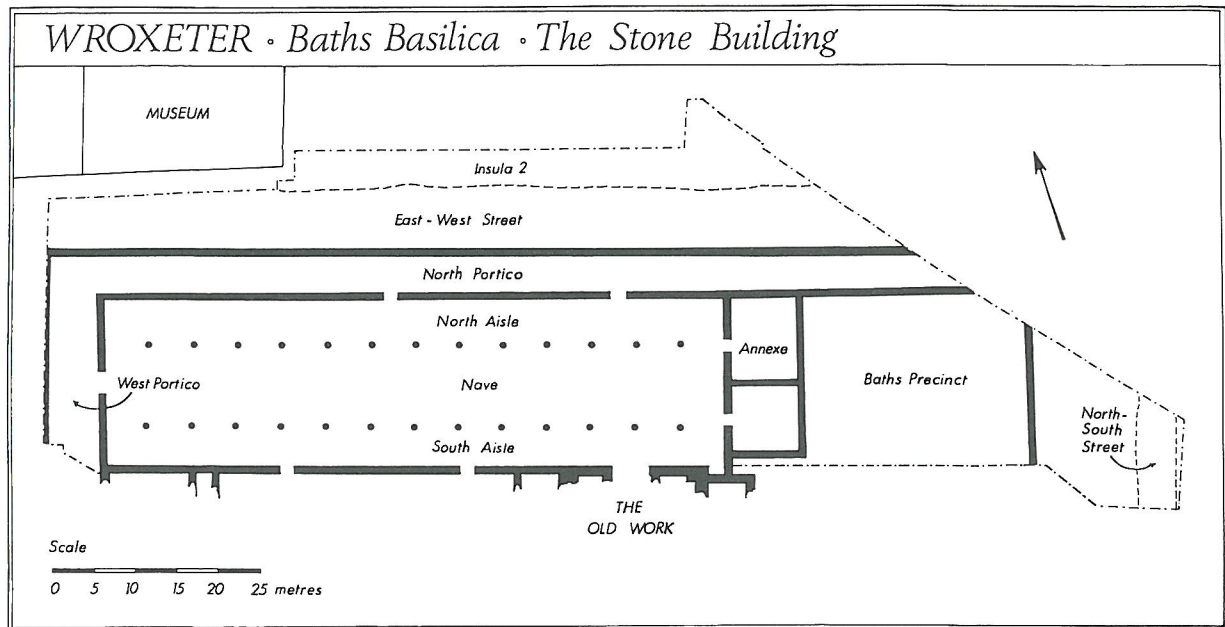


Figure 43.4: Plan of the Stone Building.

plots showed a very similar distribution. Then plots were produced using sherd counts and average of EVEs from rim and base sherds for each of the nine groups of pottery. With the exception of some of rarer types of pottery where there were not enough rim and base sherds to calculate a distribution, the pairs of plots for each type showed a very similar picture. Thereafter, only plots of sherd count were produced.

43.3 ANALYSIS AND INTERPRETATION

To understand the meaning of the distribution plots for the pottery data, it is necessary to consider the structural history of the site.

The public baths of *Viroconium* were laid out in the 120s, but only completed in the middle of the second century. The basilica (Figure 43.4) was floored with mosaic pavement in both aisles and possibly in the nave as well (Phase S). The next phase (T) consisted of the laying of areas of herringbone tile (*opus spicatum*) to repair parts of the floor which had become worn. By this time, much of the mosaic in the aisles must have broken up as the south aisle in particular was almost completely sealed beneath the new floor. Another major area of herringbone tile was found at the east end of the nave. There was no dating material for either phase S or phase T, but excavations on the baths indicated that phase T was datable to the end of the third or beginning of the fourth cen-

tury. The next two phases, U and V, were both characterised by relatively minor repairs to the floors and it is clear that there was considerable wear on all the floor surfaces, showing a decline in the standard of maintenance within the basilica. The annexe in these phases showed some evidence of industrial activity which may have been related to the maintenance of the baths and/or the basilica. From the dating evidence for the next phase, it is clear that phases U and V probably dated to the second and third quarters of the fourth century.

The next phase, W, was the most important in terms of the numbers of contexts recovered. It represented a concerted attempt to keep the basilica floors, including those of the porticos, in good order. Internally, three sub-phases of flooring were detected, all characterised by the use of differing materials, depending upon the degree of expected wear. The final sub-phase, W3, was a very poor surface resembling a levelling dump with a patchy floor surface rather than a true, solid floor. Dating evidence for this phase was strong in that a coin dated 367-75 was found beneath the earliest phase floor (W1). In the annexe, the general decline in the standards of the building was indicated by the removal of the annexe roof and the construction of timber buildings inside the shell, which appeared to be used as shelters for the preparation of building materials. By the end of phase W3, the basilica must have been semi-derelict internally.

