Revisiting Some Lead Tokens from Huntingdon

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In 1963 a group of lead tokens were examined at the British Museum, all showing the same design.[1]

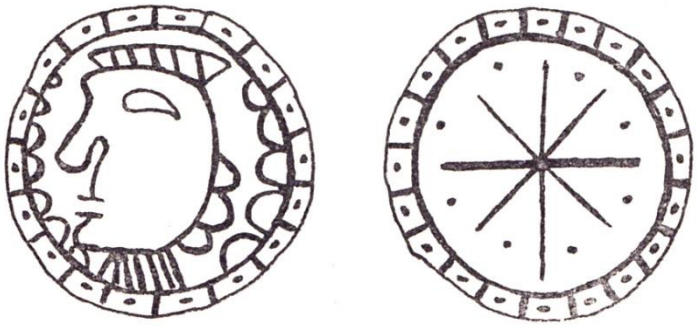

Fig. 1. Drawing of one of the tokens – diameter 20mm, shown ×2.[1]

The British Museum already had a specimen from the same find, presented in 1846 by Sir Bartle Frere. The larger group had been passed down through a family of solicitors since the original find. There were forty-six whole pieces, nine slightly chipped and eight broken. Several of the pieces had a distinctive nick. They were wrapped in a piece of old paper upon which was written: "1823 ancient coins found behind the Parlour Chimney piece in Mr. Godbys Old House". Pigot & Co's 1823/24 directory has Mr. Henry Godby (Solicitor-at-law) occupying a house on the High Street in Huntingdon.

The tokens were cleaned and found to weigh between 51 and 67.7 grains (3.30-4.39g). 95% of the tokens were in the range 51-59 grains (3.30-3.82g). At the time it was stated that "All appear to be from moulds made with the same model if not the same mould. . ." Dolley and Hocking speculated that the tokens were cast in multiple moulds made using the same template, but were surprised at the narrow range of weights. A small casting sprue might have been visible on a few pieces (3 o'clock on the obverse), but it was suggested that the nicks appearing in the same place on many pieces was where the casting sprue was. They further speculated that the tokens were made during the second quarter of the sixteenth century and that the prototype was the Wolsey groat of Henry VIII.

The next appearance of the tokens was as part of a metallurgical study published in 1984.[2] Under the heading

"P) Provincial Tokens of the Early Tudor Period

a) St Nicholas ('Boy') Bishop tokens. [Types 1-40].
b) Cambridge: The Local Bust series. [Types 41 and 42].
c) Cambridge (?): The Paschal Lamb series [Type 43]."

Again the pieces are described as groat-sized, and type 42 includes details of three specimens in the Mitchiner collection.

Type	Weight (g)	Diameter (mm)	Condition	Design Axes	Tin (%)	Lead (%)	Provenance
42	3.70	20	Good	-		100	Huntingdon
	3.65	20	Good	-	17.4	82.6	unknown
	3.65	20	Good	-			unknown

Table 1. Details of three 'lead' tokens published in 1984.[2]

Further tokens of this type have continued to appear in the subsequent decades, two with "near Huntingdon" find spots and are almost certainly not part of the 1823 hoard. An analysis of six pieces will be presented below.

Fig. 2. Six more specimens of the token. All shown ×2.

Note that the measurements are made on the raw tokens. No cleaning has been carried out since acquisition and a few of the pieces show traces of surface contamination, either corrosion or dirt. For each token two separate XRF measurements were made. The first determines the main metal components and other metals and gives proportions totalling about 100%. The second measurement looks for many other elements, including lighter components typical of corrosion products and surface contamination, again, given as percentages totalling about 100%. Any discrepancies are caused by rounding errors and the (often several) trace elements not tabulated here. These latter measurements were not quite so simple with the equipment and analysis used in the 1980s.

#	Weight (g)	Main Metals		Other Metals		Other Elements				Provenance
		Pb (%)	Sn (%)	Cu (%)	Fe (%)	Si (%)	P (%)	Al (%)	Zn (%)	
001	3.711	**96.8**	**3.0**	0.1	0.1					-
		93.9	2.6	0.1	0.1	2.8	0.2			
002	3.914	**97.0**	**2.8**	0.1	0.1					Huntingdon
		94.2	2.7	0.1	0.1	2.7	0.2			
003	3.531	**90.4**	**9.4**	0.1	0.1					-
		86.7	8.8	0.1	0.1	3.2	0.3	0.8		
004	3.457	**89.7**	**9.5**	0.7	0.1				0.1	Huntingdon
		85.9	9.2	0.7	0.1	2.9	0.2	1.0	0.1	
005	3.699	**89.6**	**9.9**	0.4	0.1					-
		87.1	9.5	0.3	0.1	2.6	0.1			
006	3.714	**96.4**	**3.2**	0.2	0.2					-
		94.2	3.1	0.2	0.1	2.2	0.1			

Table 2. Details of the six lead tokens illustrated in Fig. 2.

Working across the table, the weights of the six tokens are well within the ranges of the 1823 hoard. When looking at the metallurgy there appear to be two distinct groups: the first is about 97% Pb and 3% Sn and the second is about 90% Pb and 10% Sn. Without knowing exactly how the tokens were treated or analysed in the 1984 results, it is reasonable to conclude that both sets of XRF analyses have revealed two batches of tokens.

