'Observations concerning the Mint'.

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Observations concerning the Mint

Of the Assays

The Assaymasters weights are 1, 2, 3, 6, 11, 12 & represent so many ounces. The weight 12 is about 16 or 20 grains more or less as he pleases to have his weights made. With this he weighs the silver into the fire & recconning a wast answering to two penny weight he weighs it out of the fire by the weight 11 to see if it be standard, & if it be heavier or lighter he adds in the lighter scale penny weights & if need be an half penny weight & grains to see how much it is better or wors. His scales turn with the 128th part of a grain, that is with the 2560th part of the weight 12 which answers to less then the 10th part of a penny weight. They are fenced about with glass windows to keep them from the motion of the air & have in them little thin brass platters to take away the weights by without handling the scales.

He cuts off from every Ingot a piece of about a drachm for two assays beats it out into a thin plate, scrapes it clean & cutts it into the ballance &c. In assaying the money he clips a little off from severall pieces of money & assays them together. The Assaydrops of the money & of the pott-assays (but not of the Ingots) are his fee. He makes two assays of every ingot, puts 13 Coppels at once into the furnace uses the poorest lead assayd & run into bullets. A bullet istwice the weight of the silver. He foliates a bullet with the hammer; tears it in two, wrap**{**s**}** up the silver in one half, & adds a whole bullet to it, so that the lead is 3 to one He lets the fire cool gradually till the silver set least by cooling too quickly the silver spring & the assay thereby make the silver seem wors then it is. When the lead is blown off the silver looks very bright. The Assay Furnace is of copper plates luted half an inch thick within. It is about 18 inches squar**{**e**}** 10 inches high to the grate (which is of iron barrs) & about 15 inches above the grate. The muffle stands upon the grate & the coppels are set in with a pair of tongues upon the floor of the grate through a round hole in the side of the Furnace which is afterwards filled with live charcoal. In a quarter of an hour the lead fume**{**s**}** away & the operation is done. The King pays for the muffles coppells & furnaces. Pottern ore is the poorest of silver & steel ore & otherthe poorest sorts of ores are the richest in silvers. commends the Lead of Villach as best for Assays because poorest in silver.

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Of the Melting

The Melter runns from 600 or 700 to 800℔ & of late 1000℔ weight of silver in a pot & melts 3 potts a day in each furnace within the space of about 12 or 14 hours. The first pot is about 5 hours on the fire the two next about 4 hours a piece. When the silver is molten he puts in the allay. For each melting (including fire, pots, Hoops tongues shovels ladles ingot molds sand & wages of melters & mould makers) he is allowed three farthings per pound weight & for wast five farthings & as much for melting the scissel & for its wast, that is

in all 4^{d} per poundweight(vizt 2^{d} for Ingots & 2^{d} for the scissel Formerly he had only $3\frac{1}{2}$ per poundweight for ☾ & 1^{s} 1^{d} per poundweight for ☉. The sweep he has into the bargain & makes it up for himself at his own charges. A pot for 8{00} weighs about $500^{lb}w^{t}$ & cost 20^{d} per pound, and lasts about six weeks or two months more or less that is about 120 meltings so that pots cost about $\frac{1}{8}^{d}$ per poundweight of silver melted in them & if hoops ingots molds & other utensils {saved} be added they cost less then $\frac{1}{6}^{d}$ per poundweight. A pot in three meltings each day spends about 25 bushalls of coales per diem, & imploys about 10 men at 20^{d}. per diem each in making molds. looking to the fire & filling & ladling out the potts. The mens wages & coals at 6^{d} per Bushel to $\frac{1}{6}$ per lbwt or something less. The sweep amounts to & the charge of making it up to per poundweight. And the coales at 6^{d} per Bushel to about $\frac{1}{16}$ of a penny per poundweight. The Pots shrink in the fire by long use so that a Pott which when new holds 800^{lwt}, when it has been used a month or six weeks will hold but 700 or 650^{lwt}, or perhaps less.

The Scissel if the Pot is crouded full & well charged a 2^{d} & 3^{d} time wasts as little (or without a sensible difference) as if it be filled with Ingots, & the three meltings (if the pot be not quite so full) are done in the same time or within a little.

