ETH

THE ROMAN PEWTER-MOULDS FROM SILCHESTER

By THOMAS BLAGG and SUSAN READ

THESE moulds were discovered in 1892 in Insula IV, the site of the Forum and Basilica, at Silchester. Although they were not published in the reports on the excavations, all but one were illustrated by Fox in one of the drawings exhibited to the Society of Antiquaries of London, which remain in the Society's library.[1] They had not at the time been recognized for what they were, being thought of as merely for decorative purposes, as St. John Hope recalled when the discovery of similar moulds at Lansdown, near Bath, was communicated to the Society in 1908.[2] More recently Boon rediscovered them in the Reading Museum's store and has illustrated the three fragments of one of them (no. 1 below).[3] The collection has also been cited by Goodall in comparison with the mould from the villa at Langton, East Yorkshire.[4] It seemed opportune, therefore, when the writers were recently cataloguing the architectural stonework from Silchester, to record and publish the moulds in full.[5]

There are ten fragments, belonging to six separate moulds. Five of them are for dishes and plates, and the sixth is the internal mould probably for a concave-sided cup or the neck of a flagon. All are of cream oolitic limestone, that of nos. 2, 3, and 4 being rather more coarse and shelly than the stone used for the others. Both types of stone were also used at Silchester for architectural features. Two of the moulds, nos. 4 and 5, are grooved on the lower as well as on the upper side, indicating that they formed part of a nest or nests of moulds stacked on top of one another for casting two or more vessels simultaneously, such as have also been found at Langton and at St. Just in Penwith, Cornwall.[6] The two from Silchester do not, however, fit together, nor with the three other dish or plate moulds, which are flat-bottomed.

DESCRIPTION (fig. 1)

1 (pl. XXXVIII*a*). Three pieces of a mould for a dish, diameter 480 mm., incised with two concentric grooves to form the beaded rim and the foot-ring. The hollow of the mould bears traces of fine chiselling. It, and the upper surface of the mould outside the outer groove, on which the top half of the outer mould would have rested, is still smooth, despite slight weathering. The edge and underside are less well finished, and the latter is pitted, probably from the use of the mason's point in roughing out the block of stone. Close examination shows that the pieces fit together in the manner shown, i.e. in reverse order to that shown by Fox and, after him, Boon.[7] The thickness of the base of the mould tapers from 39 to 32 mm. As the undersides are not appreciably damaged, but sit firmly on the ground, this would seem to indicate an intentional tilt of the inner surface, presumably to facilitate the running in of the molten metal.

(Reading Museum, SIL 12132–4.)

2 (pl. XXXVIII*b*). Two pieces of a mould for a plate, diameter 570 mm. One piece has an outer and an inner groove, the other is broken at the point where an inner groove would have begun. The mould is worn and shows no visible toolmarks. There is a round-bottomed pour-

