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#### NOTES

- <sup>1</sup> I. Soulsby, *The Towns of Medieval Wales* (Chichester, 1983), 224.
- <sup>2</sup> Powys Archaeological Record no. PAR 259. Scheduled Ancient Monument no. Radnorshire 142.
- <sup>3</sup> *Radnorshire Inventory* (R.C.A.H.M. Wales, 1913), 103.
- <sup>4</sup> S. W. Williams, 'Rhayader and its antiquities', *Montgomeryshire Collect.*, 30 (1898), 211–35.
- <sup>5</sup> M. Beresford, *New Towns of the Middle Ages* (Gloucester, 1988), 573.
- <sup>6</sup> J. Williams, 'History of Radnorshire', *Archaeol. Cambrensis*, 4 (1858), 469–616.
- <sup>7</sup> S. Lewis, *Topographical Dictionary of Wales* (London, 1833).
- <sup>8</sup> *Radnorshire Inventory*, op. cit. in note 3, 103.
- <sup>9</sup> For preliminary reports on work in 1982 see: *Clwyd-Powys Archaeological Trust Review of Projects* (Welshpool, 1982), 11; C. J. Spurgeon, 'Mottes and castle-ringworks in Wales', 23–49 in J. R. Kenyon and R. Avent (eds.), *Castles in Wales and the Marches* (Cardiff, 1987); and J. R. Kenyon, *Medieval Fortifications* (Leicester, 1990), 10.
- <sup>10</sup> Information from Mr C. Musson.
- <sup>11</sup> Williams, op. cit. in note 6, 543.
- <sup>12</sup> W. Gardner, 'The mound at Rûg, near Corwen', *J. Merioneth Hist. Rec. Soc.*, 4.1 (1961), 3–6.
- <sup>13</sup> T. Wright, 'Treago and the large tumulus at St Weonard's', *Archaeol. Cambrensis*, 10 (1855), 168–74.
- <sup>14</sup> J. Knight and E. Talbot, 'The excavation of a castle mound and round barrow at Tre Oda, Whitchurch', *Trans. Cardiff Natur. Soc.*, 95 (1968–70), 9–23.
- <sup>15</sup> *Radnorshire Inventory*, op. cit. in note 3, 103.
- <sup>16</sup> Knight and Talbot, op. cit. in note 14.
- <sup>17</sup> D. B. Hague and C. Warhurst, 'Excavations at Sycharth Castle, Denbighshire, 1962–63', *Archaeol. Cambrensis*, 115 (1966), 108–27.
- <sup>18</sup> G. C. Dunning, 'Alstoe Mount, Burley, Rutland', *Antiq. J.*, 16.4 (1936), 396–411.
- <sup>19</sup> P. V. Addyman and J. Priestly, 'Baile Hill, York: a report on the Institute's excavations', *Archaeol. J.*, 134 (1977), 115–56.
- <sup>20</sup> P. Barker and R. Higham, *Hen Domen, Montgomery* (London, 1982).
- <sup>21</sup> B. K. Davison, 'Aldingham', *Current Archaeol.*, 12 (1969), 23–24.
- <sup>22</sup> C. J. Spurgeon, 'The castles of Montgomeryshire', *Montgomeryshire Collect.*, 59 (1966), 1–59.
- <sup>23</sup> D. J. C. King and C. J. Spurgeon, 'The mottes in the vale of Montgomery', *Archaeol. Cambrensis*, 114 (1965), 69–86.
- <sup>24</sup> E. J. Talbot, 'Lorrha motte, County Tipperary', *North Munster Antiq. J.*, 15 (1972), 8–12.
- <sup>25</sup> Dunning, op. cit. note 18, 399.
- <sup>26</sup> Clwyd-Powys Archaeological Trust, 7a Church Street, Welshpool, Powys SY2 7DL.