The hammered money was melted last year at the Exchequer with a blast in small potts of 50lb weight a piece, 75lb weight of money in a pott, about 12 pot fulls each day. The potts cost 8 pence a pound & last about 30 or 35 meltings or potfulls a piece. So that the potts cost $\frac{1}{6}$ of a penny per lwt of silver melted in them. But the blast makes quicker dispatch this way with perhaps less then half the expence of fire then in the other way with great pots. The little pots are best for coarse silver to be refined, the great ones for standard silver because they alter the fineness least & make least wast for the melter. M^{r} Floyer & M^{r} Shales were payd $\frac{3}{4}^{d}$ per poundweight for melting at the Exchequer this Winter besides potts (which weighed about 50lb per pott, cost 8^{d} per pound of iron or $\frac{1}{7}^{d}$ per poundweight of money melted in them) & Refitting of Ingots Mittens for workmen, earthen potts, sandover, baskets cartage of potts &c (which cost about $\frac{1}{70}$ of a penny per poundweight or $\frac{1}{10}$ of the potts) but the potts &c should{illeg} be included in the $\frac{3}{4}^{d}$ for melting. Every pot each <11r> day takes up a bushel of coals or above in the first melting each mor{ning} & half a bushel or less in the rest, that is about $\frac{7}{12}$ o{f}a bushel {ea}{at ea}ch melting at a mean rate, that is if coale be 6d a {bush}el, about $\frac{1}{20}^{th}$ of a penny per poundweight. The wast {at}the first melting of hammered money with the blast in these little potts is recconn{ed} at 2^{d} (or $\frac{2}{3}$ ^{dwt}) per poundweight, the sweep being allowed for in this recconning & estimated at a farthing per poundweight. The Plate taken in at Chester last May proved generally about $\mathbf{5}^{dwt}$ or $\mathbf{6}^{dwt}$ (per poundweight) worse then standard (by reason of the soader) with a wast of about 5 ounces per cwt^{wt} or 1^{dwt} per poundweight

Of the making the Moneys

Sixteen ounces Troy of sixpenny Blanks were blancht in 6 minutes & lost of their weight in blanching the first experiment 8^{gr} the next 10^{gr} the next 7^{gr} the next 9^{gr} & at a second blanching for 7 minutes of time one grain more at a middle recconning they lost at one blanching $8\frac{1}{2}$ grains. Whence a pound Troy loses about $6\frac{1}{3}$ grains & a pound Troy of crown blancks 3^{gr} of $\frac{1}{2}$ crown blancks 4^{gr} & of shilling blancks 5^{gr}. By experiment I found that a pound Troy of $\frac{1}{2}$ crown blancks lost $3\frac{1}{2}$ grains.

A sixpenny barr weighing 16 ounces Troy in Nealing three times, got 3 grains in weight the first time, lost $\frac{1}{2}$ a grain the second time & got $1\frac{1}{2}$ grain the third time, that is in all the three nealings it grew heavier by 4 grains. A shilling barr of 15 ounces Troy in one nealing grew heavier by $1\frac{1}{2}$ grain. So that Nealing increases the weight of a shilling barr of a pound weight Troy by about 1^{gr} or $1\frac{1}{4}^{gr}$ & of a sixpenny barr by about $1\frac{1}{2}$

or 2^{gr}. And Nealing & blanching together decrease the weight of a pound weight of sixpenny blancks by about 5^{gr}, of shilling blancks by 4^{gr}, of $\frac{1}{2}$ crown blancks 3^{gr} of crown blancks $2\frac{1}{3}$ grains. And if the sixpenny, twelvepenny, half crown & crown blancks be taken in common in the proportion of 1, 4, 3, 2 the nealing & blanching together decrease the weight of a poundweight by $\frac{5+16+9+4\frac{2}{3}}{10}$ $\frac{34\frac{2}{3}}{10}$ or $3\frac{1}{2}^{gr}$. If the blancks be not well nealed they will not blanch well.

The Moneyers melt their limel per se without any mixture to make it run & in melting it grows better 2^{dwt} 3^{dwt} or 4^{dwt} & loses 1, 2 or 3 poundweight of its weight The limel is not above the $\frac{1}{100}^{th}$ part of the money. And if the loss in the limel be $\frac{1}{80}^{th}$ part thereof by scattering & $\frac{1}{80}^{th}$ by melting, the wast by the limel will be $\frac{1}{4000}^{th}$ of the money that is $\frac{3}{16}$ of a penny per poundweight

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There is also a wast in the milling by the dripping off of sand with some particles which of silver & in the nealing by some blanks falling out of the pan upon the hearth & lying there till they be half consumed by **{**the**}** fire and in shreds **{illeg}** of silver scattered up & down the rooms & lost in the **{**dus**}**t or by sticking to the workmens shoes: all which cannot amount to $\frac{1}{4}$ of a penny per poundweight. So that the whole wast in the making of the moneys by the Moneyers comes not to 1^{d} per poundweight.

Two Mills with 4 Millers, 12 horses two Horskeepers, 3 Cutters, 2 Flatters, 8 sizers One Nealer, three Blanchers, two Markers, two Presses with fourteen labourers to pull at them can coyn after the rate of a thousand weight or 3000^{lb} of money per diem And if for the horses & labourers one with another be allowed after the rates of 22^{d} per diem it comes to about 3^{lb} per diem, that is three farthings per poundweight.

So that the whole charge of coynage besides the allowance to the moneyers for their hazzard & pains comes only to about $1^{d}\frac{1}{2}\frac{1}{8}$.