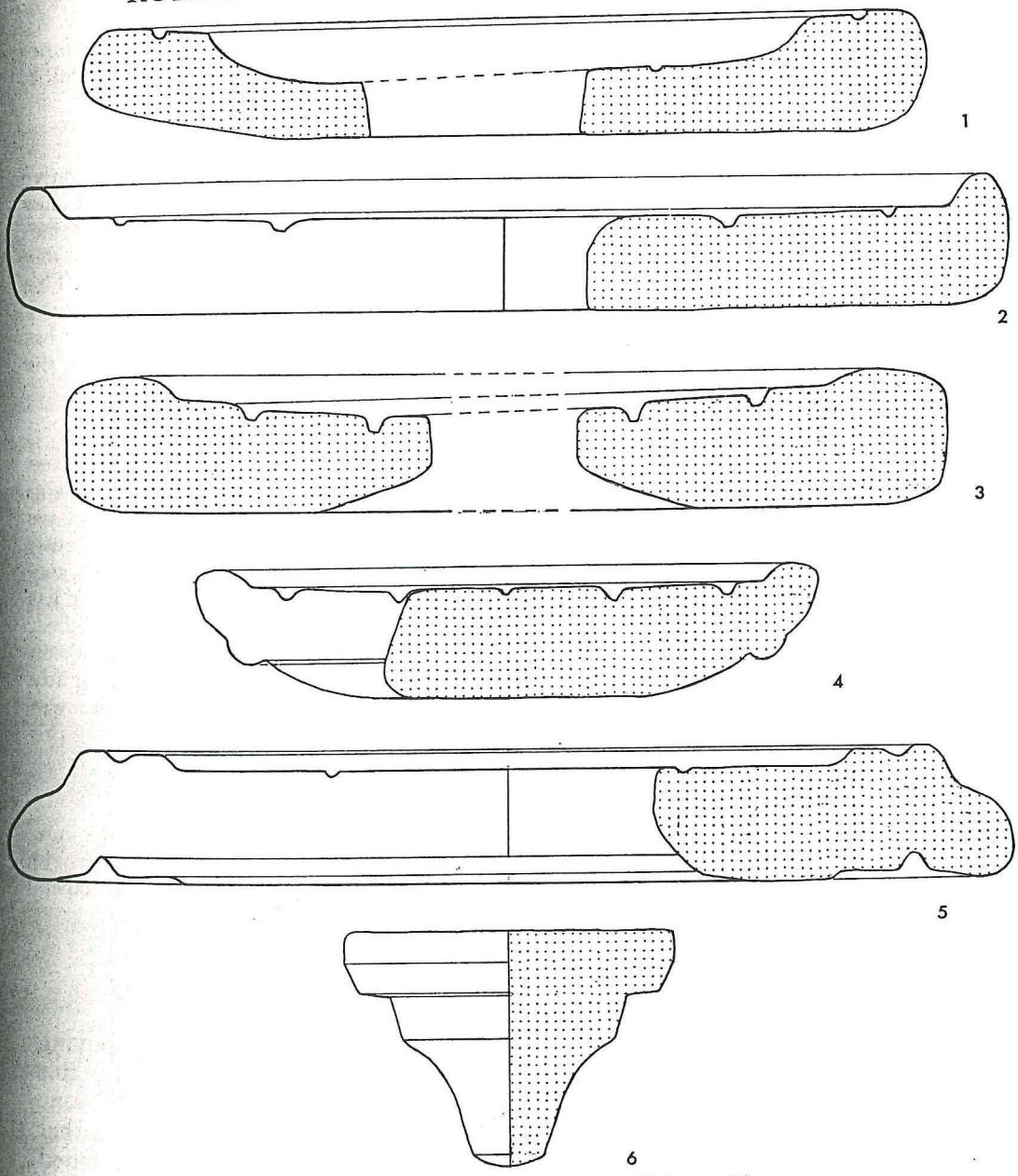


FIG. 1. Roman pewter-moulds from Silchester (¼).

ing hole at the right-hand edge of the larger piece, cutting through the lip of the mould and continuing to the outer groove. The bottom is flat, but uneven.

(Reading Museum, SIL 12135 and 12136.)

3 (pl. xxxix*a*). A similar piece to no. 2, but for a smaller vessel. The diameter is about 500 mm., but the width of the fragment, 198 mm., is insufficient for further precision. The

outer groove was about 380 mm. in diameter. The bottom of the mould is flat, and the inner profile slopes from one side to the other, perhaps to ease the pouring in of the metal, as in no. 1. The upper surface is chipped and worn. This piece was not illustrated by Fox.
(Reading Museum, SIL 12137.)

4 (pl. XXXIX*b*). Two joining pieces which are moulded on both sides, to provide the negative mould for a plate (upper side) and the positive mould for a dish (lower side). Together they constitute about two-thirds of the complete mould, 345 mm. in diameter. The surfaces are somewhat weathered. In the centre of the upper side is a circular hole 3 mm. in diameter, probably for a compass used in laying out the two concentric grooves (see further below, p. 273). This side would have produced a plate similar to those from nos. 2 and 3. The outer groove has a diameter of 253 mm. The underside is convex, for moulding a dish with a curved side. It has a rounded protuberance which would have sat on the mould below, closing off the rim of the cast bowl. The protuberance has a pouring groove cut obliquely through it.
(Reading Museum, SIL 12138 and 12139.)

