

# Sir Isaac Newton and the Scottish recoinage, 1707–10

Athol L Murray\*

## ABSTRACT

*Although the post-Union recoinage is the best-documented episode in the history of the Scottish mint, there has not been a full study of the way in which it was carried out. This paper discusses the administration of the recoinage with particular reference to the involvement of Sir Isaac Newton.*

## PREPARATIONS

The post-Union recoinage in Scotland has been seen as a postscript to the history of the Scottish coinage<sup>1</sup> or as little more than a footnote in the history of the English mint, under whose supervision it was carried out.<sup>2</sup> Yet the documentation available in both Scottish and English sources far exceeds that for any of the earlier Scottish coinages. One main source is the papers of Sir Isaac Newton as Master of the Mint in the Tower of London. These reveal not only the keen interest that he took in the practical and technical problems arising from the recoinage but also the friendly relations that developed between him and the officers of the Edinburgh mint.

The recoinage was undertaken in fulfilment of Article 16 of the Treaty of Union: ‘That from and after the Union, the coin shall be the same standard and value throughout the United Kingdom, as now in England.’ This English proposal for a common currency had been accepted by the Scottish commissioners subject to two conditions.<sup>3</sup> The first, continuation of the Edinburgh mint, was incorporated into Article 16. The second, that consideration be given to any losses suffered by private persons through reducing the coin to the same standard as England, was covered by Article 15 which made such losses a charge upon the Equivalent, the sum payable to Scotland for assuming shared liability for the English national debt.

Since 1603 there had been some co-ordination of the work of the Tower and Edinburgh mints. Under James VI & I and Charles I both had produced a similar gold coin, the ‘unit’, current for £1 sterling or £12 scots, and the value of silver coins had followed the same ratio of 1:12. Nevertheless the Edinburgh mint was wholly independent, its privileges confirmed by Charles II in 1668<sup>4</sup> and James VII in 1687.<sup>5</sup> Apart from the Frenchman, Nicolas Briot, appointed Master of the Scottish mint in 1635, no person had held office in both mints. Both had three senior officials appointed by the crown: Master, Warden and Counterwarden (Comptroller in the Tower mint).<sup>6</sup> There were some differences in the functions, though in both cases each official was supposed to provide a check on the other two.<sup>7</sup>

The General, who had no English counterpart, was titular head of the Scottish mint, guardian of its privileges and *ex officio* judge of its Court of Wardenry. In 1707 the General was John Maitland, 5th Earl of Lauderdale, appointed in 1699 to an office held by his father and

\* 33 Inverleith Gardens, Edinburgh EH3 5PR

grandfather between 1660 and 1688. The Master, George Allardyce of that Ilk,<sup>8</sup> appointed in 1704 whilst a member of the last Scottish parliament, was responsible for maintaining the mint buildings and carrying on the coinage. In addition to his salary he received a statutory allowance proportional to the weight of money coined, out of which he had to defray the workmen's wages and other necessary expenditure. The Warden, William Drummond, a son of the Laird of Blair Drummond, and Counterwarden, Walter Boswell of Balberton, had held office since 1705 and 1691 respectively. As in the Tower mint all the senior officials were allowed to appoint deputies to carry out their functions. During the recoinage Patrick Scott, a Writer to the Signet, acted as Allardyce's deputy from 1704; Drummond and Boswell carried out their duties in person.

Three officials held posts requiring technical skills. Prior to appointment as Assaymaster in 1697 John Borthwick had held the same post in the Incorporation of Goldsmiths of Edinburgh. James Clerk, engraver since 1686, shared the office with his nephew Joseph Cave from 1706 until his death in 1718. From 1698 he also held the separate office of Letterer and Grainer of the edges of the coin, having previously assisted the smith in this work. The smith, William Brown, owed his appointment in 1703 to the refusal of his predecessor to accept a new commission from Queen Anne 'in regard it did not contain the priviledge of lettering and edging of the money'.<sup>9</sup> The establishment was completed by two clerks and the Collector of Bullion. The post of King's (or Queen's) Clerk had been created by the Coinage Act of 1686, under which he kept records of the bullion delivered into the mint and coined. He was also Clerk of the Court of Wardenry. The Clerk of the Bullion pre-dated the 1686 Act, but his duties were re-defined by the Act as keeping records of the 'bullion money' or duty on imports collected at Scottish ports to support the mint and coinage. In 1699 the office of Collector of Bullion, previously held by the Warden, had been conferred on an outsider, Daniel Stewart, brother of Sir William Stewart of Castlemilk.

Unlike the salaried officials, there was 'no allowance for maintainance of melters or labourers in this Mint otherways than when they are supplied with work',<sup>10</sup> A list of 1707 enumerates 37 'persons belonging to the Mint at Edinburgh': James Shields, founder and melter, and seven others in the melting house, Walter Broun millman, three cutters, eight adjusters, Alexander Hodge 'neeler and blender', seven in the 'printing office', six smiths and file cutters and five wrights.<sup>11</sup>

The costs of recoinage were to be defrayed from the bullion duty but, as already noted, there was separate provision to compensate private individuals. Scottish and foreign coins were to be melted down for the recoinage, but those handing them in would be compensated for the difference between their nominal and bullion value. English milled silver coins issued since the English recoinage would remain in circulation but at the same value as in England. Since 1686 the exchange rate between Scottish and English coins had fluctuated, partly in response to economic conditions and partly because of speculation, especially during the English recoinage. A proclamation of 1697 made the English crown current for 65s scots with other silver coins in proportion.<sup>12</sup> This gave a ratio between Scots and English money of 13:1 instead of 12:1 which would apply after the Union. A proclamation of 28 March 1707, implementing proposals of a parliamentary committee<sup>13</sup> provided that those who produced English coins before commissioners in Edinburgh, Glasgow and Aberdeen on 17 April would receive certificates entitling them to claim compensation from the commissioners of the Equivalent at the rate of 5s scots per crown. The Bank of Scotland was prohibited from receiving English money between 7 and 17 April and was compensated in respect of the coin that it held.<sup>14</sup>

Newton and his colleagues could draw on the experience of the English recoinage, for which five subordinate 'country mints' had been set up in provincial cities.<sup>15</sup> There was, however, a difference between such temporary, subordinate mints and Edinburgh with its long independent

existence. Preparations for the recoinage began on 18 March 1707, when the English Lord High Treasurer, Lord Godolphin, requested the officers of the Tower mint to report on what was required. Reporting on 24 March they recommended the following:

- 1 A new set of Troy weights should be made for each mint.
- 2 New trial plates of gold and silver should be made.
- 3 The money coined in both mints should be the same, with some letter or other mark set on coins struck in Edinburgh 'as was lately practised in the country mints'.
- 4 A copy of the rules for coinage in the indenture between the Queen and Newton, as Master of the Mint should be sent to the Scottish mint.
- 5 The Scottish officers might send 'any of the mint' to learn the practice of the Tower mint and if they wished an officer of the English mint might be sent to Scotland to see the rules put into execution.
- 6 Any 'engines or other things necessary' could be supplied by the Tower mint.<sup>16</sup>

In one sense the first and second recommendations were nothing new, as the Tower mint had supplied weights and trial plates to Edinburgh since the Restoration.<sup>17</sup> The difference was that henceforward Edinburgh was to use Troy weights, instead of Scots weights.<sup>18</sup> The trial plates, held by the Scottish and English treasuries, officials of each mint and the London Goldsmiths Company, represented the standard of fineness against which new coins were tested before delivery and at the trial of the pyx. There was some delay in supplying both. Following a further memorial from the Tower mint, Godolphin directed its Warden on 25 June to make the weights without further delay and on 2 July a jury of the Goldsmiths Company presented the gold and silver trial plates.<sup>19</sup>

Implementation of the final recommendation was speedier. By the end of March the Scottish mint had produced a 'shopping list', which the Treasury forwarded to the Tower. On 12 April Newton and his colleagues reported that the total cost of 'proper and necessary' equipment would be £169 12s 8d. Certain items caused difficulties. Cast rollers were not to be bought: 'The man who makes them keeps the secret to himself and only lends the rollers to the moneyers at 10s a day'; though 'not so serviceable' hammered rollers could be purchased instead. 'What is meant by a sizing mill we are not certain . . . What is meant in the inventory by large scratches half wier, we do not understand.' Godolphin authorized the mint to provide the Scots with what was absolutely necessary, the cost to be defrayed from the Equivalent. 'As to the expressions in the Scotch inventar which the mint officers do not well understand,' he would ask Sir David Nairn, the Scottish Under-Secretary, to explain them and consider the speediest way of sending the items to Scotland.<sup>20</sup> Most of the equipment was ready by 26 May when the Tower mint reported that it had been 'put on board to be sent thither'.<sup>21</sup>

Following a meeting with the Lord Chancellor of Scotland, both Newton and Ellis, the Warden of the Tower mint, provided further advice to Godolphin on 2 June. There should be a royal warrant authorizing the General and other officers to act under the rules of the Tower mint and another authorizing the Master to command the engraver to make puncheons (punches for sinking dies) and dies in the same form as those in use at the Tower. Until these were approved they should use those sent from the Tower. Coins minted at Edinburgh should be distinguished by the letter E under the Queen's 'effigies'. The proportion of coins minted should be the same as for the English recoinage, namely one-tenth of the silver should be coined into sixpences, four-tenths into shillings, three-tenths into half-crowns and two-tenths into crowns. The engraver of the Tower mint had informed them that the puncheons and two pairs of dies for shillings would be ready within a fortnight. While shillings were being coined, puncheons could be made for the

other coins 'for it may be convenient to send them the first puncheons from hence that the money of both mints may be exactly alike'.<sup>22</sup> This was agreed despite the Scottish contention that the 'puncheons and dyes can be made at home by the graver in the Mint' and that 'they formerly have been and can still be made here, and shall be with so much exactness, that the nicest eye shall not discern the difference'.<sup>23</sup>

