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The Mint Buildings of Medieval Europe

In 1987 Dr Nicholas Mayhew and I organised a symposium in Oxford on the organization and personnel of mints. In that symposium we concentrated on the evolution of the large 'factory mint', with large numbers of workmen and moneyers¹. The mints at Burgos, and Seville, the principal commercial cities of Castile, generally had over two hundred, and sometimes over three hundred people working there in the fourteenth and fifteenth centuries (Table)².

Date	Burgos	Seville
1370		200
1403		303
1410		229
1429	397	
1430		300
1440		250-300
1494	148	160
1495	250	

Numbers of persons known to have been employed between 1370 and 1495

These mint factories were amongst the largest industrial enterprises of the later middle ages, only surpassed in scale by the Arsenal in Venice, and by some mining enterprises like the Grande Saunerie at Salins in the county of Burgundy or the alum mines at Tolfa in the Patrimony of St Peter. These large mints were frequently run for profit by entrepreneurial mint-masters, often wealthy merchants from aristocratic Tuscan families³. A Warden, or some similar person or persons, looked after the interests of the ruler or city state.

Frank Perlin, then at the University of Rotterdam, having worked on the production of coinage in seventeenth and eighteenth century India, looked to our symposium papers for parallels in late medieval Europe. He came to doubt how general were such 'factory' mints, with their extreme 'division of labour'⁴, I would agree. Alongside such huge mints as that in Seville, with its twelve furnaces in 1471⁵, there were

still tiny mints at the end of the fifteenth century, like that at the Archbishop's palace in Trondheim, in which in 1500 all the activities of the mint were carried out in a single room, five metres by five metres⁶.

Among the most interesting speakers in 1987 was Dr Lucia Travaini, who gave a masterly survey of mints in Italy in the later middle ages⁷. Dr, now Professor, Travaini has gone on working on Italian mints, and among the 'posters' at this conference is one on her projected *Guida* to the mints of Italy. As a part of this project, she organised a colloquium in Milan in 1999 on mint buildings.

In Oxford in 1987 we took it for granted that the mint-workers, and the moneyers, and the management were all working inside permanent buildings provided by governments, specially erected and equipped for the purpose of minting. In Milan in 1999 we saw how

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1. N.J. Mayhew and Peter Spufford (eds.), *Later Medieval Mints: Organisation, Administration and Techniques*, British Archaeological Reports, International Series, 389, Oxford, 1988.
2. Julio Torres, España. Cecas medievales y modernas del Reino de Castilla. Un repaso bibliográfico, in Rina La Guardia (ed.), *I Luoghi della Moneta. Le Sedi delle Zecche dall'Antichità all'Età Moderna*, Milan, 2001, p. 290.
3. Peter Spufford, The Role of Entrepreneurs in State Formation in Late Medieval Europe, in Simonetta Cavaciocchi (ed.), *Poteri Economici e Poteri Politici secc. XIII-XVIII*, Istituto Internazionale di Storia Economica 'F. Datini', Prato, 1999, pp. 497-499.
4. Frank Perlin, The parts of the "Machine". Division of labour in European and Indian coin manufacture before mechanisation, in van Cauwenberghe E. (Ed.), *Production and Transfer of Precious metals and Changes in Monetary Structures in Latin America, Europe and Asia*, Leuven, 1989, pp. 117-158, particularly pp. 148-152.
5. In 1471, the number of furnaces at the other three large mints of Castille was 9 at Toledo, 7 at Burgos and 6 at La Coruña. Miguel A. Ladero Quesada, Les finances royales de Castille à la veille des temps modernes, *Annales ESC*, xxv, 1970, pp. 776-777.
6. Jon Anders Risvaag, Mints in Scandinavia: the case of Trondheim, in La Guardia (ed.), *I Luoghi*, op. cit. n. 2, pp. 131-140.
7. Lucia Travaini, Mint Organisation in Italy between the twelfth and fourteenth centuries: a survey, in Mayhew and Spufford, *Later Medieval Mints*, op. cit. n. 1, pp. 39-60.

rarely this was true. In this paper I want to emphasise some of the more important points raised in that colloquium, as far as they relate to the middle ages. The full text of the papers presented at the colloquium, together with some related papers, has since been published⁸.

