

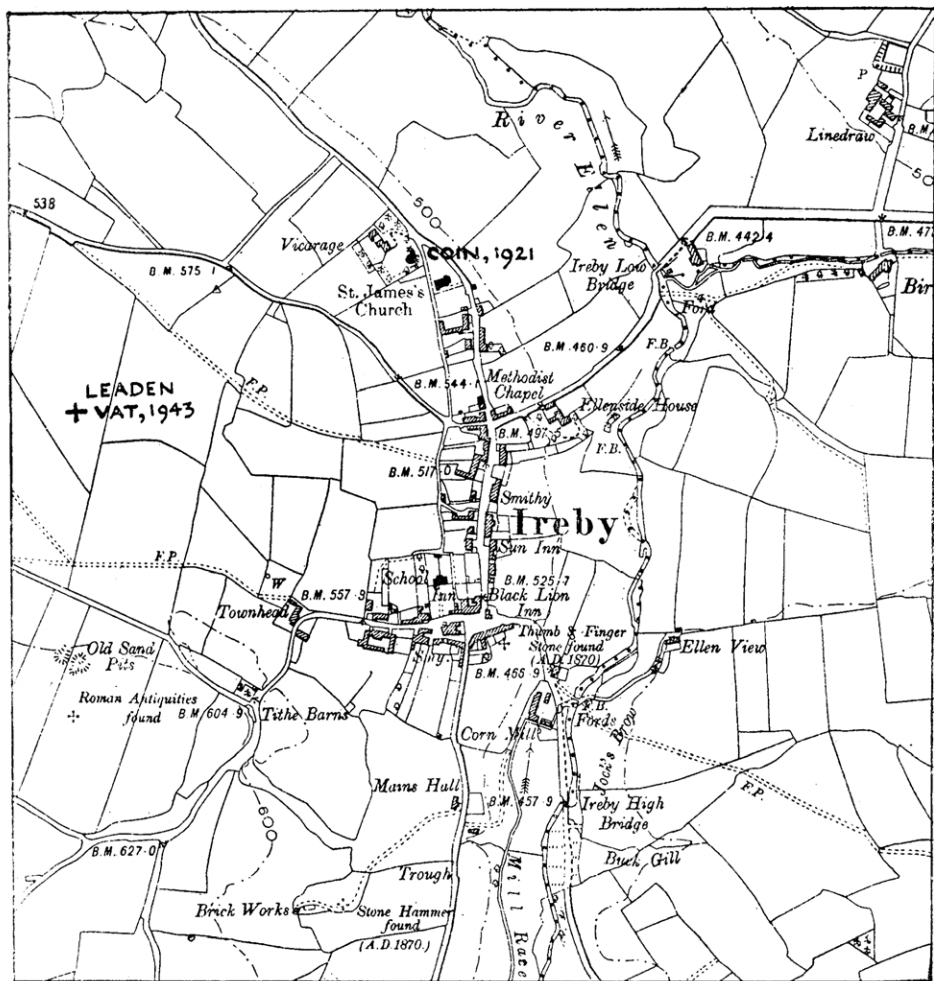
ART. XIV.—*A Roman vat of lead, from Ireby, Cumberland.*

By I. A. RICHMOND.

WHEN the March ploughing of 1943 was breaking up a field (fig. 1) four hundred yards west of the village of Low Ireby, Cumberland, on the south side of the road leading to the ancient twelfth-century church of now unknown dedication, a heavy round object was caught by the ploughshare and brought to the surface. On examination the thing proved to be a round trough or vat of lead, which was presented by the landowner, Mr. Joseph Hope, of Ireby Hall, to Tullie House Museum, Carlisle, and is now to be described.

The vessel (fig. 2), built up from sheet lead half an inch thick, is composed of three main pieces* forming the base eighteen inches in diameter and the two halves of vertical sides averaging six and a half inches in internal depth. The capacity of the vat has thus been approximately 10.06 gallons. The pieces have been joined, in a manner more particularly to be described below, by running molten lead between them, and the fact that they are now disjointed enables their structure to be fully examined. The base, of which the internal diameter, as already stated, is eighteen inches, has a slightly irregular outline, so that the external diameter varies from $19\frac{1}{2}$ to 21 inches. The irregularity is due to its edges having been turned up from $1\frac{1}{2}$ to 2 inches internally in order to provide a rim upon which to erect the sides. The sides are formed of

* It will not escape the student of prehistoric antiquities that this build of vessel follows the traditional style of the ancient Bronze-Age cauldron, which was normally built up in much the same way, but rivetted together. In using lead, rivetting was out of the question, and the method of joining employed, at once clumsy and ingenious, is the result of the application of the old pattern to new material.



