At this anniversary meeting, the eighty-fifth of the Society and the first of my Presidency, our membership is much as it was this time last year, the reduction attributable to the six members just removed, four resignations and three deaths being compensated by sixteen new elections. Of our 513 members, 388 are ordinary, four are junior, and 121 are institutional.

Of the three members who died, two. Christopher Brunei and Philip Whitting did not serve on our Council but the third, our Vice-President and Sanford Saltus medallist, Herbert Schneider, most certainly did. Christopher Brunei, who died on 27 April after a short illness at the age of sixty-eight, was elected to our Society in 1970 and in the following year made a lasting mark in the numismatic world by founding, with Jean White, the Token Corresponding Society. Subsequently, he became the first editor of that Society's Bulletin. Although he was never a contributor to our own Journal he did publish on a number of token themes, especially in Coins and Medals. Philip David Whitting, who died aged eighty-five on 14 December 1988, had been a member of our Society since 1954 and in later years was made an honorary member. For me, as also I suspect for many other members of our Society, my acquaintance with Dr Whitting came partly through the pages of the pamphlet which he wrote for the Historical Association. Coins in the Classroom (1966), and partly through the conferences of the British Association of Numismatic Societies at which he was a regular attender and of which he served a term as president. Despite some publication in our own field of British numismatics, notably his Coins, Tokens and Medals of the East Riding of Yorkshire (1969), it is through his contribution to Byzantine numismatics that he will be best remembered. His papers in learned journals are too numerous to mention here, but we may note his book Byzantine Coins published in 1973 and the gift three years earlier of his superb collection of Byzantine coins to the Barber Institute of Fine Arts at the University of Birmingham.

Herbert Schneider, who died on 6 January at the age of seventy-four, I only came to know in the later years of his highly successful life. I needed a firm and scholarly numismatic eye to be cast over the manuscript of my book which, though dealing with Tudor coins and their production, had been written largely from contemporary administrative records. With characteristic generosity he acceded to my request and in the ensuing months portions of my text, neatly marked in crayons of different colours, were returned in sequential order together with detailed lists of queries, helpful suggestions, and corrections. Mr Schneider's interest in numismatics, stretching back to his schooldays when he first began to collect, was the preoccupation of a lifetime during which he assembled a collection of English gold coins, from Henry III to the present day, which was unrivalled outside our national collection. Since it was in the mill series that his collection was entirely complete, it is not surprising that Mr Schneider ventured to list by dies in the Numismatic Circular for 1957, the five-and-two-guinea pieces of George II but it was in his first love, the hammered series, that he made his main contribution to numismatic scholarship. In our own Journal he published in 1957 'The Tower Gold of Charles I' and a decade later 'The Hammered Gold Coins of Charles II'. Today, both articles are still required reading. Though a frequent visitor to this country, his domicile in Antwerp and his heavy commitment to the family business always meant that he attended our meetings less frequently than he would have wished and in later years there can have been few members who saw him at all. Be this as it may, Herbert Schneider had a long and abiding interest in our Society, it is fitting that his name is perpetuated in our proceedings by the fund he established to further numismatic research, and unquestionably he will be missed by a wide and appreciative numismatic acquaintance.

Consequent upon your electing me as President, there have been two further changes among our officers and editors: Graham Dyer has become an editor and Robert Thompson has replaced Mr Dyer as Director. It was in 1980 that Mr Dyer took over the responsibility of arranging our lecture programme and the following decade of service was marked by two outstanding features. The first was an assiduous attention to the planning of a balanced programme — balanced, that is, in terms of chronological spread, of competing fields of numismatic interest, and of speakers, drawn not simply from London and the South-East but from the rest of the British Isles and abroad. Personally, I have enjoyed and benefited from our annual bill of fare and I feel sure that this is a view which will be widely shared. The second feature to which I would draw attention is the implementation of a policy designed to strengthen the notion that we are truly a British Society by holding meetings outside London. Twice we have ventured forth to Birmingham, once to York and once to Wales and on each occasion our audience was notable not simply for its size and enthusiasm but also, and most importantly, for its containing members who would not otherwise have attended one of our meetings. It is appropriate indeed that we mark Mr Dyer's stepping down on a sincere note of appreciation.

