Two Bronze Bowls from Sutton Courtenay

By DAVID MILES

INTRODUCTION

TWO bronze bowls in Abingdon Museum, brought to my attention by members of the Abingdon Archaeological Society,[1] belong to a class of Romano-British artefact which is relatively rarely examined, and show interesting indications of the manufacturing techniques employed. The bowls also seem to indicate the site of an extensive cemetery.

THE SITE

Archaeological material has been found on several occasions within the area of the Government Depot near Didcot (but in the parish of Sutton Courtenay : N.G.R. SU 50509190). About 1928 five inhumations were discovered during the construction of a railway siding ; these were said to have been accompanied by pottery of the 2nd and 3rd centuries A.D.,[2] but unfortunately this cannot now be located. One skeleton is recorded as lying with its head to the east. In July 1933 the two bronze bowls were found within the depot, at a depth of 5 to 6 ft.[3] They were initially in the possession of Dr. R. Rice, but were later given to Abingdon Museum. The exact location of the find spot is not known, but a plaque in existence until 1955 (at N.G.R. SU 50599190) was generally assumed to mark the position of the 1928 discoveries. Several years later an inhumation cemetery was noted as having been found alongside Moor Ditch.[4] The number of burials was not recorded, but the skeletons were said to face west, and late 2nd-century pottery was found. These discoveries suggest that a Romano-British cemetery exists approximately 2 km. north-west of Didcot and 2 km. south-east of Sutton Courtenay village. The cemetery would seem to have been in existence in the 2nd century A.D. on the reported evidence of the pottery, but the span of its use, and its size, must remain uncertain.

The gravel terraces north of Didcot are rife with evidence of Romano-British settlement, particularly in the form of cropmark complexes,[5] and the existence of a cemetery here is not surprising. In addition to formal burial sites outside towns, as at Dorchester,[6] small cemeteries often occur in rural areas[7] in association with farmsteads and villages. The spread of the Didcot Depot has prevented the recovery

[1] I am grateful to Mrs. M. Cox, Curator of Abingdon Museum, for permission to draw and analyse the bowls.

[2] *Antiq. J.*, x (1930), 50–1.

[3] *Berks. Archaeol. J.*, XLII (1938), 27.

[4] *J. Roman Studies*, XXXIV (1944), 83.

[5] D. Benson and D. Miles, *The Upper Thames Valley : an archaeological survey of the river gravels* (1974), Maps 33–5.

[6] B. Durham and R. T. Rowley, 'A cemetery site at Queensford Mill, Dorchester', *Oxoniensia*, XXXVII (1972), 32–7.

[7] For example, see R. J. C. Atkinson, 'Excavations in Barrow Hills Field, Radley, Berks., 1944–5', *Oxoniensia*, XVII/XVIII (1952–3), 32.

of settlement evidence from fieldwork or aerial photography, but immediately to the north of the depot (SU 504926) on the nearest ground favourable to cropmark development, there is a complex of trackways and a chequerboard of enclosures or paddocks.[8] These are likely to be of Romano-British date.

The cemetery lies alongside Moor Ditch, which forms in part the parish boundary of Appleford, Long Wittenham, Sutton Courtenay and Didcot and cuts across Milton and Harwell. The ditch is referred to in the bounds of Appleford of *c.* A.D. 895.[9] The Romano-British cemetery lies on the Moor Ditch, at first impression a good example of the type of association between cemeteries and boundaries noted by Desmond Bonney.[10] The surrounding parishes all contain early Saxon cemeteries, but these are sited well inside the parochial land units. Milton, Appleford and Long Wittenham cemeteries are on the fringes of the present-day (and presumably Saxon) villages, and at least 500 metres from the parish boundary.

DESCRIPTION OF THE BOWLS

Bowl 1. (FIG. 1 ; PL. III)

Shallow bowl with plain out-turned rim, steep, almost vertical wall and convex base. The thickness of the metal varies from 1·5 mm. at the rim to approximately 300 microns in the thinnest part of the base. The interior base has scraper marks radiating from the centre (PL. III, A) and similar marking can be seen running horizontally on the interior walls. The exterior of the base is covered with light hammer marks almost creating a spiral effect, around criss-cross lines which have been punched into the centre of the base (PL. III, B). In the centre of the square reserved by these lines is a small hole, which may result from the technique of manufacture rather than corrosion.
Diameter 23·2 cm. Depth 5·5 cm.

