EXCAVATIONS AT CARSINGTON, 1979-80

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The proposed flooding of the Carsington valley, near Wirksworth, by the Severn-Trent Water Authority, led to a major programme of fieldwork and excavation being undertaken by the North Derbyshire Archaeological Trust, financed by the Department of the Environment, the Severn-Trent Water Authority and Derbyshire County Council. The present report deals with the excavation of one of the Roman sites

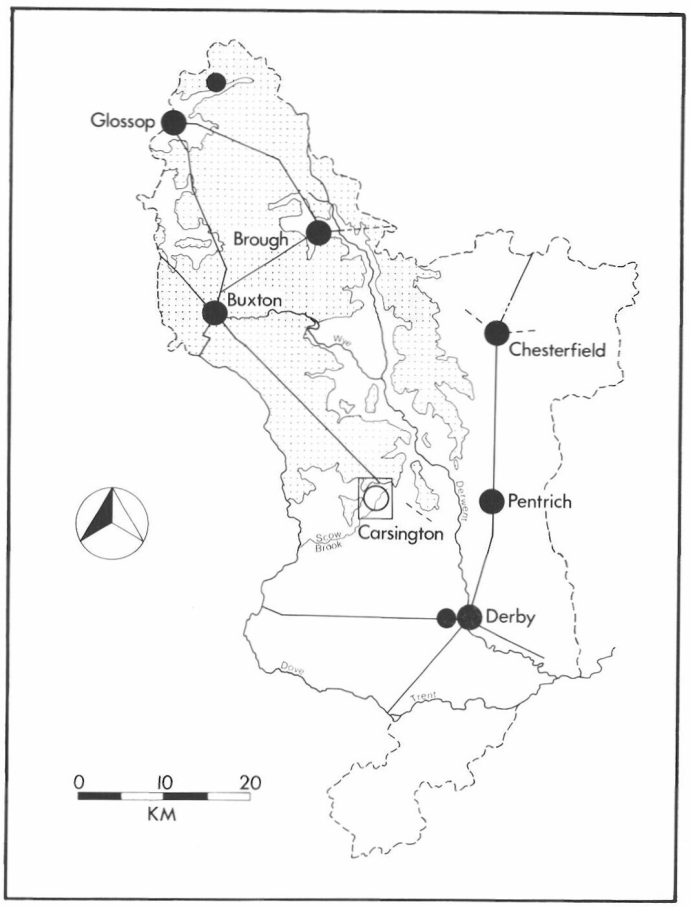

Fig. 1 Map of main Roman sites in Derbyshire: forts, roads, and the settlements at Carsington. Stippling marks land over 250 metres above sea level.

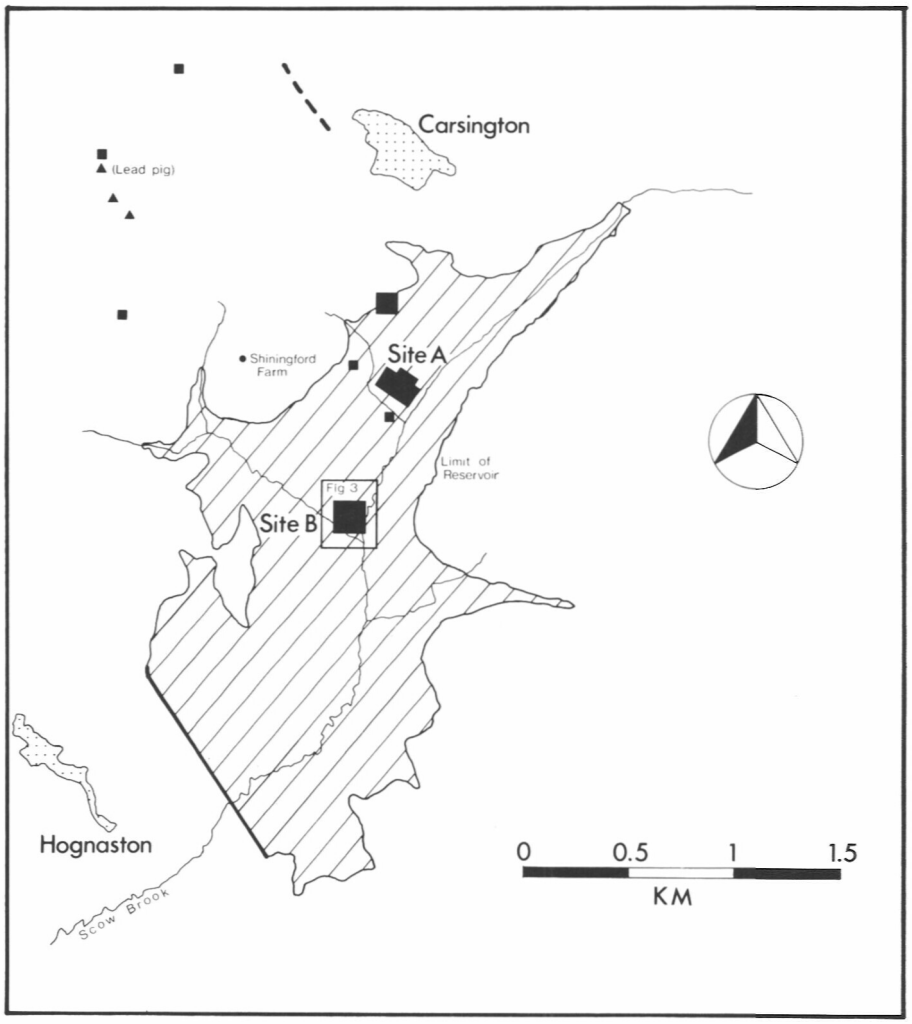

Fig. 2 Roman sites in the Carsington area. Sites A and B have been investigated by recent excavations; site B is the subject of this report. Square: Roman-period settlements; triangle: Roman-period sporadic finds. Dashed line marks the possible line of a Roman road near Carsington.

discovered. The results of the initial field survey are published in the Survey Report of the Trust (Hart, 1981).

Fig. 1 shows the position of Carsington in relation to the main Roman sites in Derbyshire. The Roman road leading southeast from Buxton (Aquæ Arnemetiæ) presumably to Derby (Derventio) — Margary's route 71a (Margary, 1967: 311-2) — has now been traced as far south as a point east of Brassington (SK 237548), and it may be assumed to have crossed the upper end of the Henmore (Carsington) valley near Hopton village (Hart, 1981). To the southwest of here, on the west bank of the Scow Brook (SK 252523), fieldwork by K. Maddocks (1968-76), by the Derwent Archaeological Society (1975), and by M. Wildgoose (1977) led to the discovery of a Romano-British settlement of at least five acres (Fig. 2, site A). Attention was then drawn by Mr.

A. Povey of Shiningford Farm, Carsington, to the site which forms the subject of this report (SK 24925165: Fig. 2, site B).

The site, which lies in the angle between the Scow Brook and a tributary stream which flows from the west (O.S. field number 9368), was first recognised in 1975 as a result of ploughing which brought Roman tiles and building debris to the surface. It was surveyed by C. Hart of the North Derbyshire Archaeological Trust in 1978 and was provisionally identified as a Roman kiln complex. The material recovered from the surface included concave pieces of burnt clay which were interpreted as possible fragments of kiln-domes, as well as about two cwt. (100kg.) of tile-fragments of different types (*tegulae,* bricks and flue-tiles). At the same time there was evidence for the presence of a substantial building: several tons of shaped gritstone had to be removed from the field before it could be cultivated.

The unusual nature of the discoveries in the context of North Derbyshire prompted further investigation, and in September 1979 a resistivity survey was conducted by C. Samson of the University of Sheffield's Department of Prehistory and Archaeology. This survey, carried out over two 20-metre squares where the greatest concentration of surface-finds had been recovered, revealed anomalies and led to trial trenching of the site, under the direction of one of the authors (T. C.), in November 1979. Although the anomalies indicated by the resistivity meter proved to be no more than natural variations in the subsoil, positive results were obtained in an area immediately to the east. The second author was therefore invited, as part of an inter-university programme covering both the Roman sites threatened by the Carsington reservoir, to direct a full campaign of excavation in July-August 1980.

The results of this excavation were of considerable interest and indicated the desirability of further work; but it has so far proved impossible to raise the necessary funds. It has therefore seemed worthwhile to publish a report on the results achieved to date. In doing so we are conscious of our debt of gratitude to the three sponsoring bodies already mentioned, and notably the Severn-Trent Water Authority, which supplemented its financial assistance with invaluable material aid. Thanks are also due to Mr. Povey, who kindly helped to transport huts and equipment to the site, and who took a continued interest in the progress of work. The writers are also indebted to Stephen Pierpoint, David Woodall, Susan Reynolds and Mark Blades, who acted as site supervisors; to Lesley Ling, who organised the pottery shed in 1980; and to the innumerable volunteers, both full-time and part-time, without whom the excavations could not have taken place.

THE EXCAVATIONS (Figs. 3, 4)

The trial trenching in 1979 was restricted by available finance and hampered by poor weather; but it revealed what was apparently a rectangular building about 9.5m. wide running roughly north-south with an internal partition-wall meeting the west wall in a butt-joint (trenches II, V, VI). Sterile trenches to the south and north of the building (III, IV) defined the upper limit of its length as 38m.

In 1980 the first two trenches to be sunk were a 10m. square sited over the centre of the building with the purpose of examining the area round the junction of the internal wall and the east wall (trench VII); and a cutting 10m. by 5m. designed to locate the northern end of the building (VIII). When this second trench proved barren, the area between it and the 1979 trenches II and VI was opened up to a width of 10.5m. (IX); this area fell short of the north wall, which was finally exposed in a section of the baulk between VIII and IX. The last main trench (X) was a westward extension of VII, incorporating part of trench V and the area to the north of it. Finally three small cuttings were opened to check or confirm details: (1) a narrow cutting to establish a link between X and the eastern arm of II, (2) another narrow cutting to the south of VII, to locate the south wall of the building, (3) a small extension at the corner of IX to expose the northwest corner of the building.

It proved impossible to identify more than one phase of construction or occupation in the history of the building (except possibly in the northeast corner-room), although

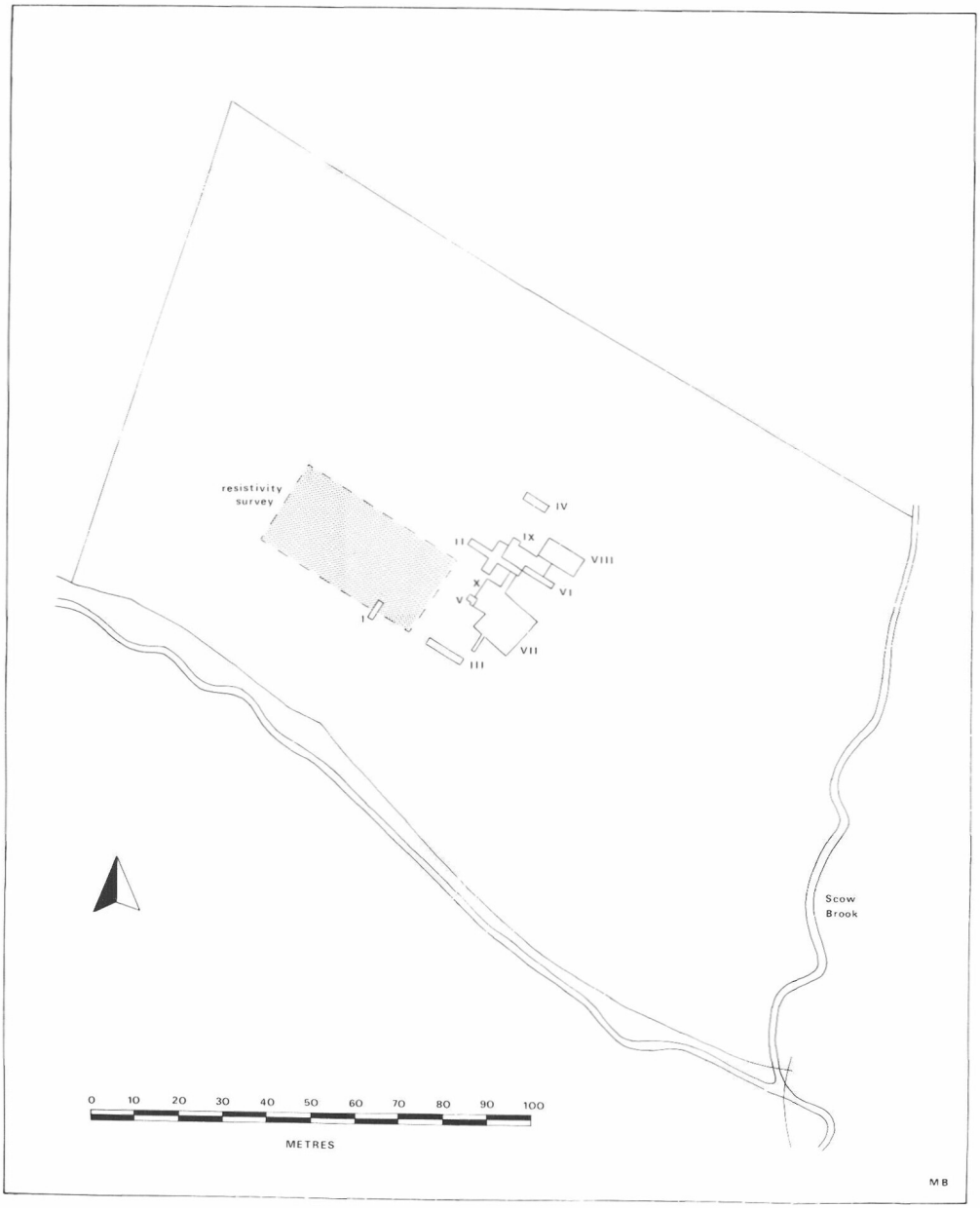

Fig. 3 Carsington Site B, 1980: plan of trenches.

there was evidence of activity on the site before the building was erected. The evidence of earlier activity was, however, patchy and could not be related to any visible structures; so it will be best to describe the known building first and to consider the earlier features afterwards.