5 (pl. XL*a*). This piece, 570 mm. in diameter, is also moulded on both sides, for two plates with raised flange-rim, beaded at the edge. The diameter of the upper vessel in the profile as drawn would have been 450 mm., that of the lower 480 mm. The upper surface bears a groove for a foot-ring. The outer diameter of the mould is the same as that of no. 2, but the lower profile does not fit that of the other mould. The stone is the same, and the two moulds may have formed part of a nest of which the intermediate one is missing. The wall of the mould has been dressed with a mason's point and with a chisel, and the upper surface, although smoothed, retains some chisel-marks. The inner part of the underside is rough and appears to have been damaged; it could not have provided an adequate casting in that condition. There is a slightly oblique channel through the ridges on the upper side, which although rather irregular was probably for pouring in the metal. Fox's drawing shows another small fragment adjoining this piece at the right-hand corner, but it now seems to be lost.
(Reading Museum, SIL 12140.)

6 (pl. XL*b*). Conical inner mould, 135 mm. high. The projecting top of the mould, 192 mm. in diameter, is bevelled, and the smoother lower facet bears chisel-marks. This projection would have sat on the outer mould to produce a casting with an upper diameter of 135 mm. The tapering side is waisted inwards at a point 25 mm. below the top, and the bottom is convex.
(Reading Museum, SIL 12141.)

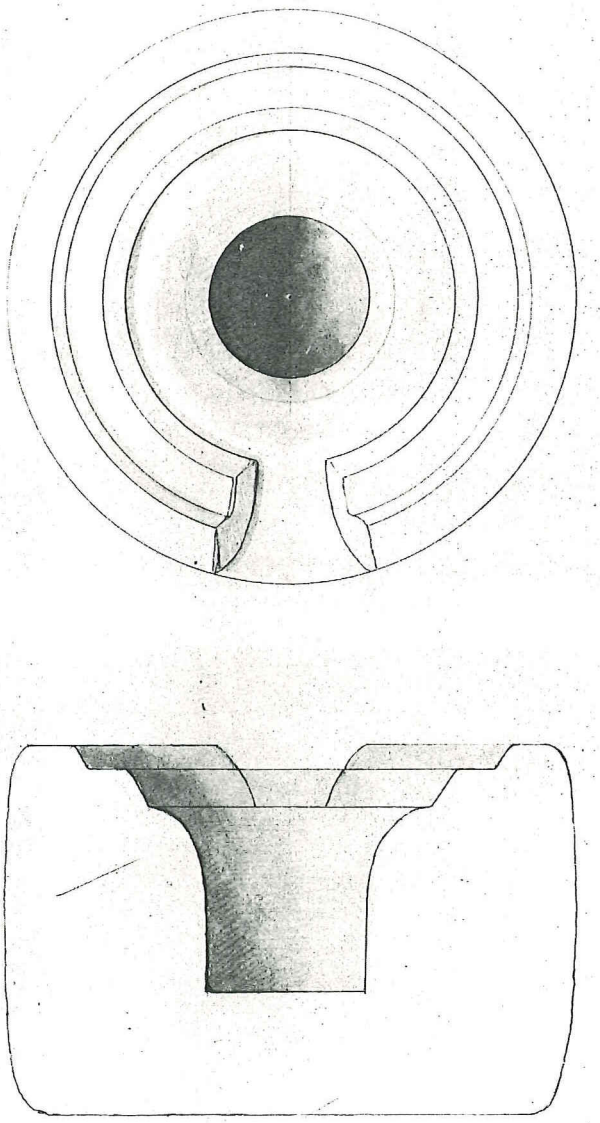
Techniques of Manufacture

A number of stone pewter-moulds from other sites have been described as having been worked on the lathe: the only evidence that has been explicitly cited for this view is the small, usually round, hole, 3 or 4 mm. wide and of about the same depth, in the centre of their moulded surfaces. Such a hole, by analogy with that which appears on the metal vessels themselves, which were indisputably finished on a lathe after casting, is described as the chuck-hole for the spindle by which the piece was mounted on the lathe and turned.[8] One suspects that the precision of the circular grooves also contributed to the opinion that these moulds were lathe-turned. In that connection it is worth noting the equal precision with which the oval mould from Camerton was cut: this of course could in no way have been done on a lathe.[9]

a. No. 1

b. No. 2

Roman pewter-moulds from Silchester (scale 20 cm.)