The casting sprue can be clearly seen on the edge of token #004, along with the line where the two halves of the mould meet. Other tokens show a smooth area at this point (#001, #002, #003 and #005).

Fig. 3. Casting sprue and mould line on edge of token #004.

Tokens #004 and #005 show large fractures almost across a diameter, and in the case of #005 it is possible to see light through the fracture. The tokens show no signs of having been bent or broken and repaired, so must be part of the manufacturing/moulding/cooling process or subsequent stresses created by corrosion. This might explain the large number of broken pieces in the 1823 hoard.

Fig. 4. Fracture allowing light to pass through token #005.

The next question to answer is whether the tokens were made singly from one mould or in groups from a multiple mould. The flat patches suggesting removal of casting sprues points towards a single mould, but a better way is to check the relative position and alignment of the obverse and reverse moulds.

A circular template is created with various diameters drawn on. The image of the obverse of a token is superimposed and the lines rotated to pass through specific design features. Token #003 has a useful casting flaw in the edge that is noted, as this links the obverse to the reverse. The template is mirrored about a vertical axis and then superimposed on the image of the reverse of the same token. The reverse image is rotated until the useful feature lines up with the template.

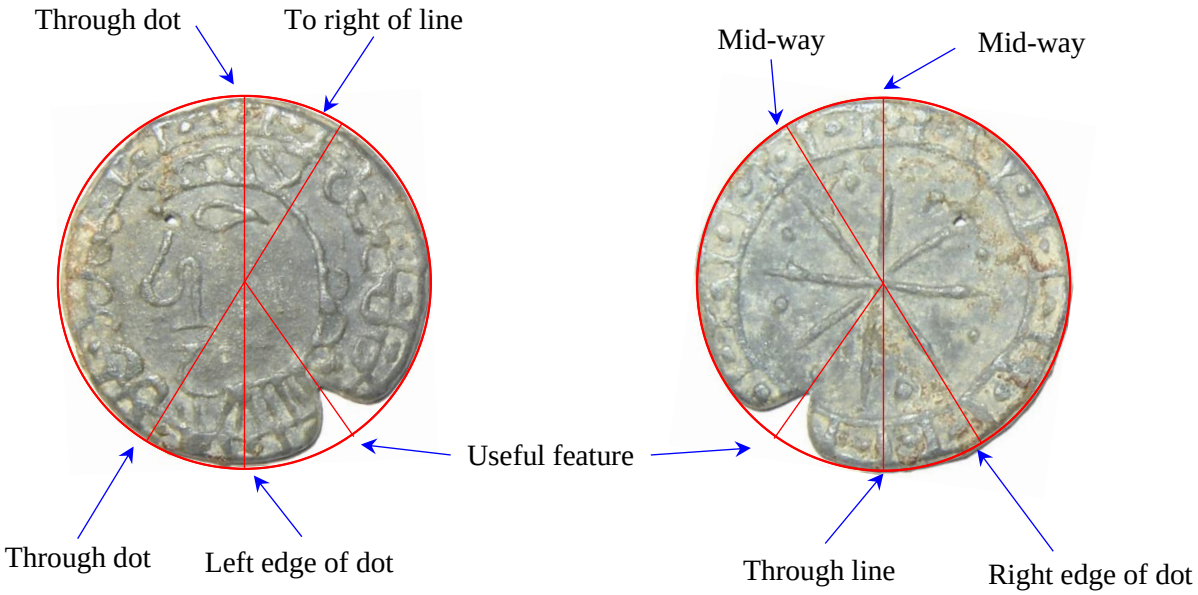

Fig. 5. Identifying design features for mould analysis, starting with token #003.

Once the reverse image is correctly aligned, it can be mirrored about a vertical axis and superimposed on the obverse producing a perfect fit – as expected. The red templates can now be used to check the relative orientation of the obverse and reverse of all of the other tokens. The final mirroring and superposition allows any edge defects or fractures to be used as the 'useful feature' of that token.

The error in this method is estimated to be about 1-2 degrees in rotation, but within this it is concluded that all six tokens were produced in the same mould. The probability of multiple moulds being made with such a repeatable and identical alignment is very small indeed.

Discussion

A small group of tokens has been presented that have a very particular design made using the same mould as was used for a hoard of tokens found in Huntingdonshire in 1823. A method has been devised that shows that it is highly likely that all of the pieces were made using one pair of moulds. Metallurgical analysis suggests that there were two batches of tokens the first with about 97% Pb and 3% Sn and the second is about 90% Pb and 10% Sn. Whilst described as groats in the literature[1,2], at 20mm diameter their size is closer to that of a half groat. The metals used are typical of other lead tokens from the first half of the sixteenth-century, however Dolley and Hocking's suggestion that the design derives from the Wolsey groats of Henry VIII is tenuous at best.

References and Acknowledgements

(1) M. Dolley and A. Hocking. "Plumbei Angliae", A Find of Sixteenth-Century (?) Lead Tokens From Huntingdon. *SNC* vol. 71 no. 10 October 1963, pp206-207.
(2) M. Mitchiner and A. Skinner. English Tokens, c. 1425 to 1672. *BNJ* vol 54, 1984, pp86-163.