The wandering mint

The first point to bring out is the way that, far from occupying purpose built premises for centuries on end, late medieval mints were frequently moved from one place to another. In many “countries” they were even moved from one city to another. Paulo Dordio told us about the movement of mints in Portugal, and Marc Bompaire about the movement of mints from town to town in thirteenth –and fourteenth– century France. He provided us with a vivid illustration of the nomadic mint when he described the transport of a mint in fourteenth-century Dauphiné on ten carts⁹. Although there was only one mint in fourteenth and fifteenth century Brabant after 1340, that mint was moved repeatedly between the cities of Brussels, Leuven, Antwerp, Vilvorde and Malines, until 1474, when a purpose built mint was erected in Antwerp. After 1474, minting for Brabant was normally carried out in that building¹⁰. Even when minting remained in the same city, the mint was often moved from one place to another. In Barcelona, minting took place in six different places within the city, and Eugenia Ripoll described it as a pilgrimage, *peregrinatge*¹¹. In Bologna Luisa Bellochi spoke of the mint as *vagante*, and told us about nine different mints, between the earliest known mint in the city in 1191, and its eventual purpose built mint of 1577¹². We also heard how common it was for mints to move within other cities in Italy, Switzerland, Germany, the Netherlands and Spain.

Purpose-built Mints

However, permanent mints in purpose-built premises arranged around a courtyard did exist in the middle ages, but far fewer than I expected, and, in many cases, much later than I expected. We did not have enough information to establish an exact chronology for the change from the *impermanent* to the *permanent* mint, but we did have some indications, and we shall know much more, for Italy at least, when Lucia Travaini’s team of people have completed their *Guida*.

In thirteenth century Italy, Genoa set up one of the first purpose-built mints at some time between 1253 and 1281. Venice also had a purpose-built mint by 1278. It was burnt down in 1291, but rapidly, and then expanded three times, on the same site, in the next fifty years. This woodcut, made by Jacopo de Barbari in 1500, essentially shows the permanent mint of Venice in the form it had achieved in 1343¹³. The mints of Siena and Florence also date back to the thirteenth century¹⁴. Outside Italy, we know of two major purpose built mints before the end of the thirteenth century – that constructed in Paris under Saint Louis of France in the middle of the thirteenth century, and, slightly later, that built for Edward I of England in the Tower of London in the 1270s¹⁵. At the very end of the century came the idiosyncratic mint built at Kutná Hora in Bohemia in 1300. In 1298 an outstandingly rich vein of silver was discovered in the region of Kutná Hora (Kuttenberg). Two years later the King of Bohemia, Wenceslas II, decided to concentrate the seventeen existing small mints of Bohemia in one place next to the plentiful new supply of silver¹⁶.

In the fourteenth century permanent mints were built in Barcelona and Oporto, both around courtyards¹⁷.

8. The proceedings were published in Milan in 2001, edited by Rina La Guardia, as *I Luoghi della Moneta. Le Sedi delle Zecche dall'Antichità all'Età Moderna*. Much of this paper is drawn from the proceedings of that colloquium.
9. Paulo Dordio, *Medieval and Early Modern Portuguese Mints: Locations and Buildings*, pp. 115-128; and Marc Bompaire, *Lieux de monnaie et ateliers monétaires dans la France médiévale*, pp. 87-100 in La Guardia (ed.), *I Luoghi*, *op. cit.* n. 2.
10. Serge Boffa, *Princes, Villes et Hôtels des Monnaies dans les territoires contrôlés par le duc de Brabant au Moyen Âge*, in La Guardia (ed.), *I Luoghi*, *op. cit.* n. 2, pp.303-313; Peter Spufford, *Monetary Problems and Policies in the Burgundian Netherlands 1433-1496*, Leiden, 1970.
11. This paper was not published in the proceedings.
12. Luisa Bellochi, *Bologna: la zecca “vagante”*, in La Guardia (ed.), *I Luoghi*, *op. cit.* n. 2, pp. 255-258.
13. Stahl, Alan M., *Zecca. The mint of Venice in the Middle Ages*, Baltimore, 2000, p. 284.
14. Lucia Travaini, *Sedi di zecca nell' Italia medievale*, in La Guardia, *I Luoghi*, *op. cit.* n. 2, pp.60-86; Mario Bernocchi, *Le Monete della Repubblica Fiorentina*, iii, Florence, 1976, pp. 2-5.
15. Christianes Lorgues, *L'ancien hôtel de la monnaie de Paris et ses problèmes*, *Revue Numismatique*, 6th Ser., x, 1968, pp. 138-5; Anna Keay, *The Elizabethan Tower of London. The Haiward and Gascoyne Plan of 1597*, London Topographical Society, clv, 2001.
16. Karel Castelin, *Grossus Pragensis. Der Prager Groschen und seine Teilstücke, 1300-1547*, 2nd ed. Brunswick, 1973.
17. Early in the fourteenth century, when the counts were also Kings of Sicily, Provence also had a huge mint attached to the royal castle at St Rémy, reputedly with as many as forty furnaces. Henri Rolland, *Monnaies des comtes de Provence, XII-XV siècles*, Paris, 1956.

