

TWO ROMAN LEAD PIGS FROM CARSINGTON

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SUMMARY

In July 1983 two lead pigs were discovered close to the site of the 1981 excavations at Carsington. A small scale excavation in August 1983 revealed that the pigs had been buried in a Roman pit of the fourth century AD.

INTRODUCTION

On July 17th 1983 two of the authors (JH and CH) surveyed the field immediately northwest of Site A of the 1981 excavations at Carsington with two Arado 120B metal detectors (Fig.1). Unlike Site A, this field had not been subjected to modern ploughing techniques and still had well preserved ridge-and-furrow. At the point marked X on Fig. 1 a signal was received indicating a large non-ferrous object buried at a depth in excess of 40 cms. A 0.3m square of turf was removed, and about 30 cms of pale brown soil were excavated before a much darker soil was found, containing charcoal and sherds of Roman pottery. At a depth of about 62 cms the top of the first pig was cleared. The exploratory hole was slightly enlarged to enable the removal of the pig, after which a further scan with a detector resulted in the reception of another strong signal. Slight additional soil removal revealed a second pig, lying directly under the first. The pigs had clearly been stacked one on the other, with their flat sides downwards and their convex sides upwards. After careful measurement of the location and depth of the pigs, the hole was refilled and the pigs taken away for safe keeping. The discoverers informed Mr. K. Smith, the Peak Park Archaeological Planning Officer, of the find, and visited the site with him. He in turn informed the third author (KB), who had previously co-directed excavations on Site A. It was agreed that excavation should take place immediately, with the limited objective of determining, if possible, the context of the two pigs. If the pigs proved to have been located within a structure, then further rescue excavations would be necessary.

THE EXCAVATIONS

On August 22nd 1983 excavations began on the site (labelled RF) directed by KB. He was assisted by the other two authors and five volunteers. Because of the limited funding and time available work lasted only three days. Trench RF.1 (4m x 3m) was laid out, and the turf and top soil removed (Fig.2). Beneath this, at the western end of the trench, was found a hard pebbly level, separated from a much softer, almost black, soil at the east end of the