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Scale 6 inches to 1 mile.

FIG. 1.—Ireby and environs, showing sites of Roman discoveries.

two horizontal curved strips, thirty and thirty-one inches long respectively and each half an inch thick and five inches wide. Their top edge has been slightly rolled in order to form the rim of the vessel and is decorated externally with a cable mould. The other edges, which

were in contact with various parts of the vat, have been prepared for union by slashing them obliquely, as if with a cleaver, always in reverse direction to the slashing on the contiguous edge, with the intention of providing a hold for the molten metal poured into the joint. Although the two strips differ very slightly in length they correspond sufficiently well for their point of junction to serve for the attachment of opposite handles, in the form of stout and squarish lugs, horizontally pierced by holes of upright oval shape. These holes are distorted at the outer edge, as if they had been used from time to time to pull the

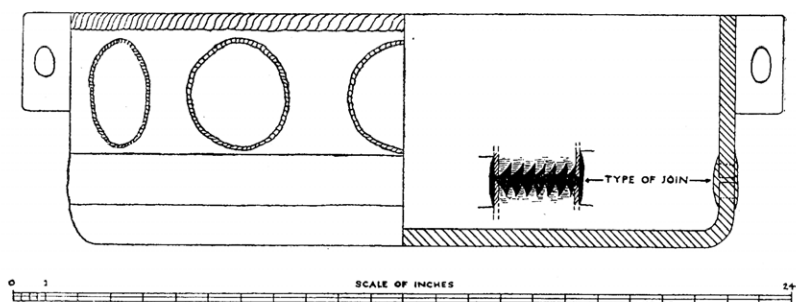


FIG. 2.—Roman vat of lead from Ireby, showing details of construction.

vessel along the ground. The handles are not strong enough to have been used for lifting or for permanent suspension, nor would the jointing with which they are cast have stood such treatment as a whole.

The method employed to achieve a union between the component parts of the vat may now be described. The two serrated edges to be united were placed almost in contact with one another. The whole joint was then luted with clay so that the clay did not make contact with the surface at right angles to the joint for some little distance on either side. The molten lead run into the joint thus not only filled every interstice between the serrations but overlapped to left and right in a thin spread mass. There was so created an H-shaped tie-piece (see fig. 2), held in

position by the serrations, which would grip by shrinkage rather than by fusion with the elements to be joined. No attempt seems to have been made to wipe the joint externally or internally once this process was over. As has already been noted, the lugs or handles of the vat are in one with the tie-pieces, and their moulds must accordingly have been luted into place so as to play their part in a single casting operation, which would demand careful setting up of the parts and dexterous workmanship. Precisely the same type of joint attaches the sides to the base, and this operation, probably the first, must have been done in stages, by turning the base on its side and moving it round upon itself, little by little, until the process was complete. It should here be emphasised that the lead employed for the tie-pieces is not solder, but lead which is analytically the same as that used for the main body of the vat, as has been determined* by Dr. J. A. Smythe, of the Department of Metallurgy, King's College, Newcastle-upon-Tyne.

The massive vessel thus manufactured was not wholly devoid of ornament, apart from the cable mould at the rim. The sides were ornamented externally with a series of uniform circles in cable pattern. These circles, $3\frac{1}{2}$ inches in diameter, had evidently been moulded on the side strips before the latter were cut to fit the base, while the strips themselves were not correspondingly related to the recurrent pattern, so that one strip contains five circles and the other only four and three-quarters. One circle in the group of five is heavily scored where the ploughshare struck the vessel and brought it to light.

The class of vessel to which the Ireby ten-gallon vat

* Dr. Smythe analysed two samples from the side of the vessel and from the tie-piece respectively, finding in the former 1.3 per cent. of tin and in the latter 1.27 per cent. The hardness of the former he determined as Vickers Pyramid No. 6.7 and of the latter 5.0. He observes that the samples are "obviously of the same metal" and that "there is no appreciable difference in hardness between them."

belongs comprises seven other examples, all larger but all of the same type and design, if usually more highly decorated. An up-to-date list has recently been compiled for the *Antiquaries Journal*,* and may here be quoted from Dr. Cecil Curwen's account, with the addition of the final reference.