Bowl 2. (FIG. 2 ; PL. II, B)

Shallow bowl with out-turned rim decorated with uneven punched lines, convex base with central metal plug (PL. II, B). The interior is covered with hammer marks and is poorly finished around the central plug, where there are several short indented lines. The centre of the base, around the plug, bulges outwards. The outer base of this, the larger bowl, is heavily corroded, probably where it was in contact with the ground. The smaller Bowl 1 may have sat inside Bowl 2, forming a nest, and consequently was found to be less corroded on the outer base. The inside of Bowl 2 is less corroded than that of Bowl 1, supporting the idea that in the ground 1 sat inside 2. The thickness of the metal varies from 1·5 mm. to 300 microns, but it is generally more uneven than that of the smaller bowl.
Diameter 26·5 cm. Depth 6 cm.

Metal Analysis. By R. E. M. HEDGES, Archaeological Research Laboratory, Keble Rd, Oxford

The metal was analysed non-destructively at a non-corroded part of the surface by X-ray fluorescence (Isoprobe). The only elements present in greater amounts than about 0·1% were tin, lead and copper. The compositions are given below, together with the estimated error.

Bowl	*Tin*	*Lead*	*Copper*	(*Weight* %)
1	14±	0·7 ±0·1	85	(by difference from 100%)
2	11±1·5	0·85±0·1	88	

[8] Benson and Miles, *op. cit.* note 5, 63 and Map 34.

[9] W. de G. Birch (ed.), *Cartularium Saxonicum* (1885–93), 581. For full references, see M. Gelling, '*The Place Names of Berkshire Part II*' English Place Name Society, Vol. L, 401.

[10] D. Bonney, 'Pagan Saxon Burials and Boundaries in Wiltshire' *Wilts. Archaeol. Magazine*, LXI (1966), 25–30.