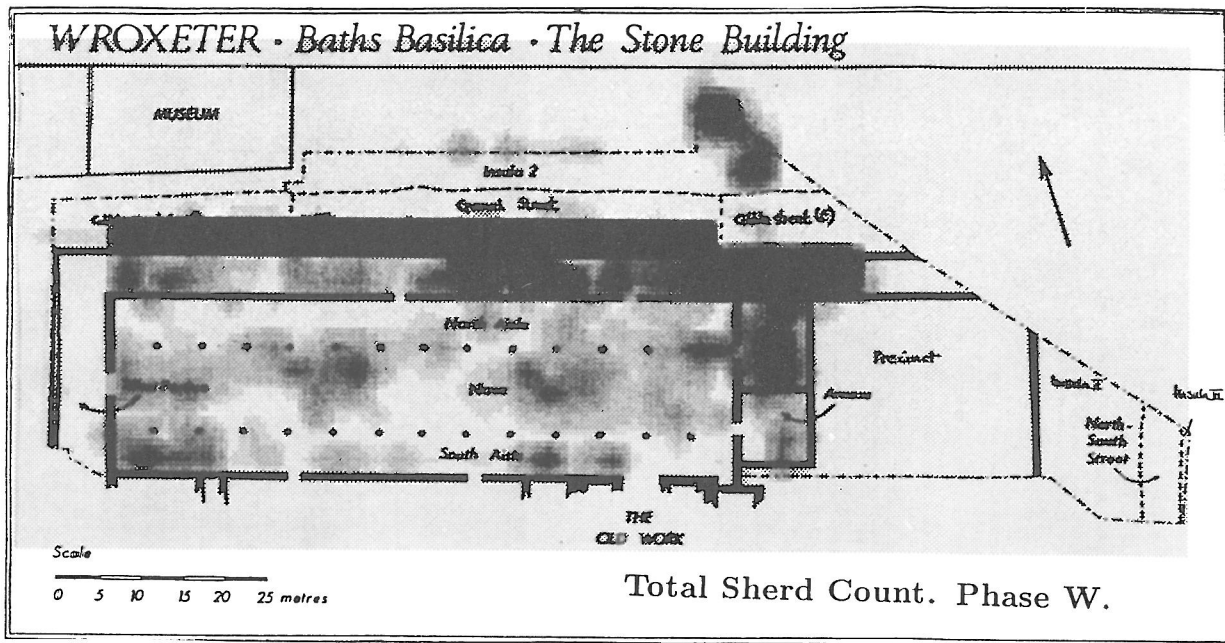


Figure 43.5: Sherd Count for Phase W.

The pattern of sherd counts in phase W is quite distinctive when compared with three other phases. The bulk of the pottery is occurring in dumps both inside and outside the building, but the greatest density of all is, surprisingly, to be seen in the road-side accumulation of material between the north portico colonnade and the street. The reason for this is not entirely obvious, but might have come about through the artificial division of the roadside deposits into two phases: Phase S (original basilica — not plotted) and Phase W (Figure 43.5).

From the archaeological point of view, this conflicts with the observed phenomenon on site pointing to a gradual and steady accumulation of this deposit, rather than a sudden deposition in these two phases. The reason for dealing with the material in this way is because the street surfaces relating to this road accumulation had in nearly all cases been completely removed in Phase pre-Z. Thus it was impossible to detect the lenses of weathering within the overall dump and so allow tighter phasing. Not too much archaeological significance should be read into this area of the distribution map. Nonetheless, it is interesting to note that the north portico, adjacent to the street, has produced equally high levels of pottery, especially in the centre and east end. This becomes even more apparent when compared with the relatively barren area of the west portico.

The pottery in the north portico is coming, not from the floors but from their make-up dumps

(e.g. C527) which in some places were quite thick. The same phenomenon may be seen in the north room of the annexe (which also had a thick layer of dumping in this phase) and, to a lesser degree, in the basilica itself. Here Phase W consisted of three phase floors (W1 to W3) which were laid, patched and replaced in turn. Presumably the pottery had been brought in with the make-up material and thus the map shows graphically where the bulk of the wear and repair has been recorded. However the "blank" areas cannot necessarily be recorded as areas of low activity. Some undoubtedly were, for example the west end of the north aisle, but blank areas around the doorways in the south aisle surely represent such excessive wear that the dumps and their pottery have been worn away. The only other significant area is the insula 2 frontage on site C, where deep pitting has caused a large amount of pottery to be redistributed.

Phase X was much more patchy, being confined largely to the east end of the basilica (Figure 43.6). Here several timber buildings were put up which had been cut into the phase W3 floors. There was also evidence for industrial hearths and a lime-slaking pit. These buildings were found also on the north portico in the area to the north of the annexe, and it is clear from the new doorways created in this phase that these structures were all inter-related and might well represent an expansion of the industrial activity seen in the annexe in phase W.