In saying these words, I do not for one moment suppose, and I know that Graham Dyer would be at one with me on this point, that achievements are made in isolation. What we do, we do together as a Society, under the
leadership of our President, and between 1983 and 1988 we were particularly fortunate in having Hugh Pagan to serve us in this capacity. In one important dimension – the financial – his was a most fortunate time, for the Society enjoyed a favourable balance at the bank while at the same time publishing a substantial Journal for which subscribers paid at an unchanged rate. This achievement – assuredly the envy of his immediate predecessors and possibly also of his successor – was, of course, directly connected with the costs of printing which in the 1980s shifted relatively speaking in favour of the consumer. But good housekeeping also played its part and that is something which we must try to emulate in the future. Mr Pagan’s gentle, yet firm touch, his fastidious courtesy, and his attention to detail, ensured that throughout his term of office our affairs, whether in Council or in our general meetings, were handled effectively and with good will. Wherever he has represented us – whether it be at a small funeral gathering or at the great International Congress in 1986 – he has done so with dignity and presence. Above all, in his presidential addresses he has made a distinct and important contribution to knowledge. As the editor of four of these addresses I speak with some certainty of the care taken in drafting, the precision of referencing, and the clarity of expression. All in all, his will be a difficult act to follow.

While it is right to have spent time rehearsing our debt to two retiring officers, this is by no means to forget the valued services, first, of our Secretary, Wilfrid Slayter, who continues as indefatigable as ever, of our Treasurer.

Mr Webb-Ware, who maintains our finances in immaculate order, and our Editor, Dr Cook, who shouldered the burden not only of seeing our Journal through the press with a better set of illustrations than we have had for many a year, but of assembling and editing our successful new departure, the ‘Coin Register’. Our Librarian, Mr Bland, who also doubles as the librarian of the Royal, deserves particular mention for organizing, essentially through Messrs Spink, the sale of duplicate copies of books from our joint library. It is hoped that the proceeds, £6,499, will be used to enter the library catalogue on a computer which will be especially purchased for the purpose, to carry out much overdue re-binding or re-binding of volumes, and to plug gaps in our existing holdings through the purchase of books.

In our programme this year we were particularly pleased to have Dr Kent, Keeper of Coins and Medals at the British Museum, as our speaker on the evening of the Council sherry party. Earlier and later in the year we had speakers widely separated in subject matter and chronology, ranging from Dr Burnett on Ancient British Coinage to Mr Joe Cussen on the South Atlantic Medal, struck following the Falklands War. Mr Cussen was one of three speakers at our October meeting – the two others being Mr Dyer and Mr Eimer – who stepped in at short notice to fill the vacancy left when Mrs Smurthwaite unexpectedly withdrew. I record here our gratitude to them and express the view, which I know was widely shared at the time, that, scratch programme or not, it was a most entertaining and informative occasion.

Mention of Mr Cussen, who is Press Officer at the Royal Mint, reinforces the fact that 1989 was a year in which we had particular cause to thank the Mint for its friendly and helpful gestures towards us. To begin with I was invited to represent our Society at receptions planned to launch three new coins: on 31 January I went to the Tower of London, where 500 years ago the very first sovereigns were struck, to celebrate the latest sovereign issue; on 14 February I was at the Speaker’s House at Westminster for the unveiling of a new £2 coin, commemorating the tercentenary of the Bill of Rights; and on 11 April I went to Edinburgh Castle for the launch of the Scottish version of the £2 coin, commemorating the tercentenary of the Claim of Right. While each occasion was memorable for its own sake, one feature which was common to all three and upon which it is appropriate to comment this evening was the care that had been taken to ensure that there was a strong numismatic presence. Seldom indeed do museum curators, academics, prominent collectors, dealers, and members both of the Royal and of our own Society have such opportunities of meeting together in such numbers and of discussing numismatics with ministers and other distinguished guests. It was both flattering and imaginative of Mr Garrett, Deputy Master of the Royal Mint, to afford our subject such a high profile at these events and it is my pleasant duty to show recognition of this now.