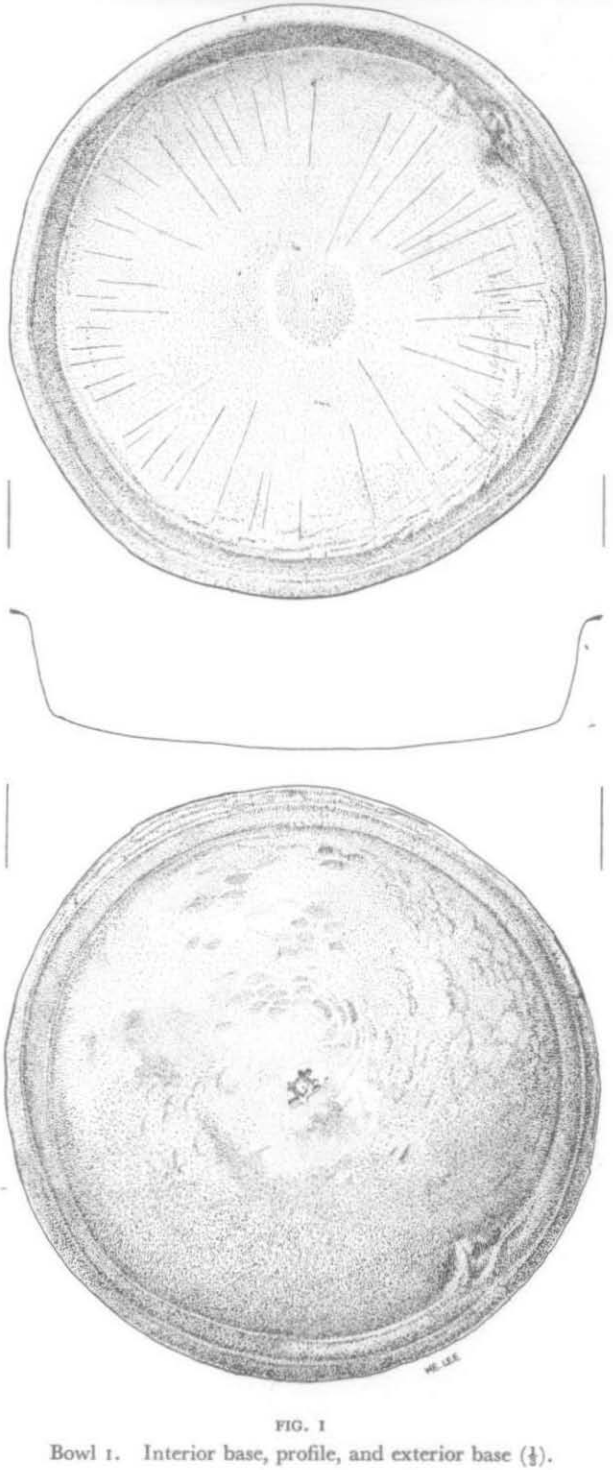


FIG. 1
Bowl 1. Interior base, profile, and exterior base (½).

These compositions are fairly typical of that expected for cold-worked sheet bronze, though the tin is rather on the high side for maximum malleability (7–10% Sn is more usual), and working the metal would require careful heat treatment.

A large number of Roman bowls have been analysed by Den Boesterd & M. Hoekstra,[11] which generally show a similar composition, though many are of brass.

Discussion

Bronze vessels may be manufactured by one of three basic techniques—casting, spinning or raising, or a combination of more than one of these.[12] The exterior facetting on the base of Bowl 1 (FIG. 1) indicates the use of a hammer for raising and planishing. Bowl 2 has similar marks internally, but also has a central metal plug (FIG. 2 ; PL. II, B). This plug can be seen from the outside to be a circular rod, 4 mm. in diameter, but on the inside has been hammered flat. The indentations around it (PL. II, B) suggest this was done with a thin-ended collet or cross-pein hammer rather than the flat faced planishing hammer used over the rest of the surface.

Bowls are quite commonly found to have a central perforation and in the past this gave rise to much lurid speculation. As a result of his examination of the vessels from Wootton House, near Dorking, Reginald Smith concluded that such perforated bowls were water-clocks used by the then ubiquitous Druids.[13] Bushe-Fox demolished this and other imaginative theories, such as ritual killing, with the rather more mundane but practical suggestion that the holes occur as a result of manufacture on a lathe. In the process of spinning, metal vessels may be attached to a chuck by a nail. The subsequent hole can either be filled by a metal plug, like that in Bowl 2, or patched, as in one of Smith's Wootton examples.

The advantage of spinning is that the work can be done quickly, giving a more regular product than is usually possible by hammering. Some Roman bronzes were undoubtedly worked on lathes, but there is doubt as to whether the Roman lathe was powerful enough to raise a vessel completely by spinning alone. It is possible that the initial raising had to be done with a hammer.[14] It should be possible to identify the characteristics of spinning on the finished vessel,[15] particularly the regularity of thickness at any given height and the spinning lines, which are not unlike those produced on a wheel-thrown pot. Bowl 2 is unusual in that although it has the central plug usually associated with manufacture by spinning,[16] every other feature indicates that it was in fact raised by hammering. The internal hammer marks are very clear (see PL. II, B), there are no traces of spinning lines, the metal thickness is relatively uneven and the transition from the base to the wall is crudely executed. Maria Den Boesterd considers that some of the Nijmegan bronze vessels, manufactured in Capua or Northern Italy, mixed the techniques by first casting or raising and then spinning.[17] There is no suggestion that such complicated procedures were used for Bowl 2. Both bowls seem to have been made simply by raising sheet bronze with a hammer.

[11] M. P. H. Den Boesterd & E. Hoekstra, 'Spectrochemical Analyses of Roman Bronze Vessels', *Oudheidkundige Mededelingen*, 46 (1965), 100–27. Nijmegan bowl 194 is similar in form to the Sutton Courtenay pair and has a comparable composition, with 13% tin. Den Boesterd suggests this bowl was manufactured by casting. It seems unlikely that a thin-walled hollow vessel of this type, with a high tin and low lead content would, in fact, be cast. Raising seems a more probable method of manufacture for the Nijmegan vessel. D.M.

[12] R. F. Tylecote, *Metallurgy in Archaeology* (1962).

[13] R. Smith, *Proc. Soc. Antiq. London*, XXVII (1914/5), 76–80.