Responding on 24 June to a verbal order from Godolphin, Newton noted that the Edinburgh mint had only one clerk for 'rating and standarding'. Because of this errors were sometimes committed. 'Their assays and rating and standarding and way of book-keeping differ from ours and must be set right.' Moreover 'none of their chief officers have yet acquainted themselves with our practise.' He spoke, therefore, with Dr Gregory, Professor of Astronomy at Oxford, and with one of the Tower mint clerks about going to Edinburgh 'to instruct their officers and clerk and assist them in their business till Michaelmas next'.<sup>24</sup> Although this gives the impression that the Edinburgh officers had done nothing, William Drummond, the Warden, was already in London. Newton's response appears to have reached Godolphin at the same time as a request by Drummond that a person well versed in the methods of the mint of England should be sent to Edinburgh along with a clerk and two moneyers to work and direct the servants already employed there.<sup>25</sup>

On 8 July the Treasury referred Drummond's memorial to the officers of the Tower mint, who were asked to nominate persons to be sent to Edinburgh and suggest appropriate allowances. Their prompt reply the following day indicates that decisions had been made already. David Gregory was to be overseer, a tactful choice as he was a former professor of mathematics at Edinburgh University. In 1676–7 he had calculated 'the tables for regulating the mint and bullion' for the Edinburgh mint's reopening and more recently he had been one of those involved in calculating the Equivalent.<sup>26</sup> Newton's own clerk, Richard Morgan, was to instruct the Edinburgh clerks. Thomas Seabrook, Henry Halley and Richard Collard were to go as moneyers.<sup>27</sup> Royal warrants signed on 12 July 1707 directed Gregory and the others to go to Edinburgh, laid down the allowances to be paid to them from the time they left London, and set out the conditions under which the moneyers had accepted the work.<sup>28</sup>

Two earlier warrants, signed on 20 June 1707, had been forwarded to the General of the *mint by the Earl of Loudoun, Secretary of State for Scotland*. The first directed the officers of the Scottish mint to observe the rules of coinage set out in a copy of the indenture of the Tower mint; drawing up a new indenture would have caused unacceptable delay in starting the recoinage. The second authorized the Master to coin crowns, half-crowns, shillings and sixpences.<sup>29</sup> Gregory left London on 21 July 1707, reaching Edinburgh 10 days later, together with Morgan, the clerk, followed by the three moneyers on 8 August.<sup>30</sup> When they met their Scottish colleagues the following day, it was agreed that the moneyers should be informed of the state of the mint, have a sight of the tools and report their opinion of what was found wanting and necessary for carrying on the work. The Assaymaster was to consider the tools in his office and report if they would be sufficient for the present service. Miller, the Queen's Clerk, was to 'consider what bookes is necessary to be had for his office and report'. Finally, the Warden delivered to the Master 15 pairs of shilling dies with one pair of shilling puncheons and the same number of sixpence dies and puncheons, which the Master passed on to the Engraver.<sup>31</sup>

At the next meeting on 11 August the moneyers reported that they needed cutters for each of the species, flattening presses and one sixpenny coining press. The Assaymaster needed a pair of balances, the last one sent being 'not sufficient'. The Engraver needed letters for the inscription of the shilling and sixpence pieces, puncheons for the reverse sides of both, also crown and half-crown puncheons and dies. In each case Gregory promised to write to London. The smith was

ordered to provide 'dabs, bolsters and vices' for the mill room. Asked how much they could coin, the moneyers could not promise more than 2000 lb in the first two weeks 'but after they had got all things set to rights they would be able to coin 4000 lb a week or near to it.' The founder and carpenter were directed to carry out certain work and the Master undertook that the horses needed to power the mill 'should be had in due time'.<sup>32</sup> Eight horses duly arrived on 15 August, but one had to be replaced, having been 'shott or sticked in the park befor the work comenced'. Later another 'died under the work'.<sup>33</sup>

Gregory quickly honoured his promises by sending a list of requisites to Sir David Nairn, with a copy to Newton. To Newton he stressed the importance that the Scots attached to speedier production of crowns and half-crowns, because more than half the first delivery of Equivalent money had been in sixpences.<sup>34</sup> The same point had been made in a memorial from the Scottish Treasury. Newton was able to assure Godolphin that provision of the additional equipment was in hand, although the 'two flatting engins' and 'sixpenny press' would cost about £120. Puncheons had been made for crowns and half-crowns but 'failed in the hardning' and were being replaced.<sup>35</sup> Those already sent also proved defective. On 12 September Clerk, the Edinburgh Engraver, informed Newton that 'the sixpence head punshion was broken before I did see it and now it is all shaken and split with the sinking of only two dyes.' He had already made a new 'sixpence head' and was going to make a new reverse puncheon for the shilling 'by reason the sides of the shields are some sunk and some broken'.<sup>36</sup> He had probably started work on new dies before the end of August, as the smith had been ordered on 21 August to get four pairs each of shilling and sixpence dies ready for him by noon the following day.<sup>37</sup>

It was probably during August that Gregory and the mint officers agreed the changes necessary to bring staffing into line with the Tower mint.

After the Officers of the Mint and Doctor Gregory had compared the former constitution of the Mint of Scotland with that of the Mint in the Tower, and with her Majestys instructions concerning the recoinage, they added three new Clerks (during the recoinage) to the Queens Clerk who was there before; to witt one for the Master, one for the Warden, and one for the Counter Warden. All these four Clerks were well instructed in the methods of rateing and standarding, and the formes of book-keeping used in the Mint of the Tower, by the Clerk sent by her Majesty for this purpose.

The Officers of the Mint and the Doctor considering that by bringing the Mint of Scotland to the same methods with that of the Tower, more officers became necessary, and being unwilling to increase charges, agreed that the Warden and Counter Warden should be turns do the office of Surveyor of the Meltings, and that the Counter Warden should officiate also as Weigher and Teller, and that his Clerk should be Clerk to those Offices. It was also agreed that the Queen's Clerk should be Clerk of the Papers and Irons.<sup>38</sup>

Having completed his instruction of the clerks by 14 October Richard Morgan was recalled to London, leaving behind some specimen records from the Tower mint.<sup>39</sup>

## THE RECOINAGE

The mint reopened on 22 August, when the Privy Council issued a proclamation inviting holders of Scottish or foreign coins to bring them to the mint in bags containing the equivalent of £100 sterling or more,<sup>40</sup> though in practice all the money seems to have come through the Bank of Scotland. Anticipating problems, Gregory had sought Newton's advice in his letter of 12 August:

Great difficultys arise dayly about the way of receiving in the coin here, and melting it down into ingotts, which seemes necessary before the Mint doe medle with it. Though this be not my bussines,

yet you will much oblige me to tell me how this was managed in the great recoinage of England and where the Mint began first to be concerned in this matter.<sup>41</sup>

In Newton's opinion the old method had been 'troublesome, expensive and liable to abuses and great abuses were actually committed in it' and he suggested a different one.<sup>42</sup> Gregory could assume it was not his business because the Master was not responsible for silver bullion until it had been melted into ingots, although the work was to be carried out at the mint. At the meeting on 21 August the founder, James Shields, had been admonished for not performing what he had undertaken earlier and ordered to have the furnace fitted up in the back melting house for melting down the species by 29 August. Coins were delivered from the Bank of Scotland to the mint in the presence of three commissioners appointed by the Privy Council, who were assisted by Miller, the Queen's Clerk. In each batch (identified by a letter) a number of separate parcels were weighed separately, noted by the clerks, then melted into ingots. As this first melting lay out with his normal duties, the Privy Council had recommended that the Master should receive one penny per pound Troy from the Equivalent.<sup>43</sup> Having been formally delivered to his custody by the commissioners, the ingots were re-melted into bars for the moneyers. Their work ended with delivery of a quantity of coin equivalent to the original batch. When this coin was cleared the difference between the face value of the old and new coins was calculated and the commissioners gave the Bank a certificate to reclaim the deficiency from the Equivalent. Thus batch A, received from the Bank on 5 September 1707 with a face value of £2000 sterling, was delivered to the moneyers in ingots on 6 October and received from them in shillings on 15 October. It was cleared by delivery to the Bank of £1774 12s in new coin on 17 October, a deficiency of £225 8s, approximately 11%.<sup>44</sup>

In the first half of September the mint officers were involved with the trial of the pyx of the last pre-Union coinage, which took place before the privy council.<sup>45</sup> When this concluded on 19 September, a second proclamation called in foreign silver coins, which would cease to be legal tender on 6 October. The Bank was to receive them and pay out their full value in notes or current coin until 15 October, after which they would only be received at the mint as bullion.<sup>46</sup>

This influx of coin may have brought to a head the problems encountered in refining the silver before delivery to the moneyers. In making up the 'queen's pot' ingots from different batches were selected, balancing those above and below the standard fineness of 92.5%.<sup>47</sup> After the silver had been melted additional copper was introduced to alloy the silver to standard, subject to a small permitted variation, the 'remedy'. Here the two mints had followed different metallurgical practice. At the Tower, where the melting furnace was fired with charcoal, copper was added only when the molten silver was ready to be poured. The Edinburgh mint used coal which gave a fiercer heat, and it took twice as long to ladle the contents of the crucible into the moulds. As the crucible stood on the furnace it slowly lost more copper than silver, owing to oxidation, and it had been the practice to add some grains of copper when the crucible was half empty to maintain the standard.<sup>48</sup> Gregory sent Newton several accounts of unsuccessful trials following the Tower mint's practice.<sup>49</sup> On his instructions Gregory undertook further trials but was unable to ensure that the last mould was the same standard as the first. On 9 October he wrote requesting further directions 'for this is a great uncertainty'.<sup>50</sup> In response to an earlier request for a melter to be sent from the Tower Newton doubted whether this would help:

its not practicable for any man to undertake the meltings with your pit coal until he has had some experience of working with it, and finds out by that experience how the fire may be governed so as not to over heat the metal. For no man can undertake to do a thing before he knows how to do it, nor know how to do a thing of this nature without experience.

He himself had no doubt that the problem arose from the metal being much too hot, 'for otherwise the allay would not be melted so quickly . . . I feare your melter makes too much hast with the melting and putts in too much fire to make the silver melt quickly, and that your potts are too thin and your furnace not so substantial as ours.' He made a number of suggestions, concluding 'As soon as the melting is put into better order, which I hope will be in two or three meltings more, you may come away.'<sup>51</sup>

At Gregory's meeting with the mint officers on 28 October James Shields was called in and asked

if he was able to fine the silver and melt both the species and Qweens pott so as to furnish the moneys allwise with barrs as fast as they cane coyne, answered he was, so long as he had health and strength, if the pott be allowed allay as there is need and hes been the custome in this mint.

