

ART. I.—*A hoard of Romano-British ironwork from
Brampton, Cumberland.* By W. H. MANNING, B.Sc.

Read at Penrith, July 1966.

THE hoard of ironwork which forms the subject of this paper was discovered on 13 July 1964 during levelling work for an extension to the recreation grounds of the Irthing Valley School, Brampton, Cumberland (Nat. Grid Ref.: NY 524613). Lying in an area of heavy clay land to the west of the village of Brampton, the site is bounded on the west and south by the Brampton Beck. In the previous year a Roman tilerly had been excavated on the site by Mr Robert Hogg and the following account of the discovery of the hoard is taken from his report in CW2 lxv 161-168:

The discovery (of the hoard) was immediately brought to the notice of our member Mr J. Hutchinson, who is on the staff of the Irthing Valley School, who recovered the contents of the hoard and noted its precise location (Map facing p. 8). The complete hoard has been given by the Cumberland Education Authorities to Carlisle Museum . . . The metal was buried in a pit two feet in diameter and three feet deep, but as some seven feet of upper soil levels had been removed the original depth of the pit must have been about ten feet.

The date of deposition of the hoard.

The presence of a relatively deep, narrow pit in a tilerly strongly suggests that it was dug as a well to provide water for use in tile making; and we may safely assume that the shaft was open while the tilerly was active. On the basis of the associated pottery scatter, Mr J. Gillam has suggested that this was during the period A.D. 100-125. It is unlikely that a relatively deep pit cut in clay would have remained open for very long after its abandonment and the fact that the iron was found at the

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bottom, and not higher in the filling, suggests that it was put into the pit immediately after its active life had come to an end. A date of around A.D. 125 would, therefore, seem likely for the deposition of the hoard, and there is nothing in the hoard itself to contradict such a date. Many of the objects can be compared with similar ones from Newstead of late Flavian date or from the Blackburn Mill, Carlingwark Loch and Eckford hoards, all from southern Scotland and all of late 1st or 2nd century date.

Origin and nature of the hoard.

Mr Hogg, in his report on the tilery, has suggested that it was a military establishment operated by an auxiliary unit stationed at the Old Church fort in Brampton, which lies some three-quarters of a mile to the west of the tilery. As part of the Stanegate series of forts, Old Church was presumably dismantled on the completion of Hadrian's Wall. Although proof is at present lacking, this suggestion is most probable.

If the tilery was a military establishment operated by an auxiliary unit we may reasonably ask if the hoard has a military origin. The objects in it fall into several classes. There are the agricultural tools, such as the plough-share, hoe, rake prong and scythe; the artisan's tools, the chisels and bits; the more general tools, the hooks and chains; fragments of wheels, buckets and furniture; a series of fittings, hinges, hooks, collars and so forth; and a number of structural fragments, probably from buildings or carts. Almost all of these objects are compatible with a military origin. The tools, wheel fragments, bucket fittings, general fittings and structural fragments are all things which could be expected in a fort, and a large proportion can be matched from Newstead and other forts. Most of the agricultural implements, too, have their parallels at other forts, and, with the exception of the plough share, they would all have their uses there; the hoe as an entrenching tool, the scythe for cutting hay as

fodder and the rake for gathering it. The presence of the plough share is likely to be the result of chance; perhaps it was acquired as scrap.¹

The absence of purely military equipment, such as weapons or armour, is striking. Whether it has any significance is more difficult to say. Possibly the armourer and the general smith were separate in a unit, or possibly damaged weapons were kept separately from tools and the like.

The presence of this ironwork in the tilery is somewhat strange. Although it consists almost entirely of types which could be expected in a Roman fort, there are a number of pieces which one would not expect to find in a tilery. Buckets, hoes, fire-shovels, chains and so-forth might well be used there, and the structural fragments could have come from worksheds. Even the wheel fragments and chisels could have been taken there for a purpose, but the augers look less probable, while the hay-rakes, the scythes and couch legs are utterly out of place. There seems little doubt, therefore, that the hoard has been brought from a fort, most probably Old Church, and dumped in the tilery pit. The reason for doing this is less obvious.

The fact that the ironwork must have been brought three-quarters of a mile from Old Church appears to argue against the hoard merely being scrap iron, thrown away when the fort was closed down or at some other time. Admittedly it is scrap, presumably collected with the intention of re-using it as raw material. Almost all the tools are damaged or badly worn, the chain had reached a point where it might have broken under strain and much else is clearly useless. Many of the pieces have been bent double. That the Roman army buried iron

¹ Professor Piggott, in his paper on three hoards from southern Scotland in *PSAScot.* lxxxvii, has suggested that the Roman government made deliberate attempts to introduce new agricultural techniques into the backward areas of northern England and Scotland. Even so, it is unlikely to have used an auxiliary unit as the agents of agricultural reform.

when evacuating a fort to prevent it falling into enemy hands is shown by the Inchtuthil hoard,² but a comparison between this and the Brampton hoard is scarcely valid. Inchtuthil was abandoned at a time when the frontier was being moved back and any stores left there would have been in enemy territory. The Brampton fort, on the other hand, was closed because the frontier was being consolidated on a slightly forward line. The weight of the Inchtuthil material — over seven tons — would have presented a difficulty in itself, whereas the Brampton material presents no such problem; a pack-horse could carry the lot. Finally, the Inchtuthil iron was buried in a pit in the *fabrica* itself, whereas at Brampton it was carried three-quarters of a mile to a disused tilery before being dumped. If the intention was merely to dispose of unwanted scrap in a way which would prevent its falling into hostile hands, it is difficult to see why it was not buried in the fort.

It seems equally improbable that the hoard was buried for safety. Even if scrap iron had been of great value to the Roman army, which it was not, to drop it into an unshored well would be a strange way of preserving it.

Although one can produce arguments against these reasons for burying the hoard it is more difficult to suggest alternative explanations. Comparison must, however, be made with the other hoards of ironwork from Roman Britain; from Pit XVI at Newstead;³ Loudoun Hill;⁴ the three from southern Scotland, Carlingwark Loch, Blackburn Mill and Eckford;⁵ Sandy;⁶ Great Chesterford;⁷ Dorchester-on-Thames;⁸ and the two from Silchester.⁹ Of these, four came from pits or wells (New-

² *JRS* li 160.

³ Curle, *A Roman Frontier Post and its People: The Fort of Newstead*.

⁴ *JRS* xlv 123.

⁵ *PSAScot.* lxxxvii 1 ff.

⁶ *Beds. Arch. J.* ii 50 ff.

⁷ *Arch. J.* xliii 1 ff.

⁸ *Arch. J.* cxix 119.

⁹ *Arch.* liv 139 ff. (1850 hoard) and *Arch.* lvii 246 ff. (1900 hoard).

stead, Great Chesterford and the two from Silchester). In the words of Professor Piggott when discussing the Scottish hoards :

These town and fort hoards suggest at first sight accumulated blacksmith's scrap or the stock-in-trade of a craftsman, hidden in the ground with intent to recover in times more favourable than those at the time of deposition, but in view of the known Belgic practice of depositing votive offerings in wells or shafts, it is possible that the utilitarian explanation may not wholly apply in all examples.¹⁰

Roman or Native?

Attempts have been made to divide the contents of similar hoards into objects which are Roman in origin and others which are native.

In the writer's opinion the difficulties which arise from such attempts are likely to prove insuperable. To begin with, we lack a good basis for comparison, for the quantity of pre-Roman ironwork from Britain is relatively small, much of it late in date. Attempts to supplement this with evidence from Continental Iron-Age sites are basically invalid owing to the progressive classical influences which they underwent. Indeed, even in dealing with material from the Belgic areas of England, we must recognize that Roman influence was making itself felt before the actual conquest. Even if we can show that a tool type was in use in pre-Roman Britain we cannot be certain that its presence on a Roman site is the result of native influence. A large proportion of the auxiliaries in the Roman army came from Gaul and Germany, areas which had much in common with Iron-Age Britain. Objects already in use in Britain may, therefore, have been reintroduced quite independently by the Roman army. Even the legions may have contributed to this process. Three of the four legions used in the invasion of A.D. 43 came from Germany and later the II Adiutrix was brought from the same region. All could have

¹⁰ PSAScot. lxxxvii 8.

acquired objects and ideas from their previous posting, and all will have had a train of local camp followers, some of whom are bound to have crossed to Britain.

The argument for Roman influence is somewhat more convincing, for it seems reasonable to suggest a Roman origin for a type of object which is found in Britain after the invasion if it was in common use in the Roman army but apparently unknown in pre-Roman Britain. Even so there must remain a distinct element of doubt. Indeed the term *Roman* can have little meaning in this context, so varied is the cultural background from which the army was drawn. In many ways the invasion of 43 merely speeded a technological development which was already proceeding by other contacts with Europe.

References and Bibliography.

In citing references in the catalogue the following procedures have been used: (a) Where a work or site is mentioned only once the reference has been given in full in the text at the appropriate place. (b) Where a work is cited a number of times a standard abbreviation is used in the text and the title is given in full in the bibliography. (c) Where reference is made repeatedly to a site the page, plate and figure reference is given in the text in brackets after the site name, and the full reference for the publication in question is given under the site name in the bibliography.