[14] The process is described in R. F. Tylecote, *Metallurgy in Archaeology* (1962), 145 & Fig. 38. The fullest account of lathe spinning is A. Mutz, 'Beherrschten die Römer der Metalldrucken' in H. Menzel, 'Bericht uber die Tagung Römische Toreutik vom 23 bis Mai 1972', in *Mainz Jahrbuch Rom. Germ. Zentralmuseums Mainz*, 20 (1973), 278–83, Tafel 61–3. It is proposed here that the Roman lathe alone could be used to manufacture bronze vessels.

[15] Mutz, *op. cit.* note 14, 278 & Tafel 61.2 & 63.

[16] 'The central hole is perfectly well explained as a means of fixing the vessel on a lathe for spinning', Herbert Maryon, 'Metalworking in the Ancient World', *American Journ. Archaeol.*, 53 (1949), 187.

[17] Maria H. P. Den Boesterd, *Description of the collections in the Rijksmuseum G. M. Karn at Nijmegan. V The Bronze Vessels* (1956).

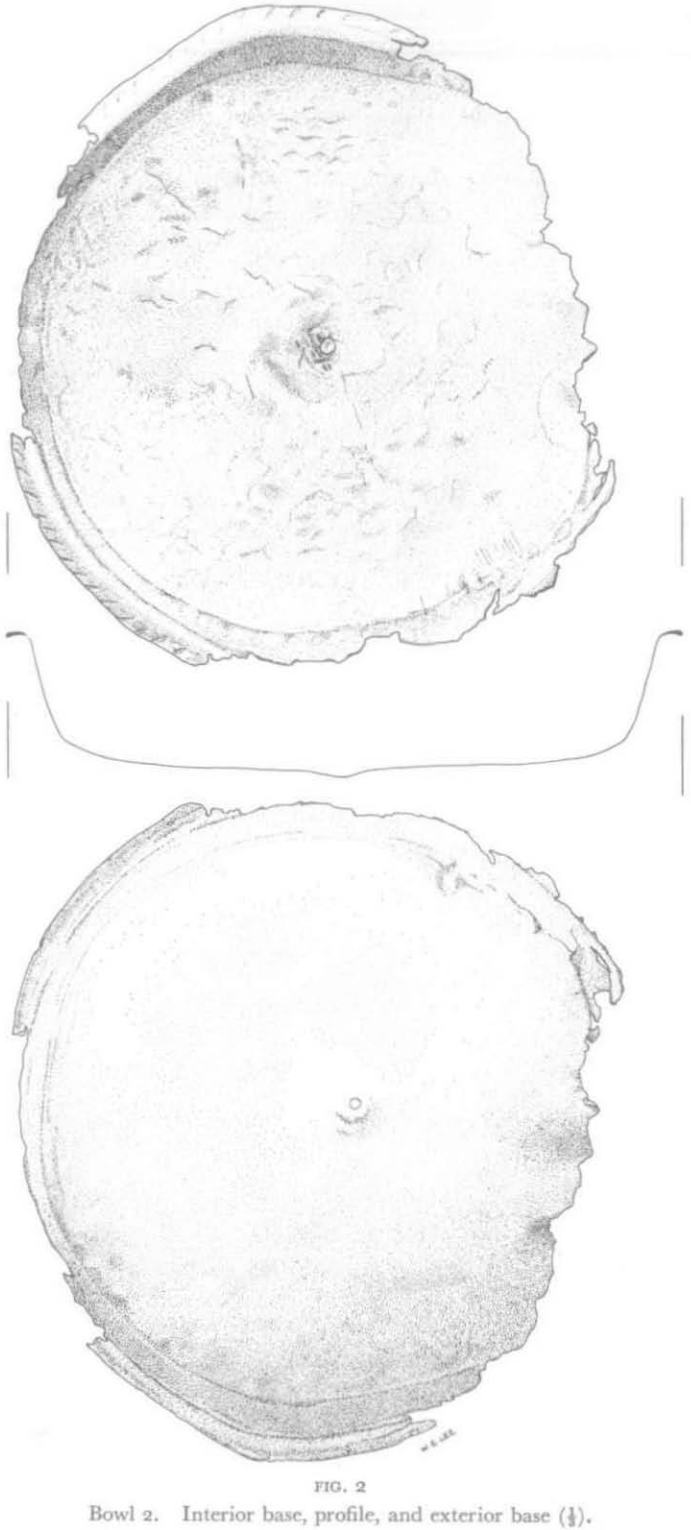


FIG. 2

Bowl 2. Interior base, profile, and exterior base ($\frac{1}{2}$).