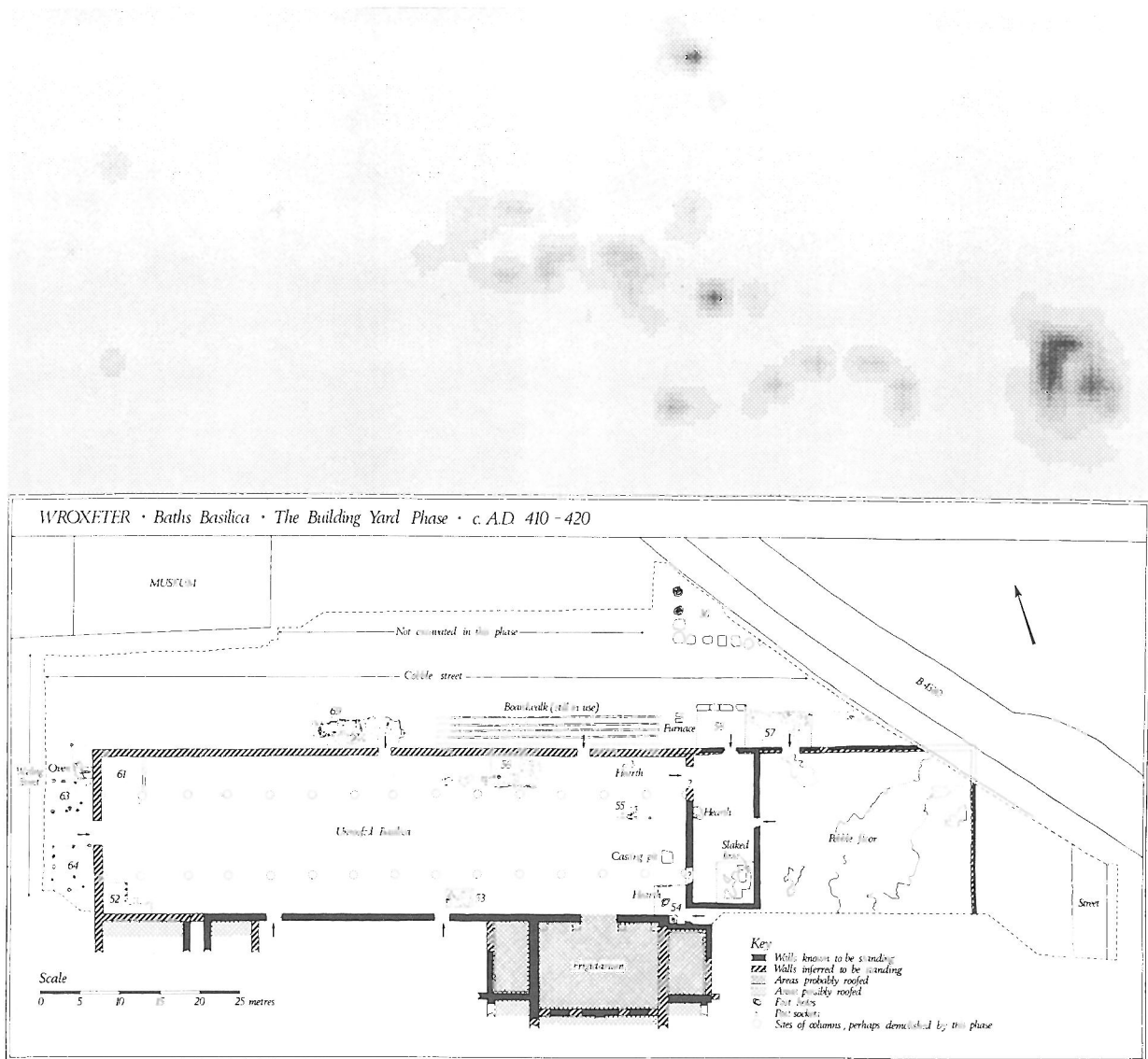


Figure 43.6: Plan and Sherd Count for Phase X.

On the porticos, the picture was slightly different in that there was evidence for the robbing of the portico roof and for buildings in the west portico. These buildings were large, post-built structures, one of which contained a large bread oven. On the north portico, there was evidence for a timber boardwalk covering areas of subsidence within the floor. This would suggest that there was a distinct difference in use between the interior of the basilica and its exterior. Presumably the external porticos were still in use by the public, but the interior was for the sole use of a clerk-of-works, who seems to have been operating in the annexe originally. Coins of this phase are among the latest found in Wroxeter (388-402) and confirmation of the late date came from the west portico oven, which was dated by remnant mag-

netism to AD 400. Inevitably the pottery has a radically different distribution in Phase X, since activity was largely limited to the eastern end of the basilica and other peripheral areas. Nonetheless interesting concentrations mark specific buildings quite clearly in the basilica. These include building 54 (SE corner south aisle) and building 53 (north aisle). However other buildings 55 (nave), 53 (south aisle centre), 63 and 64 (west portico) and 57 and 58 (north portico) do not show up at all. The reason for this discrepancy is unclear since the material making up buildings 53, 55 and 56 was very similar and only 54 had a noticeably different composition. A common link which might explain the observed pattern could be hearths. There was a large hearth in building 54, a second to the east of building 56 in

the north aisle and, significantly, one in the north room of the annexe at the "hot spot" shown on the diagram. Why open hearths should generate pottery "hot spots" is unclear, but cooking cannot be ruled out even though the impression given by these hearths at the time of excavation was that they were industrial rather than domestic. It is even more interesting that the two large furnace-type ovens (with solid sides and a flue) do not show up at all on the map (i.e. one was located in the west portico to the north of the doorway, and the other in the north portico near the east door). Two other notable "hot spots" appear. One is related to a thick dump layer on site A and is probably not significant. The other is on the insula 2 frontage in site C, where deep pits were in operation, related to the occupation of building 36 and including a rubbish pit (C412). This same area saw the backfilling of the industrial pit C404/C407, included within which were sherds of 5th century amphorae.

The next phase, Y, saw the systematic demolition of the roof and the dumping of a levelling layer on the floors. These formed the foundation for a layer of roofing slates used to provide pathways across the basilican interior. Only two significant distributions can be seen in phase Y. One occurs in the south-west corner of the south aisle, where building 52 was erected on a mortar and rubble platform. The other area is in site A, where deep pits brought up much pottery from underlying layers. This suggests that little significance may be read into this distribution. Generally speaking, the pottery distribution appears to confirm the archaeological interpretation that the basilica was largely abandoned internally, or at least was not generating pottery in significant quantities.