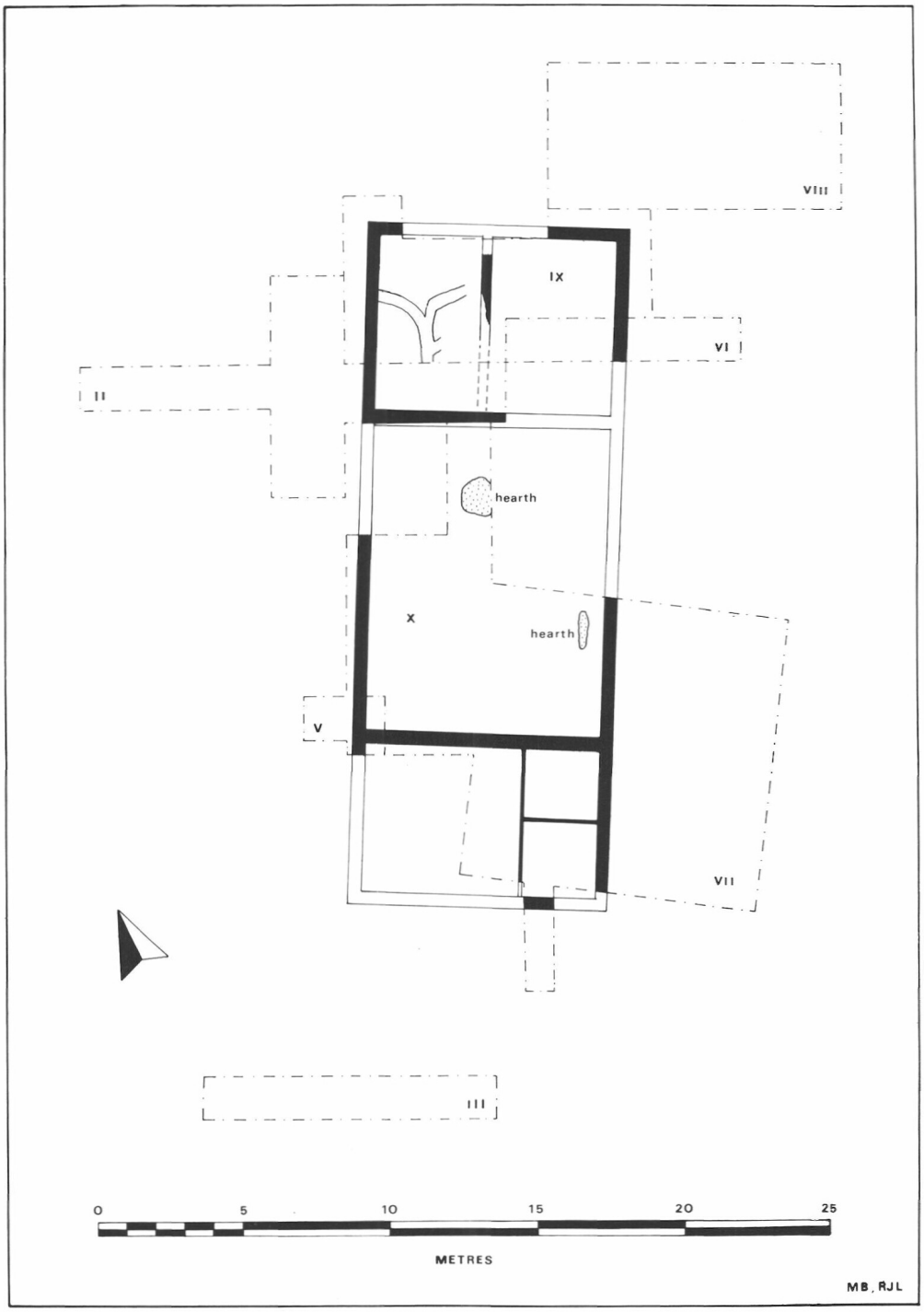

Fig. 4 Carsington Site B, 1980: plan of building, reconstructed.

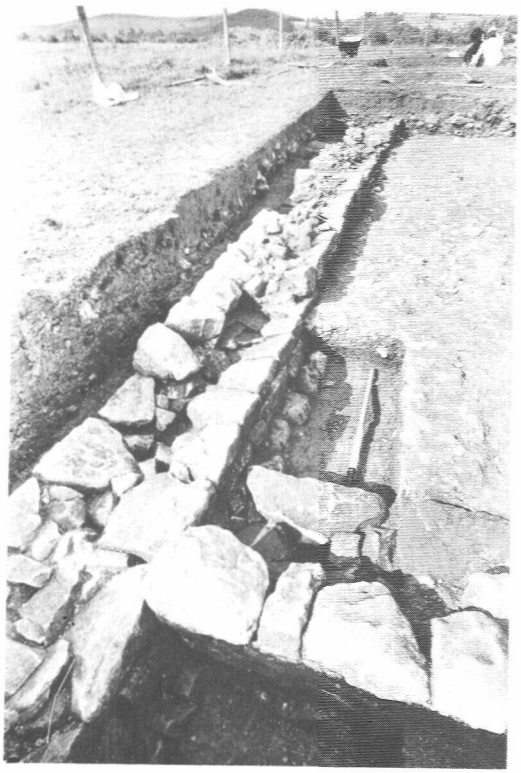

Plate 1 Carsington Site B, 1980: view of west wall of building, looking northwards (trench X). (Photograph Sheffield Newspapers Ltd.)

Plate 2 Carsington Site B, 1980: wall junction at southwest angle of room C, showing offset foundation of cobbles and coursed masonry above (trench V/X). (Photograph R. J. Ling)

GENERAL DESCRIPTION OF THE BUILDING (Fig. 5)

The basic building materials are sandstone and gritstone. Although the site itself lies on boulder clay and gravel, there are sources of Millstone Grit immediately to the east beyond the Scow Brook (the hills round Callow), and it is worth noting that a disused quarry is marked on Ordnance Survey maps less than 800m. east of our site at Warrington Knob (SK 2566 5188).

The building formed a rectangle 9.2m. wide and 23.8m. long. Its external walls, which were best preserved in trenches V and X, where they remained standing two or three courses high (Plates 1 and 2), rested upon foundations from 60 to 80cm. deep of small riverine or glacial limestone and sandstone boulders set in sand and clay. These footings were over 70cm. wide, whereas the visible part of the wall measured only 58 or 59cm.; the difference of 10cm. or so was accommodated by an offset on the inside face. The faced masonry above the foundations was formed by large stones of different shapes and sizes, but set so as to create regular courses on the exterior, while the core was filled with small rubble. No mortar or clay seems to have been used to bond the structure, the cracks being packed merely with a stiff loam. Given the lack of mortar and the comparative thinness of the walls, it is at first sight difficult to believe that they were carried to their full height in stone and did not simply form a basis for a half-timbered superstructure. But the volume of stone debris recovered in the vicinity of the walls and in the ploughsoil above, combined with the potential weight of the roof (the stone slates, for example, weighed from 3.5 to 5kg. each) tends to argue for construction entirely in stone.

Two forms of roofing are represented by abundant fragments: (1) diamond-shaped sandstone slates, 1.5 to 3cm. thick and 35 to 40cm. long, perforated by a nail-hole at one tip (Plate 7); (2) a standard Roman system of terracotta *tegulæ* and *imbrices*. As both the slates and the terracotta tiles occurred in the debris in every area of the excavation, it proved impossible to determine which parts of the building were roofed in which way, or indeed if one of the two types of roofing was extraneous. Given the unitary plan of the building, one would expect a single form of roofing, and it is possible that either the slates or the tiles were re-used materials from an earlier structure (for some re-used fragments of tiles in the west wall see below).

The interior was divided into three parts by east-west cross-walls of roughly the same width, and constructed in the same technique, as the exterior walls. From north to south, the three areas measured respectively 5.6m. (the partition wall was neatly bisected by the southern section of the 1979 trench II), 10.4m., and 5.4m. The fact that the more southerly partition wall ended against the external walls in straight joints (the relationship of the masonry at the wall junction in II could not be studied owing to stone robbing) raises doubts about the contemporaneity of the two; but it is safest, in view of the virtual identity of building techniques, to assume that all the walls were part of the same phase. The only anomalous feature was the inclusion of reddish (fire-reddened?) sandstone slices in the southern partition wall. A concentration of such slices by the junction with the east wall perhaps indicated the presence of a doorway of which they formed the threshold.

The parts of the trenches which lay outside the building revealed no unequivocal features. The area to the east was totally barren, as were the surfaces exposed in trenches I, III, IV, and VIII. The only potentially interesting deposit was a clay and pebble surface against the west wall in IX, possibly the floor of a verandah, or possibly the edge of a yard or driveway.

The internal arrangements of the building are best considered area by area.

NORTHERN PART OF THE BUILDING

The chief feature of this area was an underfloor heating system surviving in the north-west corner (room A) (Fig. 6; Plate 4). This was incomplete, as the southern part had been destroyed by the 1979 trench II, and the eastern part had been removed by the robbing of the wall which separated it from room B. The hypocaust channels varied in width from 18 to 25cm. and were about 40cm. deep, being lined by irregular blocks of