This is done by first marking out with a compass three concentric circles on the metal sheet, to indicate the position of the outer and inner rims and the angle between the base and the wall.[18] As it is essential not to lose the original compass point during the beating up process, the point is usually emphasized with a punch. This can easily lead to the original compass point actually perforating the metal sheet. The resulting hole is then enlarged with each use of the compass.[19] The metal, after annealing and quenching, is beaten with a raising hammer or mallet over a T-stake or in a wooden sinking block.[20] The vessel is then finished off with a planishing hammer to give a bright surface. Finally, or possibly before planishing, the compass hole is plugged with a rod of metal, which in Bowl 2 was hammered flat on the inside. The inner surface of Bowl 1 was finished with a scraper leaving a faint pattern of radiating lines (PL. III, A).

Bowl 1 has no central plug, but it was manufactured in the same way. The marks of the planishing hammer can be seen clearly on the outside (see PL. III, B). The central criss-cross was probably punched around the compass mark to highlight it, rather than risk a perforation as in Bowl 2. The presence now of a tiny hole in the centre is probably the result of the corrosion of the very thin metal on the compass spot. The marking on the base emphasizes, of course, that such bronze vessels are raised by hammering the outer surface.

In spite of the tendency to associate central plugs in bronze vessels with lathe manufacture, it seems that both Bowls 1 and 2 were in fact raised by hammering. It is worth noting though that cast vessels can also require plugging. In his medieval treatise on metalworking Theophilus[21] describes in great detail the manufacture of tin jugs (' de ampullis stagneis ') by casting. The clay core is built around a tapering iron spindle. After casting, ' . . . when the iron spindle and the clay core have been removed you dig a small groove in the tin around the lower hole where the spindle was, and in it you attach a small piece of the same tin, rather thicker than that of the jug. Inside the jug put a round piece of wood on which the piece of tin can be supported so that it is not bent and, with medium hammer, strike it on the outside[22] until it is bedded into the groove and firmly fixed. You can also stop up the hole in another way. Insert in the jug a piece of wood as above, and wrap it around at the top with a rag ; you pour ordinary melted lead in the opening, after it has been scraped and coated with wax, and then quickly beat it smooth with a small hammer '. It is possible therefore that in certain circumstances spun, cast and raised vessels may all show evidence of a central plug.

DATING

It is likely, though not specifically recorded, that the bowls under discussion were deposited in a grave, within a cemetery that was in use in the 2nd and 3rd centuries A.D. The corrosion pattern on the bowls and their discovery at a depth of five to six feet supports the idea that they form part of a grave group. Certainly the deposition of bowls as grave goods in Romano-British cemeteries is not unusual, the most notable example perhaps being the Irchester vessels.[23]

[18] P. D. C. Brown, ' A Roman Pewter Hoard from Appleford, Berks. ', *Oxoniensia*, XXXVIII (1973), 187, Fig. 3 & Pl. IX, describes compass marks for lathe centering in order to polish pewter. These are necessary for cast vessels, but in a hammered or spun one the centre is marked out at the beginning of the raising process on the metal sheet.

[19] I am grateful to Oliver Bailey, jeweller and metalworker of Stoke Newington for the original suggestion and a practical demonstration.

[20] For illustrations of raising tools and a description of the method see H. Maryon, *Metalwork and Enamelling* (1959), 87–103.

[21] Theophilus, ' *De Diversis Artibus* ', transl. C. R. Dodwell (1968), Book 88.

[22] The tin jugs discussed here are tall and narrow ; in the case of a shallow pan like Bowl 2 it is easier to beat the plug flat from the inside.

[23] D. H. Kennett, ' The Irchester Bowls ', *Northampton County Borough Museums & Art Gallery Journal*, 4 (1968), 5–39. A plugged vessel was found in what seemed to be a cemetery context at Thealby, Lincs. See H. Dudley, *Early Days in North West Lincolnshire* (1949), 206–8.