He was admonished to follow the method of the Tower mint and 'that he take care the metall be no hotter than it may rune to the bottom of the mold and that he endeavour to keep the fire in ane equall temper' according to Newton's letter. Nevertheless, Gregory and the officers seem to have shared his doubts, as they agreed that Patrick Scott should represent to the Master (Allardyce, then in London) the difficulty of keeping within the remedies unless the silver was alloyed in the middle of pouring off. The Master was also asked to try to find a melter who could undertake to make 'the last of the poureing off within ane half peny weight fyne than the first, when melting is with Scotch or pit coal.'<sup>52</sup>

Further trials showed that Newton's instructions did not solve the problem. On 29 October 'the fire was so farr from being too intense and the silver too hot, that the silver stuck to and weighed the ladle to a great inconveniency.'<sup>53</sup> Finally on 10 November the officers and Gregory

finding that the keeping back the fire and making the essays is a great hinderance to the work (the moneys now demanding much silver in barrs) resolve that hereafter the pott being charged according to the pot bill, ten double molds shall be laded off, and then allay put into the pott . . . and then ten other double molds laded off, and agane allay put in the pot . . . and so on as long as the pot is a poureing off and allay put to what remains in the bottom when the ladle will not dip, according to the assay of the last mold.

These orders were to continue until new ones came from London 'or by the experience of a melter to come from London there be cause to change the same.'<sup>54</sup> By this stage, however, Newton had been convinced. He helped Allardyce to draft a memorial to Godolphin asking that Edinburgh might 'use their ancient method of reducing the molten silver to standard untill the present recoinage of the moneys in Scotland shall be finished'. The Treasury referred the memorial to the Tower mint, where it received a favourable response on 14 November.<sup>55</sup> Reversion to the old method increased output substantially. Whereas only 2336 lb had been melted in September and 4337 lb in October, the figure for November was 7696 lb and for December 9404 lb.<sup>56</sup>

Because of slow production of bars the moneys' output had fallen well below the minimum figure of 1000 lb weight a week in their original agreement,<sup>57</sup> let alone the 4000 lb they had estimated on arrival in Edinburgh. In September only 420 lb had been coined, rising to 2760 lb in October. This was not the only problem. At the meeting on 28 October the smith was ordered to provide rollers 'that will stand and not sink in working nor make the barrs uneqwall in going through the mill'. The moneys themselves were enjoined to blench the money better, which 'they promised to endeavor'. They, in turn, had problems with the local workforce:

The moneys were desyred when they had any ground of complaint against any of the workmen or servantts that they might acwant the officers of the mint therwith who would be ready to give them all reasonable satisfacione. The officers likewise signified to the moneys that they had liberty to turn off such servantts as doe not please them and take others in their roome as they should see cause, and that they might search them at their pleasure.<sup>58</sup>

Thomas Seabrook, one of the original three moneys, had died on 3 October. On 12 November George Hopper and Thomas Sutton arrived to replace him. As Clerk, the Edinburgh Engraver, had undertaken 'to doe all the dyes of the severall species and to furnish them as they shall be wanted',<sup>59</sup> it was thought unnecessary to have any more dies sent from London 'than what are already come down or are on the rode'. Puncheons already made at London should be sent 'that Mr Clark may do the dyes by them', and Scott was to write to Allardyce requesting them and 'some few pair of dyes for each specie done for the year 1708'. Because other work was being retarded by delay in making assays, it was recommended that the Assaymaster should employ an assistant 'and that he goe about it with all expeditione'.<sup>60</sup>

Gregory could now see 'the methods of the Mint in the Tower well understood, and exactly practised by all concerned, and the recoynage advanced so that the coyned six thousand pounds a week'. As 'there was no further occasion for his staying there', he sought permission to leave Edinburgh, which Newton conveyed on 15 November.<sup>61</sup> At the mint officers' meeting on 21 November Scott produced a copy of Allardyce's memorial and the Tower mint's report approving the method of melting.<sup>62</sup> Having 'taken an exact accompt of the state and condition of the Mint at that time, and left directions for encreasing the coynage', Gregory left Edinburgh the same day. With presentation of his report to Godolphin on 13 December<sup>63</sup> his official part in the recoynage came to an end.

Output of coins rose from 4920 lb in November to 10620 lb in December. By the end of January 1708 Scott could report to Newton that the mint was on course to receive £9000 sterling weekly from the Bank weighing some 4600 lb Troy. They had already received £113,000 worth of foreign coin weighing 31,312 lb. Of £19,000 still to come, £16,000 would be in dollars which would 'occasion a great refinage, and for which I see no remedy since we cannot wait the inbringing of the other money'. Among other matters on which he sought advice was the great quantity of defective coins returned by the moneys for re-melting along with the scissell (residue of the metal sheet from which coin blanks had been punched out). He would have consulted Newton earlier 'had not my principal been on the place', but 'your true friendship to him and generous character makes me the more bold to use this liberty and to expect you will forgive me'.<sup>64</sup> Scott was also concerned about Allardyce's financial position. Although the Privy Council had recommended in August 1707 that the Scottish Treasury should pay the expenses of the coinage out of the bullion money,<sup>65</sup> Scott reckoned that he had received only £1800, of which no less than £500 had gone on tools, repairs and other necessities.

Allardyce had probably returned to the mint in December 1707, when he submitted a memorial to Godolphin asking for certain payments to be considered as incident charges over and above his normal allowance for coining. Godolphin referred the memorial to the officers of the Tower mint, who reported favourably on most points and suggested that the Scottish Treasury should order the Collector of Bullion to pay such sums to the Master of the Mint 'as they shall find sufficient for defraying as well the extraordinary as the ordinary charges of the coinage'. Newton was himself seeking reimbursement of £532 for equipment, materials, puncheons and dies supplied by the Tower mint, as well as what was due to Gregory and Morgan for going to Edinburgh.<sup>66</sup> On 4 March he sent to Drummond Godolphin's warrant for the Scottish Treasury

to pay what was due. Drummond, who had arranged to obtain the necessary precepts to the Collector of Bullion, returned to Edinburgh only to find that Daniel Stewart was dying. His attempts to get payment by drawing a bill on Sir David Nairn and by an approach to Stewart's father-in-law both proved unsuccessful. Having learned that Stewart was dead, Newton wrote to Godolphin on 14 April asking for a new order.<sup>67</sup> Stewart's death was an inconvenience to Newton; for the Edinburgh mint it was to be a source of problems throughout the rest of the recoinage and beyond.

Meanwhile the recoinage had suffered a temporary setback. A proclamation of 12 January 1708 had called in larger-denomination pre-Union silver coins: 40s, 20s and 10s pieces. These ceased to be legal tender on 10 February and from 25 February were receivable only as bullion at the mint. Soon afterwards an invasion threat caused a demand for specie and a proclamation of 16 March put the coins back into circulation. Some were used to pay the forces, but when they were finally recalled the Bank got back more 40s pieces than they had reissued.<sup>68</sup> The proclamation of 28 April recalling them also called in smaller denominations: 4 merks, 2 merks, 1 merk,  $\frac{1}{2}$  merk, 5s and 3s 6d.<sup>69</sup> These would cease to be legal tender on 1 June but could be received by the Bank at full value until 1 November, thereafter only as bullion.<sup>70</sup> At the Bank's insistence, it was empowered to put coins back into circulation in the event of a fall in its reserves, subject to the agreement of the Lords of Session.<sup>71</sup> The proclamation was one of the last acts of the Scottish Privy Council, which ceased to exist on 1 May 1708, along with the Scottish Treasury.

In April 1708 6120 lb of coins were minted, followed by 1980 lb up to 14 May when work was brought to a standstill, by the death of Borthwick, the Assaymaster, attributed to 'extraordinary toil and fatigue'. Silver melted and new coins produced could not be assayed. Lauderdale urged speedy appointment of a successor and put forward a name; in reply Gregory told him that there were also 'one Ker, one Penman and two more names I have forgot'. The post went to James Penman, Borthwick's successor as Assaymaster of the Goldsmiths, who had been assisting him during the recoinage.<sup>72</sup> Although the warrant for his commission was signed on 8 June, melting did not resume until 6 July. The moneys started work again two days later. By then, however, progress was threatened by shortage of funds.

Newton had seen Stewart's death as an opportunity to put the finances of the two mints on the same basis. He recommended that the post of collector should be abolished and that the under-collectors should pay the bullion money to the 'Cashkeeper of North Britain' (the Crown's receiver-general in Scotland). It should be 'kept apart in the Exchequer in a proper chest', from which money would be issued as needed to the General and Master and kept in the 'treasury of the said Mint' for defraying the charges of the coinage, repairs and salaries. Stewart's executors should be ordered to pay over a sum of say £2500 or £5000 'that the service of the Mint receive no stop for want of money'. In the event the executors refused to pay, apparently on the grounds that the recoinage ought to be paid for out of the Equivalent.<sup>73</sup> In the administrative hiatus following the abolition of the Privy Council and Treasury, it may have been difficult to bring any pressure to bear on them, as the new Court of Exchequer, headed by Lord Seafield as Lord Chief Baron, was not yet fully functional.

Through Gregory, Newton suggested that the mint officers should themselves lay a memorial before Godolphin. Drummond prepared one which Allardyce signed before leaving Edinburgh, but Lauderdale sent off an amended version for Sir David Nairn to deliver. On 12 July Drummond sent Newton a copy of Lauderdale's memorial with his original one, 'which will serve as for a memorandum of what we propose to have done', and other documents. 'All the officers of the Mint depend verry much upon you in this matter. We do want to have our selvis put on some establishment, for the truth is the Union has disconcerted our foundation intirely'.<sup>74</sup>

Reporting to Godolphin on the memorial, Newton disagreed with the view that the Act imposing the bullion duty had expired with the Union. Nevertheless

That the two nations may be upon an equal foot, either each nation must maintain its own Mint or Great Britain must maintain both Mints with an allowance to each proportional to the taxes raised in each nation.