#### THE WARWICK CASTLE CAULDRON (Fig. 5)

A copper-alloy cooking pot was such a vital item of domestic metalwork in the medieval and later periods that it featured in inventories and wills relating to the full range of dwellings from cottage to castle. Of those which have survived, vessels carrying dates are from the 16th to 17th centuries and very few are believed to be from an earlier period. There are considerable difficulties in dating domestic metalwork since stylistic reference points, so useful with items of artistic merit, are largely lacking with utilitarian objects. However it is becoming clear that analysis of the alloy used can help because comparisons can be made with other object-types, such as weights and measures which are datable, so long as similar technology has been involved in their manufacture.

The subject of this note is a large cauldron now displayed in Warwick Castle, but comment is also included on two other large cauldrons which have survived in the Trinity Hospital, Leicester<sup>1</sup> and in Lacock Abbey, Wiltshire.<sup>2</sup> The latter is a signed and dated vessel made in Flanders in 1500. The Warwick Castle cauldron is unusually large and the weight of such a large object would militate against its easy transport. There is therefore the possibility that it was made locally; unfortunately there is no record in the castle archives of any other than its most recent history. Various features apart from its large size make this vessel notable.

In most cases cooking pots of the late medieval and early post-medieval periods stood on tripod legs or were supported from above by means of a pair of lug handles just below the rim. The Warwick cauldron has neither of these features but has in their place four short, stout arms equally spaced around the circumference slightly above the widest part of its approximately spherical body. The arms probably rested on a stout iron frame supported on legs straddling the fire such that the rounded base of the cauldron received its heat and transferred it to the contents. Such a tailor-made support system implies a permanent cooking facility in a specific place, possibly in the castle itself.

The cauldron has no surface decoration in contrast to many later vessels, particularly the larger examples. However the surface shows blemishes, both random and in the form of a pattern. Pits and scratches are due to casting faults and subsequent rough use, particularly evident on the inner surface. Of more interest is the pattern of raised lines or ridges over the external surface since these provide evidence for the method of manufacture. These lines do not indicate that a cauldron was made in separate parts, later brazed together, as is still sometimes suggested as explanation of the so-called 'seams'. Instead they trace the joint lines of the parts of the mould defining the outer shape of the casting; the parts would not have fitted together exactly when the complete mould was assembled just prior to pouring and some penetration of liquid metal at the joints was inevitable, so giving rise to slight ridges on the finished outer surface of the cauldron.

Most cauldrons have a ridge running down the sides at diametrically opposed positions and across the base, indicating that a two-part outer mould was used. The Warwick cauldron has ridges at the half-way positions between the arms (one of the ridges is evident on the right-hand half of the lower drawing in Fig. 5) confirming the use of a basic four-part outer mould. There are also lines running circumferentially around the widest part of the outer surface but which rise and fall at each of the arm positions; this may indicate that each mould-quarter was in turn made from two parts which had to take account of the moulding patterns for the arms. After assembly into a mould-quarter, some attempt was probably made to smooth the joint before assembly of the mould-quarters into the full outer mould. The mould core defining the internal shape was no doubt a single piece and the whole mould would have been assembled, in the inverted position, and the molten metal poured through a hole in what is now the base. Unfortunately the base is at present inaccessible, it being within a wooden support for the cauldron.

The Leicester cauldron is of a different form, having more sloping sides and a flatter base. It is supported on three spade-like legs with crude decoration above the junction with the body; it carries a band of three narrowly-spaced raised ridges forming a band at about mid-height by way of additional decoration. Two substantial loop handles span the angle between the everted upper part and the body just above the decorative band. There is the normal single ridge indicating the use of a two-part outer mould. Cauldrons of this form, and having many of the other features of the Leicester cauldron, are known. A number carry 17th-century dates but the type was almost certainly made in the previous century and examples with crude decoration may be of Tudor date. They are all believed to be of English manufacture.