Unfortunately, owing to the lack of systematic studies of bronze vessels from Roman Britain, the apparent conservatism in design, and their lengthy lifespan, such bowls are difficult to date. Eggers, in his survey of Romano-British bronze vessels,[24] illustrates no material directly comparable with the bowls from Sutton Courtenay. The best known groups of bronze vessels from Roman Britain, such as the Irchester, Knaresborough and Wootton hoards appear to date to the 4th century.[25] The Sutton Courtenay bowls are most similar in form to the type known as a ' bassin uni ' —a bowl with a plain out-turned rim. This is not a common type however and does not occur in several continental surveys.[26] As far as can be ascertained from an inadequate illustration a similar, though probably deeper, vessel was found in grave 13 at Abbeville and also at Monceau-le-Neuf, grave 2,[27] in what was thought to be a late Roman context, though Roosens admits that the evolution and chronology of forms are uncertain.

In contrast Egger's[28] type 67 vessels, which bear a close resemblance to our bowls, though with inward sloping walls, were thought by him to have been imported into the lower Elbe region and used as cremation containers in the first centuries before and after Christ.[29] This dating is supported by more recent work in Gotland,[30] but doubt has been thrown on Egger's belief that vessels in this form were cast and of Italian origin. Probably the closest parallel in form to the Sutton Courtenay bowls comes from the Korchow cemetery[31] and is dated to the 1st or 2nd centuries A.D. A salutary warning against any attempt at close dating is the concave sided bowl in Nijmegan,[32] a simple type which is produced over a long period and into Merovingian times.

If the evolution of the wall angle on this class of bronze vessels, from inward sloping to concave, has any significance, then we may not be far wrong in seeing the Sutton Courtenay bowls as dating to the 2nd or 3rd centuries A.D.—as possibly indicated by the pottery from the site. The uncertainty which exists about evolution of forms and the lifespan of individual vessels must deter any definite conclusions regarding date. Local parallels are likely to prove more useful than continental ones for there seems little reason to regard such simple objects as imports from outside Britain.[33]

[24] H. J. Eggers, ' Römische Bronzegefasse in Britannien ', *Jahrb. Rom. Germ. Zentralmuseums Mainz*, 13 (1966), 67–162. This survey is not very comprehensive.

[25] For a reply to Eggers and a list of the late hoardes, see D. H. Kennett, ' Late Roman Bronze Vessels in Britain ', *Jahrb. Rom. Germ. Zentralmuseums Mainz*, 16 (1969), 123–48.

[26] For example, A. Radnoti, ' Römische Bronzegefasse von Pannonien ', *Dissertationes Pannonicae*, Ser. 2, No. 6 (1938) ; and S. Tassinari, ' *La Vaiselle de Bronze Romaine et Provinciale au Musée des Antiquités Nationales* ', XXIXe supplement à *Gallia* (1975).

[27] H. Roosens, 'Quelques Mobiliers Funéraires de la Fin de l'époque Romaine dans le Nord de la France', *Dissertationes Archaeologicae Gandenses*, 7 (1962), Pl. II, No. 4 and Pl. XII, No. 9.

[28] H. J. Eggers, *Der Römische Import im freien Germanien* (1951), Pl. 8.

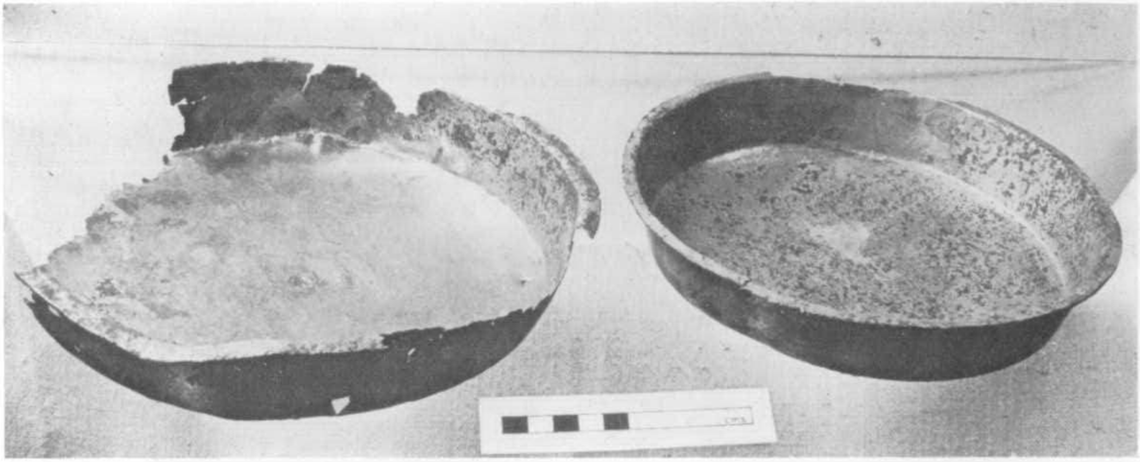
[29] *Ibid.*, 41.