By 1331 there was already a large established mint in Canterbury, which sometimes rivalled the London mint in its output. In that year over 400 cartloads of building materials were used for its repair¹⁸. Other large mints were given permanent buildings soon after, in Lisbon by 1402 and Burgos by 1403, and a much smaller mint was created in Durham in northern England by 1394¹⁹.

In the first half of the fifteenth century the relatively unimportant mint at Lucca at last acquired purpose-built premises in 1430, whilst some major mints, like that for Flanders at Bruges, that for Brabant at Antwerp or that in Milan had to wait to have permanent premises until the second half of the century. In the second half of the century not only did most of the remaining major mints acquire permanent premises, but so did some further minor mints, like that of the lords (later Counts) Van den Bergh, in the eastern Netherlands, which had permanent buildings by 1473²⁰. However, a relatively important mint like that of Bologna, and even an exceptionally important mint like Seville, did not have permanent buildings until the sixteenth century.

The positioning of permanent mints within cities depended on the double attractions of 'commerce' and 'government.' In some places these could be combined. There was also the overwhelming need for security.

Commerce and Government

In Genoa and Florence it was easy to combine commerce and government. The mint courtyard formed part of a complex of government buildings on the water-front in the commercial heart of the city, which included the customs house, the Palazzo of the Capitano del Popolo, and the building which was to become the Banca di San Giorgio²¹. In Florence the tower and courtyard of the old mint, pulled down in 1363 to make way for the Loggia dei Signori (now Loggia dei Lanzi), was next to the seat of government, the Palace of the Priors ('dirimpetto all'entrata del Palagio de' Priori'), now known as the Palazzo Vecchio. So was the new mint, which was built immediately behind the Loggia, around a new courtyard, with a new tower. However, government and commerce were intimately linked in Florence. On the other side of the Palace of the Priors was the Mercanzia, from which the key guilds of entrepreneurs in Florence regulated the commerce and industry of the state. The principal commercial focal points of the city, the

Mercato Nuovo (the banking centre), the headquarters of the Arte della Lana (the guild of woollen cloth manufacturers), the Calimala, and Por Santa Maria (the seats of the import/export merchants and the silk dealers) were all within 200 metres.

The twin pulls of 'government' and 'commerce' also appeared to have been met in Bruges, where the new purpose-built Flemish mint constructed for Philip 'the Good' in 1454, lay alongside his new Palace, the Prinsenhof, which had been built for him in 1429. It also lay close to the commercial centres of the city. The bridge where the money-changers had their banks, the great Halle for Cloth and the Water Halle were all very close. The Great Crane, for unloading the barges that had come up the Zwin, and the Place de la Bourse, where brokers gathered to put bargains together, were only a short walk away. The governmental pull was perhaps something of an illusion. The Bruges palace was only one of Philip's palaces. By the 1450s he was living most often in his palace on the Coudenburg above Brussels, whilst most of the administration of Flanders still remained at Lille. The commercial pull was much more real. In 1454 Bruges was still the most important commercial centre in the Burgundian state, and indeed in north-western Europe.

The pull of government over business can be seen in Venice, where the mint was built close to the palace of the Doge rather than the commercial centre around the Rialto bridge. In Siena the mint, like the custom house, was incorporated into the Palazzo Comunale from the thirteenth century, and remained there (except when it had to move out temporarily because of building works when the palazzo was repeatedly increased in size²². This was extraordinary in view of

18. Alice Beardwood, Royal Mints and Exchanges, in J.F. Willard *et alii* (eds.), *The English Government at Work, 1327-36*, Medieval Academy of America, Publications, lvi, Cambridge, Mass., 1950, p. 38.