The following sites and works are cited in an abbreviated form in the text:

Bar Hill, Dumbarton: Macdonald, G., and Park, A., *The Roman Forts on the Bar Hill, Dunbartonshire*, *Proc. Soc. Antiq. Scot.* xl 403 ff.

Blackburn Mill, Berwicks.: cf. Piggott.

Bokerly Dyke, Wilts.: Pitt-Rivers, A. H. L., *Excavations in Cranborne Chase*, iii.

Brading Villa, I.O.W.: Cleere, H., *Roman Domestic Ironwork, as illustrated by the Brading, I.O.W., Villa*, *Bull. Inst. Archaeology*, i 55 ff.

- Carlingwark Loch, Kirkcudbright.: cf. Piggott.
 E.E.C.: Pitt-Rivers, A. H. L., *Excavations in Cranborne Chase*, vols. i-v.
 Eckford, Roxburgh.: cf. Piggott.
 Glastonbury, Somerset: Bulleid, A., and Gray, H. St. G.: *Glastonbury Lake Village*, vols. i and ii.
 Great Chesterford, Essex: Neville, R. C., Description of a remarkable deposit of Roman Antiquities of iron, discovered at Great Chesterford, Essex, in 1854, *Arch. Journ.* xiii 1 ff.
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 Hod Hill, Dorset: Brailsford, J., *Hod Hill I, The Durden Collection*.
 Lindenschmit: cf. Heidenburg.
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 Wiesbaden, Germany: O.R.L. B Nr. 31.
 Woodcuts, Dorset: Pitt-Rivers, A. H. L., *Excavations in Cranborne Chase*, vol. i.
 Woodyates, Dorset: Pitt-Rivers, A. H. L., *Excavations in Cranborne Chase*, vol. iii.
 Zugmantel, Germany: O.R.L. B Nr. 8.

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CATALOGUE.

1. PLOUGH SHARE. Overall length, 18.8 cm.; width 6.9 cm.

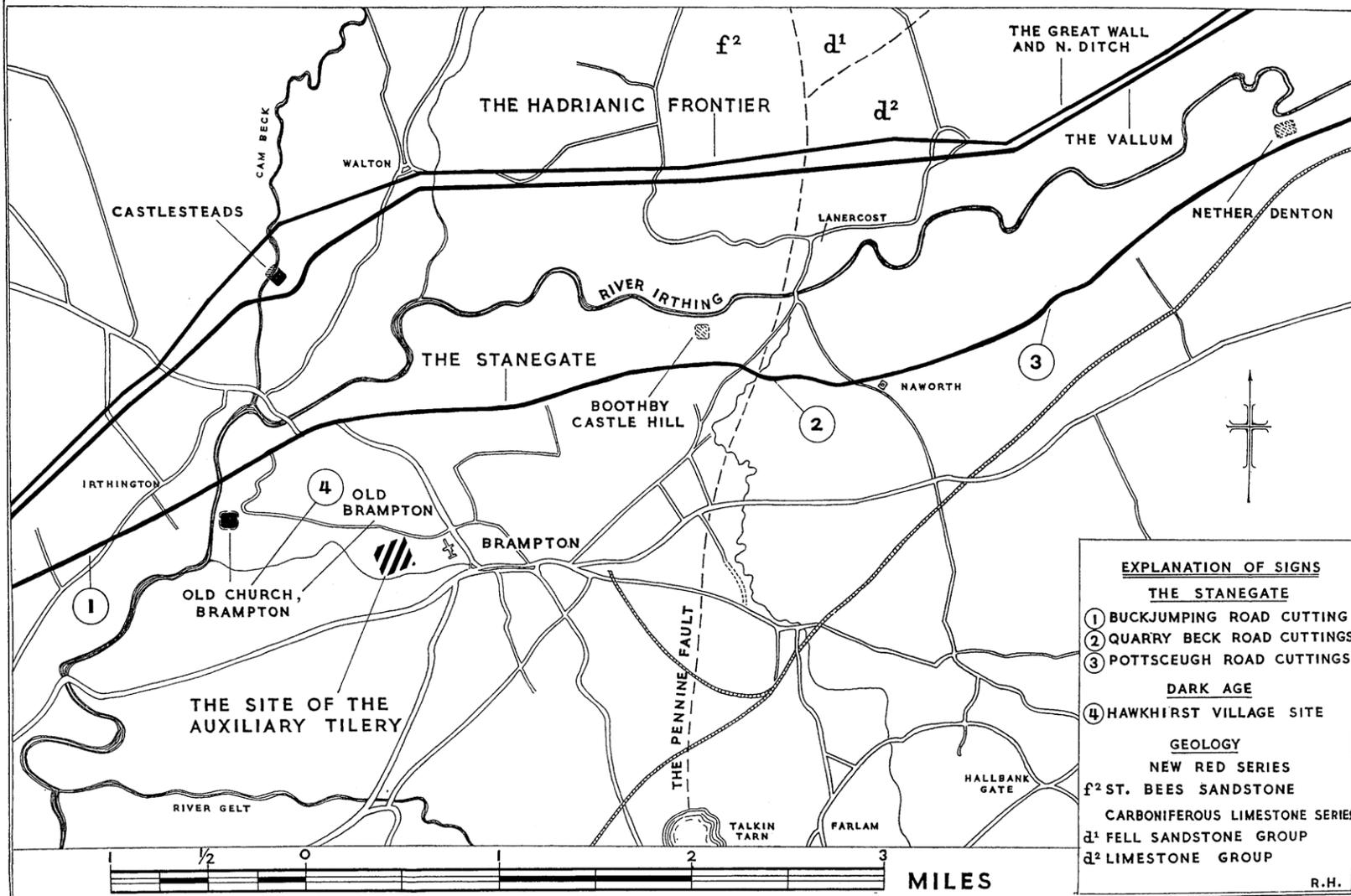
Plough share formed of an oblong sheet with a flange on either side extending for slightly less than half its length. These flanges are formed by turning-up "wings" on the plate, and are now damaged. The front edge of the share is slightly widened, and there is a single nail-hole in the centre between the flanges.

This is an example of a well-known type of share which the writer has elsewhere called the short-flanged broad-edged type (*JRS* liv 58). It first appears in the Belgic period (e.g. at Bigbury, Kent (*Arch. J.* civ, fig. 1, nos. 14 and 15) and occurs at a number of sites in Roman Britain (e.g. Eckford, Roxburghshire 27, fig. 5, E10), Traprain Law, East Lothian (PSAScot. lviii 255, fig. 11, 1), and Wallingford, Berks. (*JRS* liv 58, fig. 5, E). The presence of the nail-hole is unusual but no doubt added to the security with which the share was fitted to the plough.

2. HOE. Overall length, 24.5 cm.

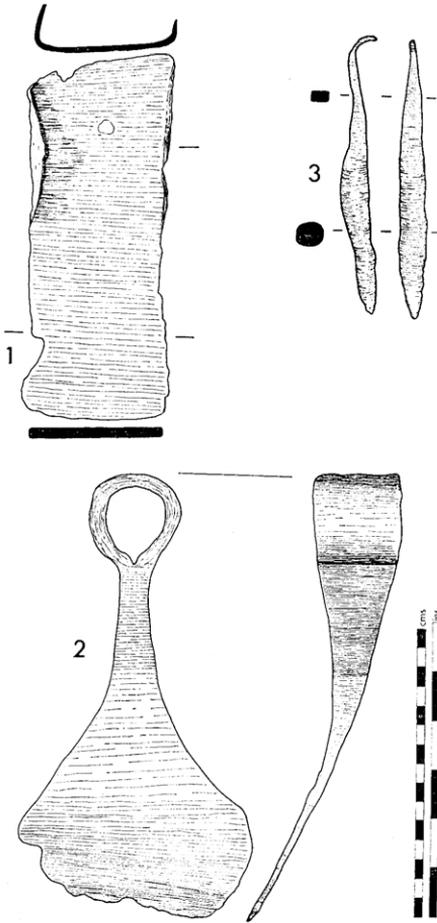
Hoe with a circular eye surrounded by a thin collar from which a narrow neck widens in a smooth curve into a broad

ROMAN AUXILIARY TILERY, BRAMPTON: 1963. THE RELATION TO THE FRONTIER WORKS.



Map showing the relation of the tilerly to the Roman frontier works.

blade, with a curving edge. Tools of this type are found not infrequently on Roman military sites both in Britain and Germany, and although similar tools are found in the Iron Age (e.g. at Glastonbury (*Glastonbury* ii 373) there is no reason to suppose that they were not used by the Roman army at the time of the invasion. They could be intended either as adzes or hoes, but the narrow neck, very wide blade and curving edge of our example, suggest that it is more likely to have been a hoe. Examples can be cited from the forts of Hod Hill, Dorset



(13, fig. 12, G2, where it could, of course, be Iron Age), and Camelon, Stirlings. (PSAScot. xxxv 407, fig. 45), and from the Blackburn Mill hoard from Berwicks. (48, fig. 13, B39). In Germany they have been found at the forts of Pfanz (taf. xvi, 24 and 25), Weissenburg (taf. x, 30 and 32) and Munningen (O.R.L. B Nr. 68a, taf. v, 78).