The Lacock cauldron is of spherical form, stands on three footed legs and has two stout loop handles, each decorated with a bearded figure-head. Around the body at about mid-height is a band between raised edges which carries a Latin inscription indicating that the cauldron was made in Mechelen (Malines) in 1500 by Peter Waghevens. It shows traces of ridges but attempts were clearly made to chisel or file them down. They run down the sides at diametrically opposed positions but these do not meet under the base; instead a circular ridge, concentric with the axis of the cauldron, can be seen on the base. This indicates that the outer mould consisted of two main parts but with a third small part which probably contained the pouring channel when in the inverted position. The decorated handles would have been separately moulded in wax and melted out during baking of the clay mould.

There are thus two large cauldrons which contrast with the Warwick cauldron in respect of style and method of manufacture; this extends to the matter of the alloy compositions used.

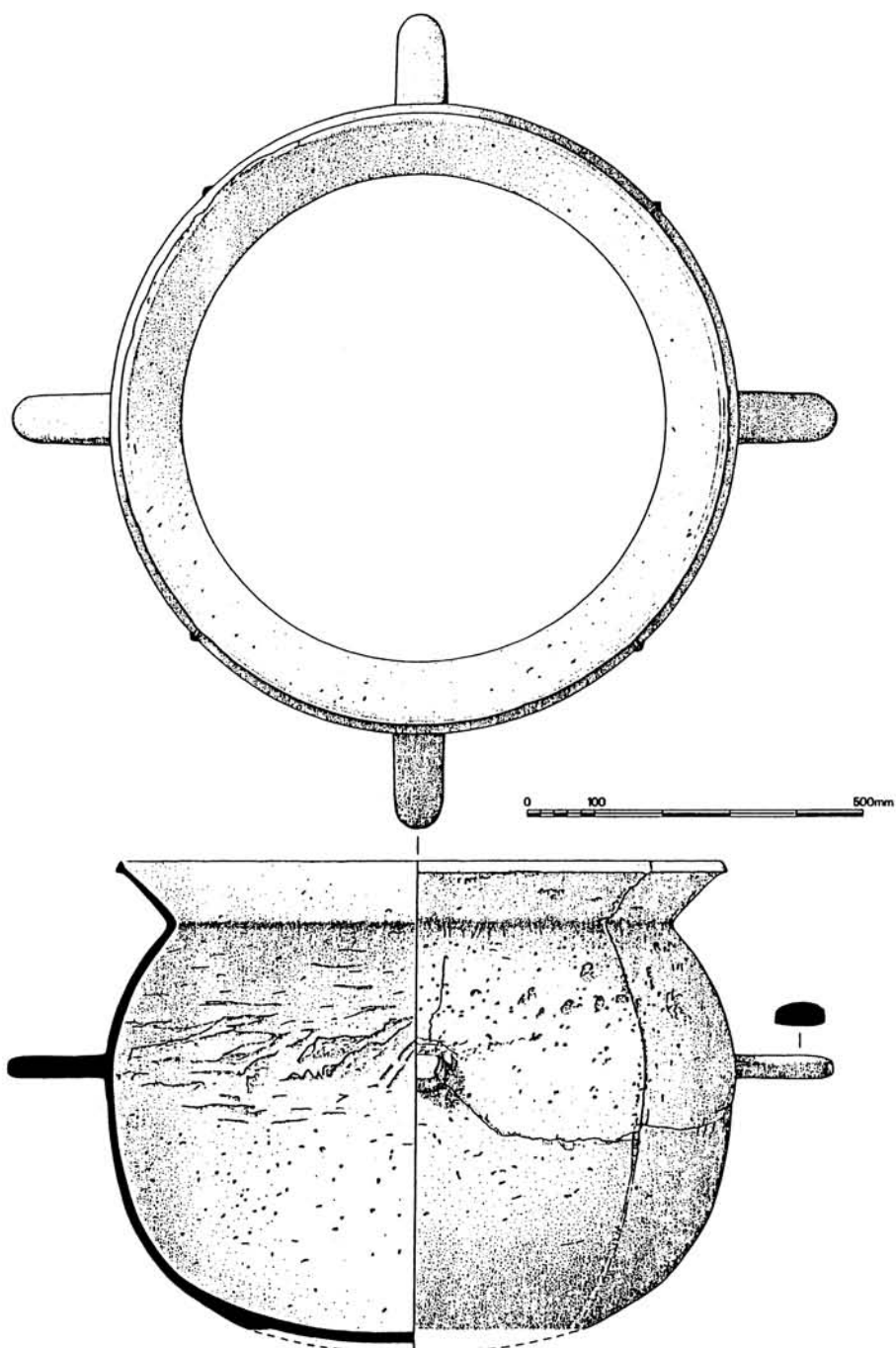


FIG. 5  
Warwick Castle cauldron

Each has been sampled and analysed by an X-ray fluorescence technique described elsewhere.<sup>3</sup> The results are presented in Table 2. Although all the alloys can be described as heavily-leaded bronzes, there are significant differences in both the main additions tin and lead and in the impurity elements, nickel, antimony, and arsenic.

The Leicester and Lacock alloys have high nickel and very high antimony and arsenic levels indicating a common ore-type if not a common origin for the copper. The 'fahlerz' or grey-ore mineral, which was worked in the Harz region and elsewhere in the late medieval and later periods, is rich in arsenic and particularly antimony, and high nickel contents are believed to be characteristic of German ores. These similarities are consistent with the fact that the Leicester and Lacock cauldrons are believed to be near-contemporary objects. The alloys used are heavily leaded with a tin:lead ratio of about 1:5; such an alloy would be a relatively low-cost material but adequate for the purpose.