	<i>Provenance</i>	<i>Diameter (inches)</i>	<i>Height (inches)</i>	<i>Capacity (gallons)</i>	<i>Remarks</i>	<i>References, etc.</i>
1.	Icklingham (Suffolk)	32	13	38	Chi-rho monogram, also Alpha- Omega.	<i>Antiq. Journ.</i> , xxii, 219.
2.	Ditto	?	?	? 16	Found early 18th cent., now lost. Alpha ?	<i>V.C.H. Suffolk</i> , i, 309.
3.	Bourton-on- the-Water (Glos.)	30-4	13½-4	40	Found in building near well.	<i>Trans. Bristol and Glos. Arch. Soc.</i> , lv, 377, lvi, 115. Chel- tenham Museum.
4.	Ditto	37-9	16	65		
5.	R Ouse near Hunt- ingdon.	29¾	15¾	40	..	<i>Trans. Bristol and Glos. Arch. Soc.</i> , lvi, 116-17. Mus. Arch., Cambridge.
6.	Unknown (? near Cambridge)	26½	12½	25	..	
7.	Pulborough (Sussex)	30½	19	46	Chi-rho Monogram.	<i>Antiq. Journ.</i> xxiii, 155-57.

It would appear that all the surviving examples in this list have been manufactured according to the same general principles† as the Ireby vat and have been built up in three main pieces, one for the base and two for the sides. It is further evident from the published illustrations of the Icklingham and Pulborough vessels and

* *Antiq. Journ.* xxiii, 155-57.

† Namely, in three main pieces, like a cauldron, see note p. 163.

from personal inspection of the two examples now at Cambridge, in the Museum of Archaeology and Ethnology, that these at least were joined together by the same type of H-shaped tie-pieces as are described above. Only the Pulborough example, however, now exhibits the slashing of contiguous joined surfaces, the others being too well preserved to show this item of processing, hidden in the finished article. To judge from the published sections,* the pair from Bourton-on-the-Water had lapped joints, but no description is given of the actual join, and the drawings do not carry absolute conviction.

Dr. Curwen also discusses the capacity of the surviving examples, observing that, while three would hold multiples of the Roman *amphora*, of 5.75 gallons, no relation is discernible between Roman measures and the other three. The Ireby vessel, containing 10.06 gallons, plainly takes its place as a fourth of which the capacity is unrelated to any standard Roman unit.

The date of four out of the seven earlier examples is determined by their decoration or by associated objects. Those from Icklingham and Pulborough bear the Christian monogram and are thus presumably of the fourth century. The Icklingham vessel, yet again, and the pair from Bourton-on-the-Water were associated† with coins of Valentinian I (A.D. 364-375). The style of all the vessels is in fact so generally similar that they cannot be far separated in date, though in no case do they come from the same moulds. The normal decoration is saltires, though the piece of unrecorded provenance now in Cambridge bears circles as well as saltires, thus preparing us for the treatment in circles alone at Ireby.

The purpose of the vats is difficult to determine. The Huntingdon example came from the Ouse, while that

* *Trans. Bristol and Gloucestershire Arch. Soc.*, lv. The Cambridge examples published in *op. cit.* lvi, 117, fig. 9, are not accurately rendered in the matter of the joins.

† *op. cit.* lvi, 100-105 (Bourton); *Antiq. Journ.* xxii, 219 (Icklingham).

from Pulborough was found in the marsh lands, apparently some distance away from any recorded Roman habitation. But the Icklingham vat lay only about 150 yards away from a known *villa* site, and there was evidence of much more closely associated occupation all round it. The pair from Bourton-on-the Water came actually from within a Roman building. The uses to which such great troughs or vats may have been put are in fact many, and possibilities range from water-troughs to steeping vats for dyeing, fulling or brewing. Brewing would perhaps be the most likely common function in a province where, as the Panegyric* of A.D. 313 puts it, "corn was so fruitful as to serve the double office of Ceres and Bacchus," or, put less mythologically, to make bread and beer.

The discovery of such a vat at Ireby, however, raises a problem which the more southerly examples do not. All seven examples so far found are products of the civilian zone of the province. No military site is known to have yielded any vat of the kind; indeed, it is difficult to envisage what part such a vat could have played in the normal military environment. Nor is there any reason to predicate a military occupation in Roman times at Ireby. The old seventeenth-century conjecture,† which equated Ireby with *Arbeia*, is an untenable notion, characteristic of an age when superficial resemblances of the shallowest kind were the staple of etymological inquiry. The military needs of the district for most of the Roman occupation were in fact fully met by the fort of Old Carlisle,‡ some five miles to north-west, where the *ala Augusta* was stationed, while the less permanent

* Panegyric vii, of A.D. 313, (*Britannia*) in qua segetum tanta fecunditas ut muneribus utrisque sufficiat et Cereris et Liberi.