A Mould of white Stone, found in the Roman villa at Witcombe, in the autumn of 1910, of the same size as the original.

Pewter-mould from the Roman villa at Witcombe, Glos.: drawing in the Library of the Society of Antiquaries of London (*c.* $\frac{1}{2}$)

Blagg has considered elsewhere the evidence for the use of the lathe in turning architectural features of stone, such as column capitals.[10] In such pieces the rotary motion causes the blade of the tool to leave continuous concentric rilling on the stone. The chuck-hole is also square, and much larger—at least 40 mm. wide and equally deep. A spindle of this size is necessary to turn a heavy block of stone, and this suggests that the analogy with working metal vessels on the lathe is false. The stone mould is far heavier than the vessel, and the friction is greater. It is very difficult to believe that a round spindle of 3 or 4 mm. diameter could have been effective in rotating a block and counteracting the friction of the chisel against the stone. Where the undersides are flat they have no corresponding hole nor any other means of attachment. Nor are there, at least on the Silchester moulds, tool-marks characteristic of lathe turning, though they could have been removed by subsequent smoothing of the stone with abrasive. On the contrary, in those cases (nos. 1, 5, and 6) where toolmarks are visible, they show that the cutting was being done when the pieces were not rotating.[11]

The central hole does require explanation, however. The regularity of the circular grooves implies that they were compass-drawn. The central hole could have accommodated the pivot-point of the compasses, or perhaps a rod to which the chisel was tied by a piece of cord or a rigid bar, so that it would cut a circle, a technique mentioned by Orlandos[12] as having been used on Greek column drums. A similar hole occurs in the centre of compass-drawn circles on a limestone mould for clay lamps from Palestine, and on the incised circular designs on other moulds from Lansdown used for casting small objects.[13] Additionally, this hole might have held a plug connecting the centres of the upper and lower moulds. This would have two functions; that of centring the moulds; and that of providing a small central aperture in the cast vessel, through which it could then be attached to the lathe on which it was finished. Many pewter vessels have been observed to have such an aperture, filled with a metal plug, though up to now it has been considered that the aperture was pierced after the vessel was cast.

After the main work of cutting the moulds had been done, the surfaces where they fitted together and where the stone was to be in contact with the metal were smoothed with abrasive. Though these surfaces are now weathered to varying degrees, they would still have been somewhat rough originally, and the castings would have required subsequent trimming, smoothing and polishing.

Discussion

The moulds were used for making four types of vessel:

a. Dish with curved side (nos. 1 and 4, lower). That from mould 1 had a projecting flange with a beaded rim, and would have been 392 mm. in diameter and 33 mm. high. The form is similar to examples from Manton, Wiltshire, and from the Appleford hoard,[14] though the bead is less pronounced. That from mould 4 lacked the flange, and was 270 mm. in diameter and 23 mm. deep internally. The rim was probably beaded on the underside. A vessel with a similar internal profile was found at Lakenheath in Suffolk.[15]

b. Flat plate with foot-ring and beaded rim (nos. 2, 3, and 4, upper). The form of the moulds makes it possible that a flange projected from the rim. This, if it occurred, is likely to have been trimmed off after casting, as in the case of a dish from Bath.[16] One can suggest this, first, because the profile from different parts of moulds 2 and 3 shows variations in the distance between the outer groove and the lip of the mould, and in the height of the flange relative to the rest of the moulded surface. The casting would thus have been very irregular. Secondly, if the vessel was meant to be flanged the outer groove would have cast, in effect, a second foot-ring. This is unparalleled in known vessels, except as a strengthening ring in some of those with an angular wall before the flange[17] such as in mould 5, upper, which lacks such a bead; furthermore, the outer grooves of the mould are not as deep as the inner, and could not have produced a second functional foot-ring.