The alloy used for the Warwick cauldron in contrast has a much higher tin content, with a tin:lead ratio of about 1:1, and lower levels of antimony and arsenic. The nickel content is significantly lower. The compositional features are believed to indicate a date of manufacture significantly earlier than the other two cauldrons. A large amount of analytical data on medieval copper-alloy objects has been accumulated at Coventry Polytechnic and these are available for compositional comparisons. The published data on steelyard weights,<sup>4</sup> tripod ewers<sup>5</sup> and a mixed metal hoard,<sup>6</sup> together with other unpublished data on mortars, cooking vessels, larger weights and other items, suggests that a date of c. 1400 would be appropriate for the Warwick cauldron. The unique form of the support for the cauldron body, the lack of decoration, the high tin content and the mould details left on the cauldron point to an unusual origin, almost certainly in England.

#### ACKNOWLEDGEMENTS

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TABLE 2  
ALLOY COMPOSITIONS AND RIM DIAMETERS OF CAULDRONS

%	Copper	Zinc	Tin	Lead	Nickel	Iron	Antimony	Arsenic	Silver	Rim Diameter (mm)
Warwick	76.3	0.13	11.8	10.0	0.24	0.10	0.33	0.96	0.07	900
Leicester	65.3	0.34	5.01	21.0	0.99	0.66	4.18	2.38	0.13	815
Lacock <sup>1</sup>	75.5	0.69	2.43	12.7	1.07	0.31	4.12	3.15	0.08	775

<sup>1</sup> Average of three samples.

#### NOTES

<sup>1</sup> The cauldron is now in the Trinity Hospital, The Newarke, Leicester. A leaflet available from the Hospital contains reference to a petition (c. 1653) for the use of a 'great Pott' lying idle in the possession of the Corporation, which may have been a reference to this cauldron.

<sup>2</sup> Lacock Abbey is a National Trust property; *Lacock Abbey, Wiltshire* (National Trust, 1979). The cauldron is in the Warming Room. See also C. C. Oman, 'The Founders of Malines and England, 1460-1560', *Oud Holland*, 50 (1933), 77-82 and Pl. iv; L. S. Vandenberghe, 'Een Unieke Bronzen Ketel van Pieter Waghevens in de Abdij van Lacock', *Handelingen van de Kon. Kring voor Oudheidkunde, Letteren en Kunst van Mechelen*, 82 (1978), 193-201 and Pls. 1-3. The Warwick cauldron is referred to in footnote 12.