19. It was in 1394 that we are first aware that the Bishop of Durham's mint had permanent buildings. The mint remained in them until it was finally closed in 1541. By 1547 they were in decay and unoccupied. Martin Allen, *The Durham Mint*, British Numismatic Society, Special Publications, iv, 2003, pp. 8, 14-15, 89.

20. Of the mint buildings of 1473 only the 'Hooge Huys' survives, which seems to have been the house provided for the master of the mint. B.H.J. te Boekhorst, *Van Heerlijke Munt tot Hagemunt*, Anjum, 2002, p. 9.

21. Emanuela Annetta and Piera Melli, Genova. La fornace della zecca, in La Guardia, *I Luoghi*, *op. cit.* n. 2, pp. 281-286; and Emanuela Annetta, Gli edifici tra il Ponte degli Spinola e Palazzo S. Giorgio, in *La città ritrovata*, Genoa, 1995, pp. 106-8.

22. Travaini, 'Sedi', *op. cit.* n. 14, p. 72.

how unpleasant a mint was, when in full production, because of the noise, the fumes and the fire risk. The Mint erected in Lucca in 1430 was nearly as close. It lay across a narrow street from the Palazzo Publico, and was joined to it by a bridge²³. The pull of government over business can also be seen in the temporary removal by Philip the Good of the mint of Holland from commercial Dordrecht to governmental The Hague. The pull of government over business can be seen yet again on Rhodes, where the mint was at the top of the town opposite the Palace of the Grand Masters rather than down by the harbour²⁴. At Durham, the Bishop's mint lay in a cluster of administrative buildings around Palace Green, between the Bishop's castle and his Cathedral.

On the other hand, the pull of business over government can be seen in Lisbon, where the mint was moved in the last years of the fourteenth century from the Royal Palace to a purpose built building on the waterfront. The Casa da India was later put up next to it²⁵.

Security

The need for 'security' over against either 'government' or 'business' can be exemplified by the way Edward I re-positioned the English mint in the Tower of London, the royal fortress at the eastern end of the city walls, very shortly after he enlarged the fortifications there²⁶. The kings of England no longer resided in the Tower of London, but to the west, outside the city of London, at Westminster. The mint was thus separated from both the *Cambium*, the royal exchange, which remained in the heart of the city, and the royal treasury, which was with the King, nearly five kilometres away, at Westminster. The Tower of London was merely the grandest of the castles in which mints were to be found. Marc Bompaire provided numerous French examples, from Melgueil onwards, and Benedikt Zäch numerous Swiss and German ones. Many of these were small mints. The tradition of the small castle mint continued into the eighteenth century, as at Haldenstein, where the mint occupied three rooms within the castle²⁷.

Where the mint was not actually in a castle, a secure position was often used. The new Breton mints at Nantes and Rennes were both built in enclosures abutting on the city walls²⁸. When the Segovia mint was reopened by Enrique IV of Castile in 1455, a new

building was constructed for it, also in an enclosure against the city walls, next to the Puerta de San Juan²⁹. Successive mints at Trondheim were within the same strongly walled enclosure in which the Archbishop's palace was built³⁰. Both the thirteenth and the fourteenth century mints at Florence incorporated fortified towers, as did the fifteenth century mint at Lucca.

As well as security from intruders in disorderly cities, mints had to secure themselves against pilfering by their own employees and others who had legitimate business in the mint. Controlled access was therefore essential, so that all who were leaving the mint could be scrutinised. The illustration made in 1486 by Erhard Reuwich of the Venetian waterfront, from which his pilgrim galley took off for the Holy Land, not only shows the mint as a three story courtyard building, but makes clear that the only way in or out was through the single storey building on the side towards the Doge's palace³¹. The amount of coin within the mint at any one time could be enormous. On the night of Christmas Eve in 1414 a fire swept through part of the city and threatened the mint with destruction. It did not go up in flames, but Marino Sanuto believed that there were 120,000 ducats worth of coin on the premises at that moment³².