† Camden, *Britannia* (trans. Holland, 1637) "*Elna Montis*, which river holding no brief course, halts at his spring head *Jerby*, a good big mercate town standing upon it. I judge it to have been that ARBEIA, where the *Baccarii*" (sic) "*Tigrisienses* kept their standing guard."

‡ These *Trans. N.S.* xxviii, 103-119.

earthwork fort at Camp Hill,* Torpenhow, sometimes known as Caermote, lay two miles away to southwest, on a minor road skirting the hill-country and aiming for the Keswick gap. It is thus much more likely that at Ireby we have to deal with some sort of civilian settlement. Nor is the leaden vat the first Roman discovery on the site. When the Ordnance surveyors were at work in the district, at the close of the last century, they were informed that Roman remains had been discovered at a point a quarter of a mile due south of the field where the vat was found. Their record, however, lacks precision. The *Name Book* of 1898, which contains the information, mentions† “a place where Roman antiquities were found,” but adds that “no information as to what nature can be obtained on the ground” and that “no date can be given when the antiquities were found,” the statement being based upon information from “Mr. W. Lorrimer of Ireby.” A more satisfactory record is that of a *dupondius* of Faustina the Younger (A.D. 161-175), found just south of the vicarage in 1921, as recorded by the vicar, the Reverend S. C. Cantlow, in a letter to Mr. T. Gray,‡ of Tullie House, Carlisle.

Further discoveries at Ireby will obviously be worth attention. Meanwhile, it may be remarked that the raw material for the lead vessel need not here have come from

* The original account of this fort, by W. Jackson, is in these *Trans.* o.s. iii, 43-48. It was followed by another account, by R. S. Ferguson, with a plan of the early excavation, in *Ibid.*, o.s., vi, 191-193. Haverfield's excavations are described in *Ibid.*, n.s. iii, 331-39. It will be noted that he traced the road for 150 yards southwards from the fort.

† I owe these quotations to the kindness of Mr. W. F. Grimes, Archaeology Officer of the Ordnance Survey. Kelly, *Directory of Cumberland*, 1897, reveals that Mr. William Lorrimer was the village grocer.

‡ The letter, dated 4.11.43, was accompanied by a map marking the site and states:—“a Roman coin was found on the site I have also marked in 1921, by a boy from whom I could not get possession of it, but he took it at the time to Tullie House, and I made a note of it. It was a copper coin, about as big as a small penny, and they said it was minted in the reign of Faustina, 3rd wife of the Emperor Aurelius.”

far away. There are abundant lead deposits* in the adjacent hills, while two buildings immediately outside the fort at Torpenhow yielded† over three hundredweights of melted lead. The excavators were inclined to think that the metal had come from the roof of the buildings. But they noted that both were constructed of rough masonry, like most Roman annexe buildings or workshops, and a leaden roof for buildings of this type, one 18 feet wide and 35 feet long, and the other 12 feet wide and 18 feet long, is out of the question. It may be regarded as virtually certain that the lead was gathered there for smelting or for despatch to another centre, and that it provides one more example of the Roman capacity to develop local resources‡ through their local garrisons. Ireby itself, however, is not in this lead-bearing area, which lies to south-east, in the Caldbeck fells. The development associated with the lead vat is more likely to be agricultural, as in the rest of the province; for there was deep penetration of the military area by civilian and fully Romanised farms, as has recently been strikingly demonstrated§ by the discovery of the bath-building of such an establishment at Old Durham. Ireby is one of the old cultivated areas of Cumberland, which formed one of Gospatric's twelfth-century manors,|| and there is no reason why the agricultural development should not have been a long-established tradition, even in Gospatric's day.

* J. Postlethwaite, *Mines and Mining in the Lake District* (Whitehaven, 1913) p. 129, refers to mining in the Caldbeck fells, and similar observations were made to me in conversation by Dr. J. A. Smythe.

† These *Trans.* o.s. vi, 193.

‡ These *Trans.* n.s. xxxvi, 113, 116.

§ *Arch. Ael.* ser. 4, xxii, 1-21.

|| The *floruit* of this Gospatric was in the later years of Henry II. For ancient medieval grave-slabs from Ireby Old Church, see these *Trans.* n.s. ix, 23, and for the question of the dedication, *op. cit.* xxv, 22.