3. RAKE PRONG. Overall length, 14.2 cm.

The prong itself is worn and the tang is incomplete, but originally it would have turned back to grip the wood in which it was set. In use a number of these prongs were mounted in a wooden clog or beam with a wooden handle.

Single teeth are relatively common and examples can be cited from Newstead (pl. lxvi, 2), Blackburn Mill (48, fig. 12, B36), London (Guildhall Museum), Caerwent (Newport Museum), Caistor-by-Norwich (Norwich Castle Museum), Silchester (Reading Museum) and Verulamium (recent excavations). An almost complete rake with an oak clog and seven teeth comes from the Flavian Pit LVII at Newstead (283, pl. lxi, 7). Another was found at Saalburg (taf. lxxx, 2). These composite rakes appear to be the normal form in Roman Britain and the type made entirely of iron, which occurs at Pompeii, seems to be lacking. No doubt examples with wooden prongs were also used but have not survived.

4. SCYTHE (Fragment). Overall length, 29.5 cm.; length of tang, 16.5 cm.; length of blade, 18.0 cm.

The fragment consists of the tang and part of the blade. The tang has a flat rectangular cross-section, the blade a strongly developed back-rib with a second rib running parallel to it. Both ribs are on the face of the blade, the back being quite level. The blade and tang were made separately and welded together. The edge of the blade is now badly damaged.

This and the following fragment (5) are from a scythe of the type widely used by the Roman army in north-west Europe. With the distinction that our example lacks the rivet-hole at the base of the tang it closely resembles the four scythes from Newstead (284, pl. lxii, 3-6). These scythes vary in length between 35 in. and 43.5 in. (89 cm. and 110 cm.) and are altogether shorter and stouter than the remarkable 4th-century scythes from Great Chesterford (10, fig. 29) and the Barnsley Park Villa, recently excavated by Dr Graham Webster, which are over five feet long (150 cm.) and have long slender blades, forming a type apparently confined to Britain.

Fragments which are probably from scythes of the Newstead type come from the Carlingwark Loch hoard (34-5, fig. 9, C21, 22, 23), and more certain pieces are known from Bar Hill (Hunterian Museum, Glasgow) and Loudoun Hill (Hunterian Museum, Glasgow). German examples can be quoted from Stockstadt (*O.R.L.* B Nr. 33, taf. ix, 1) and Heidenburg (taf. 46). The Wilsford Down, Wiltshire (*Devizes Museum Catalogue* II 237, pl. lxxx, 2) and Woodyates (109 and fig.) scythes are of a different type altogether.

5. SCYTHE (Fragment). Overall length, 22.6 cm.

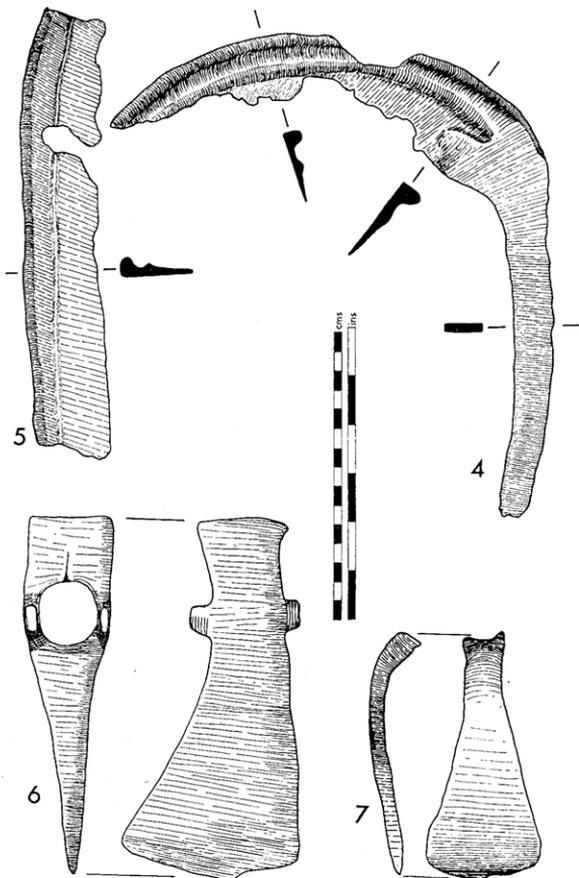
Fragment of a scythe blade with back and mid ribs on the face. It probably comes from the same scythe as the preceding item.

6. AXE. Overall length, 18.5 cm.; weight, 3 lb. (c. 1,360 gm.).

Axe with a slightly oval eye with paired lugs on either side of it, a heavy butt (slightly burred by use as a hammer) and a backward curving blade. It bears an illegible maker's stamp.

In form this is a typical Roman axe and parallels can be quoted from many sites (cf. chart for some). Axes with an eye for the haft are extremely rare if not absent from the pre-Roman Iron Age in Britain. There are none from Llyn Cerrig Bach, Glastonbury, Maiden Castle, or Camulodunum; instead a socketed form, probably developed from the normal late Bronze Age axe, appears to have been widely used (e.g. from Cold Kitchen Hill, Wilts., *Devizes Museum Catalogue* II 120, pl. xxxiv, and Walthamstow, Essex, *B.M. Guide to Early Iron Age Antiquities* (1925), fig. 82). An axe from Camulodunum (Hawkes and Hull, *Camulodunum*, 343, pl. cv, 27) is clearly derived from this form, but in having an open socket formed by folding over wings on the edge of the blade, it has developed into a form more suited to the material. This axe appears to date from the years immediately after the Roman conquest. The most likely example of an Iron Age axe with an eye for the haft comes from the small hoard found in the hill-fort at Madmarston Camp, Oxfordshire. (*Oxoniensia* xxv 42, fig. 18, 5.) Unfortunately it cannot be shown stratigraphically to be pre-Roman as it was found on top of the rampart-tail below cobbling which contained late Roman pottery. The other objects in the hoard ("currency bars", an unbalanced sickle, bridle-bits, etc.) are all of Iron Age types, but, as the excavators point out, a Roman date for the axe cannot be ruled out.

The presence of lugs around the eye is a diagnostic feature of Roman origin and occurs on Roman axes and other tools from Britain, France and Germany, but, with one exception, on none for which an Iron Age context is claimed. The exception comes from the hill-fort of Dinorben in North Wales (Gardner and Savory, *Dinorben* 155, fig. 24, 1) but here the evidence for a pre-Roman dating is insufficient to override the absence of Iron Age parallels. It must be remembered that the Roman army campaigned intermittently in this area for some thirty years before the final conquest which would give an ample opportunity for the native acquisition of such an axe.



The existing evidence suggests that lugs are present on axes of the 1st and 2nd centuries A.D. but not on those of the 4th century; the 3rd century, as so often, being a virtual blank. (Cf. chart below.) It should be remembered, however, that the majority of the early examples are from military sites whilst the later ones come from civil sites. Even so, the chronological variation would appear to exist, and there can be little doubt that the lugged axe is a military introduction into Roman Britain. Tempting as it would be to use this evidence to suggest that the lugged axe was the normal Roman form in use in the 1st century A.D., this cannot, in fact, be the case. Of the 12 axes of this general type from Pompeii and Herculaneum, seen by the writer in the National Museum in Naples, only one had lugs and these are best described as rudimentary. The truth is more likely to be that the lugged axe was generally used by the army in the 1st and 2nd centuries, perhaps because the lugs make for a greater strength in the hafting which would be a distinct advantage on campaign, and whilst the army was the predominant romanizing influence, this type was widely accepted. Only later did the type commonly found in civil use in Italy become popular in Britain, apparently at the expense of the lugged type.

In addition to the examples given in the chart a considerable number of undated axes both with and without lugs exist. Some examples of lugged axes from Germany are from Pfanz (taf. xvi, 38), Weissenburg (taf. x, 31), Theilenhofen (*O.R.L.* B Nr. 71a, taf. iv, 49), Faimingen (*O.R.L.* B Nr. 66c, taf. vi, 16), etc., and from France, from Verneuil (Seine-et-Oise) and Compiègne (*St. Germain Cat.* I, fig. 272, nos. 15835 and 15859a, respectively).