He suggested that the bullion duty should continue to be collected until Counsel's opinion could be obtained in both countries. As the coinage was 'in danger of being retarded or stopt for want of moneys to carry it on' Stewart's executors should be directed to pay over what was in their hands. The mint officers had not received their last half-year's salaries and £40 each should be allowed to the Master, Warden and Counterwarden for their clerks.<sup>75</sup> In sending Lauderdale warrants authorizing him and the Master to hold the mint funds and receive money from Stewart's executors on 29 July, Godolphin clearly thought that he had put the mint's funding on a sound basis.<sup>76</sup> Newton suggested to Seafeld that Stewart's executors could pay in instalments and make up their account in exchequer, 'but the method of bringing them to account I do not know'.<sup>77</sup>

During July 1708, 8797 lb of old coin was melted down and 7500 lb minted. By 10 August Patrick Scott, the Deputy Master, could assure Newton that 'our coinage goes on very well' and with the money warrants 'I hope we shall have no stop on that account.' His hopes were partly fulfilled six weeks later by a payment of £2600 from Stewart's executors.<sup>78</sup> During September and October more shillings and sixpences were minted. From October onwards the coins coming from the Bank for remelting comprised older issues such as dollar, merk and 3s 6d pieces. These must have included worn or clipped coins as there was a marked discrepancy between the face and bullion value of some batches.<sup>79</sup> The first batch of old merk and '3½d pieces' (ie 3s 6d scots) melted on 15 November had a nominal value of £3000 but was equivalent to only £2288 10s in new coin, a deficiency of £711 (23.7%). A second batch of £3300 produced an even worse deficiency of £864 13s 6d (26.2%). On 19 November the deficiency returned to a more normal level of £500 on £3000 (16.7%).

Production at the mint reached its peak in December 1708 with 14,155 lb of old coins melted down and 13,700 lb of new crowns and half-crowns minted. Since June the commissioners had been claiming extra remuneration because the work had involved more than the anticipated attendance at the mint, at least two or three days a week. On 28 December Newton and his colleagues recommended that they should receive £700 for themselves, their clerk and other servants.<sup>80</sup> The Bank was less fortunate in securing what the Privy Council had promised. Despite repeated applications its commission for the last six batches of old coin was still unpaid in 1714.<sup>81</sup>

After the final two batches of old coins had been received and melted on 30 December, the mint was free to concentrate on production of new ones, exclusively shillings from 19 January 1709. Output fell from 7440 lb in January to 3956 lb in February. By then Richard Collard, one of the Tower moneyers, had been 'in a languishing condition for some months past and thereby become useless to the Company'.<sup>82</sup> On 12 February Allardyce told Newton that the moneyers could be recalled whenever the Lord High Treasurer felt proper 'since it may be a charge to keep them longer here and what further bullion may be brought in for coinage may be done by the old servants here'.<sup>83</sup> On 28 February the moneyers produced a final batch of 716 lb in shillings and by 8 March all the silver melted up to 27 December had been cleared by delivery of coin to the Bank. On 14 March Godolphin authorized the moneyers to return home. They left a fortnight later after the Master, Warden, Counterwarden and Queen's Clerk had attested their book as a true account and journal of the recoinage.<sup>84</sup> In all they had minted 103,346 lb weight of silver.<sup>85</sup>

Even before the moneyers returned to London the workforce had been run down.<sup>86</sup> Allardyce was eager to retain the services of James Shields, the melter, who was 'very skilld in all the parts of the coinage having wrought in the Mint these many years bygone' and asked whether 'he may not be settled as a servant in this Mint under the name of purveyer or such like with £15 sallary'.<sup>87</sup> Despite failing to get a permanent post, Shields continued as melter through the final stage of the recoinage between June and September 1709.

So far the recoinage had not provided any small silver coins. The Convention of Royal Burghs received representations from 'our merchants and trading people that it would be of importance to them and to this wholl country of North Brittain that some small species of money, such as tuo pence, three pence and four pence, were coined to be circulat in this part of the kingdome, as was formerly in use before the Union'. On 3 December 1708 its standing committee agreed that Lord Forglen<sup>88</sup> should ask the Earl of Lauderdale to write to Sir Isaac Newton to procure a warrant to coin up to £8000 sterling in 2d, 3d and 4d pieces. They also made a direct approach to Newton.<sup>89</sup> Apart from the Maundy penny, small silver coins were no longer minted in England, Newton regarding them as 'curiosities and toys for children'.<sup>90</sup> Although there is no direct evidence, he may have agreed that Scotland had a need for small change. Certainly a royal warrant of 6 May 1709 authorized the preparation of puncheons for coining small money at Edinburgh.<sup>91</sup> The Edinburgh engravers produced puncheons and dies for pennies, twopences and groats but no warrant for striking coins from them was issued.<sup>92</sup>

In the final stage of the recoinage the Edinburgh mint produced shillings and half-crowns without the assistance of the Tower moneyers. For these they used the two final batches of silver that had been melted on 30 December, supplemented by scissell returned by the moneyers and the 'sweep', silver recovered from elsewhere. In addition a small quantity of coin and plate was brought to the mint by private individuals, taking advantage of an inducement offered under the Coinage Act.<sup>93</sup> In all 375 lb of silver was melted between June and August, as against 881 lb 10 oz minted in July and the first half of September. Production ceased on 15 September.

Allardyce had retired to his house in Kincardineshire during the summer with a recurrence of 'my old indisposition of vomiting blood'. By 9 August 'blessed be God, it has for the time abated, tho' it has brought me low'.<sup>94</sup> The improvement did not last; on 4 October his wife told Patrick Scott that he was 'very weak and she was expecting his change'. He died next day,<sup>95</sup> just a day before the recoinage ended with delivery of the final batch of coins to the Bank.

## AFTER THE RECOINAGE

No one could have realized that these were the last silver coins ever to be struck in Scotland. According to his brother, Patrick Scott was still acquiring bullion in readiness for the mint's re-opening, when he hoped to pay off the money Allardyce had borrowed from the Bank.<sup>96</sup> Nothing could be done, however, until a new Master was appointed. Allardyce had been aware that 'on my present indisposition severals have been looking upon my post'. He had spoken to Seafeld and other friends to see 'if it might not be secured to my son in case of my decease: he is now in the 17th year of his age, and we think his minority may be no scruple, since he may be oblig'd to act by a sufficient depute, and it may be thought hard to give it to any other so long as I or my heirs may be unpaid.' As Seafeld had promised 'all the interest he can make', Allardyce had no doubt that with Newton's support this would 'get it effectuate',<sup>97</sup> though it is doubtful whether Newton could have supported James Allardyce's appointment. Drummond, the Warden, put forward his own claims. Apart from his involvement in the recoinage, he had been made to pay what he clearly regarded as the excessive sum of £666 13s 4d sterling to his predecessor in 1705,

but the Warden's salary of £150 'has not yet repaid him with the interest thereon'. By May 1710, however, he had given up hope of promotion, asking instead for an increased salary.<sup>98</sup> The successful candidate was John Montgomery of Giffen, appointed on 22 June 1710 and elected MP for Ayrshire later in the year.

During the vacancy arrangements had been made for the formal conclusion of the recoinage, the trial of the pyx. Following the Tower mint's advice that the pyxes of both mints should be tried together, an order in council had appointed it to take place at Westminster on 21 August 1710.<sup>99</sup> As previous trials had been before the Privy Council in Edinburgh, Lauderdale enquired about the procedure followed by the English country mints for transporting their pyxes to London. On the Tower mint's advice Godolphin left the matter to the Scots' discretion.<sup>100</sup> Thus when Lauderdale, Montgomery, Drummond and Boswell met on 25 July

They are of opinion that the safest way for carrying and transporting of the said pixes to London is by carrying it alongst with themselves in a coach who are to goe together to London to attend the tryall of the pixes aforesaid and that immediately a coach be provided for transporting the pixes and themselves.<sup>101</sup>

Montgomery was excused attendance because he had not been involved in the recoinage.<sup>102</sup> Drummond and Boswell left for London on 2 August, accompanied by Patrick Scott, Penman, Miller and William Bowles, to whom Lauderdale had entrusted the key of the pyx.<sup>103</sup> They were in no hurry to return afterwards. On 10 September the secretary of the Treasury asked Baron Scrope to advise on the speediest way of paying the £252 6s they were to be given as attendance allowances (against £322 6s claimed) 'so as the said officers may not be detain'd here any longer on pretence of solliciting for their charges'. Scrope suggested they should be paid from the bullion money.<sup>104</sup>

The remaining problem was that of closing the recoinage accounts. In working on these before his death, Allardyce had looked for Newton's advice and support. In a lengthy memorial dated 12 February 1709 he noted that the bullion money would not cover the cost and, while so much was 'lying out and due', he was 'obliged to make up the wast on his own credit'. In particular, he was unable to pay what was due to the moneyers but as the 9d per lb weight for which they had contracted was a penny more than they received by the Tower indenture, he wondered how he might get allowance for the difference. Responding to this and other queries Newton apologized:

I have been slow to return an answer for fear that some of those things may be referred to the officers of our Mint with whom I find it sometimes difficult to agree and therefore what I now write to you is to be looked upon as coming not from an Officer of the Mint but from a private friend.<sup>105</sup>

Seafield later assured Newton that Allardyce 'is very sensible of the justice and assistance he has received from you; he will in all things submit to your opinion and hopes that you will continue to give him your advice'.<sup>106</sup> Apart from £575 in February Allardyce had received nothing further from Stewart's executors and Newton warned that there would be difficulties in drawing the funds appropriated to the Edinburgh mint under the 1708 Coinage Act until the arrears of bullion duty had been dealt with.<sup>107</sup> After his death the Barons of Exchequer impressed part of these on Lauderdale and Drummond who paid the mint salaries and settled some outstanding repair bills.<sup>108</sup> The rest was paid to the Receiver-General under threat of legal proceedings.<sup>109</sup> As Godolphin still had made no order for payment out of the new coinage duty, the mint officers resolved on 4 March 1710 that Lauderdale should draw up a memorial for

Drummond to present when next in London.<sup>110</sup> There had been no further progress by the time Lauderdale died on 13 August 1710, a week after Godolphin's dismissal from the treasurership. In the end the coinage money was made payable to the new Master, John Montgomery.

