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## TOOLED SURFACES FOR COPPER FLANS OF LARGE «GREEK IMPERIAL» COINS

H. Bartlett Wells

Within the past twenty years there has been some study both of the techniques and of the history of mechanically preparing cast flans used in striking large ancient copper coins of the Greek world. M. Picon and J. Guey discussed mechanical turning of the surfaces of large Ptolemaic flans, preparatory to striking<sup>1</sup>. Shortly afterwards they called attention to Asia Minor coins of the mid-to-later 3rd century A.D. which showed marks of circular tooling<sup>2</sup>. A difference between these two classes of coins was that the Ptolemaic ones had the familiar central conical cavities which had evidently, in these cases, served as recesses to seat a pointed holding device while the flan was being tool-ed, while the Asia Minor ones lacked that central cavity in almost all cases. This made it evident that the flan was then held in some other way, probably at the edge by several wedges arranged something like the three-jaw chuck of a modern lathe for turning the faces of circular objects.

There are illustrated here some examples of these two classes. The coins are among Greek coppers in the collections of the Art Museums of Harvard University.

Fig. 1. The reverse of a coin probably of Ptolemy VI (Svoronos 1424), which has been so deeply tooled that when the die was applied it failed not only to obliterate the concentric grooves, but also to make its own impression in entirely legible form. In this enlargement at 3:1 one can see that the tooling was done not with a point, but with a chisel having a tiny flat edge perhaps a millimeter broad. There was a nick in the blade about one-third of the way from one of its ends to the other. The tool chattered, evidently because the flan rocked slightly as it rotated, and consequently each pass of the tool was crossed with small transverse markings densely spaced. Even though something had gone very wrong with the process the coin went into use, underwent circulation wear, and has survived.

Fig. 2. Another flagrant example is the reverse of a coin of the Roman emperor Philip II, struck at Samos<sup>3</sup>. In this case there is no central conical cavity and the flan was evidently held at its edges during the tooling process. Again enlarged at 3:1, this photograph shows a fairly complete and pronounced pattern of concentric arcs.

In their second article of 1968 Picon and Guey cite other examples of the 3rd century A.D., all of them from Asia Minor, in which concentric turning, mostly without central conical cavity, has occurred. These examples are in the Cabinet de France (Nos. 657, 600, 611, 668, 674, and 703); but the authors also cite parallels illustrated in the SNG v. Aulock. Some v. Aulock illustrations of Claudius Gothicus coins from Pisidia are clear enough to show that scorings (apparently always single circles or arcs thereof) have survived. Interesting examples are the following from Sagalassos:

SNG v. Aulock 5205, where on the reverse there is a single scored arc and in addition (perhaps a unique case) a very small central cavity concentric to it;

5220, where there is a central cavity on the obverse and a clear circular scoring on the reverse.

<sup>1</sup> J. Guey - M. Picon, Quelques remarques sur la fabrication des grands bronzes lagides à cavités centrales. BSFN 23/2, février 1968, 240-241.

<sup>2</sup> M. Picon - J. Guey, Monnaies frappées sur des flans tournés ne présentant pas de cavités centrales. BSFN 23/10, décembre 1968, 336-337.

<sup>3</sup> Cf. SNG Fitzwilliam 4658.



Fig. 1

Reverse of a coin probably of Ptolemy VI,  $\varnothing$ :31 mm, (Svoronos 1424) showing deep, continuous grooves concentric around a conical cavity.



Fig. 2

Reverse of a coin of the Roman emperor Philip II struck at Samos,  $\varnothing$ : 29 mm (cf. SNG Fitzwilliam 4658). Shows a pronounced pattern of concentric arcs but without central cavity.

3:1



Fig. 3

A coin of the Roman emperor Philip II (Caesar) from Me-sembria in Thrace, Ø: 26-28 mm. This obverse bears very faint traces of concentric tooling at and just inside the die impression, from approximately 030° to 075°. The border of dots created by the die has failed to obliterate them, and they run horizontally across the letters *lambda*, *iota*, and *pi* of the emperor's name, which have not been fully struck up. There is a central cavity.