On 21 April the Society visited the Royal Mint at Llantrisant. Professional commitments prevented the Deputy Master from welcoming us on that occasion but Mr Williams, Head of Marketing, stood in for him and inaugurated a day in which the high point was a tour of the factory. While the success of the visit hinged on careful preparations made by the Curator of the Mint museum and his staff there can be no doubt that this was in every sense a team effort, from senior management to staff on the factory floor, all of whom made us at home and answered our questions with patience and care. Little more than twenty years ago, as government and senior Mint officials struggled to establish the new factory in Wales, Llantrisant was derided in the press as “the Hole with a Mint”. Today it is what its planners intended it to be, a highly respected first-division mint, successfully competing in the market places of the world. The measure of its achievement is that in the past five years it has engrossed into its hands roughly half of the coinage trade available in the Free World. On 21 April, therefore, we did not see just another mint, we saw something which was exceptional; something that will long endure in the minds of its grateful visitors.

I began this report on the past year by alluding to the size of the Society and it is with a further comment on the same issue that I wish to conclude. Given the existing number of subscribers, a substantial subscription rate, and a decent income from interest arising on our monies at the bank, we are still able to produce a substantial journal, well illustrated, printed, and bound, and yet at the same time break even. It is clear, however, that
inflation is eroding this position ever more quickly, and, if we wish to maintain the quality and size of our Journal, we must look for ways of increasing our income. The most obvious, and one to which we may have to resort in the not too distant future, is to increase the subscription rate. Another is to attract new members. Given that the Society belongs to each and every one of us it is the case, in the last analysis, that it is incumbent upon us all to bring in new members whenever we can, and I urge you all to be diligent in this regard. I should also like to point out that in recent months Council has given careful consideration to the matter and has agreed a package of measures which it hopes will be tangible and attractive incentives to join the Society. To begin with, we propose that a new member shall be eligible to purchase the five immediately preceding volumes of the Journal at the reduced rate of £10 per volume and be entitled to receive free of charge a consolidated list of the contents of all our previous Journals. Since the cost price of a single volume is at present £25 this offer represents a significant saving. Second, we propose that the Society should commission a medal to be sold to each new member, each being personalized by the year of admission and the name of the new member being inscribed on the edge. The medal would be available to existing members on the same terms and a striking in silver, at an enhanced charge, would be available to members wishing to celebrate their silver-jubilees. Additionally, it is proposed that in future such substantial benefactor of the Society shall be entitled to receive one of the Society's medals free of charge, as a token of our appreciation. A consequence of this new departure, one of which I hope you will approve, is that we shall be able in some small way to foster medallic art and to encourage young artists; a competition to produce appropriate designs will be organised as soon as possible. I should emphasize that it was Council's intention, if at all possible, for this competition, for making the dies, and for a stock of boxed, finished pieces to be met through benefactions rather than from our reserves, and I am delighted to say that already we have made good progress in this direction. How splendid it would be if I could say this time next year that, no sooner had this initial announcement been made, than the remaining portion came just as quickly and as easily to hand!

Finally, I turn to list the coin hoards of the past year. Mr Besly informs me that there are no hoards from Wales. On the other hand, Dr Bateson has furnished me with the following list for Scotland:

Dull, Perthshire, 1989. Pile of, perhaps, nine Anglo-Saxon pennies, apparently Æthelred II's Long Cross type, found fused together.
Wellington Park School, near Leadburn, Midlothian, 1989. A find of seventeen pennies, sixteen of Edward I/II and one of Alexander III.
Inchaffrey Abbey, Perthshire, 1989. Three Edwardian pennies found corroded together with traces of cloth wrapping.
Broad Bay, Isle of Lewis, 1989. Excavation of a burial yielded a hoard of seventeen coins consisting of thirteen bawbee's (1677-9) and one Irish halfpenny of Charles II, as well as two Dutch double-stuivers and one Austrian thaler.
Spynie Palace, Morayshire, 1986. One Anglo-Gallic and thirty-two French (1385/422-1497/1521) jettons, along with a fragment of a European coin, were found together during excavations.

