

Notes on the Organization of Minting in Medieval England

(taken from Challis: *History of the Royal Mint*, 1992.)

N.J. Mayhew: *From Regional to Central Minting, 1158–1464*

pp.99-103

Before 1180 all having to do with the work of the Mint or the Exchange seem to have been known as moneyers. In 1180 the exchangers burst onto the scene. These were royal appointees, as were the occasional melters or assayers (*fusori*) also mentioned at this time. Sometime between 1180 and 1205 die-keepers were instituted to police the use of the dies and the quality of the blanks. Their post was finally merged with that of the master in the late 14th c. However, the die-keepers' functions probably withered away much earlier, as most quality control at the Mint took place after the flans were struck and not before.

The moneyers supervised the production of the coin. They did not cut the flans or strike the coins themselves. Yet they were responsible for its weight and fineness which they guaranteed with their own names. A mid-13th c. document spells out the relationship between moneyer and changer. The latter (with the help of the assayer) valued the silver brought by the merchant. Changer and moneyer would have known hand-books and tables stating how much alloy should be added or deducted from the silver of different regions to bring it to sterling standard. The changer also charged the bullion holder 6d per pound for the king's seigniorage ('the right and accustomed farm'). The record also tells us that the moneyer added 6dwt of copper to the pound weight of pure silver 'according to the right and ancient custom'. This 6dwt copper addition enabled the moneyer to cover his costs and take his profit, at the same time bringing the alloy to the correct standard. It is clear that the moneyer's remuneration and maintenance of the correct sterling standard were closely connected, and both were extremely dependent on the accuracy of the changer's original estimate of the purity of the bullion. If either the bullion holder or the moneyer doubted the changer's estimate of fineness an assay could be made. In theory, the changer's intermediary role guaranteed the interests of the Crown and fair play between moneyer and merchant. In practice moneyer and changer often merged into a single person, and

when they did not disputes between them were frequent. The bullion holders for their part constantly complained of abuse at the Exchange.

From the moneyer's 6d in the pound all the expenses of coin production had to be met. Clearly the economies of scale insured a comfortable margin when output was high and corresponding difficulties if work was scarce.

The accounts [of the Mint from the reign of Henry III] provide the first explicit recognition that the exchanges received silver by weight. This practice protected the Mint from worn coin—a danger of which the Exchequer had long been aware. At the Mint silver was generally received and paid by weight. It appears that 'instant exchange' involved payment by number; otherwise when a particular quantity of bullion was accepted at the Exchange it was dispatched to the mint for recoinage, involving a delay, though the eventual payment would be by weight. Exceptionally Edward I briefly claimed the extra 3d (coming from paying by number instead of by weight), ordering payment by number for all payments at the time of his first recoinage, but he soon returned to the regular practice of payment by weight.

pp.114-20

By the middle of the 13th c. the office of warden clearly involved overall supervision of both Mint and Exchange, as well as accounting to the Crown for the profits of the Exchange. The moneyers did not account to the Crown, and it is clear that once the royal seigniorage had been deducted the moneyers were then free to make what they could from the coinage. [...] The moneyers' authority at this time seems to have been almost entirely unchecked, so long as the royal seigniorage was paid and the quality of the coinage maintained.

It looks as if the enquiry [of 1262] discovered large, though legal, moneyer profits, so the reforms of 1262 were introduced embodying a serious and successful attempt to reclaim the moneyer's profits for the Crown.