In Oporto excavations have shown that the mint buildings were in a walled enclosure behind the custom house, itself a secure building, with strictly controllable

23. Franca Maria Vanni, Le varie sedi della zecca lucchese dall'epoca langobarda ai Borboni, in La Guardia (ed.), *I Luoghi*, op. cit. n. 2, pp. 219-234.

24. Jean-Paul Divo, *Rhodes and the Order of St John. A short historical and numismatic survey*, Zürich, 2000, p. 25.

25. Dordio, Medieval and Early Modern Portuguese Mints, op. cit. n. 9, pp. 126-127.

26. For the re-coinage of 1300 Edward I added a new building 125 metres long which included no fewer than thirty furnaces. However, normally no more than five were in use between re-coinages. John Craig, *The Mint: A History of the London Mint from A.D. 287 to 1948*, Cambridge, 1953, p. 118; C.E. Challis, *The Tudor Coinage*, Manchester, 1978, p. 2; N.J. Mayhew, From regional to Central Minting 1180-1464, in C.E. Challis (Ed.), *A New History of the Royal Mint*, Cambridge, 1992; Barrie J. Cook, The late medieval mint of London, in La Guardia (ed.), *I Luoghi*, op. cit. n. 2, pp. 101-113.

27. In Milan Rahel C. Ackermann, 'The mint of the Barony of Haldenstein'. This paper was not published in the proceedings.

28. Jean Kerhervé, *L'État Breton aux 14^e et 15^e siècles*, Paris, 1987, p. 194 and Plate 23.

29. Torres, 'España', op. cit. n. 2, p. 292.

30. Risvaag, 'Mints', op. cit. n. 6.

31. In Bernhard von Breydenbach, *Peregrinatio in Terram Sanctam*, Mainz, 1486, reproduced in Stahl, *Zecca*, op. cit. n. 13, p. 283.

32. Marino Sanuto, *Vite de Duchi di Venezia*, ed. L.A. Muratori, col. 892.

access³³. Sixteenth –and seventeenth– century illustrations of the mints at Bruges and Antwerp clearly show the walls specially constructed to enclose the mints. They also clearly show the limited access, through a *conciergerie*, to the principal building of the mint.

Within the Mint

Within the secure enclosure of the mint there could be a great many buildings. The surviving parts of the original mint built at Kutná Hora in 1300, consist of seventeen tiny minting workshops, arranged around two sides of a cloister. It has been suggested that these may initially have been constructed of wood³⁴. The moneyers, who were brought from the individual mints in the seventeen separate towns to strike the new *Prague Groschen* in these workshops, began by exercising their hereditary privileges in isolation from each other. Once the workshops had been reconstructed in stone a coat of arms was placed above each door to show which town or city it had been moved from. The hereditary moneyers were not disturbed in their rights for at least two generations, and their individual workshops can still be distinguished today. As well as a corps of privileged hereditary moneyers with their own workshops, the mint also had an overall management structure, since the mint was run for the king by Italian entrepreneurs. They gave the mint its nickname *Vlašský dvůr*, the Italian court. Around the other two sides of the court were a series of buildings for activities carried out in common. Unfortunately they have been so greatly changed over the centuries, that it is only possible to make out the strong room for the safe keeping of bullion and coin. It is no longer possible to distinguish the places where the furnaces were, or the room or rooms for the preparation of the blanks, or the office for the receipt of bullion and the paying out of new coin, or the working rooms and domestic accommodation for the warden, master, engraver and assayer. At the beginning of the fourteenth century it was one of the busiest mints in Europe, but by the end of the century the quantity of silver mined had greatly reduced and the amount minted naturally did the same. The mint was becoming underused and decrepit, and then in 1400 the mint buildings were greatly disturbed because in that year King Wenceslas IV decided to use a large part of the mint to construct a royal palace. Twenty years later, during the Hussite Wars, both mint and palace alike suffered terribly. The town was destroyed by fire and the Hussite government moved the mint to Prague.

It was only in the second half of the fifteenth century that the fortunes of Kutná Hora revived. Silver mining re-commenced on a large scale, and the mint and palace were rebuilt. Most of what is now visible dates from this re-construction under Vladislav II (1471-1516), who for a time made Kutná Hora his principal residence. It is his palace, rather than the mint, that now dominates the surviving buildings, with his great hall and magnificent palace chapel, constructed above the strong room of the mint. The surviving mint-master's house dates from this period of renewed prosperity at the end of the fifteenth century, as do the famous frescoes of moneyer and mint-worker and of miners, in the minters and miners chapels in the rebuilt church of St Barbara. The Kutná Hora mint of 1300 was indeed a purpose built permanent mint building around a cloister, but a very peculiar one, with its mixture of buildings for common use and separate workshops.