For England Miss Archibald has made the tally as follows:

Celtic
Whitchurch, Hants., (additional). January 1989. Seven AU Gallo-Belgic and British class B staters, c.50 BC.
Cheriton, Hants., (additional). September 1989. Fifteen AU British class D staters, and quarter-staters, c.50 BC.
Ingoldisthorpe, Norfolk, March 1989. Two AU Gallo-Belgic staters, c.60 BC.
Cobham, Surrey, January 1989. Two AU and three AR, staters of Cunobelin and Roman denarii, c.40 AD.

Roman
Membury, Wilts. May-Nov. 1988. 236 AR denarii, c.43 AD.
256 PRESIDENTIAL ADDRESS

Barway, Cambs. (additional). March 1989. Seven AR denarii, 190 AD.
Wishaw, Warwicks. July 1988. 156 billon antoniniani, 290 AD.
Chalgrove, Oxon. August 1989. 3823 billon antoniniani, 282 AD.
Yate, Avon. February 1989. 731 billon antoniniani, 290 AD.
Downside, Somerset. 1987. 538 billion folles, 317 AD.

Medieval and Modern


In the second part of my address I wish to turn my attention to the introduction of coinage machinery into the Royal Mint in the reign of Elizabeth I by the Frenchman, Eloy Mestrell. This is a subject I have touched on in the past and I now do so again in direct response to two articles which have recently appeared in the Numismatic Circular, one by Professor Gaspar and the other by Mr Cooper, in which it is suggested that we must call in question the established view that Mestrell produced his coins in a screw press. 1 Let me say at once that I am all in favour of the re-examination of views if there appear to be good grounds for doing so but in this instance, it seems to me, the case has not been properly made yet, at the same time, a number of numismatic hares have been released which, if not quickly recalled and declared permanent non-runners, may with the coming of Spring career ever more capriciously about and leave Mestrell and his coinage nothing but a muddle.

Let us remind ourselves briefly of what the issues are by looking, first, at Professor Gaspar’s argument. His starting point is the research he did with Mr Dyer on the coins of the eighteenth century which led to the conclusion that the use of the screw press without a restraining collar resulted in the metal in the blank being pushed outwards at the point of impact of the dies, leaving the coin with an impaired design in the form of fugitive beading and letters with fish-tails. 2 This characteristic is not normally associated with Mestrell’s coins which display elegant lettering with neat, straight bottom edges. Possibly this lettering owed nothing to Mestrell, for we know that he purchased a dozen puncheons in December 1560 and a further three dozen and eight in the following month. Equally, the lettering could be

NOTES As given, this was an illustrated lecture for the most part dependent upon slides obtained through the good offices of Dr B. J. Cook of the Department of Coins and Medals at the British Museum and Mr G. P. Dyer of the Royal Mint. In this printed version all reference to the slides has been removed and the text marginally adjusted to give a continuous prose style.

entirely his, leaving the other puncheons to relate to another part of the design. At all
events, we can be sure that the overall design of Mestrell’s dies was his own and that he
ingraved the dies himself. Two contemporary references leave no room for doubt on this
score: the first refers to ‘colours bought for Eloy at his sending for to Richmond to have
drawn the queen’s picture’, and the second to the expense of his having to ‘grave and work
nigh the Court’.3

Now, given the elegant, undeformed lettering on Mestrell’s coins, had he used a collar
nothing further would need to be said but visual examination, especially that by Hocking
which revealed burrs on the edges of some coins which are not compatible with the use of a
collar, has long meant that the conventional wisdom is that Mestrell did not use a collar.4

Professor Gaspar’s problem, then, is this: if coins with fish-tails result from the absence of
a collar when a screw-press is used, is it sensible to suppose that coins without fish-tails, also
struck without a collar, can have been struck by the screw-press? If the answer is ‘no’, what
other method could have been used? Briefly, Professor Gaspar considers the roller-press
and the rocker-press but finds their use hard to reconcile with what we know, first, about the
small number of die links amongst Mestrell’s coins, and second, about the burrs on the
edges of his coins. In the end he leaves us with a mystery which can only be solved, he says,
by further research of both a documentary and a technical kind.