Until this date the warden of the Exchange accounted only for the king's ancient farm of 6d in the pound, plus incidental increments arising when coin was exceptionally

paid out by the Mint by number (240d to the pound) when it had been received by weight (242d to the pound). Against this income the warden claimed various allowances for any payments or expenses which he had met and then settled the balance with the Exchequer. From 1262, perhaps resulting from the inquiry of 1261, an additional section of the account appears dealing with the profits from the foundry. At this date the account is somewhat summary, a single figure being given as the profits of the foundry, apart from the king's seigniorage and incrementum accounted for in the earlier section of the account, and apart from the expenses and the salaries of the moneyers, changers, assayers, keepers of the dies and all other servants, details of which were sent to the Treasury. The sum given as the profit of the foundry usually approaches about 1/3 of the profits of the Exchange (that is, chiefly the 6d seigniorage). Of course the profit of the foundry could be quickly eaten away by costs when total output was low. However, in periods of normal output it was clearly a significant sum which had hitherto fallen to the entrepreneur-moneyers, but which was now claimed by the crown, converting the moneyers into ordinary wage-earners. [...] It is only from 1262 that the Crown fully won back all the profits of coining. Although from the time of Edward I the minting operation was put out to contract, a significant margin remained between the mintage rate charged to merchants and the contract rate paid by the Crown to the Mint staff.

pp.120-1

In 1279 the title of master of the Mint first appears. The master supervised production of coin and was answerable for the accuracy of its weight and fineness. This was carefully checked by the warden and the assayer, and formally verified at the Exchequer at a quarterly trial of the pyx. The warden supervised all exchange functions, the purchase of bullion and issue of coin, and exercised supreme control over all aspects of the Exchange and Mint. The warden was the king's immediate representative at the Mint, a trusted, though carefully controlled official. The master's terms of employment are recorded in an indenture. The indenture allowed 7d on every pound of old English silver struck, a sum made up of 3.25d for the moneyers' and laborers' pay, 1.25d for silver lost in the fire, 1.5d to improve the old money, which was declared to be of inferior fineness to the new, and 1d for his own salary and expenses, and those of the masters and ministers under him to cover their food, drink and clothes and all the necessary minor expenses of the Mint. [...]

The king provided the Mint plant. According to a Treatise of the time, details of purchase and manufacture were reserved to the master with the warden's role restricted to that of quality control, and supervision of dies.

pp.140

The institutional propriety of the Mint in the 13th c. did not prevent instances of personal dishonesty. Indeed in some cases the institutional set-up seems to have created difficulties. The most obvious example was the deliberate policy of separation of powers which set master against warden. The warden of the Exchange was responsible for the purchase of the bullion, while the master of the Mint supervised coin production. In principle this system safeguarded the interests of the bullion holder, for the Exchange had no motive for defrauding the merchant if the bullion stolen was destined for the moneyers. In practice, the damage of which the master complained was that the warden and his changers might overvalue the silver, leaving him insufficient margin to make the coins, meet his costs, and take his profit.

p.148:

Under Edward III, introduction of gold coins and a more complicated denomination structure. The flexibility implied by this wide range of denominations was in practice often lacking. The Mint staff naturally preferred to strike the larger denominations because of the saving in labour, and after 1351 the differential mintage rates previously offered to compensate for the extra work making smaller coins in greater numbers per pound of metal were ended. General late medieval complaints about the shortage of coin were only varied by more specific demands for more small change. Both shortages left the currency vulnerable to the old problem of imported imitations.

pp. 152-8

A gradual evolution of offices within the Tower Mint is apparent throughout the period from Henry II to Edward IV. Perhaps the most significant development of this kind in the 2d half of the period was the rise of the assayer or campsor or comptroller. Assaying had always been an important function, since accurate determination of fineness

was crucial both for the initial purchase of bullion and for the quality control of newly struck coin. Samples of the new coin were usually tested before issue, as well as more formally at the Trial of the Pyx. All the indentures from the middle of the 14th c. contain provision for a Trial of the Pyx. At this time the proportions ordered to be set aside were 2s in every 100 lb of silver [=2500s, 1:1250], and 6s 8d for every 5 lb of gold [=1500s, 1:225]. The 14th c. indentures speak of quarterly trials, but the limited surviving evidence suggests they were in fact held extremely rarely. [...] The Trial of the Pyx almost from its beginnings was a largely ceremonial occasion. The more mundane assays held on the delivery of coin by the Mint would have alerted the authorities to irregularities much more quickly than the extremely occasional formal Trials. [...] Outside of recoinage, most of the silver bought came from abroad; very occasionally small quantities of newly minted domestic silver were booked in. [...] the Exchange was not expected to be open daily, work was usually part-time. [...] The rising importance of the assayer really dates from the time, in the early years of Edward I, when he was called upon to keep a counter-roll, recording the amounts of bullion purchased in the Exchange and passed to the Mint. Not only did the assayer arbitrate disputes about fineness, he was now a watch-dog set on both the warden and the master.