The peripheral areas of the site, which cannot be stratigraphically linked to the main basilican site, show differing sequences of activity. On Site C, insula 2, there was evidence for an industrial phase (W) characterised by a furnace and possibly associated with a system of interlinked pits and gullies. These features were coin-dated to the mid fourth century, and the pottery appears to bear this out. In the next phase, X, the site was levelled and a massive post-built structure erected. This was then replaced by a clay and amphora path (Phase Y). Some fragments of late Palestinian amphorae were found in the backfill of the industrial phase pits.

On Site A, the lowest phase reached (W) consisted of a pebble surface which was then buried beneath a phase of dumping (X) thus levelling the site for the next phase. Phase Y, which included most of the activity found on this site, consisted

of two systems of pits and gullies, one of which had two phases. The pits were particularly large and seem to have been used as soakaways. Possibly associated with these was an industrial furnace which was renewed on different alignments on three occasions. The furnaces may have been within two buildings, traces of which were found nearby. Sealing these, but in the same phase, was another timber building.

On Site B, the precinct, only two major phases were detected prior to phase Z. First, a pebble floor (phase X) which appears to have subsided badly in many places, and second, a layer of dumping to level the site (phase Y).

The last phase on the baths basilica site, phase Z, was the most extensive since it included all the peripheral areas (Figure 43.7). Interim accounts have already been published (Barker 1973; White 1976, 1990) and the phase may be characterised as one in which the basilica was selectively demolished to provide material for the rubble platforms on which the timber buildings were placed. In all, at least 36 buildings were recognised and there was considerable evidence for the careful planning and execution of the operation. One of the more unusual features was the quarrying away of a large section of the east-west street and its replacement by a sifted gravel surface, which must have been for pedestrians. Five buildings were found on this surface alone. It is clear that the peripheral areas were also involved in this redevelopment as evidence for buildings similar to those seen on the main site was found. Dating evidence in conventional terms is practically useless as the coin evidence can no longer be taken into account. A *terminus ante quem* for the abandonment of the site is given by a late burial, cutting these buildings, which is dated to about AD 640 ± 70. On the basis of the fact that some building platforms were found to overlap, it seems likely that this phase may be dated from about AD 440 (at the earliest) to AD 550 (at the latest). In addition to the burial which marked the disuse of the site, one other building was found which was later than the main use of the site. Again no relevant dating evidence was found, but it was built before a turf line had developed on the previous phase.

Not surprisingly, there is a heavy overall distribution of pottery in phase Z, although there is evidence of localisation (Figure 43.8). The densest areas of distribution are to be seen in the building platforms, especially those of buildings 10 and 11 (nave, north aisle, north portico centre and west) and to a lesser degree in the west portico and the south aisle. Clearly the inference must be that

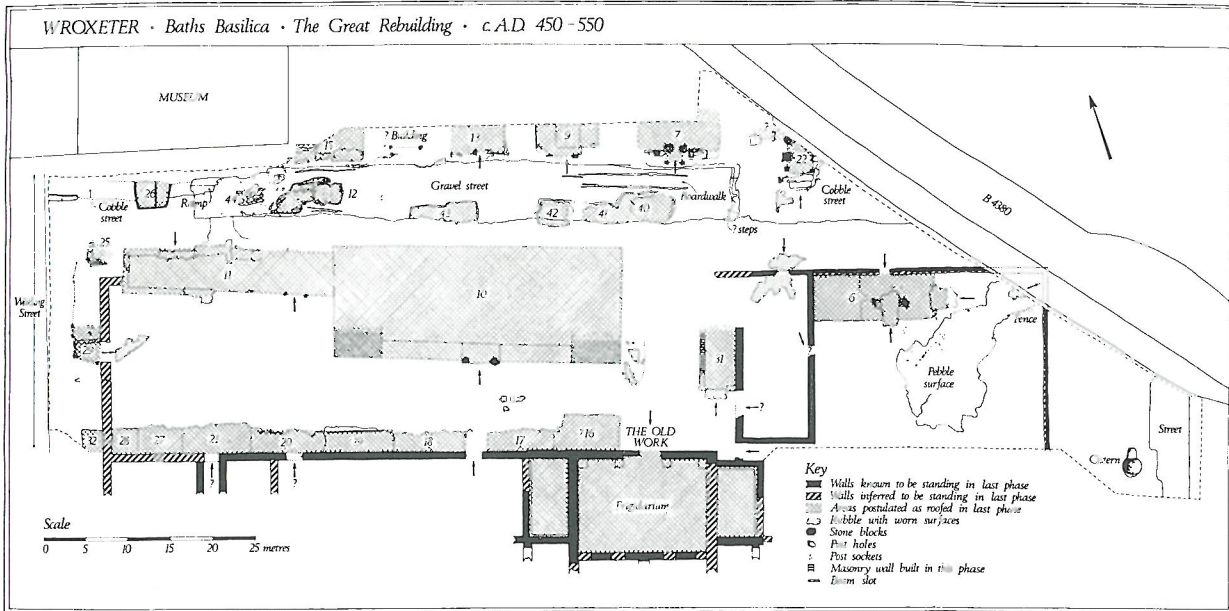


Figure 43.7: Plan of Phase Z.

