

An Unusual Counterfeit Charles I 1b2 Shilling, mm Heart

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The shilling illustrated below was recently acquired with two suspicious features. The weight at 4.846g is more than 20% below the expected 6.05g, yet it is only lightly clipped, and it is also a strange colour, a greeny-beige, familiar from the worn debased silver coins of the 1920s.



Fig. 1. Charles I shilling mm. Heart. Shown $\times 2$.

Obv: **CAROLVS D G MA BR / FR ET HI REX** mm. Heart.

Around left facing bust that breaks the inner circle and XII behind.

Rev: **CHRISTO AVSPICE REGNO** mm. Heart.

Around royal shield, plain harp, Welsh plumes above.

Details: 4.846g. S.2785, Group B, Spink 1b2, Sharp B5/2.

XRF analysis of metals: Cu 56.4%, Ag 42.6% and other traces including Sn $<0.2\%$.

So, it's definitely not right, but something doesn't quite add up. Pure silver has a density of 10.49g/cm^3 , pure copper has a density of 8.96g/cm^3 , so fine silver at 92.5% should have a density of 10.38g/cm^3 and this metal at 42.6% Ag should have a density of 9.61g/cm^3 . Thus, if a full weight fine silver shilling weighs 6.05g, a counterfeit at 42.6% silver should weigh 5.60g. This is still a long way off the 4.846g.

While the XRF is a surface measurement the core of the coin must be a lighter metal.

As I have had a few requests on how to measure the density of a coin, I will describe the process I use in my next note for the blog. The method uses Archimedes principle with water as the fluid – with vague recollections of O-level physics from many years ago!

Conclusions

The weight of the coin is 4.846g, the weight of the coin suspended in water is 0.540g, thus the density of the coin is 8.974g/cm^3 which is very close to pure copper at 8.96g/cm^3 .

A quick calculation reveals that this density is equivalent to a 0.9% silver content (see appendices for mathematics and graphical methods). This is an average silver content for the whole coin. However the XRF has confirmed a silver rich surface, leaving two possibilities. This might be a thin silver plating on a copper core or a homogeneous (very) low-silver alloy that has been surface enriched using an acid treatment. I am not even sure if such a radical surface enrichment is possible and still leave a good metal surface.

An ongoing die study of the mm. Heart shillings to check for similarities has so far identified 33 specimens of this scarce issue. This also confirmed that this counterfeit is a die duplicate of Brooker 434 (also obv. of 435).⁽¹⁾



Fig. 6. Brooker 434.⁽¹⁾ 5.88g. Shown $\times 2$. (Reproduced by kind permission of Spink and Son Ltd, London).

Looking more closely at the lower edge of the obverse of the coin in figure 1 reveals the subterfuge.