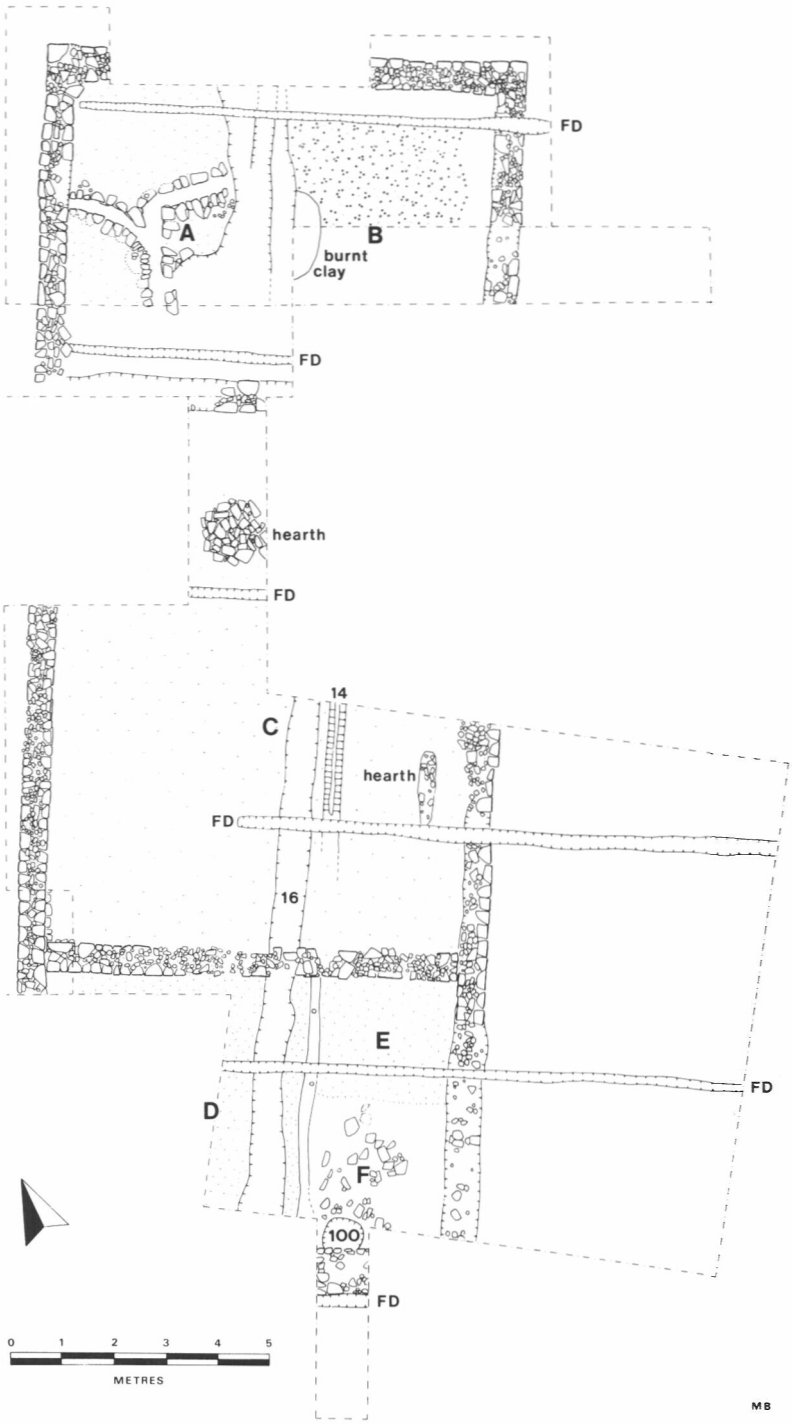

Fig. 5 Carsington Site B, 1980: detailed plan of excavations. (FD — field drain)

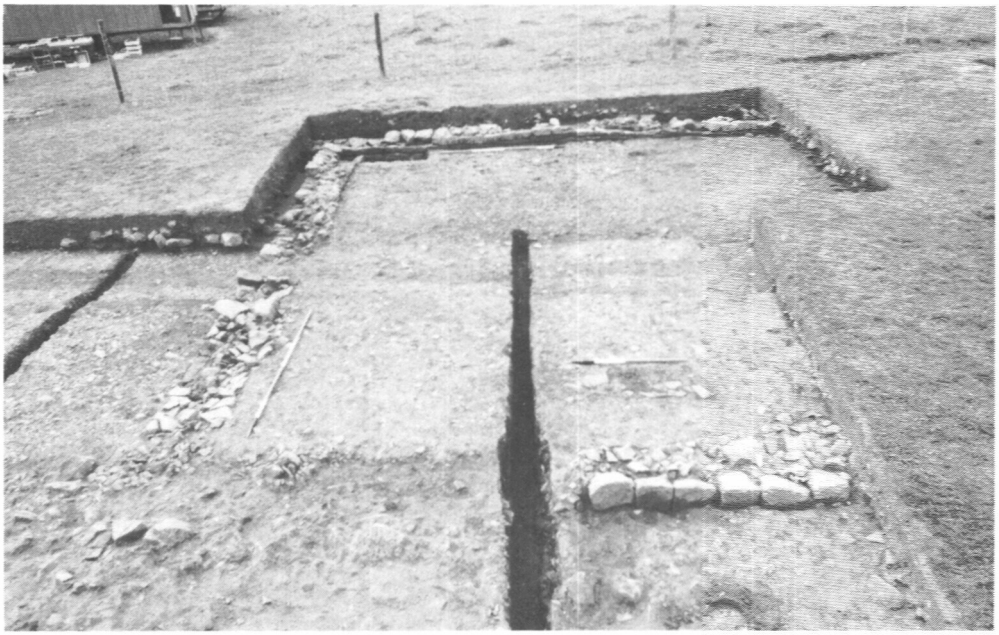

Plate 3 Carsington Site B, 1980: general view of central part of building from the east, before the robber trench of the east wall in the foreground was fully excavated. (Photograph R. J. Ling)

Plate 4 Carsington Site B, 1980: underfloor heating channels in room A, from the east before excavation. (Photograph R. J. Ling)

stone two courses deep. The upper course was particularly irregular, consisting both of large blocks laid horizontally and small slices set on their sides. The part of the system exposed consisted of an L-shaped passage with its main arms leading south and east, a curving subsidiary arm leading off to the east wall, and the beginning of another arm leading off to the west. The spaces round the channels were packed with a thick deposit of clay containing patches of debris. The filling of the channels contained fragments of flue-tiles, as well as sandstone slices which had perhaps belonged to a pavement above. The floor-level over the hypocaust was considerably higher (60 to 70cm.) than the levels in room B and the remaining areas of the building. Further fragments of flue-tiles occurred in profusion in the layers above the hypocaust area.

The area to the east of the hypocaust (room B) was not fully excavated, owing to adverse weather. Its floor was surfaced with small pebbles; the central part formed a depression blackened by ash, and the whole surface was overlain by thick deposits of sandy material and clay showing traces of burning. It would be tempting to interpret this area as containing a *præfurnium* which heated the hypocaust: there was a particularly intensively burnt patch of clay at the west side of the room. But the overall function and history of this northeastern 'room' must remain uncertain. Set into the sandy material at a higher level was a coarseware cooking jar, the lower body of which

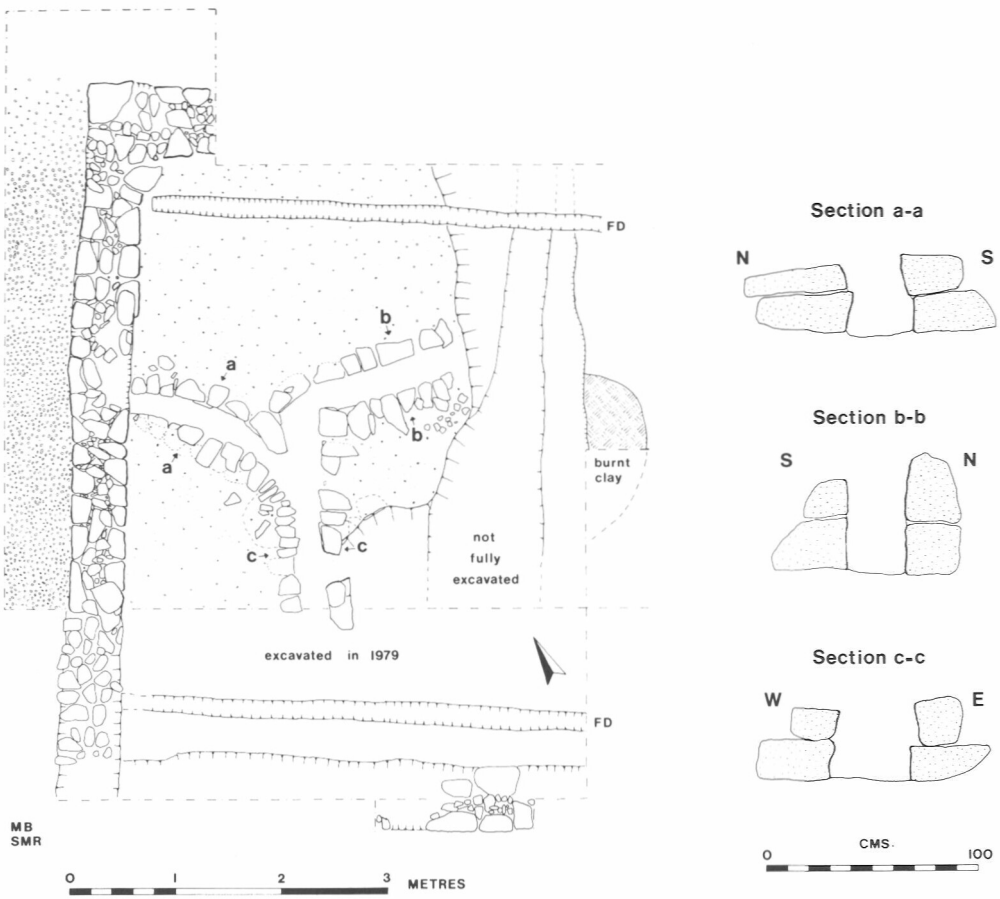

Fig. 6 Carsington Site B, 1980: plan and sections of underfloor heating flues. (FD — field drain)

was recovered complete and the outer surface of which showed considerable evidence of scorching (Plate 6); so it is possible that part of the space was, at a later stage, used for cooking.

To judge from the robber trench, the wall separating rooms A and B was much narrower than the main walls, with footings only about 38cm. wide.

CENTRAL PART OF THE BUILDING (Plate 3)

This was the largest part of the building, and, so far as could be judged from the area exposed, was undivided, with a floor surface consisting of a dirty clay-and-pebble layer. In addition to the possible doorway at the east end of its south wall, there may have been another doorway near the middle of the west wall, to the north of what looked like a return face in the third course of masonry. The only other noteworthy features of the room, were two hearths floored with sandstone slices. One just inside the west wall formed a slight depression about 1.4m. long and 30cm. wide; the other, in the northern part of the room, was a flat, circular area about 1.2m. in diameter (Plate 5). In both cases (especially the second) the surrounding and underlying clay had been fired red by the heat. For evidence of earlier activity in this area see below.

SOUTHERN PART OF THE BUILDING

At least three rooms were detected, separated by timber-framed walls. In the northeast corner room E was approximately 2.4m. by 2.6m., floored with a layer of yellow clay incorporating large pebbles. To the west of this and presumably occupying the whole southwest corner of the building was a floor (room D) of finer pebbles set in brown earth and overlain by flecks of red material resembling burnt daub. This same red material continued in a thin layer in the narrow space between the stone partition wall and the southern edge of trench X; it was assumed to be the collapsed daub from the timber-framed partition to the west. This partition was carried in a slot about 14cm. wide and 7cm. deep, with post holes about 6cm. in diameter visible at two points (80cm. from the stone wall, and lm. further along)

The third room (F) extended south of the first room as far as the south wall of the building, forming an area approximately 3m. by 2.6m. Here it proved impossible to find a floor surface; the level which might have been expected to yield a floor was formed of a comparatively thick and very irregular deposit of clay and large building debris, many blocks of which jutted from the surface. Beneath it was a rough, pebbly layer which again gave no appearance of having been a floor.

FEATURES PRE-DATING THE BUILDING (Figs. 7, 8)

Only in two areas were the levels inside the building excavated to the natural subsoil: (1) room A, (2) the central room (C), where about one-third of the estimated floor area was stripped.

The main early features were hearths or similar signs of burning. Near the centre of room C, neatly bisected by a field-drain cutting, were two large superimposed areas of burnt clay separated by a layer of unburnt clay. These must be interpreted as belonging to two successive phases preceding the stone building, since the higher of the two levels was cut by the footings of the walls. Other areas of burning, two of which (69 and 106) were contemporary with the later of the superimposed 'hearths' (the relationship of the third was uncertain), were found a short distance to the north and northwest. There were in addition traces of ash deposits beneath the clay build-up of the hypocaust room (A).