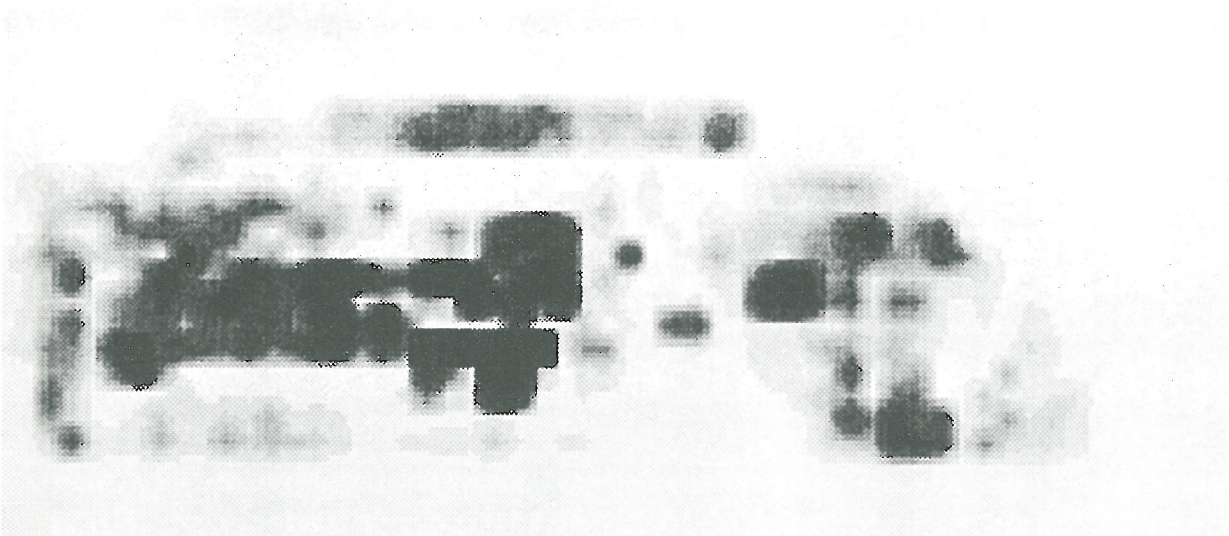


Figure 43.8: Sherd Counts for Phase Z.

pottery is being brought in with the rubble dumps making up the platforms and this is confirmed by the fact that in building 10, where the platform is thinnest (at the east end) the amount of pottery has significantly declined. Other buildings are also picked out along the frontage of insula 2, at the east end of the nave (building 31) and in the precinct (building 6). Significantly in the precinct, buildings 23, 24 and ?68, which are post-hole-built, do not show up at all clearly, unlike building 6 which had a platform. The densest area of pottery in the precinct (SW corner) is the by-product of pit digging, while dumping in the

north room of the annexe and at the east end of the north portico has led to significant "hot spots" in these areas. Finally on the gravel street, there is an extraordinary dearth of pottery, which is probably a result of the careful sifting of the material making up the street by its constructors. This picture is slightly modified where buildings occur on the southern edge, and here an apparent correlation may be seen between two maxima and the areas of buildings 43 and 12. What these plots seem to tell us is that the pottery is not related significantly to the use of areas in phase Z, but has been incorporated incidentally in the

dumps on which the buildings were constructed. This conclusion would seem to confirm the situation seen in graphs 3 and 4 (Figure 43.9) (discussed later).

The interpretation of the pottery distribution plots presents similar problems to that of the interpretation of other pottery data from the Wroxeter site. Virtually all of the pottery in question is known to have been deposited during the second half of the fourth century (see Site W, above), and although the stratigraphic interpretation would allow for continued deposition through into the sixth or even the seventh century, in fact there are no pottery types which can be securely dated beyond the end of the fourth century (or which are types known to have been found in later contexts elsewhere; there are certainly no obviously Saxon types). It seems likely therefore that the phases used to define the plots (Phases W, X, Y, Z and post-Z) represent depositions of material within a relatively short chronological window. The nature of the material, including some second century and some third century pottery, also suggests that all the phases apparently contained fairly high percentages of residual or re-deposited material. It must be stressed that such a series of assemblages are highly unusual in Roman Britain, and are clearly worthy of detailed study, if only to understand the nature of the residuality which they illustrate.

As may be seen from the distribution plots, there appears to be remarkably little geographical overlap between the phases, each apparently producing its own distinctive pattern according to the activities being carried out there. The only obvious exceptions to this rule occur in site A, where Phases X and Y overlap, and in the central part of the site, Sites D and E, where Phases Z and post-Z overlap. This means that while distributional plots of the pottery may in fact be the best way of representing the data, the more traditional (to Roman pottery reports) histograms and tables being less appropriate, it also means that the interpretation of the plots, in terms of their implications for the pottery, may be difficult. The problem is that over the five main periods, the pottery shows relatively little in the way of corresponding chronology derived from external dating, and this calls into question the meaning of the "phases".

In fact a series of graphs (Figure 43.9) (Graphs 1-4) generated with the same data do show some chronological evolution, particularly if one uses as a "base line" the diminishing quantities of the Samian ware, which is the pottery type which is most certainly likely to have become residual well

before the final deposition of any of the pottery included in the data. Our argument is that if Samian is likely to be more residual than any of the other main pottery types represented, then over a series of successively later phases it should diminish gradually in quantity, while correspondingly the later pottery types which may have still been in production in the latter half of the fourth century should gradually increase.

Related to archaeological dating, these graphs appear to show a declining value for Samian between phases W and X, and increase in Y (reflecting disturbance of earlier levels on site A) and then a steep drop in phases Z and post-Z. Oxfordshire and Nene-Valley wares are both seen to increase in phase W (third quarter of the 4th century), peak in phase X, decline in phase Y (when the site was largely abandoned or *had become relatively aceramic* probably in the first half of the 5th century) and increase again in phase Z (when large amounts of pottery, by now residual, and other rubble were being brought in to build up the platforms) and also in phase post-Z (when dumping might still have been occurring). Other fine wares, mostly early, mirror the situation seen for Samian.