Fig. 4

A coin of the Roman emperor Philip II (Caesar) from Me-sembria in Thrace, Ø: 26-28 mm. This reverse bears faint traces of concentric tooling at about 255° to 300° at and near the edge of the flan, taking the place of the border of dots in that area and also covering the space from the first *alpha* of the inscription, through the field past the grain ears of Demeter, and nearly to the *mu* of the inscription. There is a central cavity.

3:1

5221, where there is a central cavity on the reverse (although the coin is from the same reverse die as 5220 where the cavity in the flan is lacking) and also an arc – yet one to which I think the cavity is not quite central, and if that is so then the operations of creating the cavity and of scoring the surface may have been carried out with purposes independent of each other.

There has appeared in the Harvard collections a coin of Gallienus from Side, corresponding to SNG Cop. 425, which has what may be a well-centered «scoring» of about 10 mm diameter upon the obverse head. Yet a great many Gallienus coins from Side bear obverse countermarks of about this diameter; in most cases they represent a letter «Ε» and they normally cancel a numeral, engraved in the die, which is reproduced in the lower right-hand quadrant of the coins's obverse. For the time being one must hesitate before calling the phenomenon centrally positioned upon the obverse head of this coin a circular groove incised by a tool.

Note the use of the term «scoring» in connection with the coins of Gallienus and Claudius Gothicus. One might have questioned the thought of associating these rather deep single circles or arcs with the evidences of full tooling as seen on the Samos coin discussed above (Fig. 2) were it not that one can see in the Fitzwilliam Museum specimen of that same Samos coin, No. 4658, not only a mark across the head of the reverse figure that may be a trace of a turning process, but also on the obverse a small circle, without central cavity but in a central position upon the obverse head, that seems much more surely to have been a result of turning.

Accordingly it appears sensible to suggest that in the mid-to-later 3rd century A.D. these processes were known and sometimes practiced in an area of Asia Minor that extended at least from Samos to Sagalassos. The puzzle is why there has not been evidence of them elsewhere in the East after Actium, especially considering that use of the mere central conical cavity alone became increasingly profuse as those centuries progressed.

A Harvard coin has now shown that under the emperor Philip the same association of the familiar central cavity with the rare concentric tooling was in fact practised, to however limited an extent, in a far different area. A Philip II coin of Mesembria in Thrace is illustrated as Fig. 3 (obv.) and Fig. 4 (rev.)<sup>4</sup>. On the obverse there are very faint traces of concentric tooling at and just inside the die impression, from approximately 030° to 075°. In that area they have failed to be obliterated by the border of dots created by the die, and they cross the letters *lambda*, *iota*, and the first *pi* of the emperor's name, these letters not having been fully struck up. On the reverse they lie at about 255° to 300° along the edge of the flan, taking the place of the border of dots in that area, and they also cover the space from the first *alpha* of the inscription, through the field past the grain ears of Demeter-Ceres, and nearly to the *mu* of the inscription.

These traces are very faint. The die blow was of sufficient force to eliminate them almost entirely. It seems that failure to do away with them altogether was a matter of indifference to the moneyers. These operatives do not seem to have been in the least disturbed that striking should not obliterate the very common central cavity, the continuing presence of which does not much bother most modern collectors either. Yet the moneyers must have relied upon the powerful striking blow to do a pretty good job in eliminating an array of delicate tooled grooves.

<sup>4</sup> T. E. Mionnet, *Description des médailles antiques grecques et romaines*, Supplément II, n° 871, but nowhere cited more recently, as it would seem.

Nearly three hundred years lay between Actium and the emperor Philip. An immense number of large ancient copper coins of the Greek world are known from that period. Where they bear central conical cavities they appear to retain no trace of surface turning no matter how well the surface of the metal has preserved other details. Was this type of processing invented for a second time under Philip, or was it regularly resorted to over all that long interval without now coming to our attention? In terms of numismatic art the matter is a trifle, but it is of interest to students of the history of technology, and even at this late date one can only repeat the words of Picon and Guey in 1968:

*«Nous serions reconnaissants aux numismates qui nous feraient l'honneur de nous signaler des cas semblables . . .»*

To this they added the hopeful judgment that such cases would prove to be *«certainement assez fréquents»*, but their trust has evidently not been borne out in the fact.