Allardyce had been working on his accounts in August 1709, though it was probably Patrick Scott who prepared the draft which Newton and Scrope examined in January 1710.<sup>111</sup> They commented on a number of points, the most important being the method of calculating the Master's allowances. James Allardyce petitioned to determine whether the allowance should be according to the course of accounting before the Union or the course in the Tower mint. The Treasury referred the matter to Newton, who calculated the amount due according to pre-Union allowance of £20 scots per stone (over 19d per Troy pound) and the Tower mint's 16½d per pound.<sup>112</sup> Patrick Scott did not agree that the Tower rate should apply: 'The order to the officers of the mint for the coynage refers to the severall articles of the indenture and limits them to the observance thereof. But Mr Scot says it respects only the method of coynage and not to the allowance to the master'.<sup>113</sup>

Scott had to deal with a demand from the Bank of Scotland for repayment of their loan to Allardyce of £1400 plus interest. Scrope noted that the Bank's demands must be settled before the account could be passed. Accordingly the Barons of Exchequer ordered the Receiver-General to pay Scott £1500 for this purpose.<sup>114</sup>

This still left a large sum due to the Tower moneyers, who had petitioned the Treasury for payment in June 1709. Reporting in August 1709 the Tower mint officers considered that they should be paid out of Scottish mint funds. However in February 1710 Newton himself acknowledged that there would be a shortfall of £2000–£3000. In December 1710 the moneyers' petition was referred to Baron Scrope. On 21 April 1711 he and Lord Chief Baron Smith were called to the Treasury to frame a clause for payment of the debt due to the moneyers out of the overplus of coinage in Scotland.<sup>115</sup> As there was no 'overplus' nothing was done.

Scottish mint officials faced similar problems. In February 1709 George Allardyce had asked Newton whether those involved in the English recoinage had been given any 'gratification' for 'their extraordinary trouble'.<sup>116</sup> Boswell, the Counterwarden, had already approached Newton about additional salaries for himself as Weigher and Teller of the meltings and Robert Miller as Clerk of the Irons.<sup>117</sup> Miller was pursuing a separate claim as Clerk to the Commissioners, who had overlooked his services when applying themselves. In this he had the support of Allardyce, Patrick Scott and Seafield, who described him as 'a good officer and a very honest man but is poor'. In June 1709 the Tower mint officers recommended that he should receive £60.<sup>118</sup> Drummond's petition for additional salary, in recognition of his services during the recoinage and the high price he had paid for the Wardenship, was referred to the Barons of Exchequer, who recommended an increase of £30.<sup>119</sup> The claim of Penman for an additional payment for himself and his predecessor's wife and children for their services as Assaymaster and the cost of employing an assistant received a favourable report from the Tower mint.<sup>120</sup> Boswell's petition was referred there on 5 September, though no report survives. On 18 September, however, the Treasury in considering Drummond's case ruled that there were to be no increases. Miller and Penman had their cases referred to Baron Scrope, who supported their claim,<sup>121</sup> but like the moneyers they faced a long wait for payment.

After February 1710 the Receiver-General paid over no more bullion money until 28 June 1711, when an additional £500 virtually exhausted the fund. This was little help to Allardyce's family who were accountable both to the Treasury and to his official creditors. In turn Patrick Scott was accountable to them for the funds he had handled as Deputy Master. His salaries as Deputy Master and Master's Clerk were poor reward for doing all the work. George Allardyce

had recognized this by assigning to him the last quarter's payment of his own salary and by a verbal death-bed 'gratuity' of 2000 merks,<sup>122</sup> but his family seems to have been less generous. Before Patrick Scott's death in August 1711 he 'was so violently oppressed with sickness that he could not apply himself to clear any of his affairs,' especially the disputed ownership of 140 lb of bullion in 'rough ingotts'. His brother, Hercules Scott,<sup>123</sup> claimed that only 31 lb 10 oz had belonged to Allardyce and that Patrick's own notes showed that he had acquired the remainder, without entering it in the mint books. The issue turned on the allowance to be given for 'waste', the loss of silver during melting. A low allowance would indicate that all the bullion had been left over from the recoinage and therefore belonged to Allardyce. In July 1712, 'to prevent any loss my brother's poor children may sustaine', Hercules Scott asked for Newton's opinion. Having taken expert advice, Newton settled on a low figure for waste. On 21 March 1713 Scott set out his reasons for disagreeing, and 'As to what the London Goldsmiths have suggested about the waste to be so inconsiderable as not to deserve an allowance from the Government, I'm perswaded has been malicious for our Goldsmiths of knowledge and reputation are of another opinion'. Allardyce and his brother had offered 4d per lb more for bearing the waste than was allowed to the melter in the Tower 'but none of them would undertake it but at a greater allowance'.<sup>124</sup>

Newton evidently resisted the invitation to reconsider and the matter appears to have been settled by arbitration. James Allardyce was to receive the vouchers of the mint account in return for a bond in favour of Scott's children. Four ingots of bullion were to be delivered to James Allardyce 'in respect [he] as representing his father made up the waste of the coynage' and in return he was to pay Scott's 'gratuity' and another £800.<sup>125</sup>

On 14 December 1711 the House of Commons resolved that the Queen should grant funds to pay the moneyers. Having received a report from the Barons of Exchequer which deducted a small amount from their claim, the Treasury decided that Newton should be provided with the money and on 21 March 1712 he was instructed to pay the moneyers.<sup>126</sup> On 16 July Newton and his colleagues reported on a petition from Clerk and Cave, the engravers, asking for payment for making puncheons and for Cave's own charges, presumably while in London. They recommended the same allowance as the Tower engravers received for making puncheons for coins between one penny and one shilling, but nothing for 'extraordinary trouble', and 'we find Mr Cavé's attendance was without order and voluntary'.<sup>127</sup> As late as June 1713 the Treasury was still seeking advice from the Lord Chief Baron on how Penman and Miller should be paid, though they decided that the sum due to Clerk and Cave should be added to what was due to Allardyce's representatives.<sup>128</sup>

The last matter to be settled was the form of Allardyce's account. The Barons of Exchequer reported on 26 February 1712, but it was not until 2 May 1713 that Lord Chief Baron Smith and Baron Scrope were called to the Treasury to be told that it was to pass according to the course of the mint in England. On 5 January 1714 Queen Anne signed a warrant for passing Allardyce's account, allowing the sums due to the engravers, Penman and Miller and £175 13s 5½d for items not regularly vouched. Of the £1397 7s 7d due to Allardyce's executors, the new Master of the mint, John Montgomery, was to pay the equivalent of the sums taken out of the bullion fund, any remaining balance being made up from the money appropriated to civil affairs in Scotland.<sup>129</sup>

This was not quite the end of the story. Allardyce's account was finally closed on 16 April 1719, when it was declared in the Scottish exchequer before Baron Sir John Clerk. The intervening years had seen a souring of relations between Newton and a largely new body of Scottish mint officials. Yet those involved in the recoinage would not have dissented from Lord Seafield's verdict: 'You have been at a great deal of trouble in directing this coinage; you have done most justly to all concerned in it.'<sup>130</sup> But credit must also be given to the Scottish officials for the way in

which the work was carried out. A memorandum on the Edinburgh mint in 1761 noted that the recoinage had been ‘well executed and the coins, particularly the crowns and half crowns, were so much in value above the standard of their currency that they were picked up and carried abroad, where they fetched from 5 to 6, 7 per cent above their current value in this country. And hence it happens that there is scarcely a single crown or half crown coined in Scotland in the circle [circulation] to be seen, except in the custody of such whose curiosity have led to make a collection of coins.’<sup>131</sup>

## NOTES

- 1 Cochran-Patrick 1876 1, cc–cci; Burns 1887 2 525–35; Stewart 1955, 120–2. Coin types produced during the recoinage are illustrated in Bateson & Mayhew 1987 pl 113–15 nos 1792–1822. Cochran-Patrick 2, pl 16, Burns 3, pl 78, and Stewart, pl 20, have smaller selections.
- 2 Challis 1992, 413, 419; Craig 1946 ch 7 is more detailed but less than fair to the Edinburgh mint.
- 3 *APS* 11, app. 181.
- 4 Ratified by Parliament 1670 (*APS* 8, 45–6).
- 5 *SRO PS.3/4*, 159.
- 6 A list of mint officials from 1660 has been deposited in the Scottish Record Office library.
- 7 For the Scottish mint see Appendix 1; for the English mint see Newton’s memoranda of 1696–7, *Newton Corr* 4, 207–9, 233–5.
- 8 Young 1992, 14, and *Scots Peerage* 1, 142, call him ‘Sir George’ but in contemporary sources he is invariably ‘Mr Allardes’.
- 9 *SRO E105/2*, 7. For edge-marking of coins see Challis 1992, 329.
- 10 *Newton Corr* 4, 532, Allardyce to Newton, 12 Feb. 1709. Punctuation and capital letters in quotations have been rationalized.
- 11 *LMP* 69/24/1.
- 12 Saville 1996, 66, 840; Cochran-Patrick 1876, 2, 270–1.
- 13 *APS* 11, 443–4, app. 115. The committee had proposed that English money might be produced before the bailies of 16 named burghs.
- 14 Cochran-Patrick 1876 2, 291–6, from Privy Council records. Malcolm 1948, 35–6, provides a clearer account of the Bank’s role than Saville 1996, 78.
- 15 Challis 1992, 385–6.
- 16 *CTB* 21, 209, 263; *CTP 1702–7*, 494; *PRO T/17/1*, 55–7.
- 17 *CTB* 1, 317, 321; 8, 822, 824; *CTP 1557–1696*, 23.
- 18 The Scottish pound was 16 oz (against 12 oz for the Troy pound) and there were 16 lb to the stone (*Newton Corr*, 533*n*), about 20.8 lb Troy (*ibid* 5, 15*n*). See also tables of Scottish and English weights in Cochran-Patrick 1876 1, lxxxvi–lxxxvii.
- 19 *Newton Corr* 4, 489–94; *CTP 1702–7*, 513; *CTB* 21, 38, 264, 266; *PRO Mint* 1/8, 144.
- 20 *Newton Corr* 4, 485–6; *CTB* 21, 263–4; *CTP 1702–7*, 501; copy of Edinburgh mint’s list, *T17/1*, 1.
- 21 *Newton Corr* 4, 489.
- 22 *CTB* 21, 264–5 (from *T17/1*, 70–1); *Newton Corr* 4, 491–3 (from draft 31 May).
- 23 *T17/1*, 1; *Mint* 1/8, 140; but Edinburgh had used puncheons made by the Tower engravers before 1707. *Newton Corr* 7, 451–2.
- 24 *Newton Corr* 4, 494–5; *CTP 1702–7*, 517–8; *Newton Corr* 7, 448 (draft 23 June).
- 25 *CTB* 21, 350–1.
- 26 *Register of the Privy Council of Scotland* (3rd series), 13, xxxvi; G S Pryde *The Treaty of Union of Scotland and England 1707*. London 1950, 41*n*.
- 27 *CTB* 21, 353–4; Cochran-Patrick 1876 2, 305–8.
- 28 Cochran-Patrick 1876 2, 305, 308–9.