Coarse ware also shows a strange pattern, but one that may not be totally unexpected. Most significant is the growth, mostly very steady, in the amount of calcite-gritted ware at the expense of the red Severn-valley ware. The black-burnished ware also declines, but not as rapidly as the red wares, and it still forms a significant proportion at the end of the post-Z phase. The grey wares remain reasonably static.

Graphs 1-2 (Figure 43.9) show the same information with phases X and Y interchanged and indicate a steadily diminishing percentage of Samian ware matched by steadily increasing percentages of the latest fine wares. This smooths out the irregularities, so that the graph more closely corresponds to a "normal" growth pattern for pottery in fourth century contexts. This may possibly be explained by the nature of the excavated material in Phases X and Y: while Phase X is composed of the re-deposition (dumping) of the latest parts of material from the previous phase, Phase Y contained mainly dumped material which was apparently obtained from elsewhere in the town and contained pottery which was mainly earlier than that in Phase X. This seems to be the most reasonable explanation for the data presented in Graphs 1-4.

It is important to stress that although the ordering of the phases in Graphs 1-2 is taken to indicate the true chronological ordering of the pot-

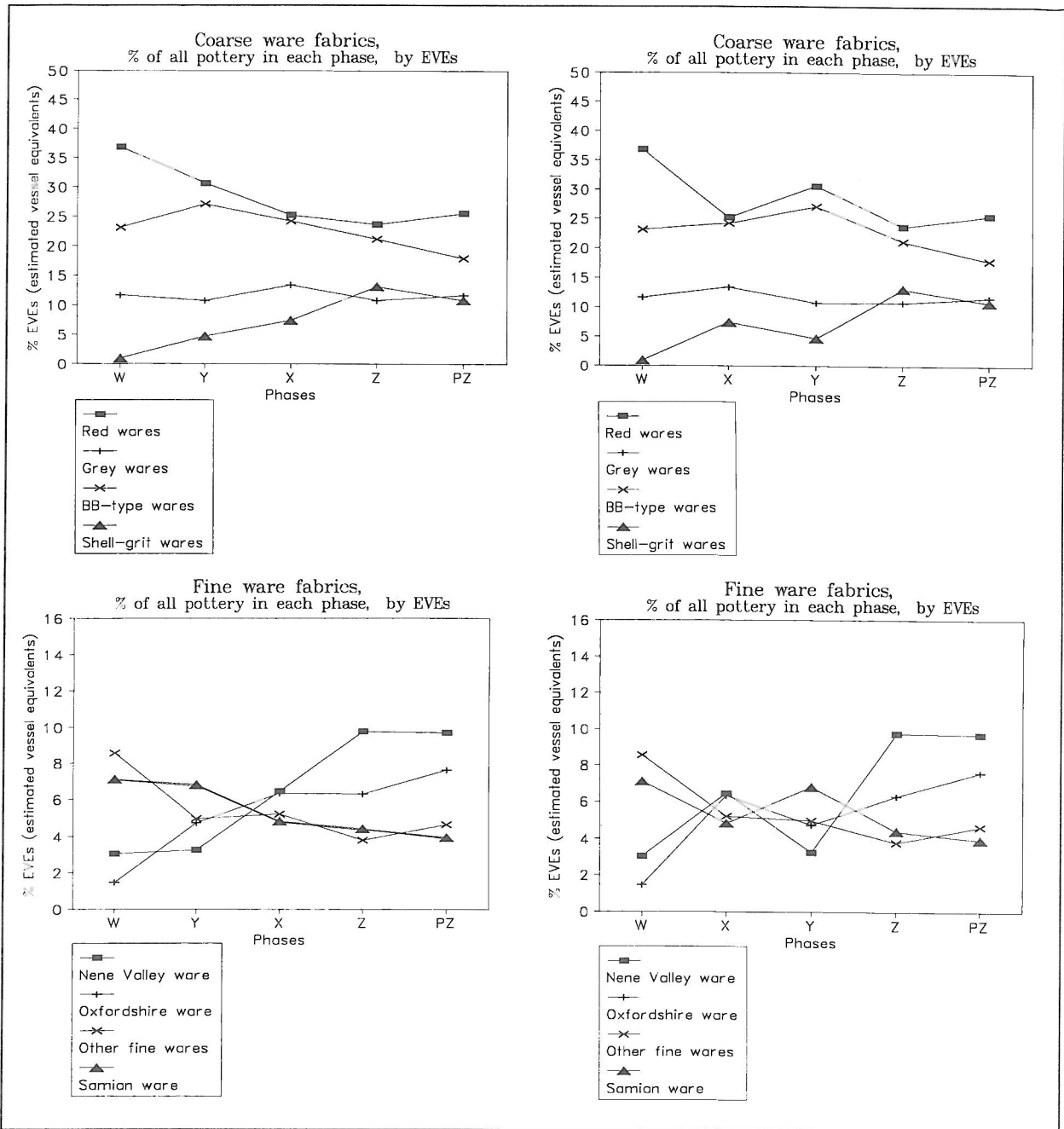


Figure 43.9: Graphs 1 to 4.

tery according to the phases, because of the steady decline in the percentage of Samian, it also shows a logical ordering for all the other types of pottery as well, a fact which becomes clear when Graphs 1-2 are compared with Graphs 3-4. All four graphs show percentages of the broad fabric groupings by EVEs (estimated vessel equivalents — cf Orton 1975). Although actual percentages vary slightly, essentially the same overall picture is obtained when the graphs are calculated using vessel weight or sherd count.