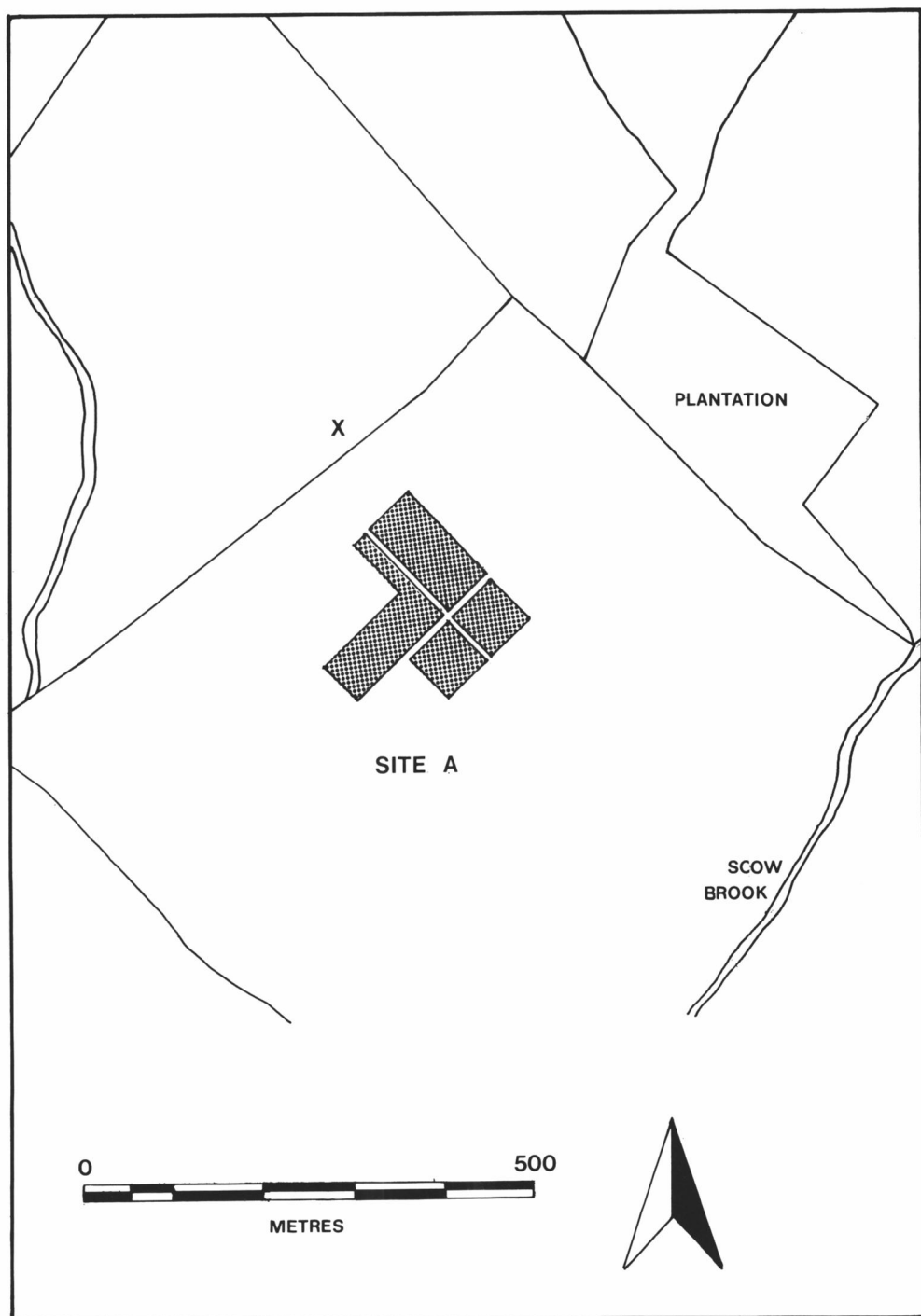


Fig. 1 Carsington: Site A and location of lead pigs (shown at X)