The sixteenth-century ink sketches of the mint at Antwerp reveal something of the complexity of a more normal late-medieval mint, built around an enclosed courtyard³⁵. They show the mint of the 1470s, which, having fallen into disrepair, was extensively repaired in 1550. The sketches presumably date from the period of the repairs and certainly exhibit sixteenth-century as well as earlier features. The named buildings emphasise the very large range in the centre of the mint, the ancient 'Halle de Cruyninghen', in which the actual striking presumably took place, and which was entered by the *conciergerie*. A range of seven furnaces was separated, no doubt for safety, from the principal building by a courtyard. Domestic, as well as office, accommodation for the Master can be seen; and a house, as well as a separate furnace, for the Assayer. Presumably two of the un-named buildings are the houses for the Warden and the Engraver. Their gardens can be made out at the back, along with that of the Master. Provision of drink and food for the *ouvriers* and moneyers is represented by the wine cellar and great kitchen, to which an elegant sixteenth-century gallery was attached. Mints were known to be hot and thirsty places. Did they drink their wine in the

33. Dordio, *Medieval and Early Modern Portuguese Mints*, *op. cit.* n. 9, pp. 121-122 and 128.

34. Castelin, *Grossus Pragensis*, *op. cit.* n. 16.

35. Reproduced in P. Génard, *Ancien Hotel des Monnaies des ducs de Brabant à Anvers*, in *Revue de la Numismatique Belge*, 5th Ser., iii, 1871, Plates VIII, IX. (Original in the Stadsarchief, Antwerp, badly damaged at the beginning of World War I).

Buanderye? On the right was the *Comptoir*, where incoming bullion was received, weighed and assayed, and new coin paid out. The furnace of the Assayer was conveniently next door. By the back gate were the stables and the *Moesusue Fonderye*. Was this where tools and dies were made? Another sketch, taken from the back, reveals that the offices of the Warden lay next to his *enclos* and garden.

A seventeenth-century print of the fifteenth-century palace at Bruges, reveals how the Flanders mint fitted into the Prinsenhof³⁶. Again a minting chamber and a separated range of furnaces are visible, together with houses for Warden, Master and Assayer and a *conchiergerye* through which everyone had to pass. Some of the costs of setting up this mint in 1454 are contained in a twenty-one page claim for the cost of *ouvraiges* in 1454-5, which includes brick, stone, lead, iron, wood, window glass, 19,000 nails, 22 work benches for *ouvriers*, and eight furnaces³⁷. However, the mint was extended several times after 1454. In 1471-2 for example the furnaces were moved into an adjacent house which was purchased for the purpose, and a further house was rented in 1472-4 and then bought³⁸. The seventeenth-century print therefore only gives an approximate impression of the fifteenth century mint. Nevertheless the mixture of industrial and 'domestic' buildings vividly illustrates something of what Barrie Cook has called 'the whole society of the mint', with which the 1987 symposium was of course heavily concerned³⁹.

Some of the features of the Antwerp and Bruges mints were repeated elsewhere. Residences for mint officers were normal. In Milan as well as accommodation in the mint complex itself for the master and for one other officer, fourteen or fifteen houses were rented in the vicinity for other officers⁴⁰. The fourteenth-century mint of Dauphiné also had stables and wine cellar, and when the mint was moved, the remaining hay and wine were sold off⁴¹. The new mint built in Paris in 1396, in place of St.Louis's mint, was yet more complex, with opportunities for worship and recreation, in its own chapel and a *Jeu de Paume*. The large mint at Toulouse, one of the two largest provincial cities in late medieval France, also had a corporate chapel, as well as a communal kitchen, by the fifteenth century⁴². Some mints had specialist features. The Florence mint, for example, had a special office for officially sealing up gold florins in bags in fixed quantities for ease in making large payments.