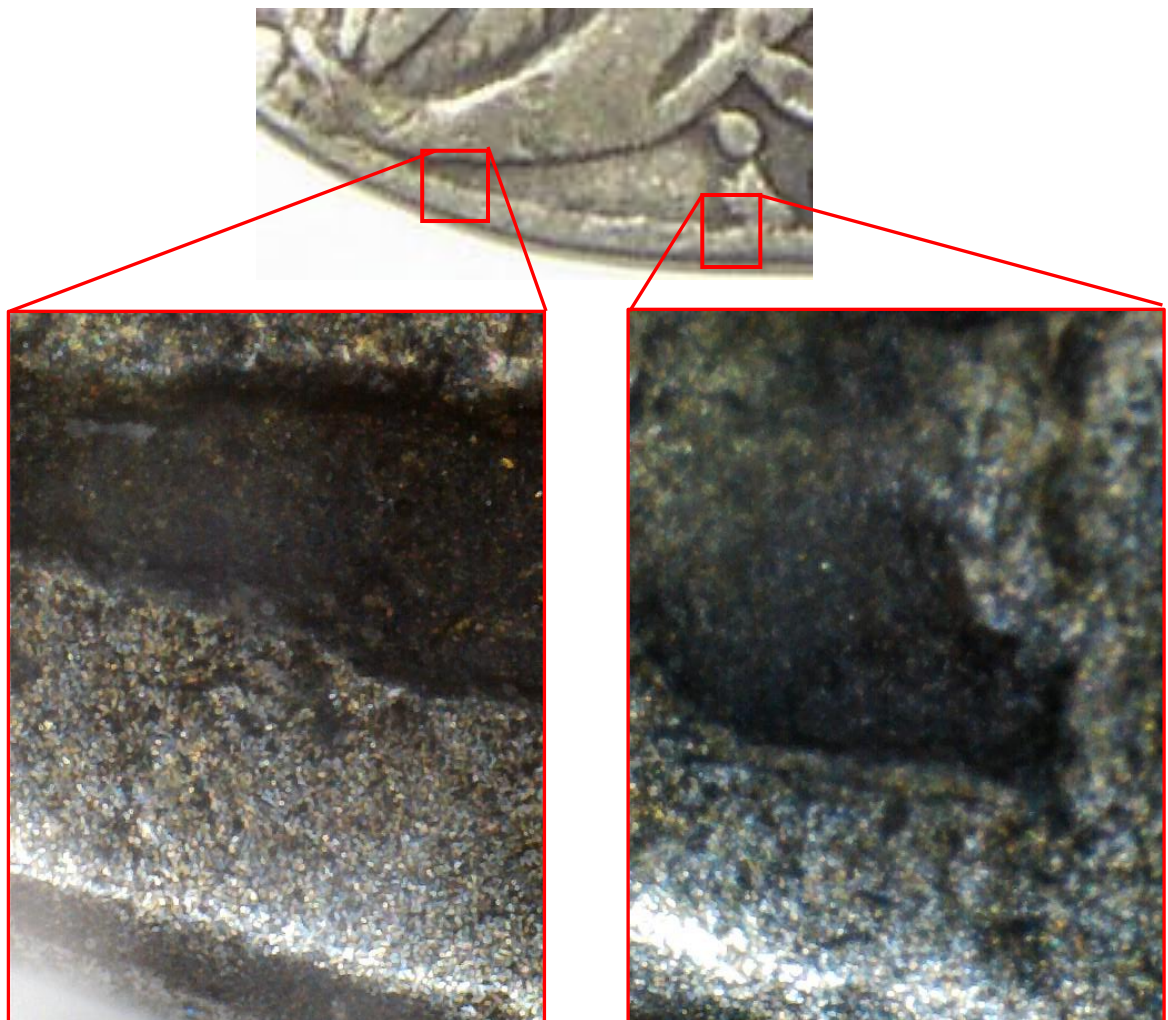


Fig. 7. Close-up of obverse edge, approximately $\times 10$ and $\times 100$.

This edge should have a neat outer circle of beads, as is clearly visible in figure 6. Instead there is a raised solid line, with no evidence of any edge damage that might create the line. This line is in the mould used to create the

cast counterfeit. The surface texture is also “grainy” at this magnification and doesn’t look typical of wear damage.

These observations are quite subtle, but once seen are obvious. As with all counterfeits, they have to be created after the genuine issue, but exactly when can be difficult to determine. The quality of the counterfeit is exceptional, and the metallurgy is unlike anything I have seen before.

Unless any compelling evidence of more recent manufacture is found, e.g., the discovery of more identical specimens or further analysis reveals unexpected metals, I am inclined to consider this to be of near-contemporary manufacture.

Reference and Acknowledgement

- (1) J.J. North and P.J. Preston- Morley (Editors). *Sylloge of Coins of the British Isles: The John G. Brooker Collection, Coins of Charles I (1625-1649)*. SCBI vol.33, Spink, 1984.

Thanks to Emma Howard at the Spink Book Department for permission to use the Brooker image.