DATED EXAMPLES OF ROMANO BRITISH AXES

Chart Site	Military or		Lugs	Reference
	Civilian	Date		
Newstead	M	Late 1st C.	+	<i>Newstead</i> 282, pl. lxi, 4.
Brampton	M	Early 2nd C.	+	This paper.
London	?	1-2nd C.	+	Guildhall Museum.
Carlingwark Loch	C	1-2nd C.	+	<i>Piggott</i> 37, fig. 9, C51.
Newstead	M	Mid 2nd C.	+	<i>Newstead</i> 283, pl. lxi, 1.
Loudoun Hill (2)	M	Mid 2nd C.	+	Hunterian Museum.
Woodcuts	C	2nd C.	+	<i>E.C.C.</i> i 81, pl. xxvi, 2.
Bar Hill	M	Mid 2nd C.	+	Hunterian Museum.
Strageath	M	Mid 2nd C.	—	<i>PSAScot.</i> v (1865), 241.
Burgh Castle (2)	M	3rd-4th C.	—	Norwich Castle Museum
Dorchester, Oxon.	C	4th C.	—	1963 excavations.
Great Chesterford	C	4th C.	—	<i>Arch. J.</i> xiii 3, pl. 1, 9.
Sandy	C	4th C. ?	—	<i>Beds. A. J.</i> ii 57.
Verulamium	C	4th C.	—	Recent excavations.
Silchester 1890 (7)	C	4th C.	—	<i>Arch.</i> liv 147-148.
Silchester 1900	C	4th C.	—	Reading Museum.

7. ADZE (Fragment). Overall length, 12.6 cm.

Blade and neck of a small adze, lacking most of the collar around the eye. Originally it was probably similar in general appearance to the hoe no. 2 described above, but the shorter, stouter blade and relatively straight edge suggest that it was intended as an adze rather than a hoe.

8. MORTICING CHISEL. Overall length, 27 cm.

Socketed morticing chisel. The blade has a thick rectangular cross-section with the bevel forming the edge almost entirely on one side of the blade. The top of the socket, which is cylindrical in section, is badly burred and has clearly been struck without an effective handle in the socket. The junction of the blade and the stem is marked with a slight shoulder. The strength and relative narrowness of the blade, together with the bevel on one side show that it is a morticing and not a firmer chisel. It bears an illegible maker's stamp.

Chisels of similar type and approximately similar date come from Hod Hill (14, fig. 12, G20) and Newstead (280, pl. lix, 9). A fragment of the wooden haft found in the socket has been identified as Ash (*Fraxinus excelsior* L.) by Dr B. Seddon of the Department of Botany of the National Museum of Wales. The use of ash for tool handles and hafts appears to have been normal practice in Iron Age and Roman Britain.

9. CHISEL (Fragmentary). Overall length, 16.5 cm.

Socketed chisel. Both the blade, which has a thick rectangular cross-section, and the cylindrical socket are damaged. Although the tip of the blade is missing, the stem appears to be tapering evenly towards the edge suggesting that it was a firmer chisel. There is a slight shoulder at the junction of the blade and the socket.

It resembles complete chisels from Brecon Gaer (National Museum of Wales) and Caerwent (Newport Museum).

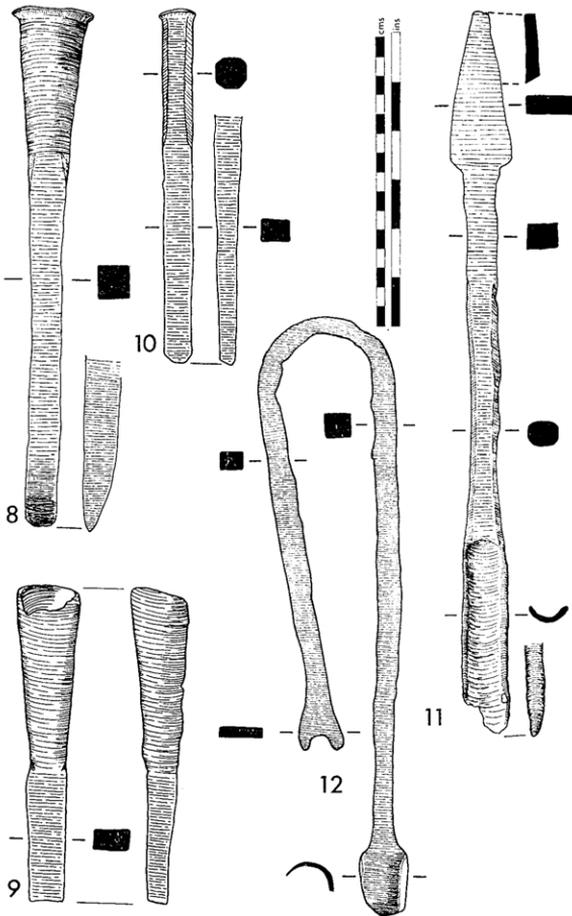
10. CHISEL. Overall length, 18.4 cm.

Solid chisel with the tip of its blade missing. The handle has flat faces, which continue from the blade, but the edges are rounded. It ends in a flat round head. The blade has a strong rectangular cross-section. The edge appears to have been formed by a general thinning of the blade, which suggests that it was a firmer chisel. Such solid handles are less common than sockets, but a basically similar chisel comes from the 4th-century Silchester 1890 hoard (Reading Museum, no. 07426), and from Germany, at Zugmantel (taf. xvi, 33).

II. SPOON AUGER. Overall length, 37.5 cm.

Although the tip of the blade is damaged, sufficient remains to show that it turns up to form a spoon rather than ending as a gouge. The shank has a rectangular cross-section which becomes more rounded as it approaches the blade, terminating at the other end with a lanceolate head. It must have been used with a detachable wooden cross-handle which fitted over this head.

Spoon bits are not uncommon among Roman tools but this



example is unusually large, though not uniquely so. An example from Newstead (281, pl. lix, 14) is 11.5 in. (29.3 cm.) long, and a similar one comes from London (Guildhall Museum). Part of the spoon from a large bit or auger was found in the Claudian fort at Waddon Hill, Dorset (*Proc. Dorset Nat. Hist. and Arch. Soc.* 86, 149, fig. 8, 33). Even larger examples come from Roman Germany, for example, Wettswil (Zurich), c. 24 in. (61 cm.) long (Mercer, *Ancient Carpenter's Tools*, 184, fig. 165), Zugmantel (taf. xvi, 15), c. 30 cm. long, and Saalburg (taf. xxxiv, 7 and 9), 53 cm. and 40 cm. long respectively.

12. LARGE AUGER. Overall length, 31.2 cm.; length, before bending, c. 57.5 cm.

Large auger with a long shank of rectangular cross-section terminating at one end in a gouge-like blade and at the other in a flattened, crescentic head. The blade is short and broad, but it is now damaged on one side and was probably longer originally. As it is it appears to be a shell auger, but it may originally have been more elaborate. The crescentic head may be in its original form, but it is more likely to be half of a flattened and pierced head. It was presumably turned by means of a detachable wooden handle which fitted over this head, or less probably through it. If we are correct in suggesting that it was originally a pierced head then it may have been intended for a pin to hold the handle in place, or alternatively, to hang it up by.

I know of no exact parallel for this tool, but comparison can be made with an even larger hooked auger from Zugmantel (*Saalburg Jahrbuch*, 1913, taf. xii, 1). It is not, of course, impossible that the blade of our example originally had a similar hook at its tip, but it could equally well have been a spoon or shell bit. Even so, both are clearly related examples of very long boring tools. The wooden water-pipes used at many Roman sites must have been bored with tools similar to these.

13. L-ENDED TOOL. Overall length, 42.4 cm.; length before bending, c. 81.9 cm.

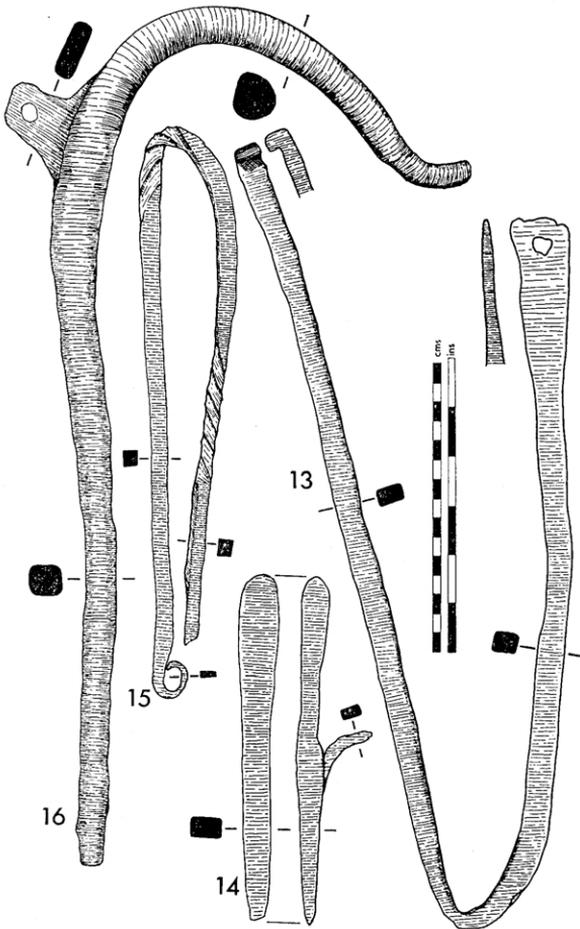
Tool formed of a long square-sectioned rod with a short up-turn at one end and with the other end flattened and pierced, probably to take a ring for suspension. It has been bent double at some time before deposition.

The function of this object is obscure and I know of nothing similar. It appears to be complete and the L-shaped ending is presumably the functional part, but beyond this little can be said.