These elements of mystery and a suggested way forward are also to be found in Mr
Cooper’s contribution but our second author differs from the first in making a number of
further suggestions, the principal of which is that Mestrell used the traditional hammering
technique. For Mr Cooper the shadow marks around the letters on some of the sixpences he
examined at the Royal Mint result from more than one blow being delivered to the dies.
Mestrell may, he says, have favoured ‘a tilting technique using four blows’, i.e. the upper die
was tilted outwards away from the vertical and struck to bring up one segment of the coin,
before being tilted sequentially and struck three times more until the whole design had been
made. One coin which he examined lacks a small, apparently, curved piece at its edge and
this deficiency suggested to him that it had been cut from strip. This strip, he surmised, may
have been ‘hammered to near final gauge and then finished-rolled’, in a horse-drawn mill,
though he found it hard to say with certainty ‘due to the confusion between blank cutting
and rolling’ in a contemporary document describing the process. If Mr Cooper is correct,
not only has Professor Gaspar been right to call the use of the screw-press in question but,
additionally, we must suppose that Mestrell’s innovative machinery consisted of nothing
more than, first, a rolling mill which could only take strip which had received preliminary

treatment under the hammer and, second, a cutter for punching out blanks. On this view,
Mestrell had done precious little to destroy the age-old dominance of the hammer both in
the preparation of blanks and in coining.

This is one story and against it I should now like to set another, based on a contemporary
manuscript written in 1561, estimating the cost of a full complement of machinery for
Mestrell’s operations.5

<table>
<thead>
<tr>
<th>Item</th>
<th>£</th>
<th>s</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>for a press</td>
<td>1</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>for a worm and a vice to the press</td>
<td>15</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>for 50 lb of copper for the worm and casting of the same</td>
<td>1</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>for a bar of iron to the press</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for a box of steel for the vice</td>
<td>6</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

---

3 HMC Salisbury MSS, f. no. 823, p. 258 [on Microfilm in BL, M485/40, fos 60-3].
4 W.J. Hocking, Simon’s dies in the Royal Mint Museum, with some notes on the early history of coining by machinery, NC 4th ser. 9 (1909), 72-82.
5 BL. M485/40, fo. 63.
the sum of one press as appeareth
so that ten presses will amount to

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>one pair of rollers furnished with all things belonging</td>
<td>5 3 4p</td>
</tr>
<tr>
<td>for one pair of rollers</td>
<td>51 13 4</td>
</tr>
<tr>
<td>for one pair of checks</td>
<td>4</td>
</tr>
<tr>
<td>for one vice and a wedge</td>
<td>15</td>
</tr>
<tr>
<td>for one pair of cogs</td>
<td>10</td>
</tr>
<tr>
<td>for one axle-tree of iron</td>
<td>6 8</td>
</tr>
<tr>
<td>the sum of one pair of rollers, as appeareth</td>
<td>5 16 8</td>
</tr>
<tr>
<td>so that four pairs will cost</td>
<td>23 6 8</td>
</tr>
<tr>
<td>a crane wheel to drive the four rollers, as we think</td>
<td>4</td>
</tr>
<tr>
<td>for four cutters, two great and two small</td>
<td>10</td>
</tr>
<tr>
<td>for ten pairs of tongs with stamps unto them</td>
<td>10</td>
</tr>
<tr>
<td>for casting moulds for the ingots, as we think will cost</td>
<td>4</td>
</tr>
</tbody>
</table>