- 29 *Newton Corr* 4, 497, 503–4.
- 30 *Newton Corr* 4, 97–8, 12 Aug. 1707.
- 31 E.105/1, 26.
- 32 E.105/1, 26.
- 33 E.411/6/47. The ‘park’ was probably the Queen’s Park, at Holyrood.
- 34 *Newton Corr* 4, 497–8, 12 Aug. 1707.
- 35 *CTB* 21, 423; *CTP* 1702–7, 530; *Newton Corr* 7, 450–1.
- 36 *Newton Corr* 7, 451–2. The new puncheons had not arrived by 9 Oct., *ibid* 4, 499. Clerk’s colleague, Cave, who was in London in August 1707 (see note 48), may have liaised with the Tower engraver.
- 37 E.105/1, 26v.
- 38 *Newton Corr* 4, 504. The date of these changes is not known but the clerks’ salaries were backdated to 1 Aug. 1707 (*ibid* 7, 465). Patrick Scott added the post of Master’s Clerk to that of Deputy Master. Though not mentioned by Gregory, the Clerk of the Bullion became assistant to the Weigher and Teller.
- 39 Mint 19/3, 136. The specimen volumes are E403/13–16.
- 40 Cochran-Patrick 1876 2, 296.
- 41 *Newton Corr* 4, 498.
- 42 *Newton Corr* 4, 502–3, undated draft.
- 43 *Newton Corr* 4, 521–2.
- 44 The mint journals (SRO E403/7 and 12) give daily figures for coins received from and delivered to the Bank and silver delivered to and received from the moneyers. There are also duplicate journals kept by other clerks.
- 45 *Newton Corr* 7, 452–3; SRO PC.12 1708 (minutes of trial of pyx).
- 46 Cochran-Patrick 1876 2, 297–8.
- 47 Mint melting journal, E403/10 (duplicate E403/11).
- 48 *Newton Corr* 4, 500n. The original order for goods from the Tower mint had included charcoal (T17/1, 1). Cave, the joint engraver, sent some from London in August (Appendix 2 note 8) but this was not a practical source of supply.
- 49 Gregory’s letter of 16 Sept. 1707, *Newton Corr* 7, 452, refers to an earlier one on the same subject. Later correspondence is also lost.
- 50 *Newton Corr* 4, 498–9.
- 51 *Newton Corr* 7, 453–4. This is almost certainly a draft of Newton’s letter of 18 Oct. 1707 referred to in the mint minutes of 28 Oct.
- 52 E.105/1, 27.
- 53 E.105/1, 26v.
- 54 E.105/1, 28v.
- 55 *CTB* 21, 492 (from PRO T17/1, 172–4); *Newton Corr* 4, 500, 7, 455 (from Newton’s drafts).
- 56 Monthly totals for silver melted and coined are taken from the comptrolment roll, E410/10/24.
- 57 Cochran-Patrick 1876 2, 307–8.
- 58 E105/1, 27.
- 59 Clerk’s dies may have borne the mintmark E\*. See Stewart 1955, 121, for suggestion that these were the work of Joseph Cave. It seems more likely, however, that E\* distinguished dies produced by either Edinburgh engraver from those supplied by the Tower mint.
- 60 E105/1, 29, 30.
- 61 *Newton Corr* 4, 504.
- 62 E105/1, 29–30.
- 63 *CTP* 1702–7, 557; *Newton Corr* 4, 503–4. Gregory wrote to Newton on 28 Dec. with information on coinage and other matters from *Regiam Majestatem* and the Scots statutes (*ibid*, 505–6).
- 64 *Newton Corr* 4, 510–1.
- 65 E105/60, extract act of Privy Council.
- 66 *Newton Corr* 7, 456–7 (copy account, 21 Jan. 1707/8), 457–8 (draft report).

- 67 *Newton Corr* 7, 459–62.
- 68 Cochran-Patrick 1876 2, 299–301; Ruddiman 1773, 231.
- 69 Originally  $\frac{1}{4}$  merk (40d). Coins minted from 1675 as multiples or fractions of merks (13s 4d) were later revalued. The 4 merk piece (now 56s) came to be known as the dollar (Stewart 1955, 112–13) and is so denominated in the mint journals.
- 70 Cochran-Patrick 1876 2, 301–4.
- 71 SRO PC15, 1708. Memorial by Bank 20 April and minutes of committee thereon 27 April 1708.
- 72 E105/1, 30; *CTB* 23, 262; *CTP 1708–14*, 38; LMP 69/24/6.
- 73 *Newton Corr* 4, 515–6 (draft 14 April 1708); 7, 465.
- 74 *Newton Corr* 4, 522–3; 7, 467.
- 75 *Newton Corr* 7, 464–5 (draft ?July 1708).
- 76 *CTB* 22, 338; LMP 69/24/6–7 (original letter and warrant).
- 77 *Newton Corr* 7, 467, 12 Aug. [1708].
- 78 *Newton Corr* 7, 466; payments of bullion money are listed in E411/1.
- 79 They may have included pre-1675 coins which were ‘bad work and considerably coarser than standard’ (Mint 19/3, 19).
- 80 *CTP 1708–14*, 38, 63–4; *CTB* 22, 283, 450; 23, 183; *Newton Corr* 4, 521–2; 7, 468.
- 81 Malcolm 1948, 37–8; Saville 1996, 78–9.
- 82 *Newton Corr* 7, 472.
- 83 *Newton Corr* 4, 531; Drummond wrote in similar terms on 12 March, *ibid* 7, 470–1.
- 84 *CTB* 23, 103; E105/1, 30v.
- 85 *Newton Corr* 5, 206.
- 86 E411/6/47, 54.
- 87 *Newton Corr* 4, 532. Boswell, the Counterwarden, had made a similar plea in July 1708 (*ibid* 7, 463).
- 88 Sir Alexander Ogilvie, a Lord of Session, who had been Warden of the mint, 1699–1700.
- 89 Marwick 1880, 474, 476; Mint 19/3, 38 (original letter to Newton).
- 90 Craig 1946, 31.
- 91 *CTB* 23, 165; LMP 69/24/8 (original warrant).
- 92 *Newton Corr* 5, 314–15. There are late strikings of twopence and fourpence dated 1711 from original dies (Stewart 1955, 160).
- 93 1708 c 24 s 2. They received an equivalent amount of new coins. E103/12 sd 29 July, 1 Sept., 15 Sept. 1709.
- 94 *Newton Corr* 4, 540–1.
- 95 SRO E411/7/3.
- 96 *Newton Corr* 5, 317, 395.
- 97 *Newton Corr* 4, 541, Allardyce to Newton, 9 Aug. 1709.
- 98 Mint 19/3, 116; *CTP 1708–14*, 155, 194. Charles Bellingham, ‘a man of neither fortune nor position’ had eloped with a younger daughter of the Earl of Marchmont (*Scots Peerage* 6, 17); the money was to support his wife and children after his death, then imminent.
- 99 *CTP 1708–14*, 164.
- 100 *CTB* 24, 350–1. Newton had already provided this information to the Scots (*Newton Corr* 5, 51–4).
- 101 E105/1, 32.
- 102 *CTB* 24, 383.
- 103 *Newton Corr* 5, 58; LMP 69/24/15. Bowles was deputy King’s Remembrancer and solicitor to the Scottish Exchequer Court.
- 104 *CTB* 24, 448, 450; T17/2, 212, bill of expenses: *CTP 1708–14*, 240. John Scrope, ‘English Baron’ in the Scottish Exchequer Court resided in England out of term-time.
- 105 *Newton Corr* 4, 531–2, 535–6 (draft). An undated draft dealing with allowance for waste in melting (*ibid*, 536–7) belongs with later correspondence between Newton and Hercules Scott (see note 124).
- 106 *Newton Corr* 4, 540, 28 June 1708.
- 107 *Newton Corr* 5, 1, Newton to Lauderdale July/Aug. 1709 (draft).

- 108 E411/2; vouchers E411/7.  
 109 *CTP 1708–14*, 209.  
 110 E105/1, 31; *CTBP 1708–14*, 199.  
 111 See Appendix 2.  
 112 *CTP 1708–14*, 167; *Newton Corr* 5, 14–15, where calculations are given for different values of Scots money.  
 113 E411/10/17, undated but c Jan. 1710.  
 114 E411/10/12, undated but c Feb. 1710; E306/1, 3.  
 115 *CTB* 23, 201; 24, 550; 25, 55; *Newton Corr* 5, 2, 15.  
 116 *Newton Corr* 4, 532.  
 117 *Newton Corr* 7, 463, 10 July 1708.  
 118 *Newton Corr* 4, 540, Seafield to Newton, 28 June 1709; *ibid*, 7, 466, 470, 473; *CTB* 23, 65, 196.  
 119 *CTB* 24, 274; *CTP 1708–14*, 194.  
 120 *CTB* 24, 438; *Newton Corr* 5, 65, 18 Sept. 1710.  
 121 *CTB* 24, 438, 467, 587; *CTP 1708–14*, 218.  
 122 E411/7/3; E411/10/22.  
 123 Allardyce had given Hercules Scott a commission as deputy Master on 15 April 1708 (E105/3, 6) but he does not appear to have acted in this capacity.  
 124 *Newton Corr* 5, 316–18, 331, 371–4, 394–6.  
 125 E411/10/22, undrafted draft.  
 126 *CTB* 26 158, 198–9; *Newton Corr* 5, 206n, 250–1.  
 127 *CTB* 26 101; *Newton Corr* 5, 211, 314–15.  
 128 *CTB* 27, 236.  
 129 *CTB* 27, 27, 236; 28, 76–7; *CTP 1708–14*, 361, 512.  
 130 *Newton Corr* 5, 58–9, Seafield to Newton, 2 Aug. 1710.  
 131 Nat. Lib. Scot. MS 17558 f. 180. ‘Account of the establishment of the Officers of the Mint and their salaries’, probably a draft return to the Treasury.

