

Reply to his query about the permissible level of wastage in melting.

Author: Isaac Newton

Source: MINT 19/1/181-2, National Archives, Kew, Richmond, Surrey, UK

<181r>

I have been long indebted to you for your Letters & was in good hopes that the Question you wrote to me about would have been decided without me. But understanding that it is still{our} depending, I here send you my thoughts about it.

I imploy a Melter to melt all the gold & silver coyned & allow him thirteen pence per pound weight Troy for melting the gold: whereof I reckon at least 3^d for potts & fire, & the other 10^d for wast & charges of making up the sweep. Whence the wast doth not amount to five grains in the pound of gold. And the wast in silver cannot be much more.

Because I do not make up the sweep my self I cannot speak of this matter by my own experience. But consulting my Melter about it, he told me that the wast in melting was about 6 grains per pound weight of silver, but in refining it was about double to that in melting. And afterwards he told me that in one parcel he had found the wast in melting amount to 14 grains per pound weight. But this I suspect was by some accident, For the Goldsmiths reckon the wast so little that they have perswaded the Crown to make no allowance for it in making the money in our Mint, whereas in your Mint the Master is allowed to put twelve grains of Copper into every pound weight of silver when the silver is molten & they are pouring it off into the moulds, & this is done to make amends for the wast of the copper which fumes away in the melting,

In the year 1707 when the money current in Scotland was to be recoin'd, we wrote to the Officers of your Mint that we were not allowed to put any copper into the pot for making recompence for the wast of copper which fumed away in the melting, & that they were to conform themselves to the practise of our mint. But they replied that by the flaming coales which they used in melting, a greater wast was caused then in our Mint, so that unless they were still allowed to put the 12 grains of copper into the pot, they could not coin the money standard. Whereupon this allowance was conniv'd at.

How much the copper fumes away in your meltings by the flaming of the coals I do not know: but I reckon that when the allowance of 12 grains per pound weight was instituted, it was deemed a sufficient recompence for the wast made by fuming away: whereas in our Mint as I said we have no allowance made for recompencing that wast. And thence I gather that the wast in your Mint after making up the sweep ought to be less by some grains then the wast in our Mint : & that the wast upon the whole coinage (if the sweep be well made up) must be under 234 pounds weight & may be so little as not to exceed 125 pounds weight

For whilst 12 grains of copper are added to every pound weight of silver in every melting & a pound weight of silver makes but about half a pound weight of money: there are about 24 grains of copper added to every pound weight of money coined. And this addition diminishes the whole wast, & should make it 24 grains per pound weight less in your mint then in ours, supposing the coals <181v> by the fuming away of the metal {illeg} alike in both mints * < insertion from lower down the page > *I mean that the 24 grains are more then

enough to make good all your wast. < text from f 181v resumes > And the wast by the flaming coals be in your Mint should 24 grains per pound weight more then in ours to make the whole wast which remains after making up the sweep, equal in both Mints. I am

Sir

Your very humble servant

Is. Newton.