Sum total | 103

Here we have four quite distinct pieces of apparatus mentioned: presses, rollers, cutters and moulds. That hammers and the stocks in which hammermen traditionally set their dies are not also mentioned is hardly surprising because, although the manuscript does not actually say that the press, of which there were to be ten, is a coining press this is the only reasonable interpretation to be put on the word. Certainly, it is true that contemporaries could and did use the word 'press' to mean rolling press but in this manuscript this was not the case for the simple reason that its author listed the pair of rollers, of which there were to be four, quite separately from the press. Moreover, it would be perverse in the extreme to interpret the penultimate entry – 'ten pairs of tongs with stamps unto them' – as anything other than the dies and the die holders which were to be fitted to the ten presses referred to at the start of the list.7

Now, as I said a moment ago, the list I have just been considering is an estimate of what it would cost to set up Mestrell with a full range of equipment and critics could rightly argue that it is not evidence of what actually happened. Fortunately, however, there is clear supporting proof that prototypes of each of the pieces of apparatus listed in the estimates had already been built. The estimate itself is only the last part of a larger document entitled 'Money paid and disbursed by me William Blunt, by the commandment of my master Sir Thomas Parry, late treasurer to the queen's majesty, for the charges of Eloy, the Frenchman'. In the pages which preceded the estimate we find a variety of payments relating both to Mestrell's clothes, his costs of travel, and most significantly for our present purpose, the setting up of his new machinery. 'Patterns made of wood for the casting of his ingots' must refer to the implements used to shape the sand bed in which Mestrell would cast his silver ingots, just as '6 lbs of tin to try his moulds' must refer to a trial casting to see if the sand bed actually worked. A shilling paid to a carpenter 'for setting up of the cutting engine in timber' must mean that Mestrell did produce equipment for cutting his ingots into blanks.

6 The cost of the components listed here is only £4 12s. 4d. which may mean either that some components have inadvertently been left out, or that the costs of those which are given are mis-stated. The total sum given for the press, £51 13s. 4d., must be correct because at this price ten would indeed amount, as the document states, to £51 13s. 4d.

7 To deny Mr Cooper's suggestion that Mestrell struck his coins by hammer does not, of course, invalidate his observation that, if they so wished, hammermen could use a tilting technique in striking. Students of mint output in the reign of Charles I are well acquainted with the faceted appearance of many of the silver coins.
‘A small wheel’ to polish the rollers, ‘plating of a cross of wood to turn the rollers withall’, for a double wheel to drive the roller that is ready made, and ‘a round exiltre [i.e. an axle-tree] made for the rolling engine’ must refer to the mill used for flattening Mestrell’s silver. And, finally, references to ‘a pair of tongs to set his stamps in’ and to ‘a vice, a worm, and a box of steel for the press’ must clearly, in the light of what is said of a coining press in the estimate, refer to the equipment used for striking.

These conclusions are supported by references in other documents. In the account of Thomas Fletewood, under-treasurer at the second mint in the Tower, Tower II, we find a payment of £397 in respect of Mestrell’s machinery and maintenance:

Also allowed to the said accountant for money by him paid to the parties hereafter named for certain presses, rollers and cutters of iron and steel and divers other engines, as well for the same iron, brass, steel, lead and such other stuff as for the workmanship and making thereof into the instruments and engines aforesaid, and for divers and sundry kinds of necessaries occupied and employed about the new manner of work of coinage of moneys devised by Eloy, the Frenchman, viz.

8 April 1561 to William Hode, blacksmith, for a press and all engines concerning the same £72

11 December 1561 to William Blunt, having charge of the said work, in part of payment of a more sum, £300

26 January [1562] to the same William Blunt to be paid over to the said Eloy Mestrell, the Frenchman, towards the charges in finding himself during the time of his service then past, £25

Total, £397

Note, incidentally, the clear distinction made here between presses and rollers. In the account of John Bull, comptroller of the Tower, there is a reference to £14 16s. 6d. paid in respect of a rolling mill with steel rollers. Although the account actually describes this mill as a ‘press’ we can be sure that it was a rolling mill, for two reasons. First, the quantity of steel used in the two rollers, 227 lb. is far in excess of anything which would have been required for a coining press had that press employed rollers, and second, the final item in the payment, of 13s. 4d. to two labourers ‘for turning the wheel that the rollers are justified withall’, makes sense if we are contemplating a rolling mill which needs adjusting to accommodate material which is of different thickness due to defective casting, but does not make sense if we are thinking of a coining press which is set at a certain tolerance and stamps the blanks without the need for continual adjustment.