No structures could be associated with these areas of burning, but the presence of fragments of tiles incorporated in the core of the west wall at one point implies the existence of an earlier building. The few scattered mosaic tesseræ from the site (Appendix 8) point the same way, since half of the finds occurred in the make-up layers for the floors in rooms C and D. Similarly, if pit 100 in room F antedates the stone building (a relationship which could not be established for certain), the fragments of window-glass (Appendix 7) are also ascribable to an earlier structure. In addition there

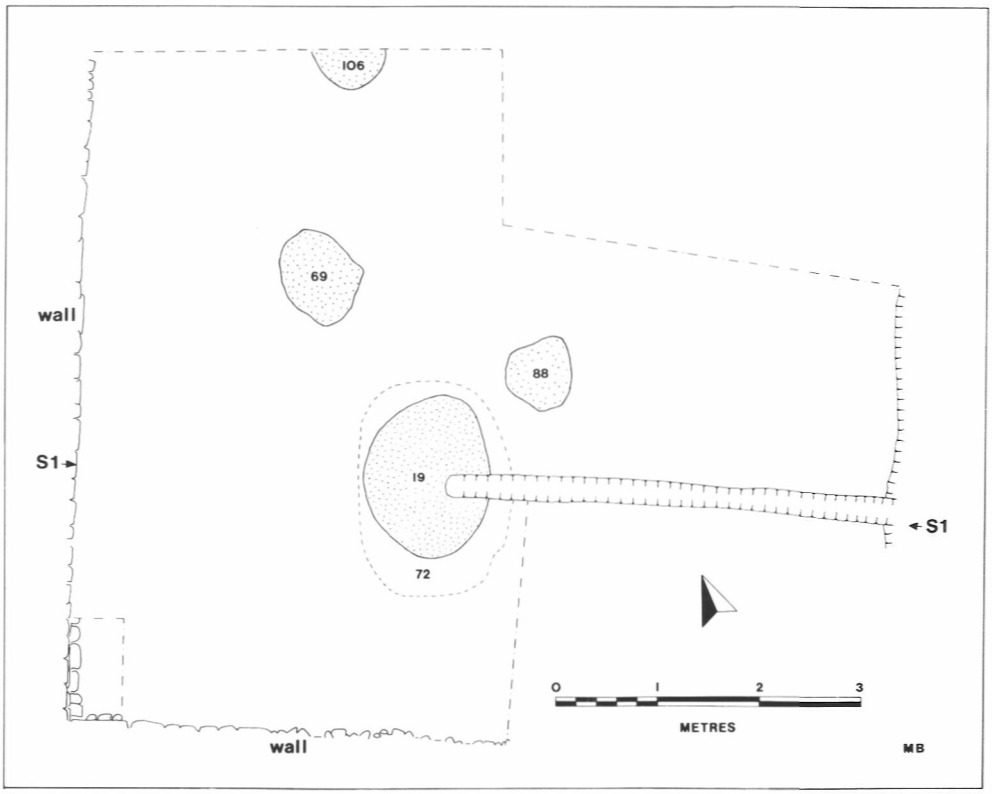

Fig. 7 Carsington Site B, 1980: plan of levels beneath room C.

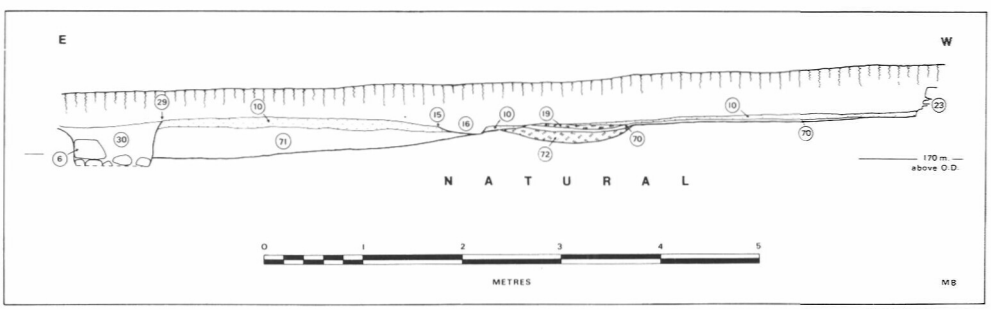

Fig. 8 Carsington Site B, 1980: section S1.

were numerous fragments of what appeared to be burnt daub (or in some cases much degraded tiles) incorporated in layers ante-dating the main building, for example in the layers underlying the clay and debris deposit in room F, in the layers beneath the floor of room E, and in the build-up for the floor of room C (Fig. 8, layers 71, 70 and 10). Nails sealed by the floors (Appendix 3) are less conclusive, since they could have been dropped in constructing the new building, before the floors were laid, rather than being survivors from an earlier structure.

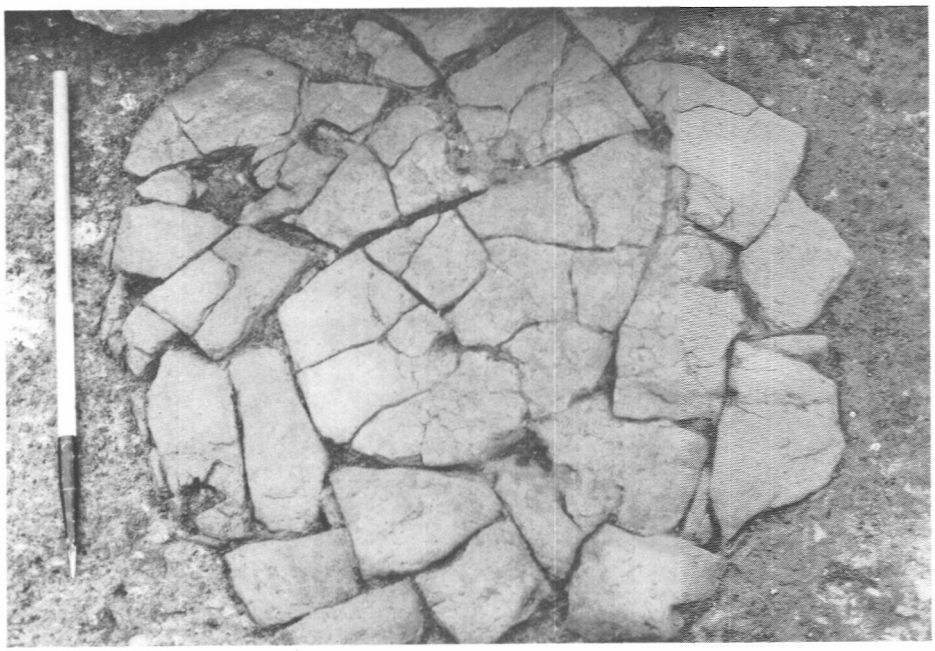

Plate 5 Carsington Site B, 1980: circular hearth in northern part of room C. (Photograph R. J. Ling)

Plate 6 Carsington Site B, 1980: lower part of jar embedded in surface above floor of room B. (30cm on scale) (Photograph by R. J. Ling)

FEATURES POST-DATING THE BUILDING (Fig. 5)

Features which post-dated the building are:

(1) a gully or similar linear feature, up to 15cm. deep and varying in width from 50 to 60cm., which ran north-south across trench VII, cutting through the floors of rooms C and D, as well as the intervening wall (Fig. 8, no. 16). Perhaps contemporary with this was a shallower and narrower gully immediately to the east of the first which could be traced across the floor of C and seemed to have disturbed the wall, but was not observed further south (Fig. 5, no.14). The only dating evidence recovered (a clay pipe-bowl) suggested a post-medieval date (Appendix 2).

(2) a series of field-drains which ran eastwards across the site at intervals of about 4.5m., beginning within the building and heading down the slope to the Scow Brook. The type of drain-pipe used, irregularly formed and horseshoe-shaped in section, indicates an eighteenth-century date.

DATING AND INTERPRETATON

The dating of the site is rendered problematical by the shortage of securely stratified and closely datable pottery, but a broad range is suggested by the finds from the upper layers. These imply occupation from the mid second century to the fourth. For the earlier limit the crucial evidence is provided by a few scraps of Central Gaulish samian ware (Appendix 4). The remaining material belongs exclusively to the third and fourth centuries (pp. 78-80), and the one coin discovered (p. 76) is datable to238.

It is very unlikely that the stone building itself, which shows no sign of prolonged occupation or structural modifications, continued in use for a long period, and we should best date it late in the history of the site, assigning the earlier material to the phases of occupation which preceded it (p. 68f.). A closer *terminus post quem* is suggested by the fourth-century Castor ware beaker from pit 100 (p. 80, no. 11), which was probably (but not certainly) cut by the foundations of the south wall. Some other pieces sealed in or under the floors may also belong to the fourth century (e.g. p. 80, no. 7). As regards the end of occupation, the building seems, from the amount of debris discovered, to have been abandoned to a slow ruin. There is no sign of violent destruction.

The nature of the finds, especially the abundance of cooking- and storage-vessels, but also the fragments of glassware and fine table-wares, suggests that the building was essentially a domestic one. The plan and size correspond closely to those of a number of small villas in the south and west of the province (see below), and we can guess that the staple activity in which the owner engaged was farming. The discovery of a spindle-whorl (Appendix 2, no. 1) suggests that at least some wool production took place.

This does not of course exclude other activities, such as tile production (as originally suggested by the field survey) or lead-working. Tile production would be eminently practicable in the Carsington valley, with its abundant supplies of boulder clay, and indeed a number of clay-pits, now overgrown, are visible in the area. One, 300m. to the southwest, was producing bricks for local use in the late nineteenth century. But the main argument for tile production is merely the large quantity and range of tiles discovered: no kiln has been identified, and no obvious wasters have turned up. Moreover the fragments of baked clay collected in the field survey and thought to belong to kiln-domes would be inappropriate to a *tile*-kiln, since domes are unattested in examples so far excavated in Roman Britain (McWhirr, 1979). The distribution of our tiles is also meaningful (Appendix 6). Almost all the fragments have come from the area of the building and its debris; there was very little spillage beyond. Within the building the *tegulæ* and *imbrices* were fairly evenly spread, but the box-tiles predominated at the northern end and especially in the vicinity of the underfloor heating system, a factor which strongly suggests that they were functional. Finally the tiles belonged to at least three different fabrics and were evidently manufactured in different areas. There are thus no positive grounds for believing that tiles were made on the site at all.

Nor is there any clear evidence for lead-working. Apart from a droplet of melted lead in the topsoil, no pieces of the refined metal were found. Several small fragments of lead

ore (galena) in degraded limestone turned up in various levels, mainly in disturbed contexts such as the filling of robber trenches (mostly in the area of the northern part of the building: a total of about 620gm. in the 1979 excavations and about 600gm. in 1980); but such fragments occur at most Romano-British sites in the White Peak, and they could perhaps have found their way to Carsington in association with building stone. Till an actual lead-working hearth or other unequivocal evidence is discovered in the vicinity of the building, it is best to reserve judgement on whether lead-working took place.

Whatever its economic basis, the building is remarkable in its context for the quality of its construction and the nature of the amenities with which it was provided. At the twenty-two other Roman sites recorded in the White Peak (information from Martin Wildgoose) the buildings, where known, are circular huts or at best sub-rectangular cottages, like the aisled building at Roystone Grange (Hodges and Wildgoose, 1980: 50f. and this volume). Only at Carsington is there a well-built stone structure with a rectangular plan and a number of clearly defined rooms. Furthermore it seems that this building, or a predecessor, had window-glass (Appendix 7) and patterned pavements (Appendix 8).

Still more remarkable (and problematical) is the underfloor heating system in room A. This has been termed a 'hypocaust' in the description above, without any intention of prejudging the issue of whether it served an agricultural or industrial purpose, or whether it was designed simply to provide domestic heating. In a farm the natural interpretation of such a unit would be a 'corn-drier' (or, as recent research would term it, a malting-oven). But such installations are at present confined to the south and east of Britain, and our hypocaust is rather more elaborate in plan than the normal 'corn-drier' (cf. Morris, 1979: 5-22, Figs. 1-28). Moreover the abundant remains of box-tiles from room A, including pieces in the channels and in the robber trench of the party-wall between A and B, are inappropriate to a corn-drier, since they imply greater heat than would be necessary for drying or malting. As Morris observes (1979: 15), 'no evidence is found of multiple wall flues even where the corn-drier is in a masonry building; . . . the emphasis is on heating the floor'. If our heating system was a corn-drier, it was obviously anomalous. It is worth adding that there were no traces of grain in the channels.

A second possibility is that the hypocaust had to do with an industrial process. It is difficult to think of a metallurgical process which it could have served, but one wonders whether underfloor heating might have been used in connection with tile-manufacture. This would tie in with the theory already mentioned and might at the same time account for the box-tiles in the room. But, as we have seen, the idea that tiles were produced on the site cannot readily be sustained, and in any case there is no parallel for the use of a channelled hypocaust in tile-manufacture: it could never have generated sufficient heat for a kiln (and there was no trace of scorching on any of the stones lining the channels), while the drying of the moulded tiles before firing did not require artificial heating, since it had to be done slowly to avoid differential drying, and so cracking (McWhirr and Viner, 1978: 363). Driers were certainly used for pottery, as opposed to tiles (Young, 1977: 20-3); but there is absolutely no evidence of pottery manufacture on our site. Nor would wall-flues have been any more likely in a pottery drier than they were in a corn-drier.