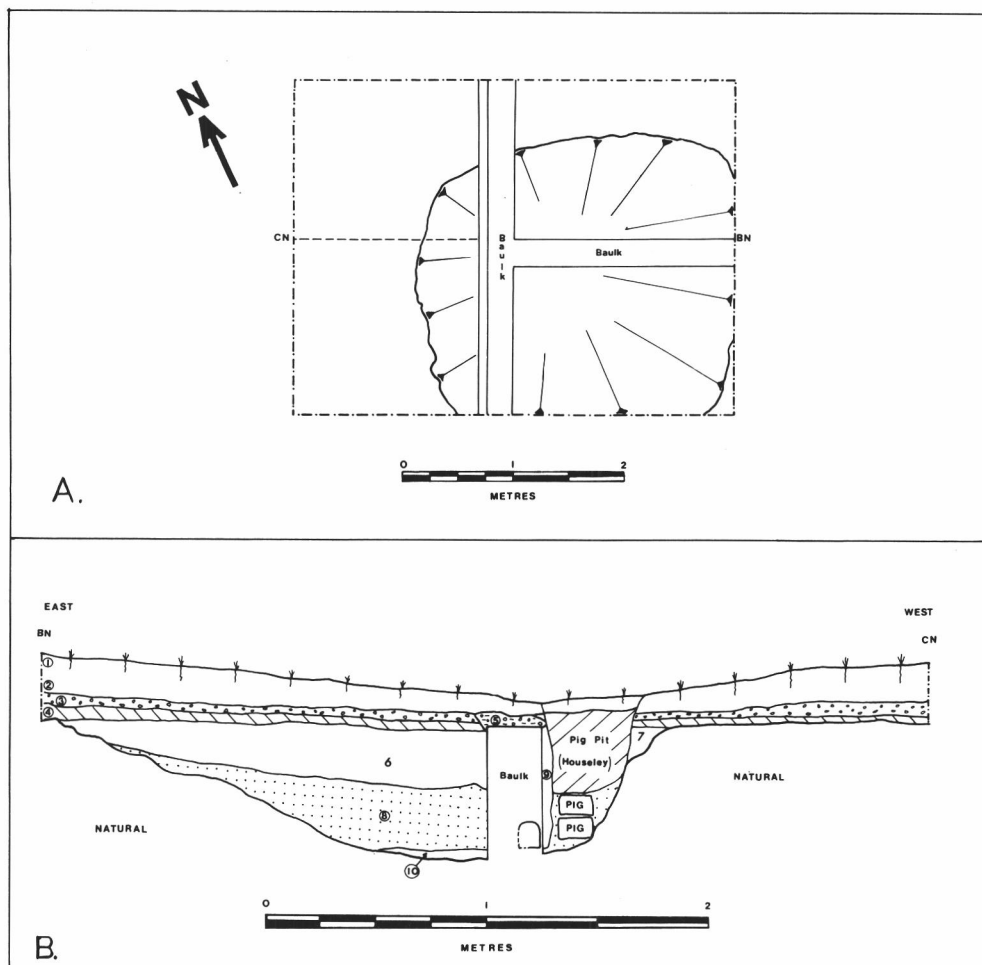


Fig. 2 Carsington:

- A) Plan of trench RF.1 and pit
- B) Section BN/CN across pit

trench by a spread of yellow clay running north-south. Subsequent excavation revealed a Roman pit, cut by a modern land drain, occupying the eastern half of the trench; the west end of the trench contained no man-made features below the plough soil on the ridge. After removal of the pit fill, the site was planned, and sections of the pit were drawn; it was then back-filled.

Trench RF.1 (KB) (The numbers in brackets refer to the Level numbers in Figs 2A, 2B) Beneath the turf (1) the plough soil (2) varied in depth between 6 and 17 cms, being thicker on the ridges at either end of the trench. Below the plough soil was a pebbly pale brown soil (3), 3-5 cms thick, apparently the lowest level of modern disturbance, resulting from the accumulation of small field stones at the base of the plough-disturbed soil. This level was partly overlain and partly cut through by a stiff yellowy clay with pebbles (5), which ran in

a band north-south across the trench. This proved to be the capping of a modern land drain, which was set into a narrow trench 25 cms wide and 64 cms deep. The lower fill of this trench was a dark brown soil, containing charcoal and small flecks of clay (9), which was apparently re-deposited soil from the original fill of the Roman pit through which the land drain had also been cut. It was very similar to that fill, but slightly lighter in colour and heavier in texture. As well as cutting through Level 3, the land drain had also cut through a darkish brown soil with very few pebbles but many small flecks of charcoal (4), which was found 3-6 cms thick over the whole trench, beneath Level 3. Level 4 contained abraded and weathered sherds of Roman pottery, and appeared to be a late Roman land surface, which sealed Levels 6 and 7. Levels 6 and 7 proved to be the same deposit, on opposite sides of the north-south baulk. When Level 4 was removed, Levels 6 and 7 showed up clearly as very dark brown soil, with black and red flecks (charcoal and daub) and rather silty in appearance, occupying most of the eastern end of the trench. Excavation showed that the soil was the fill of a pit or depression, roughly circular in shape and about 3.0m in diameter, cut into the undisturbed natural. Its western side was much steeper than its eastern: the stiff clay natural at Carsington is difficult to excavate for pits (the large area excavated in Site A produced only one — for a well). Levels 6 and 7 were about 25 cms deep at their deepest, and graduated into a darker soil, more heavily flecked with charcoal and daub (8). This was almost 30 cms thick at its deepest, and overlay a thin deposit of silty grey clay at the base of the pit (10). Soil samples for environmental analysis were taken from the top of Level 6 (Sample 1), the lower portion of Level 6 (Sample 2), and from Level 8 (Sample 3).

THE FINDS

1. The Roman Pottery (RB) (Fig.3)

Approximately 180 sherds were recovered. The assemblage consisted of 25% Nene Valley colour-coated ware, 25% calcite-gritted ware, 2% Nene Valley and Mancetter-Hartshill mortaria and 48% coarse wares of unknown origin. Only diagnostic sherds are dealt with here.

Pit fill (Levels 6 and 8)