## ACKNOWLEDGEMENTS

Crown copyright documents are printed with the permission of the Controller of The Stationery Office and the approval of the Keeper of the Records of Scotland. The author is indebted to the Hon G E Maitland-Carew for permission to quote from the Lauderdale mint papers and to Dr Allen Simpson for drawing his attention to the published Newton correspondence.

## APPENDIX 1

### Duties of Mint officials c 1707 (E105/3 f 16)

Written or copied by Robert Miller, Queen’s Clerk, sometime after 1707.

The bussines belonging to the respective officers of the Mint in Scotland and which was accordingly practised by them from the Revolution is as under written vizt

The Generall hade the keeping of one pile of weights and the lords of Exchequer another by which the money fabricatid in the mint was regulat as also the counter part of the standart plate by which the money coyned was tryed as to its fynness.

Item he always if present did preceed<sup>1</sup> in the courts of wardenrie held in the mint and in his absence the Master did preceed.

Item he admitted and qwalified the rest of the officers from time to time when they produced their respective commissions.

The Master his office is to receive what quantities of bullion or silver is brought in to the mint by the merchants or others to be coyned, which after the same is melted and assayed by the Assaymaster he gives bond to the inbringers for the value conform to the Assaymasters report obliging himself to pay the respective importers back their money coyned in the termes of the act of parliament,<sup>2</sup> the said master having allowance of twenty pownd scotts for evry stone weight that passes his Majesties<sup>3</sup> irrons.

The Warden and Counterwarden or their deputs are<sup>4</sup> at least one of them is allways to be present in the melting house when the kings pott is melting silver in order to be coyned and befor pouring of the pott they take the pot assay and goes with it to the assay office and sees it assayed by the Assaymaster and thereafter if the report be according to law they order the pouring of the pott and sees the barrs wighed and delivered to the moniers to be milld, cut, and justed, after which the species to be coyned is blanched and delivered to the wardens who trones or weighs every peice and what is not weight according to the standart they keep till next melting and sees them put in the pott to be melted over againe. Only the five shilling peices<sup>5</sup> was tryed as to their weight by pound weight as since the Union the rest of the specis are. After which one of them at least or their deputs oversees the press and if the dyes happen to break or crack they stop the press till new dyes be gott and after the whole journall is coyned two peices thereof are assayed by the Assaymaster both as to weight and finness and put in the pix which has three keys on kept by the lords of Thesaurie, one by the General and one by the principall Warden. After which the keys of the printing house is lodged with the principall warden until another journall be ready for coyning and each to keep particullar books of record.

The Sinker or Engraver sincks the punchions, cutts and engraves the dyes.

The Clerk or Book-keeper keeps two registers or records. In one of them he sets down the times of ingiving the severall quantities of bullion by the merchants and others in presence of the ingiver and receivs subscribed accompts from the Master and Warden and Counterwarden and the Assaymaster of all the quantities of silver coyned according to the standart and fynness which he is to record in his other Register.

The Smith makes the dyes and puncions, rollers cutters bolsters and other tooles necessary being furnished by the Master with steell irron and coals &c.

### Notes

<sup>1</sup> Preside.

<sup>2</sup> 1686 c 38 (*APS* 8, 603).

<sup>3</sup> Miller could have been copying from a version written before 1702.

<sup>4</sup> 'or'?

<sup>5</sup> ie the Scots 60s piece, equivalent to the English crown.

## APPENDIX 2

### Draft account of expenditure for the recoinage, 1710 (E411/10/18)

This is the earliest of a number of surviving states of accounts or drafts prepared between 1710 and 1713. It was examined by Sir Isaac Newton and John Scrope, Baron of the Scottish Exchequer. In the original, Newton's comments (here in italics) have been written by a clerk in the left-hand margin and the figures are in a column on the right, headed 'Sterline £ s. d'. Baron Scrope's annotations and the note at the end are holograph.

Another state of accounts prepared shortly afterwards, 'according to the method of passing the mint accounts before the Union' (E441/10/11) lists separately everything identified by Newton as disallowed or doubtful, with some additional items. All three categories appear in a third account 'according to the allowance of the Barons of Exchequer' (E410/10/1), dated 15 February 1712. This provides a key to the surviving vouchers (E410/6) which are noted here where they provide additional information. Although the different accounts have not been collated, significant discrepancies between the figures printed here and those in the final declared account of 1719 (E411/1) have been noted.

Accompt due by Her Majestie to George Allardes of Allardes, Master of Her Majesties Mint, for the coinage in Scotland.

Imprimis: The Masters allowance for the coinage of sixty four stone, thirteen pound weight of ten & five pence peeces att 20 li. Scots per stone of 1:13:4 sterling money per stone weight conform to the Acts of Parliament in Relation to the coinage being the money coin'd from the month of March 1705 to May 1707 108-00-5

To an accompt of steell and iron for that coinage 3-16-8½

To an accompt of small coal for the forge & Smiths work 3-06-8

To an accompt of mens work preparing the Mint and making the furnace heads for that coinage 3-16-1½

To an accompt of depursments for other necessarys for that coinage 3-02-7½

To refining 8 ston 4 pd 3 oz 15 drop silver for that coinage at 1£ per ston wt 8-05-3½

To David Calendar<sup>1</sup> for six precepts for the quarterly salary's from Martinmass 1704 to Candlemass 1706 1-09-0¾

To a small accompt due to the Master upon the remeeds of fineness of that coinage as per the Mint records 1-0-9

*This being before the Union must be instructed & stated according to the Scots acts of Parliament & the useage of the Mint<sup>2</sup>*

To the workmens wages putting the Mint in order for the recoinage 2-05-10 Allowable

To the fraught of goods sent from the Tower of London and carriage from Leith to Edinburgh per accompt 20-15-00<sup>3</sup> Allowable

Item craves allowance of £31-19-02 being the loss upon 295 guineas which he received from the Collector of the Bullion at 23s 8d per guinea in payment of 350£ received in support of the coinage March or April 1707 31-19-02

*This is an article Sir Isaac Newton is not acquainted with*

To the price of ten horses, bought for the miln, one being shot in the Park and another dying at the work 73-19-11¾<sup>4</sup>

*This is allowable but the Master accomptable for what the horses were sold for*

Item craves allowance for the maintenance of 8 horses for the miln from 15th August 1707 to 15 March 1709 being 19 months at 14d per horse a day 269-14-8 Allowed

Items claims allowance for 2 servants who waited on the horses and miln at 12d per day each 57-16-0 Allowed

To an accompt of shoes for the horses 10-07-4½ Allowed

To an accompt of skin-aprons to the moneys for justing, a cover to the compting-room table, covers to the clerks desks and locks and bands to them per accompt 5-10-08 Allowed

To an accompt of books and paper to the Mint 12-04-11<sup>5</sup> Allowed

To an accompt of coals furnished for the use of the moneys their blanching and neeling offices & working room 36-18-10 Allowed

To an accompt of candles 8-11-3 Allowed

To an accompt of allom<sup>6</sup> 18-06-8 Allowed

To an accompt for upholding the files 22-00-11½ Allowed

To the Smiths mens wages at the forge for rollers, dyes, cutters & upholding the other iron work per accompt 41-09-11

To an accompt of iron and steell for the forge 60-10-0½

To an accompt of small coal for the forge 10-13-5½

*These things are furnished by the Smith the Master allowing him ¼[d] per pound weight out of his allowance of all the silver that's coynd<sup>7</sup>*

To an accompt of oil, greese and soap furnished by the Smith to the miln & some other small work 04-06-02 Allowed

To fraught of a second cargo of goods from London, sent by Mr Cave 03-15-11 Allowed

To carriage thereof to Edinburgh and charges 00-16-06 Allowed

To Mr Caves accmpt of the said goods & postage of a letter	34-09-5 <sup>8</sup> <i>Allowed</i>
To an accmpt of dyes paid to Richard Morgan <sup>9</sup> and a letter	14-01-5
<i>The iron furnished by the Smith &amp; the graveing allowable</i>	
To an accmpt of land carriage of dies from London <sup>10</sup>	2-15-11
<i>The land carriage allowed</i>	
To an accmpt of weights bought for the Mint from the Equivalent Office <sup>11</sup>	9-18-00 <i>Allowed</i>
To an accmpt of mufflers for the Assay Masters furnaces	2-5-2 <i>Allowed</i>
To two accmpts of furniture for the miln horses	9-13-4 <i>Allowed</i>
To an accmpt of coppar work	24-16-7
To an accmpt of brass work	23-12-0
<i>It doth not appear to Sir Isaac Newton what these two articles are for</i> <sup>12</sup>	
To 200 wt of quicksilver from Holland	55-00-00 <i>Disallowed</i> <sup>13</sup>
To an accmpt of sand for the mint	1-16-10 <i>Disallowed</i>
To an accmpt of meal for dusting the moulds	3-18-06 $\frac{2}{3}$ <i>Disallowed</i>
To an accmpt of saw dust for the moneyrs blanching	1-07-2 <i>Allowed</i>
To the masons accmpt	30-10-10 <i>Allowed</i> <sup>14</sup>
To the wrights accmpt	74-3-4
To the glasiers accmpt	4-10-0
To the plaisterers accmpt	1-01-8
To William Greys accmpt from the iron miln for iron potts lignets & neeling pans	216-13-4
<i>The neeling pans to be allowed &amp; the iron potts and lignetes if for the first melting but for the sweep not allowable</i> <sup>15</sup>	
To an accmpt of expences, searching & prosecuting a false coiner <sup>16</sup>	7-8-6 <i>Allowed</i>
To recording in Exchequer her Majesties two warrants to the Officers of the Mint and executors of Daniel Steward Collector of the Bullion for paying up the money for the recoinage and charges of the said warrants at London	3-05-4 <i>Allowed</i>
To two large weir sieves for the moneyrs	1-10-0 <i>Allowed</i> <sup>17</sup>
To an accmpt of rubbing brushes	1-08-8
To an accmpt hogs lard for the presses	5-12-1
To an accmpt of lead work	3-05-0 <i>Doubtfull</i> <sup>18</sup>
To an accmpt of locks	1-08-8 $\frac{1}{2}$ <i>Allowed</i>
To an accmpt of saking and harden for boots & mittans for the melters	1-09-10 <i>Disallowed</i>
To an accmpt of other small depursements for necessarys	16-04-4 <i>Doubtfull</i> <sup>18</sup>
To the Generall and other officers their sallarys from the 1st February 1708 to the 1st February 1709 per accmpt	1461-13-4 <sup>19</sup> <i>Allowed</i>
Item craves allowance for refining 12834 pound 15 peney wt of fined silver per particular accmpt	500-19-1 $\frac{1}{3}$ <sup>20</sup>
To the coinage of 104227 pound 10 ounces English Troy wt at [ ] <sup>21</sup> per lb wt answering to £1-13-4 allowed by the Scots Acts for the coinage of the Scots stone wt consisting of 16 lb Scots weight of 16 ounces in pound, the Scots pound reckoned at 15 oz 14 pen wt and 4 grains English	8293 18-9 <sup>22</sup>
Item claims allowance of 1 penny Sterling per pound weight of 103346 pd wt coin'd by the moneyrs sent from London he being oblidged to pay them at 9 pence per pound being 1 penny extraordinary	430-12-2 <i>Allowed</i>
Item to the deficiency upon the assay pieces of the money per accmpt	10-19-9 <i>Allowed</i>
To 18 pd weight of allay as per the pott bills at 9d per pound	0-13-6 <i>Allowed</i>
Item craves allowance for a workman keep't constant att making the clay heads for the furnaces and repairing the severall furnaces	20-00-00 <i>Allowed</i>
Item craves allowance of 100 marks Scots as the dues to the macers of Councell attending the trial was made of the pix in Sept 1707 as is usuall	5-11-1 $\frac{1}{3}$ <i>Allowed according to accmpts preceeding the Union</i> <sup>23</sup>
Item craves allowance for the Clerks of Councell & servants the said time, and for the extract of the Masters exoneration	5-00-00 <i>Allowed as in former accmpts</i>