We are left with the possibility that the hypocaust was a true *hypocausis* for a living-room or bath-chamber. Here again there are problems. Such a hypocaust would be an almost unique amenity for a civilian building in the upland area of Britain, and it is in any case oddly situated in an otherwise unexceptional room at one corner of the house. Moreover there is no sign in the room, or in any other room, of wall-plaster, a feature which is almost a *sine qua non* of the living standard implied by domestic underfloor heating (and one which would be desirable in a bath-chamber, at least, to protect the fabric of the walls from steam). It is also slightly surprising that the level of the floor in this heated room was considerably higher than in the central room (C), though a possible explanation here might be that the hypocaust was a secondary feature, in

which case the simplest installation procedure would be to build it above the pre-existing floor.

All these objections notwithstanding, a domestic heating system seems to accord best with the evidence. The finding of mosaic tesserae and window-glass betokens a fair level of comfort on the site, whether in our house or in a predecessor; and, though the absence of wall-plaster is strange, it should not be allowed to tilt the balance against the other evidence. The crucial factor is the presence of wall-flues, which are in a sense a much more sophisticated element than wall-plaster. Wall-flues, by creating a draught, would provide more heat than was necessary, or could be coped with, in tile-drying or in any agricultural process; but in a domestic context they would be quite normal. It makes best sense, then, to see the system as a simple and somewhat crude version of a domestic hypocaust, a poor relation of those in the military bath-houses of the Pennines and in the towns and villas of the East and South Midlands. Hypocausts do in fact occur at one civilian site in the Pennines, namely the villa at Kirk Sink, near Gargrave in west Yorkshire (Wilson, 1970: 281, and 1974: 417). So our example would not be unique; and perhaps wall-plaster was a refinement which the owner or occupant meant to add later, but which for one reason or another he never managed to provide.

In plan, as already stated, the closest affinities are with the first phase, datable to the fourth century, of a number of Roman villas in the south and west of the province (for instance Frocester Court), which began as rectangular buildings roughly the same size as Carsington and with a large central living area, like our room C, occupying the full width of the house (Smith, 1978: 137-141, Fig. 45). In each example, as at Carsington, this central room contained hearths or ovens. In addition to those villas which certainly began as simple rectangular farm-houses of this kind, others may have done so (for instance Barnsley Park and Spoonley Wood), and the central living hall was of course a standard feature in medieval times, as in Tatton Old Hall, Cheshire. There are, however, to our knowledge, at present no examples of this type of plan in northern Britain: the superficially similar second-century cottage at Holme House near Piercebridge (Wilson 1971: 251 f., Fig. 5) lacks the dominant central living-room and is in no true sense a parallel. Once again the Carsington building appears anomalous in its geographical context.

More important, it may not have been the only building on the site. The excavation inevitably concentrated on the well-preserved masonry structure, but we have already seen that there is evidence of an earlier building on the same site or near at hand, and there is every chance that further structures remain to be discovered to the north and west, i.e. away from the slopes which run down to the two streams. The land here forms a rough platform, and it is attractive to regard our house as standing on one side of a yard, with further buildings on the other sides. Although stonework has not been ploughed up elsewhere in the field, this does not exclude the presence of remains at a deeper level, or for that matter the existence of structures in timber. Further excavation is needed to test these possibilities.

In this absence of a wider knowledge of the site, it would be rash to speculate too far about the ownership, economy and affiliations of the establishment. The house was obviously inhabited by someone with a certain degree of wealth and standing: in addition to the amenities already noted, for example, there is no indication, as in many working farms, that part of the interior was given over to livestock. At the same time the plan suggests family working, since the corridor which is the normal hallmark of social segregation (Rivet, 1969: 199, 205) is lacking. Presumably the establishment was dependent, in a market sense, on the settlement 600m. upstream, possibly the lead-industry centre Lutudarum (see below). Whether there was any closer link, economic or bureaucratic, it is of course impossible to say; but the affinity with architectural forms in the southwest is interesting. Hodges and Wildgoose have argued elsewhere in this volume that the plan of a second-century farm at Roystone Grange may indicate the arrival of colonists, perhaps attracted by the rewards of lead-prospecting, from the East Midlands. Although the situation would be very different in the late-third and fourth centuries, it is not impossible that our householder had affiliations with the southwest.

Could these affiliations have anything to do with the lead-fields of the two regions and more especially with the lead-pewter industry which developed in Somerset in the third and fourth centuries (Elkington, 1976: 196-7)? It is again impossible to know; but that *entrepreneurs* in the lead industry moved between different lead-producing areas, at least in the first century, is demonstrated by the cases of C. Nipius Ascanius, whose name occurs on lead pigs from both the Mendip and the Flintshire fields, and of Tib. Claudius Trif(erna), named on pigs from the Mendips and Derbyshire.

CARSINGTON AND LUTUDARUM

The question arises whether the sites at Carsington are to be identified with the Roman lead-mining centre, Lutudarum. In the absence of epigraphical evidence from the excavations no firm answer can be given, but there is a strong *prima facie* case for the identification.

Information about Lutudarum derives from two sources: (1) inscribed lead pigs, (2) the *Ravenna Cosmography.*

(1) At least twenty-seven lead pigs have been attributed to the Derbyshire lead-field and of these 21 (some from identical moulds) carry the abbreviation 'LVT' or a variant (cf. Dool and Hughes, 1976; Rivet and Smith, 1979: 403). The earliest examples, datable probably to the time of the emperors Vespasian and Titus (Cockerton, 1959), name a lessee of mining rights followed by the phrase 'BRIT.LVT.EX.ARG.' or 'LVT.BRIT. EX ARG.' In a number of other stamps we find the formula 'SOC.LVT.', or 'SOCIOR.LVT.', or 'SOCIORVM LVTVD.', referring apparently to a company, the 'Socii Lutudarenses' (or 'Societas Lutudarensis'), which had bought the contract to work the mines. Later, under Hadrian (or earlier), the company disappears but the abbreviation remains in the formula 'MET.LVT.', or 'METAL.LVTVD.', or 'METALLI LVTVDARES.' ('metalli Lutu-dare(n)sis', or 'metallis Lutudare(n)sibus': 'from the Lutudarensian mine or mines').

(2) One of the groups of places given in the British section of the eighth-century gazetteer, the *Ravenna Cosmography,* includes the name 'Lutudaron'. The full group (106, 43-7) is 'MEDIOLANO. SAUDONIO. DEVA VICTRIS. VERATINO. LUTUDARON. DERBENTIONE. SALINIS. CONDATE'. Of these Deva Victris (i.e. Victrix) is identifiable from numerous sources as Chester, while Mediolano (Mediolanum) and Condate can be identified from the *Antonine Itinerary* as respectively Whitchurch and Northwich (Rivet, 1970: 42f., 53). It is therefore clear that at least part of the group is focussed in Cheshire, and Salinis (Salinæ) is obviously one of the Cheshire salt-producing centres, probably Middlewich (where Roman salt-works have been excavated). But Derbentione (i.e. Derventio) can in the context only be Littlechester (Derby), which lies on the Derbyshire river Derwent. Saudonio and Veratino are mysterious items; the latest study on the place-names of the *Cosmography* dismisses the former as an irrelevant interpolation and suggests that the latter is a textual corruption from 'Vernemetum', identified with the Roman settlement near Willoughby in south Nottinghamshire (Rivet and Smith, 1979: 415, 495). It is perhaps best to reserve judgement on these issues and concentrate on the more securely identified places, which would imply that Lutudaron is to be sought in Cheshire or Derbyshire.

Combining this inference with the evidence of the lead pigs, we reach the following conclusions: (1) there was a place called Lutudarum (the ending '-on' is probably due to *Ravenna*'s use of a Greek source), (2) it was almost certainly situated in Derbyshire, (3) it was the administrative or commercial centre of the Derbyshire lead-fields.

The case for Carsington rests on four arguments: (1) its position, (2) the distribution of lead pigs, (3) evidence from the excavations, (4) the lack of an obvious rival.

(1) Carsington lies immediately to the south of the lead-producing area of the Carboniferous limestone uplands (the White Peak); barely 1km. to the north is Carsington Pasture, which is riddled with mines of the eighteenth and nineteenth centuries (Tune, 1975). The Roman road from Buxton to Derby, which has been traced near Brassington (Goodburn, 1978: 430), clearly crossed Carsington Pasture and descended into the Carsington valley not far from the Roman sites. A water-main

trench cut across the paddock north of Hopton Hall in August 1980 neatly sectioned a band of limestone chippings which might have been the make-up for a road-surface (SK 255533), but this is too far east to be on a convincing route for the Roman road. The alignment observed at Brassington (from SK 2286 5559 to SK 2369 5479) and ease of descent would indicate a route close to the modern track at SK 246537, heading for a point just east of the Carsington Roman settlement. If it continued in this direction, there would be a fairly steep gradient on the other side of the valley, but no steeper than the other possible routes, and not much steeper than the descent from Carsington Pasture. Carsington was therefore well placed for the distribution of lead by a major line of communication, and at the same time it was probably the last substantial settlement before the road reached Derby. Although the juxtaposition of place-names in the *Ravenna Cosmography* is often rather arbitrary, there are many examples (e.g. Middlewich and Northwich; Brough on Noe and Buxton) where adjacent places are named together. The name 'Lutudarum', thought to derive from a muddy or clayey stream, would be appropriate enough for a place by the Scow Brook.

(2) The distribution map of lead pigs of Derbyshire origin (Dool and Hughes, 1976: Fig. 1) shows a large concentration in the Matlock and Wirksworth area. Of those with inscriptions including 'LVT' or its variants two are from Matlock Moor, one from Tansley Moor, one from Cromford Nether Moor, and two from Yeaveley, south of Ashbourne. Another pig, admittedly without a Lutudarensian inscription, was found at Owslow Farm (SK 238533), barely 1km. northwest of the Carsington sites. Carsington is within striking distance of all the Derbyshire find-spots and, given its position on the Roman road which crosses the lead-fields, can reasonably be regarded as a collecting and distributing centre. Lead could be sent by road to Derby, or possibly to the nearest point on the Derwent, namely Matlock, for transportation by river. (For an alternative view, see Cockerton 1960: 78f.) A further concentration of finds north of the Humber suggests a trade-route down the Trent and a possible *entrepôt* at Brough on Humber (Petuaria).

(3) It should be emphasised that Carsington will have been primarily a collecting and distributing centre; the smelting of the ore would have been carried out more conveniently and more safely on the uplands, whether in the actual lead-fields or, as in modern times, on the gritstone to the south and east, where timber for fuel was more plentiful (and where most of the lead pigs have been discovered). It was perhaps a kind of cottage industry in those regions: evidence of some lead-mining and working has been found in association with Roman houses at Roystone Grange (SK 200566: Hodges and Wildgoose,1980: 50-2; and in this volume). At the same time there is evidence for lead-working from the Carsington Roman settlements (lead ore and finished articles found by M. Wildgoose in field-walking, large quantities of galena and a lead-working furnace discovered in Professor Branigan's excavations at Site A in 1980), while several fragments of galena also turned up in the excavation site B (see above, p. 71f.). More important, the quality of amenities noted in the building published in the present report and the traces of similar stone-founded buildings at the settlement site imply a degree of wealth and romanisation not otherwise attested in central Derbyshire, a circumstance which is best linked with the organisation and administration of the lead industry. Finally, the date-range of the pottery recovered from the area of the Carsington settlement attests an unusually long period of occupation: from the last quarter of the first century till the middle or late fourth century. The earlier material in particular is suggestive, since ordinary civilian development might not be expected in this region till the second century, whereas the exploitation of the lead-fields had clearly begun under the Flavians. (An early fibula from Rainster Rocks near Brassington (Dool, 1976: 17) is another possible testimony of lead-prospecting in Flavian times.)

(4) There are no clear alternatives for Lutudarum. The names of the Roman sites at Buxton, Brough on Noe, and Derby are known (Aquæ Arnemetiæ, Navio, and Derventio). Chesterfield, as Rivet points out (Rivet and Smith, 1979: 404), is too far to the northeast: the distribution of the pigs unequivocally indicates a site at the southern edge of the lead-fields. It is possible that another site will turn up in the Matlock or

Wirksworth area, but at the moment none is known, and under these circumstances Carsington remains the strongest candidate.