Idle Mints

When permanent mint buildings existed there were often times, particularly with small mints, when mints were not operating, sometimes for long periods of time. Even the largest mints sometimes closed, particularly in the periods of silver famine from the late fourteenth century onwards. The mint premises might then be adapted and used for other government purposes, like the mint at Vannes, which housed the Breton *Chambre des Comptes*, from 1369 to 1501, when it became the Vannes Town Hall. Mint premises could even be hired out. In 1394, during a period when the mint at Durham, in northern England, was closed, its buildings were leased out 'until a moneyer shall wish to strike coins in the house'. It did not reopen until 1412⁴³.

At Dinan, in Brittany, the buildings 'qui soulloint estre les maisons des monnays de ladite ville' stopped being used in the 1440s, yet when they were leased out in 1518, as stables and a wine press, the lease stipulated that the premises should be vacated instantly, if they were again required for minting⁴⁴. When mints were leased out, problems could arise with the tenants, however well leases were drafted. Furthermore considerable expenditure was needed to put the buildings back into order so that minting could recommence. Mint accounts for the Burgundian Netherlands show the costs of making the mint at Ghent fit to operate again in 1482-8⁴⁵.

36. A. Sanderus 1641, *Flandria Illustrata*, reproduced in Walter Prevenier and Wim Blockmans, *Les Pays-Bas Bourguignons*, Antwerp, 1983, pp. 130-131.

37. Claim for repayment. Brussels, A.G.R., Acquits de Lille 9313.

38. Bruges Mint Accounts. Brussels, A.G.R., *Chambres des Comptes* 18105 and 18109.

39. Cook, 'The late medieval mint', *op. cit.* n. 26.

40. Personal information from Helmut Rizzolli. These were clearly mint officers who had been brought in, since the members of the corps of moneyers and mint-workers already lived in the city.

41. Bompaire, 'Lieux de monnaie', *op. cit.* n. 11.

42. C. Douais (ed.), *Un registre de la monnaie de Toulouse, pièces inédites (1465-1483)*, *Annales du Midi*, xi (1899) includes a partial inventory, pp. 165-168.

43. Throughout the fifteenth century the mint was repeatedly closed and re-opened. The periods of closure add up to about a third of the century, but it is not clear whether or not the mint-buildings were leased out in other periods of closure. Allen, *Durham Mint*, *op. cit.* n. 19, pp. 8, 14-15, 89.

44. Jean Kerhervé, *L'État Breton aux 14^e et 15^e siècles*, Paris, 1987. On Vannes: pp.345-351 and Plate 34. On Dinan: p. 191.

45. Bruges and Ghent mint account. Brussels, A.G.R., *Chambres des Comptes*, 18197.

Conclusion

In Oxford in 1987 we began the comparative study of European mints by looking at minting processes and mint personnel. In Milan in 1999 we talked about mint buildings, and our knowledge of medieval mints again advanced enormously. However I was struck by the impermanent, and indeed 'nomadic' nature of many medieval mints, whether moving from city to city in a principality, or from one building to another within a single city. I was also impressed by the slowness of the change from impermanent, often rented, minting places to permanent purpose-built mints, starting in the thirteenth century, accelerating in the fourteenth century, but by no means completed by the end of the fifteenth century. I was struck by the varied responses to the twin attractions of 'commerce' and 'government' on the siting of mints, and by the universal concern in lawless societies for the security of premises which frequently housed very considerable stocks of precious metal.

In these two symposia, we therefore looked at minting processes, mint personnel and mint buildings. The task is not yet complete. A great deal still remains to be done about equipment. Some mint inventories are available in print including those for Bologna in 1200 and 1475 printed in the volume of the Milan colloquium proceedings by Michele Chimienti⁴⁶. More are accessible and still remain to be published, for example that for London referred to by Dr. Barrie Cook, and several fifteenth century ones from the Netherlands, for the Ghent and Valenciennes mints. If possible, it would be good if some correlations could be made between the equipment listed in inventories, and the fragments of equipment discovered in excavations. And finally a multi-lingual glossary of minting terms needs to be compiled, in order to pull process, personnel, buildings and equipment together.

46. Michele Chimienti, La zecca di Bologna, evoluzione degli ambienti e delle attrezzature dedotta alcuni inventari, in La Guardia (ed.), *I Luoghi*, *op. cit.* n. 2, pp. 259-280, especially pp. 266 ff.