14. ANVIL-SPIKE? Overall length, 18.1 cm.

Spike of rectangular cross-section with a semicylindrical head. An L-shaped arm is welded on about half-way along the stem.

The function of this piece is not immediately apparent and I am aware of no close parallel. It may be an anvil-spike used in metal-working. If this is the case it would have been placed into a socket in the work-bench with the projecting arm acting as a stop to prevent it being driven further into the bench when in use.



C

15. **TOOL HANDLE.** Overall length, 29.6 cm.; length, before bending, 58 cm.

Handle formed from a rod of rectangular section, one end of which is now broken while the other is flattened and turned over to form a loop, probably originally intended to hold a ring. It has two short lengths of ornamental "barley-sugar" twisting (in opposite directions); a form of decoration common on handles of this type. It was bent double at some time before deposition.

Somewhat similar fragmentary rods are known from other sites such as Newstead (307, pl. lxxix, 5) and Bokerly Dyke (102, pl. clxxiv, 25), but our example most closely resembles in form and size the handles of fire-shovels from Newstead (PSAScot. xlvii 388, fig. 2, 5), the Carrawburgh Mithraeum (AA4 xxix 84, pl. xv**b**) and Verulamium (recent excavations). The main difference lies in the fact that these shovels have a flattened and pierced end to the handle, which holds a ring for suspension, whilst our example has a turn-over loop fulfilling the same function.

16. **TANGED HOOK.** Overall length, 41.5 cm.; length from tip of tang to top of hook, 43.7 cm.

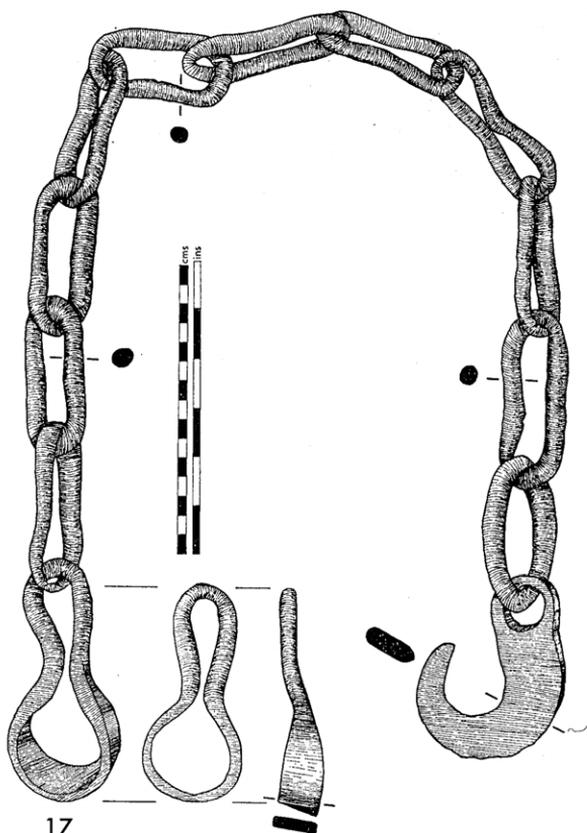
Large hook with long tang and forward curving tip. At the top of the tang is a flat rectangular lug pierced by a round hole.

The function of this hook is not immediately obvious and I know of no close parallel. Were it not for the pierced lug it could be considered as a well-hook, but the lug is clearly intended to receive a rope, or more probably, a chain. Presumably the tang was originally fitted into a wooden handle. Although no similar hook can be cited, comparison with certain other hooks can validly be made. Substantial hooks are known from Newstead (288, pl. lxvi, 8) and Silchester (Reading Museum) which have vertical spikes at the junction of the socket and the curve of the hook. If these hooks were mounted on a pole a loop of rope could be passed over the spikes, which would thus serve the same function as we have suggested for the lug on our example. The closest recent parallel which can be suggested for such spiked hooks is the fire-hook used to pull thatch from a burning building. Mounted on a long pole they were pushed into the thatch, the base of the pole was rested on the ground to act as a fulcrum, and the hook was hauled back (bringing the thatch with it) by means of a rope around the spike. Whether the Brampton hook was indeed a fire-hook is a matter of con-

jecture, but such a hook would have been most useful in a timber fort where thatched roofs must have been common.

17. CHAIN. Overall length, *c.* 93 cm.; average length of links, *c.* 8 cm.; length of hook, 9.6 cm.; length of collar, 11.3 cm.

Chain of ten long links with a figure-of-eight collar at one end and an oval link and a large flat hook at the other. The eye of the hook and several of the links are badly worn and this is the probable reason for the chain being scrapped. Several of the links have a slightly figure-of-eight shape and this may have been more pronounced when the chain was first made;



the links subsequently being strained to their present almost oval shape. They can never, however, have been tightly closed figure-of-eights of the type seen in many chains from the late pre-Roman Iron Age (e.g. on the Llyn Cerrig Bach gang chains (84, pl. x, xi and xxxvii) and Roman period (e.g. Newstead 287, pl. lxiv). Links similar to ours occur in fragmentary chains from Woodcuts (97, pl. xxxi, 1) and Silchester (Reading Museum), and are common on the German *limes* (e.g. Wiesbaden, taf. vii, 18). Complete chains, however, are rare and the British examples are almost all either gang or pot chains. Better parallels occur in Germany with the best coming from Zugmantel (*Saalburg Jahrbuch*, 1913, 72, textabb. 19). This is a long chain (3.85 m.) formed of links similar to ours and ending with a ring at one end and a very similar hook to ours at the other. The figure-of-eight collar at the end of our chain can be compared with a similar collar on a chain from Wiesbaden (taf. xii, 19).

What the Brampton chain was used for is largely a matter of conjecture. Jacobi identified the Zugmantel chain as a well-chain, and it is certainly long enough for this, but ours is not. Nor is it likely to have been a pot chain; these are usually quite distinctive and end with two long hooks intended for the handles of a cauldron. The degree of wear shows that it was used for heavy work and the shape of the terminal collar suggests that this was fitted over a pole of some sort. Used in this way with a pole carried by two men it would be capable of moving quite heavy weights; alternatively it could have been paired with another at the ends of a shoulder yoke of the type used until recently for carrying pails. On the other hand the degree of wear seems quite excessive for such relatively light usage, and it is possible that the pole which fitted through the collar was harnessed to horses or oxen and that the chain was used for towing or dragging logs. The starts and strains of such usage could well produce the signs of wear which we see on it.

18. CHAIN (Fragment). Overall length, 48.5 cm.; average length of links, c. 12 cm.

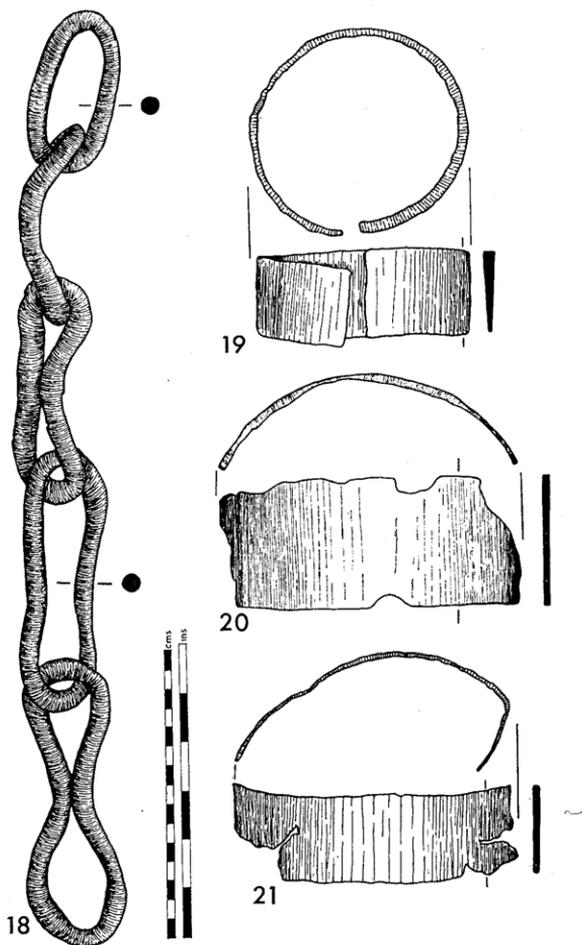
Four figure-of-eight links from a large chain with an oval link at one end. Two of the links are very open, possibly due to the effects of strain. It is comparable with the previous chain.

19. HUB-LINING. Diameter, 11.3 cm.; width, 4.5 cm.

Penannular band with a gap between the ends. It tapers slightly in thickness from one edge to the other. This example

lacks the slight flanges which are often present at the ends of the bands. Several were found at Newstead (293, pl. lxx, 9), in the Loudoun Hill hoard (Hunterian Museum, Glasgow), Bar Hill (515, fig. 39, 16), Sandy, Beds. (53, fig. 2, 4), Silchester (Reading Museum), Verulamium (recent excavations), Great Chesterford (6), etc. Of these the examples from Newstead and Bar Hill are the closest to ours.