- 1 Mortarium in fine pale orange fabric with black-brown trituration grits with little sign of wear. The fabric and form are comparable with Nene Valley mortaria (Howe *et al.*, 1980: no. 103 - fourth century; R. Perrin, *pers. comm.*). This sherd, in freshly broken condition, was found at the very base of the pit, lying on natural.
- 2 Flange of a hammerhead mortarium in fine off-white fabric of Mancetter-Hartshill type. Late third/fourth century. (Cf. Gillam, 1957: no. 282 - AD 250-370; no. 284 - AD 300-370.)
- 3 Flanged bowl in fine white fabric with black-brown colour-coat of Nene Valley type. Fourth century. (Cf. Howe *et al.*, 1980: no. 78 - fourth century.)
- 4 Bead rim in fine white fabric with traces of black colour-coat; probably a Nene Valley long-necked folded beaker of the third/fourth century. (Cf. Howe *et al.*, 1980: nos. 49-53.)
- 5 Bodysherd of a rouletted, pentice moulded beaker in fine white fabric with brown colour-coat. Fourth century. (Howe *et al.*, 1980: nos. 55-57)
- 6 Lid in pale orange-buff fabric with orange colour-coat. Two similar vessels were found at Gringely-on-the-Hill, Notts. (unpublished material in Sheffield City Museum), associated with late third/fourth century pottery and over twenty fourth century coins terminating in the period AD 364-375.
- 7 Plain rim dish in granular sand-gritted fabric with grey core, pale margins and dark grey surfaces.

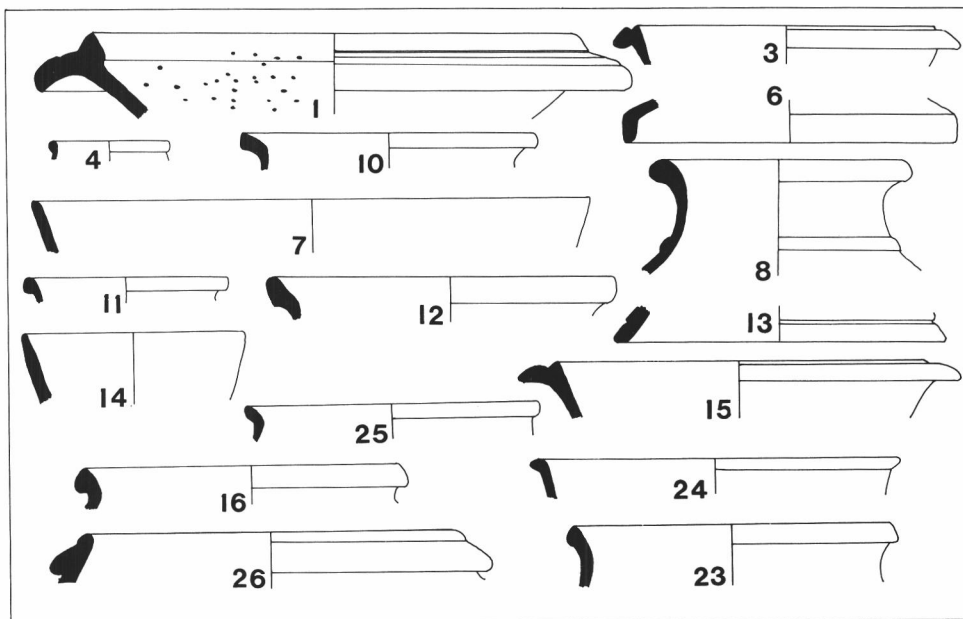


Fig. 3 Carstington: Selected pottery (nos. 1 - 20 from pit-fill Levels 6 and 8; nos. 23 - 24 from Level 4; no. 25 from Level 3; no. 26 from Level 2). Scale: 1:4.

8 Narrow-necked jar in medium-sandy grey ware.

9 Bodysherd of hemispherical flanged bowl in fine sandy orange fabric with a grey core. (Cf. Corder and Birley, 1937: type 5 - late fourth century; Hull, 1932: type 6 - late fourth century.)

10 Everted rim jar in a buff-grey gritty fabric with abundant subangular coarse sand inclusions and fine mica. A rilled bodysherd was also present.

11 Everted rim jar in a dark brown calcite-gritted fabric with a moderate quantity of plate-like and irregular vesicles, probably dissolved shell. A rilled bodysherd was also present. (Cf. Darling, 1977: no. 99; Corder, 1951: nos. 17-20 - late fourth century.)

12 Everted rim jar in calcite-gritted ware, as no. 11.

13 Lid in fine buff fabric with darker buff colour-coat.

14 Plain rim dish in fine white fabric with brown colour-coat of Nene Valley type. (Cf. Howe *et al.*, 1980: no. 87.)

15 Flanged bowl in fine white fabric with dark brown colour-coat of Nene Valley type. Fourth century. (Cf. Howe *et al.*, 1980: no. 79.)