<sup>3</sup> R. Brownsword and E. E. H. Pitt, 'Alloy Composition of Some Cast "Latten" Objects of the 15/16th Centuries', *J. Hist. Metallurgy Soc.*, 17 (1983), 44-49.

<sup>4</sup> R. Brownsword and E. E. H. Pitt, 'Technical Study of Some Mediaeval Steelyard Weights', *Proc. Dorset Natur. Hist. Archaeol. Soc.*, 105 (1983), 83-88.

<sup>5</sup> J. M. Lewis, R. Brownsword and E. E. H. Pitt, 'Medieval "Bronze" Tripod Ewers from Wales', *Medieval Archaeol.*, 31 (1987), 80-93, in particular note 39.

<sup>6</sup> J. M. Lewis, R. Brownsword, E. E. H. Pitt and T. Ciuffini, 'The Nant Col Hoard of Medieval Metalware', *Archaeol. Cambrensis*, 136 (1987), 156-70.

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## A LATE MEDIEVAL HISPANO-MOESQUE VASE FROM THE CITY OF LONDON (Figs. 6, 7, Pls. III, A, B)

The discovery in 1990 of a lustreware vase on the N. bank of the Thames foreshore under Cannon Street Bridge (NGR TQ 326 807) has highlighted the existence of a relatively uncommon class of Hispano-Moesque export wares. The vessel was subsequently acquired by the British Museum, and is now housed in the reference collection of medieval and later Spanish lustreware from British sites in the Department of Medieval and Later Antiquities.<sup>1</sup> The following note is intended as a postscript to the full and detailed typochronology of Iberian pottery exported to the British Isles<sup>2</sup> and north-west Europe<sup>3</sup> during the late medieval period.

### Description

The fabric is buff-red in colour (Munsell 7.5YR 6/4), and examination under a binocular microscope shows sparse inclusions of quartz, limestone and iron-ore, with flecks of mica. The vase has a tall, flaring neck, and probably had a simple, rounded rim. The top of the neck has been smoothed down, subsequent to chipping or other damage, since the surface of the break is smoother and more worn than the other fractured edges, producing a maximum height of 155 mm. The vessel has a bulbous and slightly irregular body, with a girth diameter of 96 mm, and a solid, thickly-potted base, somewhat distorted, with a bevelled edge, 72-74 mm in diameter, and spiral wiremarks beneath the base. The irregular body and base, which make the vessel slightly uneven, and several small irregularities in the surface of the clay beneath the glaze, demonstrate that the vessel was not well finished by the potter prior to decoration. A small scar in the glaze at the girth was probably caused by contact with another vessel during firing.

### Decoration

The vase is covered internally and externally with a white tin-glaze, over which the decoration was painted. The glaze and decoration have decayed in some areas to a glossy black, whilst elsewhere the decoration has faded to a faint, colourless, ghost lustre, visible only in reflected light. However, X-ray fluorescence analysis by Dr M. Hughes of eight separate areas of decoration detected copper but not cobalt. In contrast, the decoration on a vase from London Wall, London (Pl. III, A) showed cobalt and nickel in the blue areas and copper in the lustre. The absence of cobalt in the Cannon Street Bridge vase indicates that the decoration was painted in copper lustre only. The decoration consists of two panels of foliage around the neck and girth, and a narrow, decorated panel just above the base, the design of which is unclear. Each panel is bordered by two narrow lines, occasionally broken by the foliage, and separated by wider horizontal bands, one each at the rim and shoulder, and four between the girth and footring. The band at the rim is matched by a band of similar width on the interior surface. The bevelled edge of the base is also lustred.

### Discussion

The decoration in the panels comprises 'blobbed' leaves or scrolls, with small, hooked tendrils, painted with broad brushstrokes. Interspersed among them are thin scrolls, lines, stalks and dots, produced with finer brushstrokes. The 'blobbed' leaf or scroll motif appears