20. HUB-RIM (?) (Fragment). Overall length, 15.6 cm.; width 6.8 cm.



Semicircular fragment of binding, possibly a section of a thin hub-rim. If this is the case the present wide curvature is due to its being straightened before deposition. There are no nail-holes in the existing section and it may have been shrunk on to the hub.

A number of hub-rims were found at Newstead (293, pl. lxx, 5, and others unpublished) and in the Loudoun Hill hoard (Hunterian Museum, Glasgow), and later examples come from Great Chesterford (6), and Sandy, Beds. (53, fig. 1, 2). Most of these are heavier and thicker than our example, but some of the unpublished rims from Newstead are similar to ours.

21. HUB-RIM (?) (Fragment). Overall length, 14.6 cm.; width 4.7 cm.

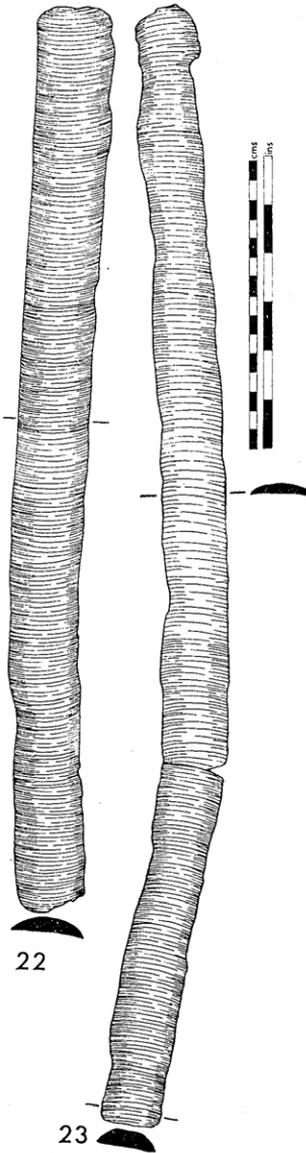
Distorted semicircular fragment of binding, possibly a section from a thin hub-binding. There are no nail-holes in the existing section. It is comparable with the previous rim.

22. TYRE (Fragment). Overall length, 47 cm.; width, 3.7 cm.; thickness, 0.8 cm.

Fragment of a tyre from a wheel. Seen in cross-section the underside is slightly concave whilst the upper face is convex. The fragment has been straightened before deposition. Signs of a welded joint can be seen on the inner face. There are no nail-holes and the tyre was undoubtedly shrunk on the wheel, as was normal in the Roman period.

Tyres are not uncommon from Roman Britain; complete examples are known from Inchtuthil (*JRS* li 160), Newstead (pl. lxx, 2A-C. Two examples actually found on wheels), Bar Hill (494, fig. 34, on a wheel), Loudoun Hill (Hunterian Museum, Glasgow), London (British Museum, cited in *Llyn Cerrig Bach* 95), Silchester (*Arch.* lviii 32) and Great Chesterford (7); and fragments come from Newstead (292), Blackburn Mill hoard (41, fig. 11, B3), Carlingwark Loch hoard (32, fig. 8, C6) and Eckford hoard (23, fig. 5, E5). Almost all of these tyres are strikingly narrower than modern tyres for wheels of the same diameter.

<i>Site and no. of tyres.</i>	<i>Diameter.</i>	<i>Width.</i>
Inchtuthil (10)	42 in.	
Newstead (2)	36 in.	1.75 in.
Bar Hill	34.5 in.	
Loudoun Hill (2)	39.75 and 40 in.	
London	34.5 in.	
Silchester (2)	43 in.	1.25 in.
Great Chesterford (4)	43 in.	1.5 in.



23. TYRE (Fragment). Overall length, 58 cm.; width, 3.2 cm.; thickness, 0.6 cm.

Fragment of a similar tyre to the preceding example. It has been bent and cracked before deposition. It is slightly narrower than the other fragment and is probably from a different tyre.

24-27. STRIP.

Overall lengths (24), 27.3 cm.; widths, 4.5 cm.

„ „ (25), 26.0 cm.; „ 4.5 cm.

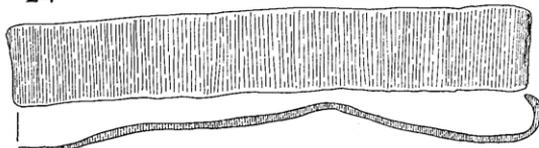
„ „ (26), 23.6 cm.; „ 4.4 cm.

„ „ (27), 21.2 cm.; „ 4.1 cm.

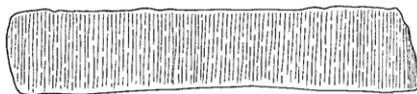
Total original length, *c.* 98 cm.



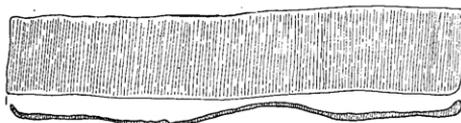
24



25



26



27



Strip-folded into four and probably already broken along the folds before deposition.

A strip such as this could have been used as the binding for a large bucket or any other object on to which it could have been shrunk or hammered, for the absence of nail-holes show that it was not nailed in place. A bucket-binding only slightly narrower was found in a well at Woodcuts (85, pl. xxvii, 6), and other fragments occur among the unpublished material from Silchester in Reading Museum and, no doubt, elsewhere.

28. MOUNT FOR BUCKET HANDLE. Overall length, 28.7 cm.

Strip-mounting for a bucket handle. Thickened and pierced at its rounded upper end it tapers slightly towards the lower end which is now broken. There are no nail-holes, and it would have been held in place by the bands which bound the bucket.

Complete buckets with this general type of handle mount are known from Newstead (310, pl. lxix, 4, one of three found at the fort). The illustrated example differs from ours in having the mounts nailed to the bucket, but exact parallels are present amongst the unpublished Newstead material. Two similar mounts were found with other bucket-fittings at Woodcuts (85, pl. xxviii, 3).

29. MOUNT FOR A BUCKET HANDLE. Overall length, 19.0 cm.

Strip-mounting for a bucket handle. Thickened and pierced at its upper end it tapers slightly towards the lower end which is now broken. It is similar to the preceding example.

30. LOWER PART OF MOUNT FOR BUCKET HANDLE. Overall length, 27.5 cm.

L-shaped strip. The long arm tapers slightly and is broken short, the shorter arm has been formed by bending the end of the main strip. It is almost certainly the lower part of a bucket-handle mount of the type of which nos. 28 and 29 are the tops. It would have reached to the bottom of the bucket and turned slightly under it, being held in place by the bands binding the staves. It *may* originally have been connected with no. 28 or 29.

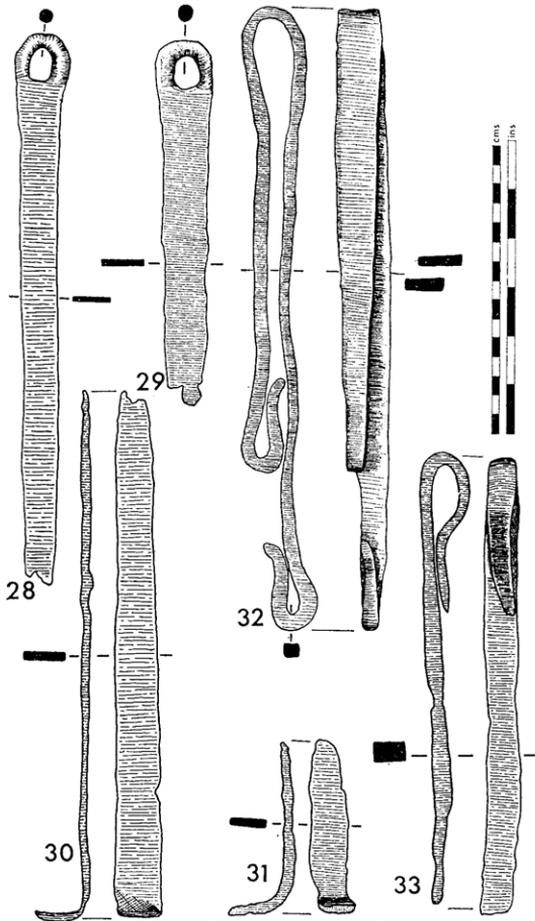
31. L-SHAPED BINDING. Overall length, 9.1 cm.

Damaged L-shaped strip which could have been the lower end of a bucket-handle mount of the type represented by no. 30.

32. BUCKET HANDLE. Overall length, 32.3 cm.

Strip-tapering toward the ends which are looped over to form S-shaped curves. It has been straightened and folded at some time before deposition, but it was probably originally a somewhat unusual form of bucket handle.

The type appears to be uncommon, but it would be difficult to identify fragments from such a handle if they lacked the end loops.