The warden remained the principal royal official. As in the 13th c., though names warden of the Exchange (*Custos Cambii*) he was in fact the senior official in charge of the Mint as well. In the 15th c. his title was extended to explicitly include the Mint. Nor was such responsibility entirely theoretical; apart from overall legal authority, he was also responsible for the equipment of the Mint. All this notwithstanding, it is perfectly clear that the position of the warden was increasingly eclipsed by the rise of the comptroller-assayer and of the master of the Mint. The wardens were mostly able and senior civil servants but from the 14th c., lacking any particular technical competence. Thus, the wardenship became more and more an administrative job, accounting for the king's seigniorage, while the more lucrative aspects of the Exchange from which the wardenship had originally grown were hived off.

The development of exchanges separate from the Exchange in the Tower seems to begin in the 1330s, and owes much to the increasing use of gold coin on the Continent.

From 1380 the principal London Exchange was almost always entrusted to the master of the Mint.

pp.166:

The years 1344-46 give a good idea of the sort of bidding which went on by rivals for the mastership. In the Burgundian Netherlands a more formal public auction was held. In England there is no evidence of such formal invitations to tender but a number of contenders did compete for the position. A potential master had to find sureties who were prepared to back his competence and his honesty with their own resources; he had to offer the Crown an incentive, usually in the form of an attractive rate of seigniorage, to offer him the post; and he had to offer the merchants sufficiently attractive terms to ensure a steady flow of bullion to the mints. Finally, on top of this the master had to make his own profit. It was a difficult balance to strike, and many failed. [...] Theoretically, all bullion brought to the mints should have been returned recoined within eight days. [...] One indenture made specific arrangements in the event of a disagreement about the fineness of any consignment of bullion brought for coining, The assayer would adjudicate, and if the master still refused to accept the assay, the assayer himself should undertake to coin the metal.

p.168: The indenture of 1351 established the basis on which coin was made in England for more than half a century. The pound of gold was struck into nobles and their fractions to a face value of L15, while the silver pound made L1 5s. Groats and half-groats were introduced, but all silver denominations were struck on the same terms, there being no concessionary rates to encourage the master to strike the smaller coins. In subsequent indentures it became necessary to specify the proportions of the available metal to be struck into each denomination, but the bias in favor of larger denominations was never properly corrected. (Footnote: Potter's indenture (1355) specified that in every L100 of silver 50 marks be struck into groats, 50 marks into half-groats, 45 marks into pence and only 5 marks into half-pence. Robert de Portyco's indenture (1361) introduced similar specifications for the gold coinage. Since the smaller denominations cost proportionately more to make, these proportions, like mintage rates, would have been a factor in the bargaining process. As parliamentary complaints make clear, the shortage of small change

was a constant problem, which the structure of Mint arrangements did nothing to solve.)

p.169: masters and their guarantors were no strangers to prison, forfeiture and fine. Such difficulties however, seem to have been regarded as no bar to further service.