Accepting that the second groove represents the rim, the diameters of these plates are, in order, 444 mm., 295 mm., and 253 mm. Flat plates of this form, with a bead on the underside, are noted by Peal from Sutton in Cambridgeshire.[18] There are similar moulds in the collection from Lansdown.[19] On mould 3 the surface between the groove for the foot-ring and that for the bead slopes gently upwards, and it is likely that the plate cast from it was slightly dished.

c. Plate with raised flange-rim with a bead at the edge (no. 5). The bead is present on both upper and lower surfaces of the mould, suggesting that the cast plates had this dual projection. The upper bead is triangular in section. The plate from the upper side would have been 450 mm. in diameter, that from the lower, 480 mm. There are several similar plates in the Appleford hoard, though the form of the bead and the width of the rim varies.[20]

d. Cup of conical profile, or part of another vessel such as the neck of a jug or flagon (no. 6). Both of these are much less common than plates and dishes in pewter finds, and the moulds are proportionately rare. In the Society of Antiquaries' library there is a drawing[21] of what is described as a mortar of white stone found at the Roman villa at Witcombe, Gloucestershire, in 1818, but which quite clearly is the outer mould for a similarly profiled though rather smaller vessel (pl. XLI), and has a square and not a rounded base. There is another in the collection from Westbury, Wiltshire,[22] and similar outer and inner moulds are among the finds from Lansdown. It is difficult to decide for certain which type of vessel was cast from this mould. We had at first considered that it was for a cup, but there seem to be no close parallels for such a profile;[23] Roman pewter cups are normally hemispherical or straight-sided.[24] However, a chalice-like cup from Appleshaw, Hampshire, has a slightly carinated rather than truly hemispherical upper part and a beaded rim. Its knopped tubular stem and spreading moulded foot were cast separately.[25] There is also in the Silchester collection a cup with a tapering profile, convex in the upper half and then conical, with a flanged rim and a flat bottom. This, however, is much smaller than the vessel cast by the mould, being only 40 mm. high and 75 mm. across the rim.[26]

The alternative possibility is that the mould was for the neck of a jug or flagon, such as those from Bath,[27] Appleshaw,[28] or Silchester itself.[29] The neck of such vessels was frequently cast separately from the body, and the two parts then soldered

together.[30] This type of profile is rather closer to that of the Silchester mould, and it may be that this suggestion is the more plausible.

The Silchester collection includes a number of pewter vessels, but none of them was made in these moulds. The circumstances of the excavation prevent any precise date being attributed to this aspect of the town's industry.

SUMMARY

Pieces of six limestone moulds for the casting of pewter vessels, found on the Forum site at Silchester, are described and illustrated. Five were for casting three types of dish or plate. Two were moulded on both sides to form part of nests of moulds. The sixth piece was the inner mould for a cup or flagon. The techniques of manufacture are considered. The grooves for casting the rims and feet appear to be compass-drawn, but it is argued that there is no evidence that the moulds were lathe-turned.

NOTES

[1] Society of Antiquaries of London, Fox Collection, box 4.64.

[2] T. S. Bush, *Proc. Soc. Antiq. London*[2], xxii (1908), 34–8, with reference by Hope to the Silchester finds.

[3] G. C. Boon, *Silchester: The Roman Town of Calleva* (Newton Abbott, 1974), p. 274, fig. 40.

[4] I. H. Goodall, *Yorks. Arch. Journ.* xliv (1972), 32–7.

[5] The authors thank the Director of the Reading Museum for permission to publish these moulds from the Duke of Wellington's Silchester collection, and Mr. David Brown of the Ashmolean Museum, Oxford, who read this paper in draft, for his helpful criticism and suggestions.

[6] Langton: Goodall, *op. cit.*; St. Just: P. D. C. Brown, *Cornish Archaeol.* ix (1970), 107–10. Goodall discusses (p. 35) the manner in which the casting was done; see also the recent work by Brown, note 30 below.

[7] *Op. cit.* (notes 1 and 3 above).

[8] Goodall, *op. cit.*, 34.

[9] W. J. Wedlake, *Excavations at Camerton, Somerset* (Bath, 1958), p. 84 and pl. xvii*a*.

[10] T. F. C. Blagg, *Britannia*, vii (1976), 152–72, where other tools and techniques of the stonemason are also considered.