THE FINDS (APPENDICES 1-8)

The writers are grateful to the experts who have identified or written reports on the finds, as acknowledged below. Further thanks are due to Miss Pauline Beswick and Sheffield City Museums for carrying out conservation on the coin and three bronze finds, and to Dr. W. H. Manning and the Department of Archaeology, University College, Cardiff, for performing a similar service with some of the ironwork. Finally, thanks are due to Mrs. S. Osmond for the drawings of pottery and tile-stamps.

APPENDIX 1. COIN (Identification by R. Reece)

BALBINUS, A.D. 238. Copper *denarius. Obv.* bust right, laureate, draped, cuirassed. IMP.C.D.CAEL.BALBINVS AVG. *Rev.* emperor, togate, standing left, holding branch and short transverse sceptre. P.M.TR.P.COS.II P.P. (Cf. Mattingly, Sydenham and Sutherland, 1938: 169, no. 5.) Worn, chipped at one edge. X (topsoil).

APPENDIX 2. MISCELLANEOUS SMALL FINDS (Fig. 9, Nos. 1-5)

1. Pottery spindle-whorl, hole slightly off-centre. Coarse gritty grey fabric, slightly curved; presumably made from a potsherd. VII (topsoil).
2. Small bronze stud with concave head. VII (topsoil).
3. Hook-shaped bronze object, rectangular in section, with a bulbous attachment at one tip; apparently broken off at both ends. The function is unknown and the orientation in the drawing is arbitrary. Perhaps a handle from a bronze vessel or lamp? VII(2): debris above building.
4. Dome-headed stud with rectangular shank; the head partly broken at one side. VII(2): debris above building.
5. Fragment of clay pipe bowl; stamp CB in relief in circle on heel. Unknown maker, between 1650 and 1700 (dating by R. C. Alvey). VII(16): from gully cut across floors of rooms C and D.

APPENDIX 3. IRONWORK (Fig. 9, Nos. 6-7) by W. H. Manning

1. Fig. 9, no. 7. Spatulate, almost rectangular blade with short, broken tang. Length 11cm. Corrosion makes it uncertain if the front edge was ever sharpened. IX (topsoil). The function of this piece is not immediately obvious. A generally similar, blunt tanged blade comes from the Claudian fort at Hod Hill, Dorset (Brailsford, 1962: 14, Fig. 12, G14) where it was tentatively, and almost certainly incorrectly, identified as an awl. More probably such tools are either broad-bladed smoothing chisels or spatulate blades of the type which might have been used by a smith for adjusting the hearth fire. Iron pokers which end in similar blades are known in the late Iron Age (Jacobi, 1974: 101, 292, Taf. 30) and occasionally appear in Roman contexts in Germany (e.g. from Hüfingen: Revellio, 1937: 44, plate XIII, 15). The chief objection to this blade being the tip of a wooden-hafted poker is the obvious one that the haft would be likely to be burnt by the heat of the fire. In the absence of a better preserved example of the type, which would show if the blade was edged or not, the question is best left open.
2. L-shaped wall-hook with square-sectioned arms. The longer arm may be broken. Length 10cm. VII (2): debris above building. This is an unusually stout example of a common type. Others are published from the Gadebridge Park villa (W. H. Manning in Neal, 1974: 177, Fig. 74, 520 & 521; 184, Fig. 77, 640) where other examples are cited.

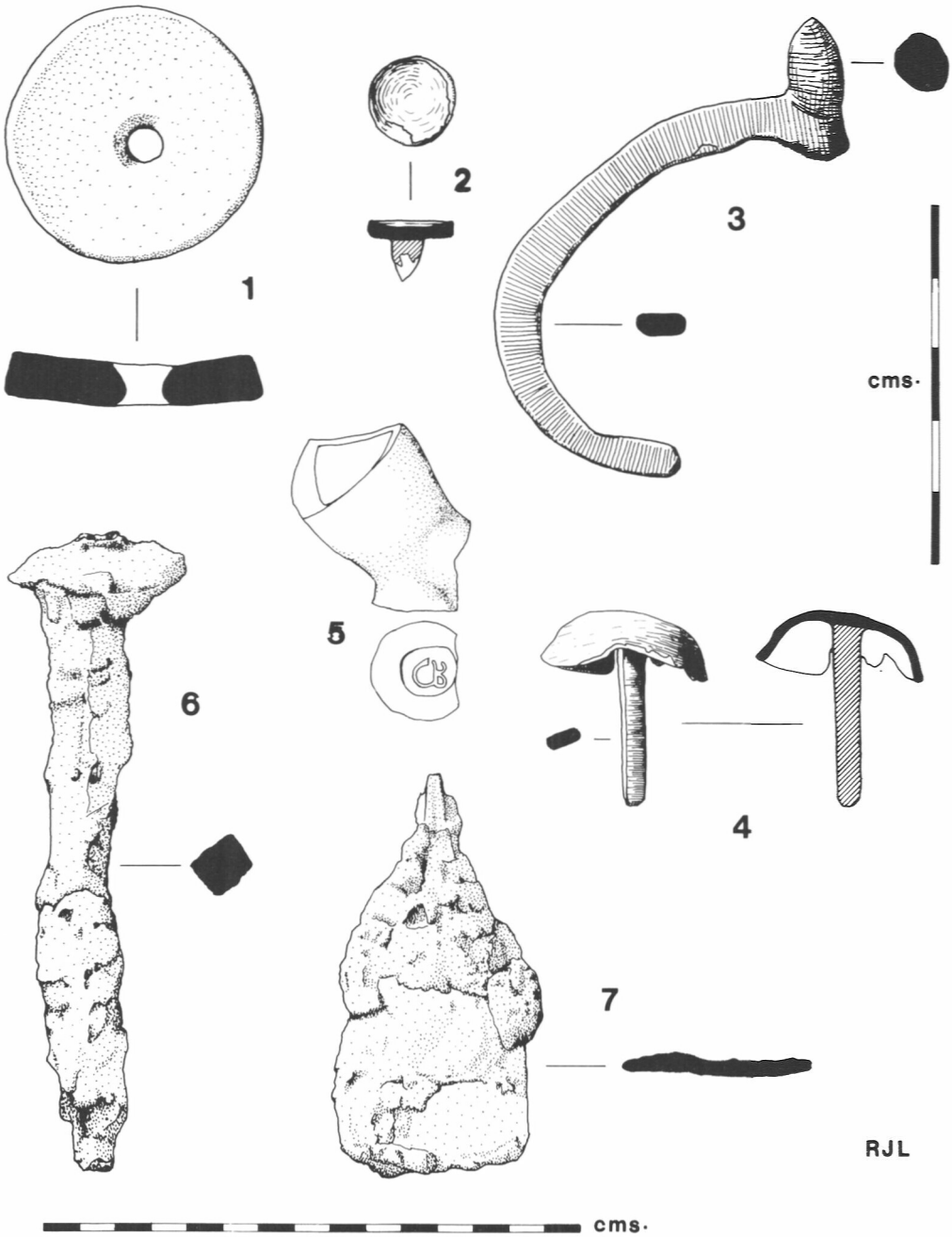

Fig. 9 Small finds from Carsington Site B. Nos. 1-5 at 1:1, and nos. 6, 7 (iron) at 1:2. Nos. 6 and 7 drawn before conservation.

3. Fragment of curving and slightly tapering bar, possibly from a hook. Length 6.4cm. VII(2): debris above building.
4. Fragment of bar cut at one end. Length 4.7cm. IX (79): from robber trench of wall between rooms A and B.
5. Fig. 9, no. 6. Very large Class I nail, its tip lost. Length 17.7cm. Type I nails are the commonest form of Roman nail (W. H. Manning in Frere, 1972: 186) and range in length from the very small to the very large. Examples above c. 15cm. in length usually have a domed or pyramidal head which could absorb the blows needed to drive them; smaller ones have a flat round head. VII (2): debris above building.
6. Class I nail, its tip lost. Length 6.5cm. VII (topsoil).
7. Class I nail, now bent. Length 4cm. X (topsoil).
8. Very small Class I nail, possibly from a shoe. Length 2.7cm. VII extension (100): Room F, pit inside south wall.
9. Fragment of an L-shaped nail? Length 4.2cm. Nails with an L-shaped head no wider than the stem form a rare but recognisable type with published examples coming from Rotherly (Pitt-Rivers, 1888: 126, Plate CI, 13), and the Gadebridge Park villa (Neal, 1974: 173, Fig.74, 487, 488, 497, 498). VII (topsoil).

Note (R. J. L.). Of the numerous other nails or nail-fragments the bulk came from the topsoil and the debris above the building (or from the robber trenches of its walls). There were also scatterings above the floors of rooms B, C, D and E, and a couple of nails in the filling of the beam-slot between D and E. Others were sealed in the pebble floor of room E and in the clay packing round the heating channels in room A, and a fair number turned up in layers below the clay and debris deposit in room F.

All belonged to Class I, and where the state of preservation permitted measurements were obtained as follows (in cm.): 7 (two examples), 6.5 (three), 5.8, 5.3, 4.6 (three), 3.9, 3.2, 2.5.

The only iron find of interest from the 1979 excavations was part of a heavy object rectangular in section (2.3 x 1.7cm.) and broken off at one end (preserved length 7.6cm). The splaying at the unbroken end suggests that it had been struck with a hammer, so it may have formed part of a cold-chisel or the like: cf. Cunliffe, 1971, ii: Fig. 59, no. 38. (Not seen by Dr. Manning.)

APPENDIX 4. SAMIAN WARE by Felicity Wild

Only a handful of much abraded sherds was discovered, none of them securely stratified. They are listed here to indicate the date-range; all are Central Gaulish, and none needs to be earlier than the mid 2nd century.

1. Dr. 45, Central Gaulish. Three fragments in identical fabric, likely to be from the same mortarium (two of them appear to all but join). *c.* A.D. 170-200. VII (2 and 30): robber trench of east wall and stone debris above.
2. Small fragment of footstand from dish or bowl form, very worn on the standing surface. The fabric is similar, though not identical, to that of the other sherds. Central Gaulish, Antonine. VII (2): debris above building.
3. Fairly thin, curved fragment, lacking any trace of surface gloss. The form is uncertain, but this could possibly be a flange from a form such as Dr. 38 or Curle 11, although it seems rather thin and wide for the former. The fabric is Central Gaulish, and the date likely to be Hadrianic or Antonine. VII (topsoil).
4. Two joining fragments of heavy bowl, such as Dr. 31 or variant, or possibly of samian mortarium. The fabric is Central Gaulish, and the date is likely to be late 2nd century. X (24): clayey loam overlying floor of room C.

APPENDIX 5. OTHER POTTERY (1980 EXCAVATIONS) by Anne C. Anderson

Although only a relatively small amount of pottery was obtained from the site (432 sherds), the yield appears to be fairly representative of the area. Fourteen Roman fabrics were distinguished, the more interesting of which are discussed below with

selected illustrations. (The fabric numbers used in the report are part of a general typology for the region.)

Fabric 1. Derbyshire ware
Orange to blue-grey in colour with abundant quartz inclusions creating a pimply surface and usually extremely hard. The commonest vessel form is the lid-sealed jar twenty-five examples of which were identified (minimum vessels/percentage rim 3). Wide-mouthed jars are comparatively scarce; only two examples were identified (minimum vessels/percentage rim 1). Of the twenty-five lid-seated jars twelve had an external bead on the rim (Hazelwood, Types A1-23; Kay, 1962: Fig. 6), two had an internal bead (Holbrook, Types A85-105; Kay, 1962: Fig 8) and eleven had either rippled or plain rims (Hazelwood, Types A31 and 35; Kay, 1962: Fig. 6). In all 194 sherds of Derbyshire ware were recovered, thereby constituting the dominant ware. In addition three rims of the lid-seated jar form were recovered from the 1979 excavations. The date-range for this ware as a whole is rather broad, from *c.* 140 to *c.* 350, with the forms changing very little. However at Carsington the absence of any characteristically early types (Jones and Webster, 1969: Fig. 2, 1 and 9), taken in conjunction with the few Holbrook types present, may indicate that the ware was not current on the site until the late 2nd or early 3rd century.