16 Hooked rim jar in calcite-gritted ware, as no. 11.

17 Bodysherd of narrow-necked jar with impressed shoulder cordon in medium sandy grey ware. (Cf. Webster and Booth, 1947: C45.)

18 Everted rim jar in orange-brown gritty fabric, as no. 10.

19 Bodysherd of mortarium in off-white fabric with black-brown trituration grits, probably Mancetter-Hartshill type. (Not illustrated)

20 Tip of mortarium flange in medium grey ware with traces of white slip. (Not illustrated)

21 Base of fine off-white mortarium of Nene Valley type, with dark brown-black

trituration grits. (Not illustrated)

22 Bodysherd of Oxford red colour-coated ware (Not illustrated)

Undisturbed Roman level above pit (Level 4)

23 Everted rim jar in calcite-gritted ware, as no. 11.

24 Flat rim bowl in fine buff ware.

Base of plough soil (Level 3)

25 Everted rim jar in fine white fabric with brown-black colour-coat, very abraded. Fourth century. (Cf. Howe *et al.*, 1980: nos. 75-77.)

Plough soil (Level 2)

26 Incurved bead and flange bowl in medium sandy grey ware. Fourth century. (Cf. Darling, 1977: nos. 47-48 - late fourth century; Webster and Booth, 1947: D13 - AD 325 - 375.)

The Nene Valley and Oxford wares from the pit suggest deposition in the fourth century, a date in keeping with the remainder of the sherds. The lack of pottery from precisely dated fourth century contexts in the south Derbyshire/Nottinghamshire region precludes greater accuracy. However, some characteristics of the group under discussion contrast with fourth century pottery from Brough-on-Noe, Derby and the Carsington settlement itself (Dool *et al.*, 1986; Ling and Courtney, 1981). All three sites produced substantial quantities of Derbyshire ware but few Swanpool/Crambeck types and little Oxford ware. Derbyshire ware was found in all but one of over fifty fourth century contexts excavated at Derby (Dool *et al.*, 1986), and predominated in most of them. The absence of Derbyshire ware in the Carsington pit group suggests that the group may postdate the production of Derbyshire ware.

Indeed, the everted rim jars in the group were of a calcite-gritted ware (no. 11) and coarse sand-gritted ware (no. 10). The calcite-gritted ware was similar to the products of the Bourne kiln, Lincs., dated to the third century (Samuels, 1983: 783), and south Midlands shell-tempered ware, dated to the third/fourth century. A few Bourne types were present at Derby in third/fourth century contexts. The everted rim jar form was restricted to the later of two fourth century phases, including that context which contained no Derbyshire ware. The presence of the everted rim jar type in the Lincoln pit group (Darling, 1977: no. 99) and the Great Casterton destruction deposit (Corder, 1951: nos. 17-20), both dated to the late fourth century, demonstrates its longevity. It is therefore possible that it did not become common in the south Derbyshire region until Derbyshire ware production had ceased.

The remaining coarse ware types could all be paralleled in the Swanpool kiln repertoire. Although the types were current perhaps as early as the late third century, none was found at Brough-on-Noe and very few at Derby. There was no sign of occupation beyond the middle of the fourth century at these sites. Taken together, the evidence of the pottery suggests a mid-late fourth century date for the Carsington pit group.

2. The lead pigs (JH) (Plates 1, 2)

The pigs are numbered in the order in which they were found, Pig 1 being the uppermost. Both are plano-convex in shape, the convex face being that originally formed against the base of the mould, and the rougher-surfaced flat face being that formed at its open top.

Pig 1 (Plate 1)

- | | |
|---------------|------------------------------------------------|
| Convex face - | maximum length: 46.5 cms |
| | maximum width: 14.0 cms (tapering to 12.8 cms) |
| Flat face - | maximum length: 49.7 cms |



Plate 1 Carsington: Lead pig 1 (A: top; B: bottom)

	maximum width : 16.0 cms (tapering to 14.1 cms)
Thickness -	maximum: 9.0 cms
	minimum: 6.4 cms
Weight -	56.5 kgs (124 lbs = 172 lbs Roman)

The pig shows no signs of the lateral lamination frequently found on such objects. On its convex face, towards the thicker end, there is a raised feature, 12.3 cms long, resembling an exclamation mark. This is probably the result of a blemish in the mould.