Item craves allowance of  $2\frac{1}{2}$ [d] per ounce 1553 ounces imported by merchants to the Mint & coined since May last, as the encouragement given by the Coinage Act past at London the last Sessions of Parliament

16-03-6 $\frac{1}{2}$

*If foreign silver or wrought plate to be allowed otherwise not*

I have ajusted this accompt and considered it with Sir Isaac Newton, on the margent are his observations, the charge of 8293 lib 18s 9d for the coinage is computed according to the Scots allowance, & is more then is allowed to the Master of the Mint in England, the Master of the Mint here haveing only sixteen pence half penny for every pund English Troy weight that is coyned allowed him, which makes this coynadge come only to 7165 lib 13s 3 $\frac{1}{2}$ d out of which eight pence per pound is to be deducted for the monyers, & a farthing per pound is allowed for the Smiths work, & in regard this coynage was made in pursuance of a warrant that came from England unto which was annexed the Indenture of the Mint here, Sir Isaac thinks the allowance ought to be the same as in England; & if the executors of Mr Allardes are not satisfiedy they may apply to my Lord Treasurer for his directions. He is also of opinion that since it can not be well distinguished what the Smiths work comes to, that the charges on that heading in the accompt should be allowed, & that a farthing per pound should be deducted for the benefit of the Crown, which comes to 108 lib 11s 4d. Nothing in the accompt is to be allowed without vouchers which must be signed by the Warden & Counter Warden. There were severall things sent from England that were usually furnished by the Master, as the sweep mill bone ashes quicksilver &c which must be deducted out of the Masters allowance, & care must be taken that the monyers be payd what is due to them.

J Scrope

Jan. the 23th 1709 [1710]

Quaere as to the allowance for lettering and graining that is to be allowed by the Lord Treasurer and paid by the Master not exceeding 6d for a pound weight Troy of gold & 11 $\frac{1}{2}$ d for a pound weight Troy of silver money.

E411/10/11 includes the following, all allowed in the final account:

Peats to the assaymaster's office, £2 7s (E411/6/62); fees on HM warrant 'for makeing the dyes and puncheons for the small money as appears by Sir Isaac Newton's acquittance', £3 17s 6d (receipt E411/6/36, signed by Newton); 'For consultation of lawers to drau memorialls to the Lord High Treasurer upon the death of Daniell Stewart . . . which was advanced by Mr Drummond warden', £3 8s 6d; 'To the servants of the Treasury for their attendance with the Treasury piles and weights at the tryall of the pix in September 1707', £2 3s 6d.

### Notes

- <sup>1</sup> Servant to the Clerk of the Treasury.
- <sup>2</sup> Applies to all the previous entries.
- <sup>3</sup> £25-19-10 in E411/1.
- <sup>4</sup> In E411/10/11 cost given as £75 12 11 $\frac{1}{3}$  less £37 6s 8d from sale, net cost £38 6s 3 $\frac{1}{3}$ d.
- <sup>5</sup> £12-14-11d in E411/1.
- <sup>6</sup> Used in blanching the coins.
- <sup>7</sup> Applies to previous three entries which are bracketed together.
- <sup>8</sup> Reduced to £20 14 in E411/1, 'rebating' £13 15s. Goods dispatched on 6 Aug. 1707 included 108 bushels of charcoal, German steel and files (E411/6/14-15). Postage (5d) apparently disallowed.
- <sup>9</sup> Probably Newton's clerk at the Tower mint.
- <sup>10</sup> Four consignments between Oct. 1707 and Oct. 1708 (E411/6/16).
- <sup>11</sup> Set of scales and weights priced 'as per advise from Mr Thos Madocks of the Banck of England' (E411/6/17).

- <sup>12</sup> Copper work included patterns for lignets (ingots), boiling and blanching pans, copper pans for the 'neeling furnace', 'callanders' and skimmers (E411/6/44); brasswork fittings for the mill and coin presses, a brass pulley for 'the swey of the melting house' and patterns for coins (E411/6/45). Sums reduced in E411/1 to £21 8s 3d and £18 6s 8d.
- <sup>13</sup> This and next two items marked by Scrope 'after allowed'. The quicksilver was bought from Hercules Scott [the deputy Master's brother] (E411/6/58). The voucher for sand bears a holograph note by Newton that payment is not to be allowed except for 2s 7d for '3 carts to lay the miln floor'; the sand was dug at 'Pildrick [Pilrig, Edinburgh] (E411/6/59).
- <sup>14</sup> Bracketed with next three entries. Alexander Gowanlock's bill for mason work includes repairs to the Master's stable, counting room, laigh and back melting house and bodle printing house, Jan.–Sept. 1708 (E.411/6/19). William Clerk's includes wright work in the melting house and on machinery and moulds (E411/6/20).
- <sup>15</sup> Allowed in full E.411/1, specified as 'for first melting'.
- <sup>16</sup> Jonathan Tadpole, one of two persons 'suspected of coining the tin money' was arrested by the sheriff of Argyll in 1709 and sent to Edinburgh, where he broke prison; costs included 'advertising in the prints' (E411/6/24).
- <sup>17</sup> Bracketed with next two entries.
- <sup>18</sup> Marked by Scrope 'After allowed'.
- <sup>19</sup> £1455 in E411/1.
- <sup>20</sup> Amended in E411/1 to 12838 lb 15 dwt and £501 2s 2 $\frac{3}{4}$ d.
- <sup>21</sup> Left blank in MS. In 'Observations upon Allardice's accompts' (E411/10/17) noted that the amount is left blank 'till the Barons determine the same'.
- <sup>22</sup> Recalculated as £7165 13s  $\frac{3}{4}$ d in E411/1 with allowance of 16 $\frac{1}{2}$  per lb and reduced to £4701 4s 5 $\frac{3}{4}$ d by deduction of £2446 3s 3 $\frac{1}{2}$ d due to the moneyers and £18 5s 6d paid by Newton for a sweep mill etc.
- <sup>23</sup> Macers of council and exchequer allowed same amount for trial of the pix at Westminster which they 'crave for this tryall according to use and wont as their perquisite' (E411/10/1).

## REFERENCES

- APS Thomson, T & Innes C (eds) 1814–75 *Acts of the Parliaments of Scotland*. Edinburgh.
- Bateson, J D & Mayhew N J 1987 *Sylloge of Coins of the British Isles 35: Scottish Coins in the Ashmolean Museum, Oxford, and Hunterian Museum, Glasgow*. Oxford.
- Burns, E 1887 *The Coinage of Scotland*. 3 vols. Edinburgh.
- Challis, C 1992 *A New History of the Royal Mint*. Cambridge.
- Cochran-Patrick, R W (ed) 1876 *Records of the Coinage of Scotland*. Edinburgh.
- Craig, Sir J 1946 *Newton at the Mint*. Cambridge.
- CTB Shaw, W A et al (eds) 1904–57 *Calendar of Treasury Books 1660–1718*. London.
- CTP Rodington, J (ed) 1868–89 *Calendar of Treasury Papers 1557–1728*. London.
- Malcolm, C A 1948 *The Bank of Scotland*. Edinburgh.
- Marwick, J D 1880 *Extracts from the Records of the Convention of the Royal Burghs of Scotland*. Edinburgh.
- Newton Corr Turnbull H W et al (eds) 1959–77 *The Correspondence of Sir Isaac Newton*. Cambridge.
- Ruddiman, T 1773 *An Introduction to Mr James Anderson's Diplomata Scotiae*. Edinburgh.
- Saville, R 1996 *The Bank of Scotland: A History 1695–1995*. Edinburgh.
- Scots Peerage* J B Paul (ed) 1904–14, *The Scots Peerage*. Edinburgh.
- Stewart, I H 1955 *The Scottish Coinage*. London.
- Young, M D (ed) 1992 *The Parliaments of Scotland: Burgh and Shire Commissioners*. Edinburgh.

UNPUBLISHED SOURCES

*Public Record Office, Kew*

Mint 1 Mint Board. Some items printed in *Newton Correspondence*.

Mint 19 Newton papers (Microfilm in SRO, RH4/165). Some items printed in *Newton Correspondence*.

T17 Treasury out-letters, North Britain (Photocopies in SRO, RH2/4/415 etc).

*Scottish Record Office, Edinburgh*

E103 Mint journals.

E105 Mint registers and papers.

E306 Exchequer register of orders.

E411 Mint imprest accounts.

PC15 Privy Council papers.

PS3 Privy Seal English register.

*Thirlestane Castle, Lauder (The Hon G E Maitland-Carew)*

LMP Lauderdale mint papers (Microfilm in SRO, RH4/69).