[30] I. Lindeberg, ' Die Einfur Römische Bronzegefasse nach Gotland ', *Saalburg Jahrb.*, 20 (1973), 5–69. A similar form also, but with escutcheons and a slightly raised base in Den Boesterd, *op. cit.* note 17, Cat. No. 194, p. 57 & Pl. VIII.

[31] R. Blitz, ' Das Urnenfeld von Korchow ', *Jahrbuch des Vereins fur mecklenburgische Geschichte*, 85 (1920–1), 38, 2 Pl. VIII, 38.

[32] Den Boesterd *op. cit.* note 17, Pl. X, 215.

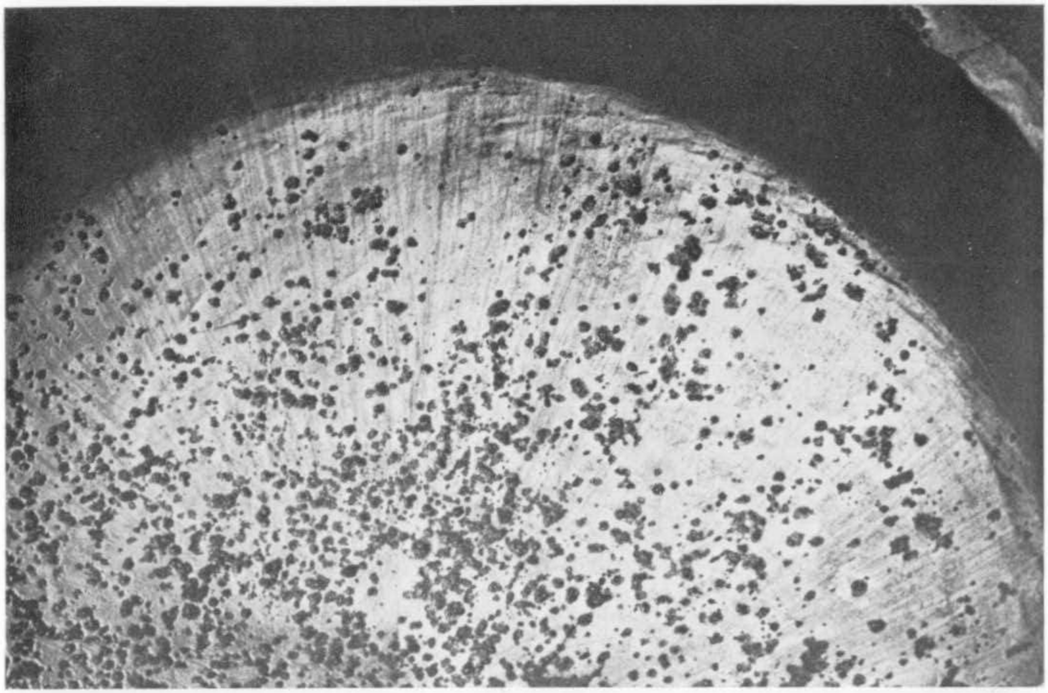
[33] I would like to thank David Brown, Robin Spey and Gwyn Miles for their help and advice, Wendy Lee who produced the illustrations, and Robert Hedges for his rapid analysis of the vessels.



A. Bronze bowls from Sutton Courtenay ; Bowl 1 on right, Bowl 2 on left.

B. Bowl 2 : interior base, showing hammer marks and central plug.

Phh.: J. Peacock



A. Bowl 1 : interior base with radiating scraper lines.

B. Bowl 1 : exterior base showing hammer marks and central criss-cross.

Phh.: J. Peacock