p.170-1: European scarcity of bullion. The constant repetition of largely ineffective bullionist legislation, the problems posed by foreign imitation nobles and the influx of Venetian small change were all testing the Mint and the Exchange to the full. [why an influx of foreign coins could be called bullion scarcity???] It was in fact the mint-master who brought the problem of bullion scarcity before Parliament in 1381. The serious minded inquiry which resulted, however, was unable to provide solutions. The usual complaints were made against those who were spending abroad and exporting bullion, and against those clipping or imitating the coinage. Nevertheless, practical solutions were less obvious. The warden was enjoined to hold the master to produce sufficient small change as specified in his indenture; in fact, the proportions of small change required of the master were always very modest since no master would accept an indenture binding him to more than a minimal amount of such unprofitable work. The appeal to the Crown to waive its seigniorage for the recoinage of clipped coin also fell on deaf ears (although it was eventually briefly tried in the 15th c.), as did the appeal for a maximum seigniorage rate of 1s when the prevailing rate stood at 3s 6d. [...] Debasement of weight reductions which might have helped to attract bullion from abroad or correct gold:silver ratios were politically unacceptable. On that point such men as Richard Aylesbury and Richard Leycester were agreed: changing the money in any way would damage Lords, Commons, and the whole realm. It was nevertheless a solution which had to be tried, as the next century was to show.

p.176: Further problems of scarcity returned in the 1440s. The general shortage was particularly acute in the area of small change. It was suggested that their good weight and alloy caused them to be melted down; it is certainly true that the good quality of the coins—their fine metal content was exactly proportional to that of the larger denominations—made them relatively more expensive to make because of the extra labour costs. Accordingly, it was proposed in Parliament in 1445 that 33s worth of halfpennies and farthings be struck from the pound instead of 30s. The moneyers were to have an extra 10d for the work, seigniorage and mintage were to be 7d each and the merchant

would receive 31s for his bullion. Legal tender was limited to 1s in the pound, and the whole scheme was restricted to a period of 2 years.

It seems probable that the master objected to this scheme: it implied a cut in mintage [i.e. brassage], from 9d per pound to 7d which would have been unacceptable [...] The upshot was that on 13 Dec 1445 the master stood down and was replaced by a royal official, not a goldsmith. Mintage on the new lighter halfpennies remained at 9d. The master struck almost 3 times as much silver by weight into halfpennies than into the other denominations in the period ending in June 1446 but the experiment was not continued thereafter.

Robert Mansfield was master from 1445 to 1459. His tenure marks a shift away from the independent goldsmiths of the earlier years of the century toward masters who were officers of the King's household. That a civil servant had to be found to run the Mint may indicate that no goldsmith could be found to tackle the job in the unfavourable conditions of scarcity prevalent in the 1440s. As the mastership became more of a sinecure, the moneyers themselves began to emerge once more, and deputy masters emerged who looked to the daily technical matters of production.

addendum from p.181: The inevitable outcome of public men being so frequently appointed at the Mint was that the actual work was done by deputies. [...] All [who can be named] were goldsmiths of London and it looks very much as though each in turn operated under a carefully drawn contract backed by appropriate sureties.

Even more marked were developments in the wardenship. Still technically the senior officer of the mint, by the 15th c. the warden lost any real exchanging functions, which were now exclusively conducted by the master in his role as keeper of the exchange in the City. The warden retained his judicial role, but his principal task was the calculation and collection of the royal seigniorage from which he paid wages to the assayer, the engravers, and his clerk, accounting for the balance to the Exchequer. The warden was also responsible for the Mint buildings and equipment.

Lord Hastings to the Great Silver Recoinage, 1464–1699

p.184: many disputes (also mentioned for earlier periods by Mayhew) arising from complaints that the Mint used the bullion to lend it out while it was in its hands.

p.185: new developments in assaying. The properties of nitric acid were well known, but difficulties in preparation and handling made it unsafe to use. Not until the 1520s did it come into systematic use to dissolve away the silver. (Other base metals were removed by cupellation, whereby the lead added to the cupel combines with the base metals and drains them away). Prior to that, salt-cementation process or fusion with sulphur or antimony sulphide were used. The use of trial plates occurs in 1248, 1279 and 1326 but it became part of the indentures only in 1477. A sample from a plate of known fineness is assayed at the same time as the main sample, and any deviation in measurement observed on the plate is applied to the main sample.