Pig 2 (Plate 2)

Convex face -	maximum length: 46.5 cms
	maximum width: 14.0 cms (tapering to 12.8 cms)
Flat face -	maximum length: 49.7 cms
	maximum width : 16.0 cms (tapering to 14.1 cms)
Thickness -	maximum: 9.0 cms
	minimum: 6.4 cms

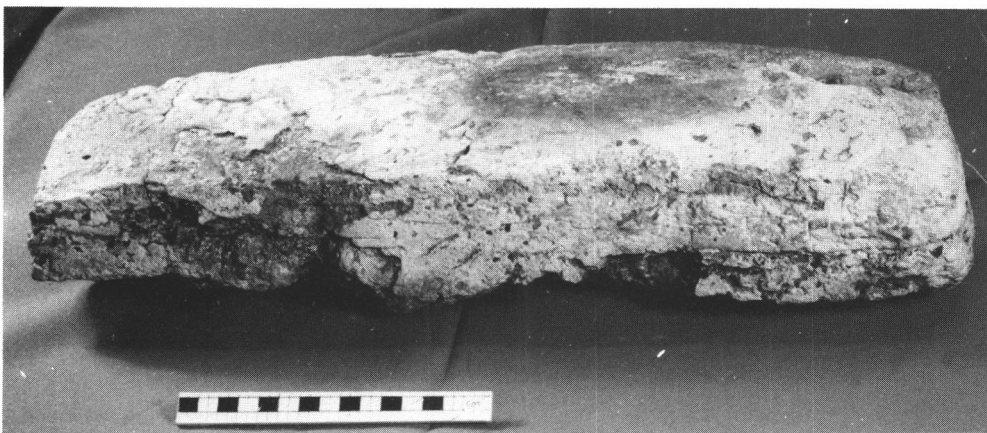


Plate 2 Carsington: Lead pig 2 (A: top; B: bottom)

Weight - 46.3 kgs (102 lbs = 142 lbs Roman)

The pig has lateral laminations and its flat (upper) side is very irregular: part of its upper surface appears to have been lost before its deposition. On the convex face there is a raised feature identical to that of Pig 1.

3. Other metal objects (KB)

- 1 Small bronze button with traces of gilt, diameter 1.2 cms, Level 2. Eighteenth-nineteenth century.
- 2 Short strip of lead, length: 3.6 cms; width: 1.9 cms, narrowing to 1.2cms; thickness: 0.3 cms. Level 8. Roman fourth century, by context.
- 3 Plain sheet disc of bronze, diameter: 1.5 cms; thickness: 0.2 cms. Level 7. Roman fourth century by context.
- 4 Iron blade fragment, possibly part of a knife blade, length: 6.3 cms; width: 2.6 cms. Level 8. Roman fourth century, by context.

4. Metallurgical debris (KB)

Small pieces of galena were found in Levels 2-4. A complete collection was made of all pieces of galena in Levels 6-8 (pit fill). The largest weighed 110 gms, and the total amount collected from these levels, mostly from 8, was 1300 gms. In the pit fill, Level 6, were found two pieces, and in Level 8 eight pieces, of lead scrap or waste. The largest weighed 25 gms, and the total weight was 110 gms. Three pieces of metallic slag, with a total weight of 45 gms, were found in the pit fill, Level 8.

5. Other material (KB)

A few pieces of burnt daub were found in Levels 3 and 4, but it was much commoner in the pit fill. It was found in Levels 6, 7 and especially 8, and it flecked the pit fill red, most of all in the south-western corner. The pieces collected from the pit fill weighed a total of 950 gms, the largest weighing 70 gms.

6. Environmental samples (CH) (Tables 1, 2)

Three samples from the pit at Carsington were submitted for palynological analysis:

- 1 (Level 6): a mid-brown slightly organic sandy silt of earthy aspect;
- 2 (Level 6): a pale buff slightly organic silt;
- 3 (Level 8): an indurated slightly organic, slightly sandy silt with ochreous fragments and small stones.

The samples were boiled in KOH, sieved on 10 µm nylon mesh, swirled on a clock glass, and mounted in glycerol gel. The slides are retained in the collections of the Department of Archaeology and Prehistory at the University of Sheffield. Percentage incidences of pollen are shown in Table 1, and percentage incidences of various entities in the organic residue (palynofacies) are shown in Table 2.