Fabric 9. East Midlands burnished ware
A fine, hard grey fabric with plentiful rounded black ironstone inclusions. Such vessels have a smooth surface due to heavy burnishing on the exterior surface of jars and on the exterior and interior surface of bowls. This fabric was not particularly abundant on the site, only four sherds being recorded. The only form present was the wide-mouthed jar, of which there were two examples (minimum vessels/percentage rim 1). In addition a flanged bowl was found during the 1979 season. This ware was probably produced at Swanpool and Little London, Torksey, Lincs (Todd, 1968) and in general dates to the late third and fourth centuries.

Fabric 3. Black-burnished ware 1
A hard, dark grey to black, granular fabric with plentiful mixed quartz inclusions. Surface treatment includes burnishing on the rim and shoulder and lattice patterns executed in like manner. Twenty-one sherds were recorded in 1980, with an additional two from the previous year. At Carsington the range of vessels consists of two flanged bowls (minimum vessels/percentage rim 1), one 'Dog-dish' and two wide-mouthed jars. This ware, produced in Dorset, was widely exported from *c.* 120 to *c.* 350. However the vessels present on this site fall within a date-range of *c.* 200-350.

Fabric 8. Common grey ware
A relatively hard grey ware with abundant mixed quartz inclusions creating a rough texture. In all sixteen sherds were recovered. The forms identified correspond to those found in Fabrics 9 and 3: two flanged bowls (minimum vessels/percentage rim 1) and six wide-mouthed jars. In addition a flanged bowl was also found during the 1979 season. This range of vessels is consistent with a date-range *c.* 250-400.

Fabric 11. Lower Nene Valley colour-coated ware
This fabric varies in colour from off-white to pink with fine quartz and ironstone inclusions. The matt colour-coating also ranges in colour, from brown-red to orange, and is often abraded. Forty-eight sherds were found, a large proportion of which constituted almost an entire vessel. The forms present consist of three bulbous beakers (minimum vessels /percentage rim 1), one other beaker, one jar, one 'Castor box' bowl and lid, and one 'Dog-dish'. In addition a Castor box base was recovered in 1979. Although this ware was produced from *c.* 250 to the beginning of the 5th century, the forms present at Carsington would indicate a date-range, on this site, of *c.* 250-400.

Fabric 26. Lower Nene Valley self-coloured ware
A hard, slightly granular, off-white fabric with black ironstone inclusions. Only one

sherd was recovered, that of a hammer-head mortarium datable to the late 3rd or 4th centuries.

In addition to the fabrics discussed above, a body sherd of a Mancetter/Hartshill mortarium was also identified. The site thus received pottery from the majority of the centres of ceramic mass production that we might reasonably expect to be represented in this area. The ceramic evidence would suggest occupation from the late 2nd-early 3rd century to the end of the 4th.

Pottery illustrated (Fig. 10)

1 Fabric 1: Derbyshire ware. Lid-seated jar. *c.* mid 3rd-4th century. VII (1), Pot No. 17. Also from VII (2); VII (10).
2 Fabric 1: Derbyshire ware. Lid-seated jar. Rim with external bead. *c.* mid 3rd-4th century. VII(1), Pot No. 18. Also from VII (30); VIII (1); IX (1); IX (44).
3 Fabric 1: Derbyshire ware. Lid-seated jar. Rim with external bead. *c.* mid 3rd-4th century. VII (1), Pot No. 26.
4 Fabric 1: Derbyshire ware. Lid-seated jar. Rim with internal bead. Late 2nd-mid 3rd century. VII (1), Pot No. 23. One other from same context.
5 Fabric 1: Derbyshire ware. Wide-mouthed jar with everted rim. Mid 3rd-4th century. VII (1), Pot No. 19.
6 Fabric 1: Derbyshire ware. Wide-mouthed jar with everted rim. Late 2nd-mid 3rd century. IX (1), Pot No. 10.
7 Fabric 9: East Midlands burnished ware. Wide-mouthed jar with everted, grooved rim. Late 3rd-4th century. IX (66), Pot No. 39. Also from VII (10).
8 Fabric 3: black-burnished ware 1. Flanged bowl. Mid 3rd century. VII (1), Pot No. 31.
9 Fabric 3: black-burnished ware 1. Flanged bowl. 4th century. VII (1), Pot No. 32.
10 Fabric 8: common grey ware. Flanged bowl. 4th century. VII (1), Pot No. 35.
11 Fabric 11: Lower Nene Valley colour-coated ware. Bulbous beaker with everted rim. Rouletted decoration. 4th century. VII, extension (1 and 100), Pot No. 40. Also one rouletted body sherd from VII (30).
12 Fabric 11: Lower Nene Valley colour-coated ware. Bulbous beaker with bead rim. Late 3rd-4th century. VII (26), Pot No. 37.
13 Fabric 26: Nene Valley self-coloured ware. Hammerhead mortarium. Late 3rd-4th century. VII (1), Pot No. 21.

Key to layers. VII (1), VIII (1) and IX (1) = topsoil; VII (2) = debris above building; VII (10) = floor of room C; VII (26) = clayey loam overlying floors of rooms D and E; VII (30) = filling of robber trench of east wall; IX (44) = layer of charcoal, sand and ash, uppermost of deposits above floor of room B; IX (66) = bottom layer of filling of heating channels in room A; VII, extension (100) = pit inside south wall, room F.

APPENDIX 6. TILES (1980 EXCAVATIONS) by Anne C. Anderson

A considerable quantity of tile-fragments was recovered from the site (3437 sherds/ 133,470gm.), far outweighing the pottery. Three principal fabrics were distinguished, which are discussed in detail below.

Fabric 1. Coarse buff ware

A hard, coarse fabric with buff surfaces and a pink core. Inclusions vary but consist mainly of quartz, ironstone and broken tile. The clay used appears also to have been poorly levigated. 2245 sherds were found, 65.5% of the total number: in terms of weight 94,345gm. or 70.7% of the total weight, thereby constituting the dominant tile fabric. The commonest form is the box-tile (685 sherds, 30% of the total number of vessels), followed by *tegulae* (251 sherds, 11% of the total number of vessels) and *imbrices* (239 sherds, 10.5% of the total number of vessels). Only four sherds (0.17% of the total number of vessels) were from *pilæ,* while 1076 sherds (47.7% of the total number of

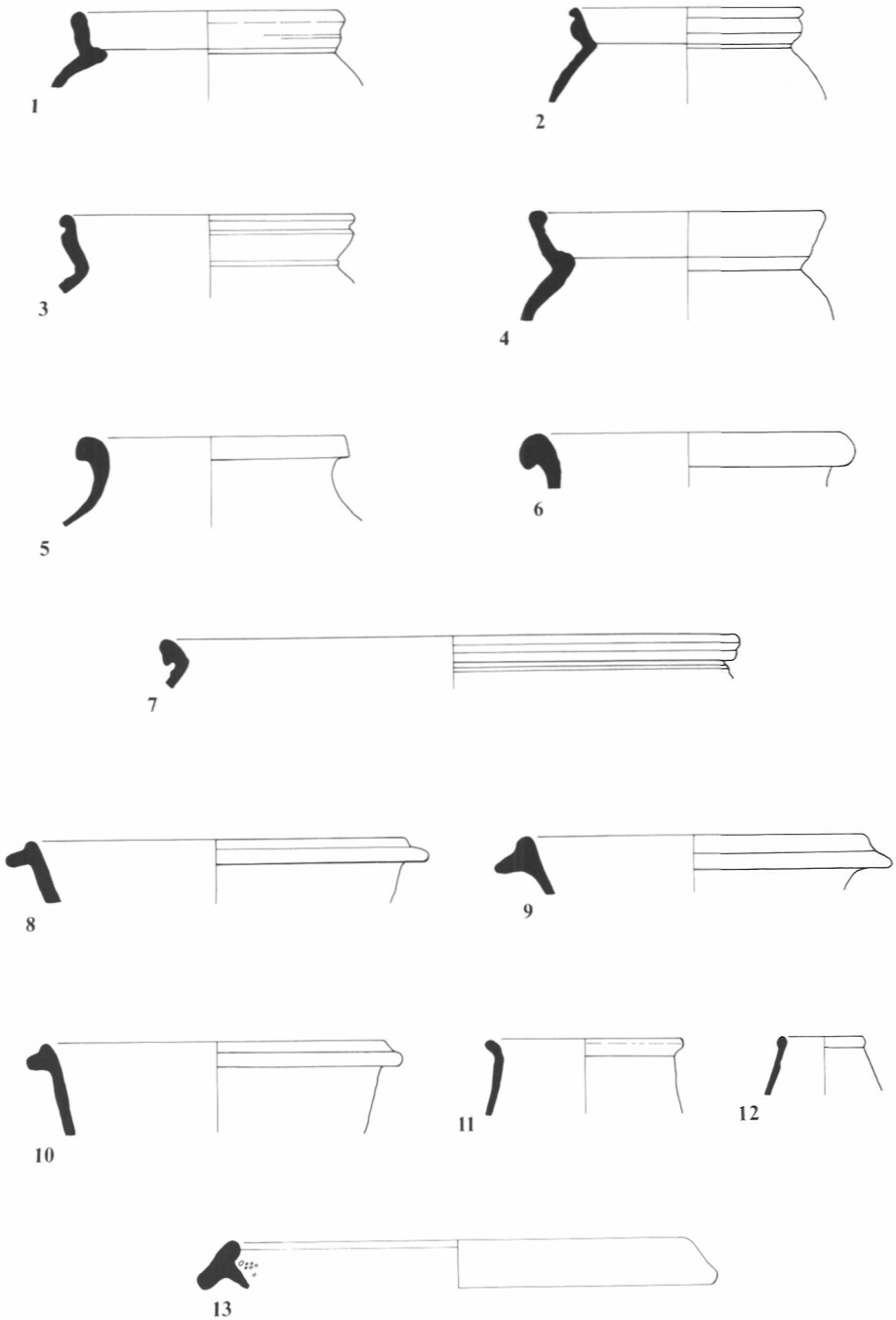

Fig. 10 Carsington Site B, 1980: pottery rims (1:4).

vessels) were unidentifiable body-sherds. Box-tiles produced in this fabric vary from 11 to 13mm. thick, *tegulae* from 22 to 24mm., and *imbrices* from 14 to 16mm.

Fabric 2. Coarse red ware
A coarse fabric, rather soft and powdery, oxidised throughout, with large fragments of broken tile and calcareous inclusions. Again the clay used appears to have been poorly levigated. 1151 sherds were found, 33.5% of the total number: in terms of weight 36,667gm. or 27.8% of the total weight, thereby constituting the second most prolific tile fabric on the site. Once again the box-tile is the most common form (163 sherds, 14.1% of the total number of vessels), but in this case very closely followed by *tegulæ* (162 sherds, 14% of the total number of vessels). *Imbrices* account for 43 sherds (3.7% of the total number of vessels), *pilæ* eight sherds (0.69%) and unidentifiable body-sherds 773 (67%). In addition large, wide-mouthed jars were also produced in this fabric (one sherd from IX (1) and one from X (10) (floor of room C)). Box-tiles produced in this fabric are approximately 15mm. thick and *tegulæ* vary between 23 and 25mm.

Fabric 3. Coarse orange ware
A coarse, sandy fabric, oxidised throughout but without the larger inclusions common in Fabrics 1 and 2. The clay used appears to have been well levigated. Only 31 sherds were found, of which 26 were unidentifiable body-sherds. The remainder consisted of one box-tile sherd, one *imbrex* sherd and three *tegula* sherds.

Discussion
The largest quantity of tile-fragments came from trench IX (containing the hypocaust) with a total of 1828 sherds or 53% of the total number of sherds found, followed by trench VII with 703 sherds or 20.5% of the total number of sherds and trench X with 507 sherds or 15% of the total number of sherds found. In addition trench IX also produced the highest level of box-tiles, 574 sherds out of a total of 849, or 68% of the total number of box-tiles found.

Details of the distribution of the different types can best be expressed in tabular form (though it must be remembered that no attempt has been made to incorporate material from 1979).