[11] A. Mutz, however, in *Die Kunst des Metalldrehens bei den Römern* (Basel and Stuttgart, 1972), p. 38 and Bild 53, cites a limestone bowl mould from Lyons with traces of lathe-turning on the inside wall; there is, however, no hole, and one wonders whether these could not be the marks of non-mechanical abrasion. Mr. David Brown has also called our attention to the chisel marks which are visible on the surface of the Lansdown moulds.

[12] A. Orlandos, *Les Matériaux de Construction et la Technique Architecturale des Anciens Grecs* (Paris, 1968), ii, fig. 60.

[13] D. M. Bailey in *Roman Crafts*, ed. Donald Strong and David Brown (London 1976), p. 98, pl. 174; for Lansdown, Bush, *op. cit.*, plate facing p. 38.

[14] C. A. Peal, *Proc. Cambridge Antiq. Soc.* lx (1967), 26, no. 4c(i) and references on p. 27 (Manton); P. D. C. Brown, *Oxoniensia*, xxxviii (1973), 192, and fig. 3, nos. 17 and 18 (Appleford).

[15] British Museum 71.7–4.6. Peal, *op. cit.* 26, no. 1b.

[16] N. J. Sunter in B. Cunliffe, *Roman Bath* (Society of Antiquaries of London Research Report no. xxiv, Oxford, 1969), p. 67, no. 1, and fig. 25.

[17] As on the Langton mould: Goodall, *op. cit.* (note 4 above), 33, fig. 1.

[18] Peal, *loc. cit.* (note 14 above), nos. 3 and 3a.

[19] Bush, *op. cit.* (note 2), p. 37 illustrated by I. A. Richmond in J. S. Wacher, ed., *The Civitas Capitals of Roman Britain* (Leicester, 1966), pl. x.

[20] Brown, *op. cit.* (note 14 above) p. 190, fig. 2, no. 16; p. 192, fig. 3 no. 20; p. 194, fig. 4, nos. 21 and 22. Peal, *op. cit.*, classifies the general type and illustrates a number of widely spread examples.

[21] *Britannia Romana*, portfolio IV, *f.* 3.

[22] Devizes Museum Catalogue part II (1934), p. 182, no. 709, and pl. lvii, 5. The drawing does not, unfortunately, include an internal profile, but this is in fact almost identical with the Witcombe example; we are grateful to Mr. David Brown for sight of a copy of his own drawing. In the catalogue it is shown and described as having a circular stone cover 'fitting it like that of a jar'. We have not had an opportunity of inspecting this, but it does not read as though it incorporates a core of the mould similar to that from Silchester.

[23] We are grateful to David Brown for pointing this out to us and suggesting the alternative interpretation.

[24] An example of each is conveniently illustrated by J. Liversidge, 'A New Hoard of Romano-British Pewter from Icklingham,' *Proc. Cambridge Antiq. Soc.* lii (1959), pl. III.

[25] Displayed in the British Museum. C. H. Read, *Archaeologia*, lvi (1898), 11, no. 12, and fig. 6.

[26] *Archaeologia*, liii (1893), 564.

[27] Sunter, *op. cit.* (note 16 above), p. 70, and fig. 25, nos. 11 and 12.

[28] Read, *loc. cit.*, no. 14.

[29] There are three biconical flagons; but that illustrated by Boon (*op. cit.*, note 3 above, p. 229, fig. 35) does not have the angular profile of the Bath and Appleshaw examples and of the vessel cast in this mould.

[30] For the technique see David Brown, 'Bronze and Pewter', in Donald Strong and David Brown, eds., *Roman Crafts* (London, 1976), pp. 33 ff.

The Antiquaries Journal

Being the Journal of
The Society of Antiquaries of London

VOLUME LVII

OXFORD UNIVERSITY PRESS
OXFORD LONDON GLASGOW
NEW YORK TORONTO MELBOURNE WELLINGTON
KUALA LUMPUR SINGAPORE JAKARTA HONG KONG TOKYO
DELHI BOMBAY CALCUTTA MADRAS KARACHI
IBADAN NAIROBI DAR ES SALAAM CAPE TOWN
1977