Turning to the distribution plots, it is clear that these show a number of aspects of the pottery assemblage which could not have been shown using the more "traditional" methods above, and while SURFIT plotting may seem to be particularly appropriate for a site having such a predominantly horizontal nature (i.e. lacking in deep, complicated stratigraphy), our work suggests that it may be more useful with other sorts of sites than initially expected. Obviously it is helpful if the excavated area covers a large ex-

panse, as at Wroxeter; interpreting pottery spreads through keyhole sites is no easier than interpreting features. Also it should be stressed that SURFIT plotting would be difficult, if not impossible, unless the recording system included some form of grid reference. This means that the interpretation of the resulting plots depends on the spatial resolution of the recording system.

43.3.1 Group 1 (Severn Valley red coarse wares)

Representing between 27.5% and 30.0% of the pottery (for all periods, by rim EVEs and weight, respectively), red wares are, by a margin of between 2.7% and 9.5%, the most common pottery type found on the site. It is likely that a substantial majority of these wares were made locally, in the environs of Wroxeter, although links can be made with Severn Valley types made in the Gloucester region (cf. Tomber 1981; Rawes 1982; Webster 1976). It might therefore not be especially surprising to find in the spatial distribution plots that red wares are spread across all of the areas wherever any pottery was found in each phase. There is, in other words, a fairly close correlation between the plots for all pottery in each phase and the plots for Group 1 alone. This probably reflects the residual, re-deposited nature of the pottery, since it might be expected that rather more erratic distribution might be visible if there were clear links between the pottery and the status or function of the buildings in which it was found. The predominance of red wares on the site appears to be such that in spite of their relative decline in quantity between Phases W and post-Z, they are still common across the site in the latter, final phase.

Although to be found over the whole site, these wares are densest in those areas of the site where disturbance of earlier layers has taken place (site B, precinct SW corner, site A and site C pits) but a significant group is found in the street drain and water pipes.

43.3.2 Group 2 (grey wares)

Here the picture is similar to that for red wares, which is largely to be expected, since it is uncertain whether the colour difference is deliberate or accidental. On most Romano-British sites of the late Roman period grey cooking pots are normally the most numerous pottery type, but in the Severn Valley region this is not the case partly because the local red wares (which are of generally good quality for coarse pottery) appear to have usurped that role to some extent, and partly because of the importation of substantial amounts of black-burnished wares. As a result, at

Wroxeter plain grey coarse wares are found in much lower-than-normal percentages (they represent about 10% of all the pottery). On the spatial plots, Group 2 wares seem to be present wherever there is pottery, but not in any great quantity. The densest distribution is to be found in the pits in the precinct and a block in the centre of the north portico, which might relate to the deep disturbance caused by the robbing of the north wall.

43.3.3 Group 3 (black-burnished wares)

The term "black-burnished ware" refers to a specific range of coarse pottery, mainly cooking pots, dishes, and bowls, normally in one of two sandy black or dark grey fabrics, one of which (BB1) is hand-made, and comes from the Wareham-Poole region of Dorset, while the other (BB2) is wheel-thrown, and comes mainly from Essex or Kent (cf. Williams 1977). Both are common from the beginning of the 2nd century onwards, but BB1 had a generally much wider distribution around Britain, and whereas the production of BB2 appears to decline towards the end of the Roman period, BB1 seems to have enjoyed continued popularity throughout the 4th century. At Wroxeter, as in most of western Britain, BB1 is the predominant of the two wares: no more than about 10% of the wares in this general category are thought to be BB2 or local imitations of either BB1 or BB2. The category as a whole represents between 20% (by weight) and 26% (by sherd count) of the pottery as a whole, which is an unusually large proportion, and which makes it the second most common pottery type found on the site, after red wares. As with the other coarse wares, however, black-burnished wares seem to be found more or less everywhere where pottery was found in each phase, and there seems little out of the ordinary to be discerned from the distribution plots. Again the drain and water pipes show up well and so do the pits in sites A, C and B (precinct). Large amounts of this ware may be found in the north aisle robber trench (which relates to phase pre-Z robbing) and in the north portico and annexe (due to dumping).

43.3.4 Group 4 (calcite-gritted wares) and Group 5 (Nene-Valley wares)

Calcite-, or shell-gritted wares are generally the cooking wares found at Wroxeter with the most basic coarse fabric, augmented with shell tempering in order to enhance the vessels' heat-retention and resistance. These are thought to be among the latest wares found on the site, and it is therefore interesting to note on the distribution plots that