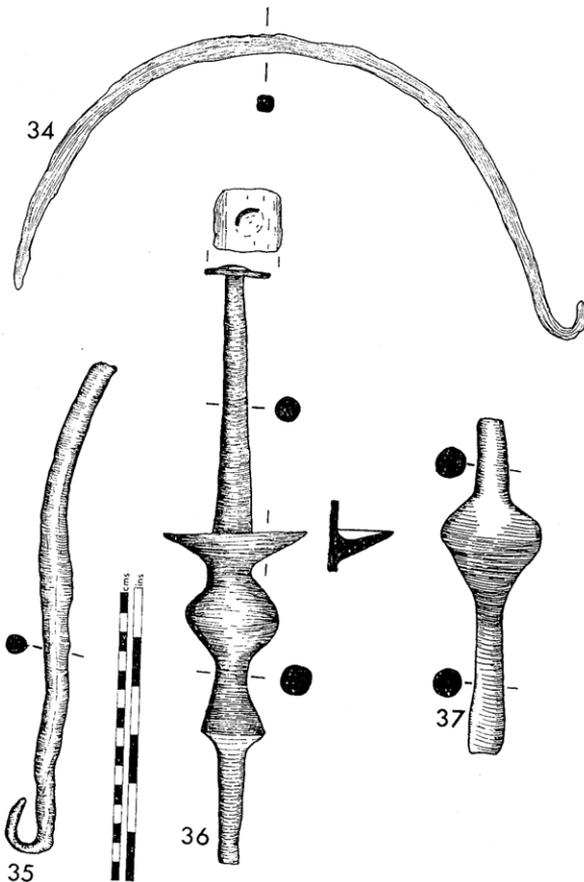


33. BUCKET HANDLE (Fragment). Overall length, 23.8 cm.

Fragment of tapering strip with the narrow end turned over to form an S-shaped loop. It is similar to no. 32 and is probably also part of a bucket handle.

34. BUCKET HANDLE. Overall length, 29.7 cm.

Bucket handle with a rounded rectangular cross-section. The ends would originally have been bent round to form loops, but one of these is now completely missing and the tip of the other has gone.



This is the common form of bucket handle and occurs, for example, at Newstead (310, pl. lxix, 4), Alchester (*Ant. J.* vii, fig. 10, 2), Silchester (Reading Museum), etc.

35. BUCKET HANDLE (Fragment). Overall length, 25.9 cm.

One end of a bucket handle, consisting of the loop and a length of the handle. It has been straightened at some time before deposition. The type is similar to no. 34.

36. COUCH LEG. Overall length, 31.2 cm.

Leg from a piece of furniture, probably a couch. The lower half, which was the only part intended to be seen, consists of a hollow cup-shaped moulding, which actually supported the wooden bearers of the couch, with two solid mouldings below it, terminating in a tapering foot. Above the cup comes a long tapering rod, which ran through the bearers, and has a square washer immediately below its top held in place by the domed top of the leg.

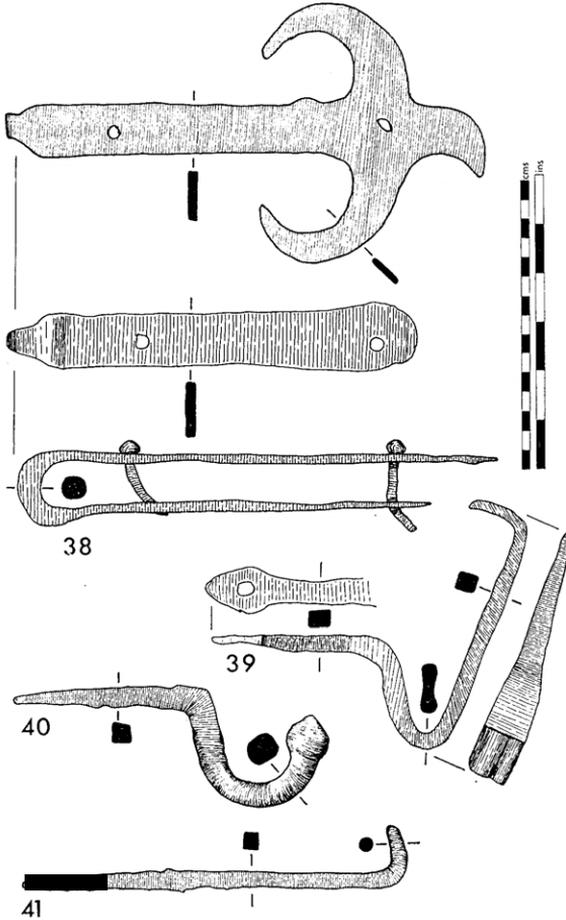
Legs of this general shape can be seen on couches in many reliefs (e.g. *Liversidge, Furniture in Roman Britain* (1955), pl. 9, 12, 13 and 17). These legs were no doubt made of wood, as are those of the couch from the Casa del Mobilio Bruciato at Herculaneum (seen in *Liversidge*, pl. 16). The mouldings on our example are clearly imitating turned wood, which is not a form that a smith would normally choose, and the skill with which they are executed speaks highly for his ability. The advantages of having strong iron legs on a couch which was probably owned by an officer, and which was therefore likely to be moved frequently, is obvious.

The use of iron for furniture legs and fittings, though uncommon is not unparalleled. Another iron leg, from a stool or possibly a couch, comes from Mansfield Woodhouse (*Liversidge*, pl. 37 a and b), and folding iron-framed stools are known from Bartlow, Essex (*Arch.* xxvi 300), Holborough, Kent (*Arch. Cant.* lxvii 22 ff) and, in fragments, from Newstead (286, pl. lxiv, 1, 2, 4 and 5).

37. COUCH LEG (?) (Fragment). Overall length, 17.5 cm.

Fragment consisting of a pear-shaped moulding with short lengths of rod on either side of it. It probably formed part of a couch leg similar to no. 36, or, less probably since it is not symmetrical, was part of a cross-bar from a folding-stool of the Newstead type (286, pl. lxiv, 1, 2, 4 and 5).

38. DROP HINGE. Overall length, 25 cm.; width across wings, 13.6 cm.; width between arms, 3.1 cm.



Elaborate U-shaped drop hinge. The bend of the U is stout and narrow but widens into broader, thinner arms. The tip of the shorter arm has a slightly pear-shaped profile, the other ends in a decorative flourish. Semicircular wings curve backwards above and below the arm to form a crescent, while the

arm itself ends with a slight, tapering curve. Each arm has a pair of corresponding nail-holes, one a short distance from the bend, the other in the centre of the ends. Both retain their nails.

It must have fitted a door 2 cm. thick, and in use would have fitted over an L-shaped bracket driven into the door-jamb.

Hinges of this general type are common in the Roman period, but this is an unusually decorative example. A hinge in the British Museum from Lakenheath, Suffolk (Dept. of British and Medieval Antiquities Acc. no. 82.2-6.14), appears to have had a similar ornamental end to its longer arm, but the crescent is smaller and damaged.

The nails fastening it are of Cleere's Type A1 (cf. Brading 56, fig. 1) with domed heads and tapering, square sectioned stems.

39. STAPLE. Overall length, 17.3 cm.; length along tang, 13.2 cm.; length from tip to tang, 14.7 cm.

An unusually shaped staple or fitting. It consists of a stout U-shaped band, tapering slightly at either end, with a convex cross-section which dips along the median line. At one end it continues into a tapering square sectioned tang which turns inwards through a right angle near its end. The other end of the U is turned at right angles and ends in a pierced, lanceolate tip.

The function of the object is obscure and I know of no parallel. It is presumably intended to be attached to wood and could be nothing more than an elaborate binding, but this seems unlikely. If the perforated tang was mounted on wood the U-shaped curve would stand clear of the surface. The long tang would then pass either along the top of the wood with the end hammered down into it, or, as seems much more probable, the whole tang would be driven through the wood with its end turned down on the inside. If this was the case the object would appear to be an unusually elaborate and very strong staple. Such a staple could be used, for example, to receive the lock-bar on a door or strong-box, or be used to hold a bar if such a box needed to be moved.

40. WALL HOOK. Overall length, 16.3 cm.

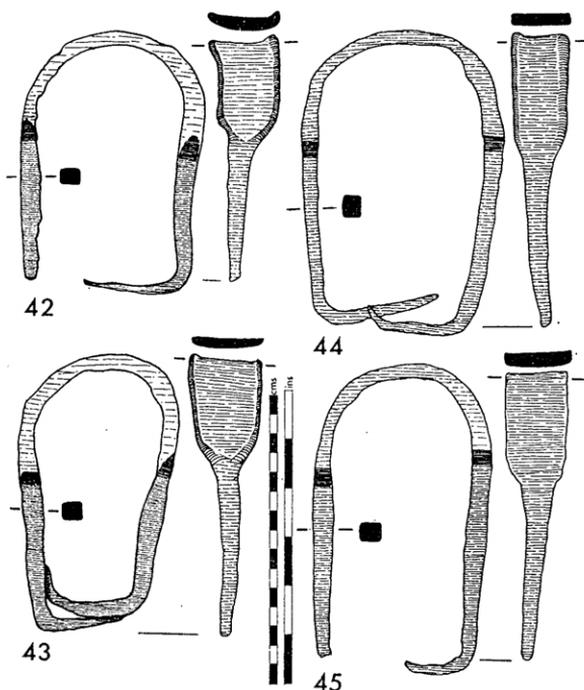
Wall hook with a tapering shank and a U-shaped hook ending in a pointed knob. The shank and the first part of the hook have a rectangular cross-section, the body of the hook a rounded one.