p.229: Reorganisation of the Mint (1544-72). Under existing arrangements, as we have seen, the Mint supplier received back the full weight of the bullion he had taken to the Mint, minus a small charge of so many shillings or pence in the pound. This sum was divided up between the warden and those who actually made the coins, the master-workers and the moneyers. From his portion the warden paid general overheads—Mint repairs, his office expenses, and the salaries of the king's officials—and accounted for any profit to the king. For the remainder, however, there was no formal Exchequer account at all. The master-worker bought bullion at whatever profit he could but that profit was his alone; and he made his coins in the same spirit. It was he who hired the melters and other necessary workmen, bought the fuel and other materials contingent on production, and rated the coins at the assay. It was the master-worker in fact who decided, and enjoyed, the profit margins on production and only if it could be proved at the Pyx that his coins were deficient either in weight or in fineness was he liable to pay anything to the Crown. In 1544 all this was changed. The unsalaried post of master-worker was replaced by the salaried post of under-treasurer and it was the under-treasurer who now became responsible for paying all the officials previously paid by the warden, all the artificers formerly in the employment of the master-worker, and also the officer who replaced the warden as the overall supremo of the Mint, the high treasurer. There was now a clear Mint Establishment [...] the only personnel who were outside it were the moneyers, who remained firmly and separately organised under their provost. In addition to the salaries listed in the new Establishment

the Crown also undertook to pay the moneyers and bear all costs of actually running the Mint—the overheads formerly paid on its behalf by the warden, and all operating costs previously borne by the master-worker out of his allowance. In return the Crown extracted every single scrap of profit.

This system was scrapped in 1572 (p.255).

p.245-6: during the great Debasement, moneyers were paid differential rates on denominations. Under the old system the moneyers had received a flat rate of so many pence for each pound of struck coin. Insofar as gold was concerned this system had remained unaltered throughout the debasement period but in respect of silver had given way to one of differential rates. At its most developed, the differential system gave the moneyers exactly what logically they might have expected, namely, rates of pay which increased as the work became more difficult and time consuming, and one wonders why it was that such a scheme found favor only during the debasement. We may surmise that the differential rates were introduced because it was recognized either that debasement called for unusually fast rate of production or that to cut, size and strike debased metal was a more difficult operation. The passing of the debasement meant a reversal to the old method of remuneration.

p.247: during the recoinage of 1560, 83% of the refining work went to a German company.

p.250-1: at the same time as the government brought lasting improvement to the circulating medium through the recoinage of debased silver, it tried also, but with less success, to improve the physical appearance of the circulating medium by establishing a mechanised coining process in the mint. (See Challis, Tudor coinage, 16-9, 288-9.) The technical expertise was imported from France by Eloy Mestrell who, in the summer of 1560, organized a miniature mint within the Tower with a full capacity to melt, roll and blank, prepare dies, and strike finished coin. According to a young Venetian merchant, Alessandro Magno, who visited London in 1562, some of this machinery, presumably the rolling mills, was driven by a horse. But Mestrell never succeeded in overcoming the professional opposition of either of those who were on the Mint Establishment or of the

moneymen. The manufacturing skills against which Mestrell had to compete were essentially four: 1, casting ingots of uniform dimensions; 2, cutting identical pieces from these ingots; 3, flattening and shaping these pieces to the correct diameter of the coin; and 4, annealing sufficiently often and well to ensure ingots which would not crack, flans which would not spread, and finished blanks which would bear the coining dies without splitting. It was because the moneymen practised these skills quickly and economically that they defeated Mestrell in the trial of 1572, and that, despite further experimentation under Elisabeth and the early Stuarts, traditional methods held sway until the coming of Blondeau in the 2d half of the 17th c.

p.274-9: new system in 1626, continued until 1660, where the master-worker is salaried, paid a fee if sufficient profits arise. Otherwise (p.331), when operating losses occurred, they were borne by the master-worker himself and his creditors.

Note: although "the law required that bullion should be received by weight and delivered in the same way" (p.278), the practice was by tale in some periods (early 17th c.).

Mechanization:

pp.300-2: Nicolas Briot.

pp.329-31, 339-46: Pierre Blondeau.