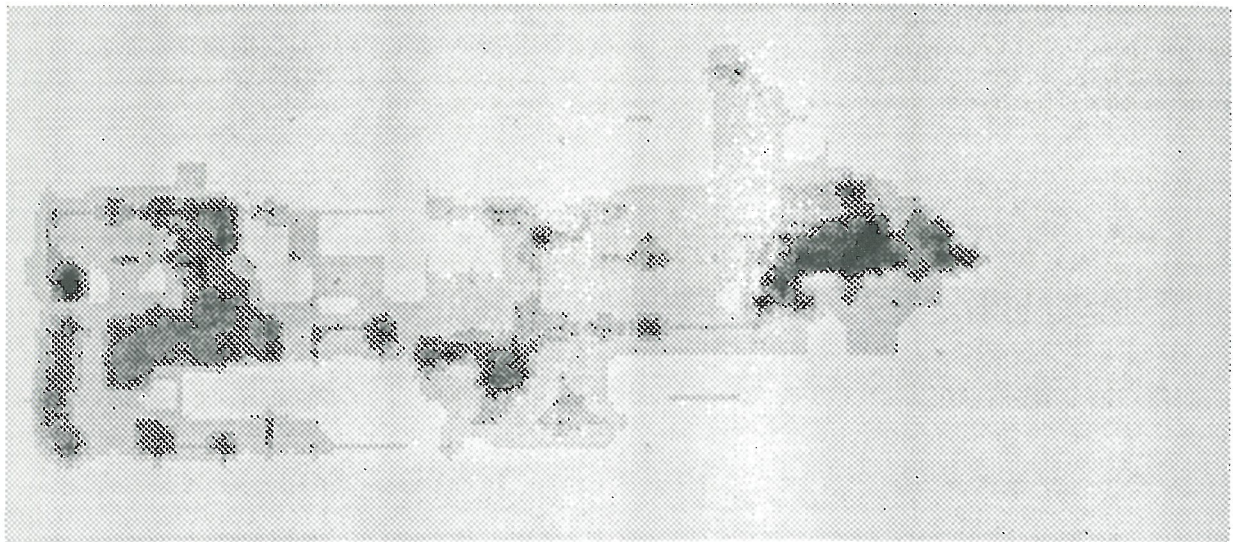


Figure 43.10: Distribution of Calcite-gritted Wares.

they are almost completely absent from Site A, except for small amounts in Phase X (Figure 43.10). They appear in Site C 48 α , in Phases W and X, but are absent from that part of the site thereafter; they seem to move westwards within Site D between Phases Z and post-Z.

This is a particularly interesting pattern, as it appears to show strong activity on the west portico, just inside the the west door of the basilica, and at the east end of the north portico. It is possible that these "hot spots" are caused by material in the rubble dumps of phase Z, but if this is the case then they do not show building 10 at all clearly. This might support the hypothesis that calcite-gritted ware was still in use, at least at the west end of the basilica and in the west portico. This would also make sense of the concentration outside the porch of building 10 in the centre of the basilica. The background noise generally seems to reflect phase Z activity as well.

Nene-Valley is the second most common fine ware type (after Samian) found on the site, representing almost 5% of all the pottery, and is among the latest types, as shown by Graphs 1 and 2 (Figure 43.9). Its distribution is very similar to that of Group 4.

43.3.5 Group 6 (Oxfordshire wares)

The third most common fine ware type, Oxfordshire wares represent roughly 4% of all the pottery on the site. The curve for Oxfordshire wares shown in Graph 2 (Figure 43.9) suggests that they may be the latest fine ware type, since they begin at the lowest point in Phase W, and are continu-

ing to rise in quantity between Phases Z and post-Z. They appear to more or less mimic calcite-gritted wares in Phase W. There is a concentration in Site D grid 20 in Phase X. For Oxfordshire wares the westward shift between Phases Z and post-Z is not so marked as for Nene Valley or calcite-gritted wares: although there is such a shift, the highest concentration is still grids 21/22 in Phase post-Z.

43.3.6 Group 7 (other fine wares) and Group 8 (miscellaneous white wares/storage vessels)

These two groups of wares, which together make up about 10% of all the pottery on the site, are extremely difficult to interpret on the distribution plots, since they are composed of small amounts of widely disparate types in both size, function and place of origin. There are no absences from particular areas of the site which appear to have any significance.

43.3.7 Group 9 (Samian wares)

Samian wares, which make up about 5% of the pottery on the site, are the most common fine ware type, and the earliest type commonly found. Because Samian is also undoubtedly the most closely dateable pottery type found, it has served as the most important guide for the ordering of Graphs 1 and 2 proposed above. Despite its apparent role as a high-status fine ware, in the plots Samian does not seem to show any noticeable differences in its distribution across the site compared with either the coarse wares or with other fine wares.

43.4 CONCLUSIONS

There are two fundamental requirements for the interpretation of the distribution plots. The first is consistency in scaling: when a level of scaling has been chosen, the same should be applied to the complete set of plots. The second is that the bottom level of the scale should indicate the presence of any significant quantity of material (since individual sherds of pottery could be intrusive, we have agreed that fewer than five sherds should not be shown).

In spite of following these two rules, the data can still be difficult to interpret, although it must be stressed that the problems are derived mainly from the limitations of archaeological interpretation in general, rather than in the methods of generating the plots. The scale of the plots as a whole is much broader than that normally familiar to Roman pottery researchers. Whereas, when the material from a site is dated and quantified, the standard unit of measure is the "context", here it is the 2.5 m square which is larger than the area of most contexts. Equally importantly, the spatial distribution across a site is not a subject much explored in Roman pottery studies, possibly because the material is so firmly established as a key dating tool. Most of the effort is normally devoted to refining the chronology and defining the local, regional and provincial distributions of particular pottery types.

In general the Wroxeter plots do not appear to show much differential deposition relating to pottery types. Neither the fine wares nor the coarse wares show much divergence from the overall picture, either individually or collectively. However, the single result of greatest archaeological importance is the demonstration which these distribution plots provide, that the pottery on the site is not generally associated with the status or function of the buildings. This reinforces and clarifies the residual/re-deposited nature of this material.

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