A. *Number of sherds*

	Trench VIII	Trench IX	Trenches II/VI (backfill only)	Trench X	Trench VII
Box-tiles	28	574	32	76	120
Tegulæ	15	206	11	114	67
Imbrices	8	157	6	76	25
Pilæ	0	7	0	4	1
Unidentified	165	884	87	237	490
Total	216	1828	136	507	703

(*Note.* Stray finds and the backfill of trench V are excluded)

B. *Percentages*

	Trench VIII	Trench IX	Trenches II/VI (backfill only)	Trench X	Trench VII
Box-tiles	12.96	31.40	23.53	14.99	17.07
Tegulæ	6.94	11.27	8.09	22.48	9.53
Imbrices	3.70	8.59	4.41	14.99	3.56
Pilæ	-	0.38	-	0.79	0.14
Unidentified	76.38	48.36	63.97	46.75	69.70

It will be seen that the tiles were concentrated mainly in the area of the building, relatively few being found in trench VIII, which lay outside it. The concentration of box-tiles in the area of the heating-system in room A becomes even more pronounced if one bears in mind that a large proportion of the small unidentified pieces probably comes from *tegulæ*, since these will lack the curvature or incised patterns which betray *imbrices* and box-tiles.

The presence of fragments of *pilæ*, which can hardly be accommodated in the present building in their normal function, supports the idea suggested above (p. 64) that the roof-tiles may have been used merely as building-rubble in the walls. It is unlikely that any of the tiles were manufactured at this site. Tiles of Fabric 2 have been found elsewhere in Derbyshire, e.g. at the Duke's Drive settlement near Buxton (personal communication from Mr. G. Makepeace).

Tiles illustrated (Fig. 11)
Numbers 1-7 show roller-stamped patterns found on box-tiles.
1. Fabric 1. VII (2): debris above building.
2. Fabric 1. VII (5): filling of field-drain trench.
3. Fabric 1. VII (26): clayey loam overlying floors of rooms D and E.
4. Fabric 2. II/VI (backfill).
5. Fabric 2. II/VI (backfill).
6. Fabric 2. IX (42): clay build-up round hypocaust channels.
7. Fabric 2. IX (42): clay build-up round hypocaust channels.
8. Fabric 2. Unidentified mark found on a *tegula*. X (10): clay floor of room C.

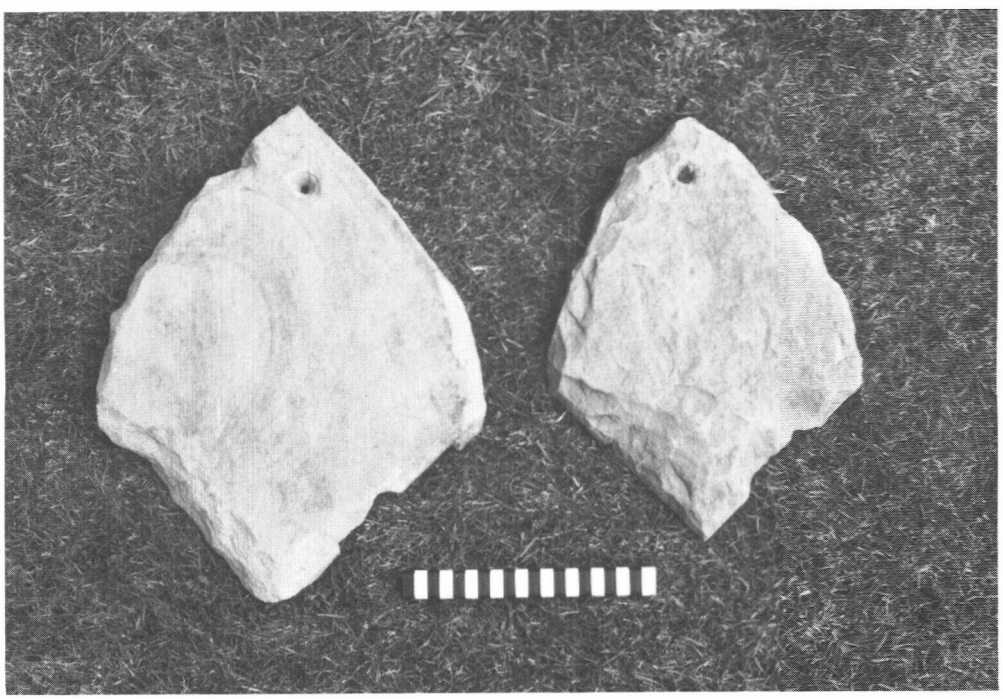

Plate 7 Carsington Site B, 1980: examples of sandstone slabs. (cm scale) (Photograph by R. J. Ling)

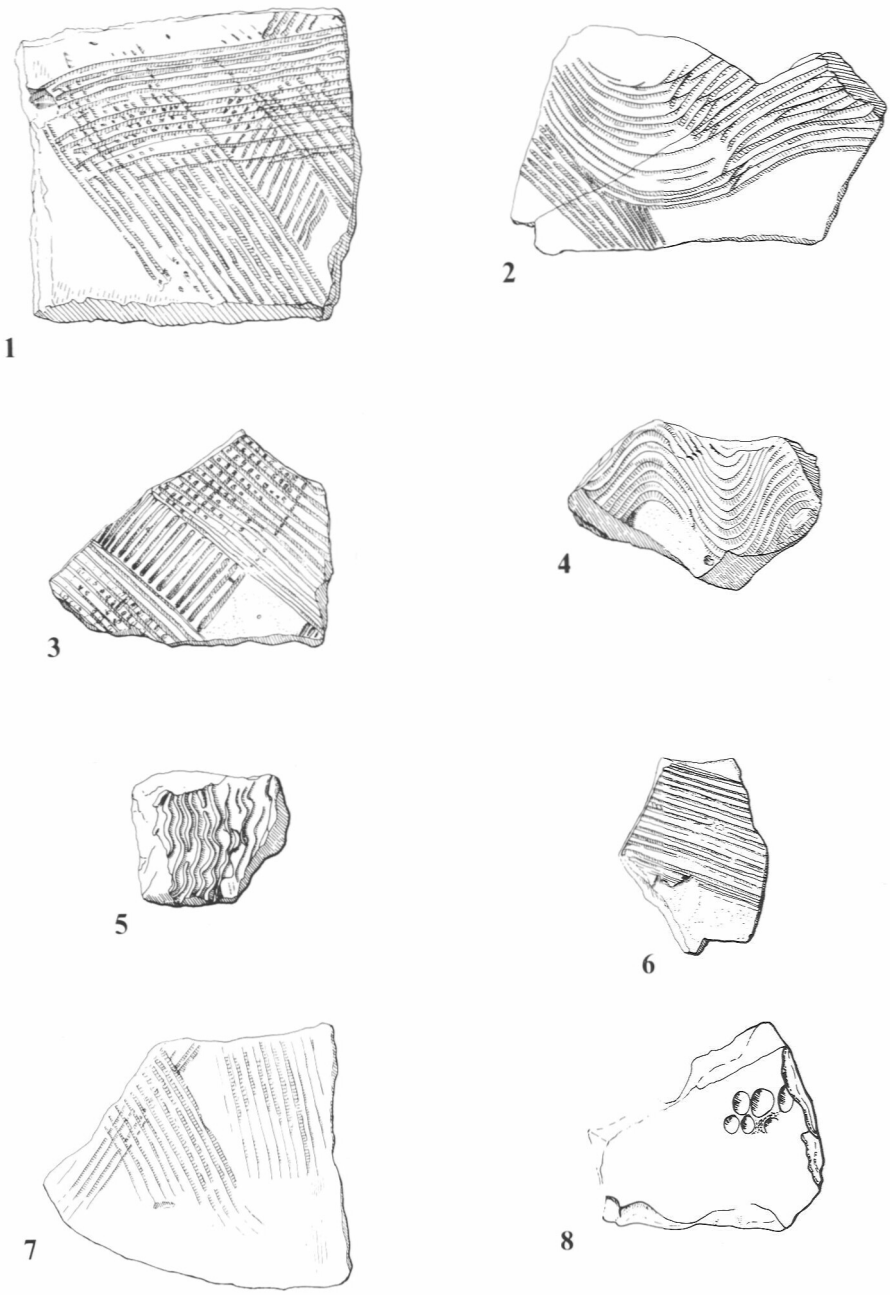

Fig. 11 Carsington Site B, 1980: tiles (1:3).

APPENDIX 7. GLASS

Three of four small fragments of glass vessels were found in the 1980 excavations, notably a piece with part of a trailed plant-tendril (?) on one surface (VII(30): filling of the robber trench of the building's east wall).

There were also small pieces of Roman window-glass of the characteristic first- and second-century type, shiny on one face and matt on the other, from three layers:

VII (54): layer underlying clay and debris build-up in room F. One piece 2.5mm. thick, bluish-green.

VII, extension (100): filling of pit immediately inside south wall of room F. One piece 2.5mm. thick, virtually colourless.

VII, extension (topsoil, almost certainly deriving from pit (100)). Four fragments ranging from 2.5 to 5mm. thick; one with convex edge preserved and probably tool-marks on the glossy face. Three bluish-green, one nearly colourless. Mr. D. O'Connor, who examined the pieces, felt that the rounded edge indicates the use of cylinder-blown glass, as suggested by D. B. Harden (1961: 44-8. For a divergent view on the manufacturing process, see Boon, 1966: 42-5.)

APPENDIX 8. MOSAIC TESSERÆ by M. J. Bradshaw

Regularly shaped blocks of lithic material were submitted for examination in the belief that they might possibly be mosaic tesseræ. Those picked out came from the following deposits:

IX(I) = topsoil
IX(44) = uppermost of deposits containing burnt material above floor of room B
VII(28) = pebble floor of room D (2 specimens)
VII(71) = make-up for clay and pebble floor in eastern half of room C (2 specimens)

All of the blocks were derived from thin-bedded lithologies and therefore their upper and lower bounding surfaces are naturally flat and parallel. The two specimens from the VII (28) deposit show the clearest signs of having been used as mosaic tesseræ; one has been cut on three sides to produce trapezoidal upper and lower faces (35mm. x 13mm. x 30mm. x 16mm.), the other cut on two sides to produce rhomboidal faces (17mm. x. 13mm.). In addition, the 'upper' face of the larger block shows distinct traces of a whitewash (not lime). The roughly cubic specimen (12mm. x 10mm. x 10mm.) from deposit IX(44) also displays two cut sides, whilst the remaining two may have been chiselled; similarly the shapes of the two slightly larger specimens from deposit VII(71) are not natural and have probably been obtained by chiselling. By contrast the cubic shape (10mm. x 10mm. x 16mm.) of the specimen from deposit IX(I) is the result of a natural rectangular joint pattern; this and its occurrence in topsoil suggests that it should be discounted as a possible tessera.

All of the specimens examined appear to be of local provenance, and they fall into two gross lithological categories:

(a) The specimens from deposits VII(28) and IX(I) are chert-replaced limestones. The original lithology of IX(I) is likely to have been a sparse biomicrite (terrigenous and carbonate rock nomenclature throughout this account follows Folk, 1974). Both matrix and bioclasts (ostracods, echinoid spines, micromorphic gastropods and calcispheres) have been replaced by microcrystalline granular quartz, but the presence of discrete dolomite euhedra (~3%) suggests a later small-scale replacement reversal. The dark grey colour of the fresh rock is stained moderate yellowish brown along the upper and lower bounding surfaces by oxidation of pyrite to limonite. The original lithology of both specimens from deposit VII(28) appears to have been either a biopelsparite or a biooosparite, replacement by microcrystalline quartz having obliterated fine texture. The bioclastic component is dominated by brachiopod debris (including productid spines) but also includes crinoidal material, bryozoa, calcispheres and foraminifera (including ?*Eotuberitina* sp.); porosity is moderate and the specimens have a very pale orange colour. Chert is most common in Derbyshire within the D_2 Zone of the Viséan

(Orme, 1974) and the faunal content of the specimens strongly suggests a Carboniferous age. However, lithologies are locally consistent with both the Matlock Limestone (D_2) and the Cawdor Group (P_2), which are exposed on the slopes above Carsington and Hopton, some 2km. north of the site (Frost and Smart, 1979: 6-8).
(b) The specimens from deposits VII(71) and IX(44) are well sorted and evenly laminated siliceous very fine sandstones and coarse siltstones; their light brown and moderate yellowish brown colours are due to oxidation of pyrite to limonite during weathering. Probable sole markings occur on the 'lower' faces of the blocks. They are almost certainly derived from the lower Millstone Grit (Namurian, ? Arnsbergian), which outcrops locally along the eastern side of the Scow Brook valley, adjacent to the site.

Note (R.J.L.) The identification of tesseræ in local materials is of considerable interest since it implies that some form of tessellated pavement existed in the vicinity. Moreover two different materials were used, indicating that the pavement was patterned. This is of course a unique discovery in Derbyshire, to be set beside the other unusual features of the site (pp. 72-3).

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