It is an unusually well made example of a common type found at, for example, Silchester (Reading Museum), Caistor-by-Norwich (Norwich Museum), Verulamium (recent excavations), etc. A very similar hook occurs at Zugmantel (taf. xiv, 65).

41. WALL HOOK. Overall length, 20.0 cm.

L-shaped hook formed from a bar of semi-rectangular cross-section. The longer arm forms a spike which could be driven into a wall or a beam; the shorter arm, which has a round section, is formed by turning the end of the longer one through a right angle.

Similar hooks are among the unpublished material from Newstead and Mumrills (National Museum of Antiquities, Edinburgh) and from Margidunum (University of Nottingham Museum).



42. SPIKED COLLAR. Overall length, 13.5 cm.; width, 9.3 cm.

Spiked collar. The curve of the collar is formed by a wide collar of slightly curving cross-section, which tapers into spike-like arms of unequal length. The shorter of these arms is straight but the longer is bent through a right angle, making its effective length similar to the other. The concave side of the collar faces

outwards. In use the arms were presumably driven through wood, or, far less probably, wrapped around it. The function of the object is not clear.

Curle, in publishing two Antonine parallels from Newstead (288, pl. lxvi, 1 and 4; there are also two unpublished examples in the National Museum of Antiquities in Edinburgh), merely suggested that they were part of a wagon. Three possible general uses can be suggested for them. (a) That they tied a piece of wood of semicircular cross-section to a beam. (b) That they were driven into wood with the collar projecting to serve as a socket into which semicircular tangs on some other object would fit. Such a device might serve to hold the removable tail-board or sides of a wagon, or receive the frame of a wagon cover. (c) That the collar acted as a guide for ropes running through it. In this case the slight concave curve of the collar would be to prevent unnecessary friction and wear on the rope. Other functions can doubtless be suggested. Of the possibilities mentioned above the second and third seem the most probable.

They are not common and the parallels from Newstead have been mentioned above. A possible variant of the type comes from Hod Hill (18, pl. xiii, K14). This has "a semicircular hoop of iron strip, from, and perpendicular, to the ends of which project two parallel spikes". It could easily fulfil the same function as our example.

43. SPIKED COLLAR. Overall length, 14.1 cm.; width, 8.0 cm.

Similar to preceding (no. 42). The collar has a curved cross-section and the tips of the arms have both been turned inwards through right angles with the very tip of the longer arm (which is enclosed by the other) having a final upward turn.

44. SPIKED COLLAR. Overall length, 15.1 cm.; width, 10.3 cm.

Similar to preceding. The tips of both arms are turned inwards through right angles and the very tip of one has a final upward turn.

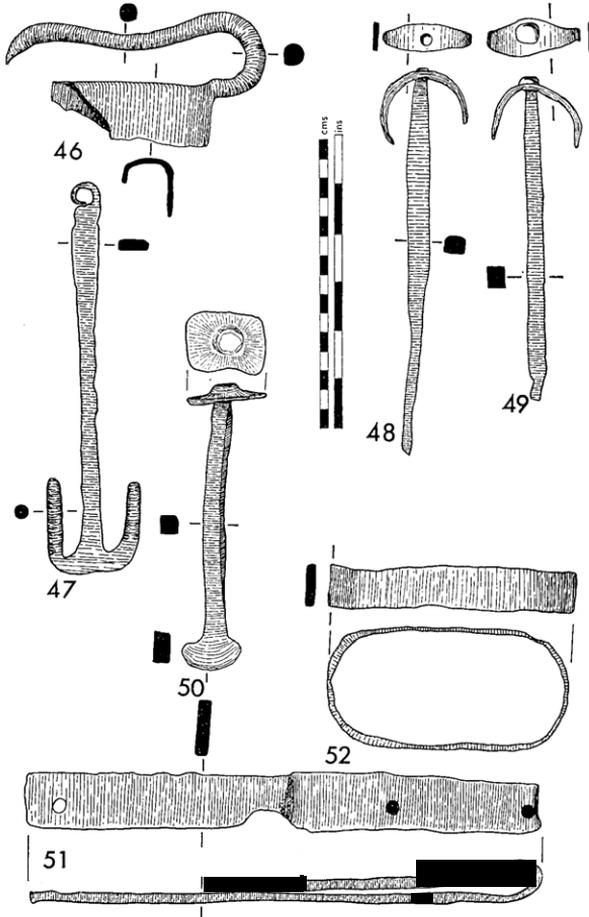
45. SPIKED COLLAR. Overall length, 16.0 cm.; width, 9.1 cm.

Similar to the preceding, save that the collar is rectangular and not curved in cross-section.

46. SPRING PADLOCK CASE. Overall length (of hasp), 13.4 cm.

Fragment of the case of a barbed-spring padlock consisting of part of the curving hasp and parts of the box sides.

This is an example of one of several forms of barbed-spring padlock. The barbed bolt is pushed through a square loop at the front of the hasp and into the box. It is released with a key inserted through a slit in the back of the case. Virtually identical cases come from Silchester (Reading Museum Cat., no. o8600) and Great Chesterford (9, pl. ii, figs. 21 and 22).



47. T-SHAPED TUMBLER LOCK KEY. Overall length, 20.3 cm.

T-shaped key for tumbler lock. The loop at the end of the shank has been made by thinning the metal and turning it over.

This type of key is very common and examples could be cited from many sites, including Newstead (307, pl. lxxviii, 3 and 4), London (Wheeler, *London in Roman Times*, 73, pl. xxx, 1 and 2), etc.

48. HOLDFAST WITH SEMICIRCULAR HEAD. Overall length, 20.2 cm.

Holdfast formed of a tapering square-sectioned rod with a narrow curved plate at its top. This plate, which is widest at its centre and tapers to the ends, is pierced at its mid-point and fits over the rod, apparently only held in place by the burring at the top of the rod.

A plate of this shape, fastened in a similar way, can be seen on a "scraper" from the Brading (I.O.W.) villa (65, fig. 9f), where it is suggested that it bound a wooden handle. In our example it seems more likely that it was intended to fasten a piece of wood of semicircular cross-section to another, more substantial piece.

49. HOLDFAST WITH SEMICIRCULAR HEAD. Overall length, 16.9 cm.

Holdfast, similar to the preceding. The tapering end of the tang is broken short.

50. HOLDFAST WITH CRESCENTIC HEAD. Overall length, 14.9 cm.

Holdfast formed of a short square-sectioned rod with a flat crescentic head at one end and a perforated washer at the other.

Similar holdfasts are known from the German *limes* (e.g. Arnshurg, *O.R.L.* B Nr. 16, taf. vi, 18 and 19, and Zugmantel (taf. xvi, 50). They presumably held two or more pieces of wood together.

51. U-SHAPED BINDING STRIP. Overall length, 26.7 cm.

U-shaped binding with one arm broken short. There are three nail-holes in it, one at the end of the complete arm and two in the shorter arm. The arms were squashed together before deposition.

The straightness of the surviving arm and its slightly curved end suggest that it is not likely to have bound a curving object. The other possible uses are too numerous to guess at.

52. OVAL BAND. Overall length, 12.6 cm.; breadth, 6.3 cm.

Thin oval band, presumably used as a binding.

53. L-SHAPED TIE. Overall length, 26.5 cm.; height, 5.6 cm.

L-shaped strip probably intended to join or strengthen two or more pieces of wood. The shorter arm is bent through a right angle at the edge of the longer arm. There are three nail-holes, one at each end of the long arm and one at the end of the shorter.

Such a tie could have many uses in joining the timbers of a cart or building and would, presumably, have been made with a particular job in mind.

54. TIE STRIP. Overall length, 25.6 cm.

Strip with a nail-hole at each end. Presumably used to tie two pieces of wood together.

55. WASHER. Overall length, 5.6 cm.

Rectangular plate with a circular perforation. It resembles the washer at the end of the holdfast no. 50.

56. SPIKE. Overall length, 19.9 cm.

Tapering spike.

57. RIVET OR NAIL. Overall length, 7.0 cm.

Double-headed rivet or nail.

58. RING-HEADED BAR. Overall length, 19.0 cm.

Bar of rectangular section with one end bent round to form a ring-head.

Parallels can be quoted from Margidunum (University of Nottingham Museum), Casterley Camp, Wilts. (*Devizes Mus. Cat.* ii 108, pl. xxxi, 16), Woodcuts (94, pl. xxx, 14 and 20), etc. Their possible uses range from linch-pins to fixing rings to walls.

59. BAR. Overall length, 26.0 cm.

Thin bar of rectangular cross-section. It is slightly rounded at one end.

This is a fragment of the type of bar which is commonly found but rarely published, and examples can be quoted from Verulamium (recent excavations), Bar Hill and Newstead (Nat. Mus. of Antiquities, Edinburgh).

60. STRIP. Overall length, 22.3 cm.

Fragment of strip tapering slightly towards one end; the other end is broken.

61. RING. Diameter, 5.1 cm.

Rings of this type are common and would have had many uses.