The pollen analyses are characterised by high incidences of corrosion-resistant pollen and spores, suggesting that the deposits have been subtly weathered since deposition. Considerable incidences of recycled pre-Quaternary spores, together with algal microfossils typical of damp soil, also suggest that pedogenic processes have altered the deposits, which were originally derived, at least in part, from the underlying substrate.

The same analyses suggest that deposition took place in a practically treeless environment in which cereal cultivation and probably pasturage took place. It is likely that the site was marshy; and the rare diatoms indicate occasional puddles. The palynofacies analyses, together with the differences between the pollen analyses, suggest slightly different depositional conditions for the samples:

Sample 1 (Level 6: upper) is characterised by much plant debris, some bone residue, and relatively little wood and charcoal, suggesting that at the time of its deposition mostly non-woody plant debris and some bone was entering the pit. The low incidence of sporinite suggests that deposition was very rapid, and the moderate amount of recycled matter suggests that much of this horizon is not derived from the local bedrock.

Sample 2 (Level 6: lower) is characterised by very high incidences of recycled organic and pollen and a moderate amount of wood and charcoal, together with low incidences of other organic constituents. This suggests relatively slow deposition of material chiefly derived from the local bedrock, with relatively little anthropogenic input.

Sample 3 (Level 8) is characterised by a high incidence of wood and charcoal. It is probable that a large amount of ash entered the pit at this stage, together with some bone and plant debris, and that sedimentation was relatively slow. Very little of this horizon is derived from the local substrate.

	Sample 1 (Level 6, upper) %	Sample 2 (Level 6, lower) %	Sample 3 (Level 8) %
Pinus	2		
Picea	1		
Ulmus	1		
Ericaceae	1	10	2
Sanguisorba	1		
Anthemis	4	4	2
Caryophyllaceae	1	4	
Compositeae (Liguliforae)	2	4	
Lamium type	1		
Plantago lanceolata			1
Alchemilla type			1
Centaurea scabiosa			1
Serratula type			1
Artemisia		1	
Gramineae	7	4	8
Cereal	1	4	3
Cyperaceae	2		
Succisa pratensis	6	38	20
Ranunculaceae		1	
Bidens type			1
Polypodium	15	21	16
Filicales (undiff.)	37	6	12
Lycopodium clavatum	15	1	30
Pteridium	3	1	1
Sphagnum		2	
Selaginella			1
	<hr/> 100	<hr/> 101	<hr/> 100

Recycled pollens (not contemporary with the above) expressed as percentages of the whole body of grains recovered:

Echinate algal bodies	24	18	3
Diatoms		1	2
	<hr/> 24	<hr/> 19	<hr/> 5

Table 1: Carsington pit site: percentage incidence of pollens

DISCUSSION

The discovery of the two pigs in a Roman pit is of particular significance since, to the best of our knowledge, these are the first Roman lead pigs in Britain to have been found in a clear, dateable archaeological context. Pits similar to that in which the pigs were found occur only rarely at Carsington. The heavy clay which underlies the modern ploughsoil is so difficult to excavate that the Roman occupants of the site seem to have avoided digging into it whenever possible. Excavations on the adjacent site revealed that building foundations rested on the clay surface, that rubbish was disposed of in dumps rather than pits, and that

	Sample 1 (Level 6, upper) %	Sample 2 (Level 6, lower) %	Sample 3 (Level 8) %
Sporinate	1	12	8
Plant cell walls and fibre	30	6	15
Alginite	1		
Fungal hyphae	10	5	1
Fungal spores	3		
Wood and charcoal	16	27	44
Bone residue	3	1	5
'Mush'	14	1	18
Recycled spores, coal, etc.	22	48	9
	100	100	100

Table 2: Carsington pit site: percentage incidence of palynofacies

post-hole structures were few in number. Apart from a well-pit of fourth century date, the only other disturbance of the clay was that made necessary by its impermeability, i.e. the provision of drainage ditches, all but one of which were again of fourth century date. The difficulty of digging the pit is reflected in its relative shallowness, and in its profile, with a shallow sloping slide on the east (from which the pit was probably dug) and a sharp face in the west. The original purpose of the pit is uncertain; given the difficulty of digging it is unlikely to have been dug for rubbish disposal, and there is nothing in the artifactual or environmental material to suggest that it was a rubbish dump. It is possible that it represents an aborted well-pit.

The nature of the pit fill, and the speed of its deposition, are of some importance since they must be related to the deposition of the pigs. The environmental evidence suggests that most of the pit fill accumulated slowly, and that initially the fill material included wood ash and plant debris (Level 8). We may note that daub fragments also occurred in this level. After a period of slow silting (Sample 2), the top of the pit fill, containing much plant debris, was deposited rapidly (Sample 1). The concentration of daub, scrap lead, galena, slag and wood ash in the lowest level of the fill suggests that soon after the pit was dug it began to be filled with debris which came from a metal-working area, presumably in the vicinity. Whether the daub may have come from a furnace structure or from a building which housed the working area is not clear. The lead pigs must have been placed in the pit during this phase of its use, for the lower pig rested almost at the base of Level 8, and the upper pig's uppermost surface was roughly level with its top. There is no obvious explanation as to why two sound pigs, with a combined weight of 103 kgs (226 lbs), should have been deposited in this pit, and it would be pointless to speculate. It should be noted, however, that the pigs must have been deliberately and carefully placed here, since they sat neatly one on top of the other.

The discovery of two pigs of almost exactly the same size and with identical mould blemishes, and therefore demonstrably from a single mould, together with the metallurgical debris and wood ash found in the same level, is suggestive of manufacture of the pigs close to the pit. Pig 2, with an irregular upper side and lower weight, may well have been the second of the two to have been made during a single smelting operation. Indications of fourth century lead-working at Carsington were found on Site A, where a mid-fourth century

well-pit was filled with a charcoal-impregnated soil with a very high lead content when the well collapsed soon after construction. The wider significance of the pigs and the lead-working will be discussed further below. It is unfortunate that the pottery recovered from the pit will not allow of closer dating. The pit is clearly of the fourth century, and the balance of the evidence suggests that it probably belongs in the second half of the century. This would not conflict with evidence from Site A at Carsington, and a late phase of lead-working at this period on Site A has already been noted above. The environmental samples from the pit add something to our picture of Carsington at this time, suggesting a settlement on damp land, partly given over to animal pasture but also producing cereals. While evidence suggestive of both damp conditions and animal husbandry was found on Site A, that for cereal production is new.

The Carsington pigs are unlike the vast majority of lead pigs found in Britain. The most recent discussion of these are by Elkington (1976 — for the Mendip pigs) and Dool and Hughes (1976 — for those from Derbyshire). Most of these pigs carry a cast inscription, have flat upper and lower surfaces, and weigh upwards of 170 lbs (see, for example, the details in Tylecote, 1962: 84-85). Where the inscriptions indicate a date of manufacture, they are of first or second century date. (The latest known British pig (found in France) is dateable to the period AD 195-211 - Elkington, 1976: 234.) Two smaller, plain pigs have previously been found, at Bradwell, Derbyshire (Cox, 1895) and at Carsington (Cockerton, 1953 - approximately one mile distant from Site A) respectively. A third may have been found at Oker Hill, Derbyshire (Webster, 1953), but was lost before it could be satisfactorily recorded. Tylecote (1962: 83) suggested that the Carsington and Bradwell pigs might be medieval in date, so that the secure context of the two new pigs is particularly welcome. It is tempting to suggest that these smaller, plain pigs represent the results of simple lead-smelting by miners-cum-farmers living in the Peak, and were sent to Carsington to be subjected to cupellation for the recovery of silver before final casting into larger, regular pigs. This attractive hypothesis cannot, however, be sustained for one obvious reason: the regular pigs are essentially first and second century types, whereas our two pigs are clearly of the later fourth century. A more likely explanation of the four small pigs from Derbyshire is that they represent small scale civilian exploitation of the mines (presumably still under lease from the emperor). It is possible that such pigs began to be produced earlier than the mid-fourth century date of our two examples, since direct military control of the mines may have ended by the end of the second century AD. At present, however, the evidence at Carsington, from both Site A and the pit reported here, suggests that the smelting of lead ore and the extraction of lead was carried out in the farming settlements at Carsington in the fourth century AD, presumably utilising ore from the veins found immediately above Carsington village (Ford and Rieuwerts 1975: 111ff).

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