Finally, there is the evidence of the report made of a trial held in 1572 of the speed at which Mestrell made his blanks compared with the traditional method employed by the shearmen and hammermen. Since there has been some recent confusion about what went on in 1572 let me repeat that the competition was about
From the Mint’s point of view the manufacture of coin had to satisfy two, and only two, criteria: coin must be of proper fineness and of accurate weight. This is not to say that no-one cared what a coin looked like or that positive attempts were not made to ensure the manufacture of coins of reasonable appearance; rather, it is to emphasise that, although aesthetics in coin production was a desirable end — handsome coin was to be produced if at all possible — it was not a legal requirement in the early modern period, any more than it is today; whereas correct metal composition and weight were mandatory and enforced under penalties.

What this meant in practice was not that the Mint would automatically set its face against innovation, rather that it would not willingly embrace innovation if by so doing time-honoured practices which produced acceptable coin from a legal point of view, at an acceptable cost, were to be replaced by processes which were less reliable, far more time consuming, and therefore more costly. The manufacturing skills against which Mestrell had to compete were essentially four: first, casting ingots of uniform dimensions; secondly, slicing identical pieces from these ingots; thirdly, flattening and shaping these pieces to the correct diameter of the coin; and, fourthly, annealing sufficiently often and well to ensure ingots which would slice, flans which would spread, and finished blanks which would bear the coining dies without splitting. It was to establish whether Mestrell’s machinery could indeed match these skills that the 1572 trial was held.

The apparatus which Mestrell employed under the scrutiny of William Williams, the assay-master, and other Mint officials accords very well with that listed in the 1561 estimate. Ingots were cast in Mestrell’s own moulds and then reduced to blanks by being put through his first cutter. These were then passed through the justifying rollers between three and five times and then cut to finished coin size by being put through his second cutter. Here we have clear evidence that Mestrell did not punch his blanks out of continuous rolled strip but out of an existing blank which had been flattened in the rolling mill. To my mind the first cutter was of the smaller variety mentioned in the 1561 estimate. This punched out of the ingot a blank which was smaller in diameter and heavier in weight than the final coin was intended to be. In being reduced to the correct thickness by the justifying rollers this blank then became wider than the finished coin size, thus enabling the second cutter to punch out a good clean blank of the correct size. In Mestrell’s process, then, there were two kinds of scissel: the remnants of the ingots from which the first blanks were cut, and the remnants of the first blanks from which the finished ones were cut.

So far our documentary evidence has shown us that Mestrell cast his own ingots, in his own moulds; he neither hand hammered these, as has recently been suggested, nor passed them through his rollers to produce strip, rather he used two cutters of different sizes to produce blanks, which were rolled in a rolling mill. He then struck these blanks not by hammer but in a press. The question remains, what kind of press? As silver sixpences in the Royal Mint Collection show, it was certainly one in which the dies could occasionally clash, and one in which the dies could certainly crack. And, as three gold half-pounds in the British Museum show, it was one which could also be allied with different edge finishing techniques: one which is typical of coins struck without a collar, one which is very smooth and flat, and one which is knurled. Finally, it was a press which was capable of striking coins which had the same characteristic as many hammered coins in that a turned up lip could be left on the edge of the coin, beyond the final part of the design.

11 The rest of this paragraph and the next are taken from C.E. Challis, 'Lord Hastings to the great silver recoinage, 1464-1495' in A New History of the Royal Mint, edited by C.E. Challis (in the press).  
12 Royal Mint Museum.  
13 British Museum, Department of Coins and Medals.
Theoretically, Mestrell may have used one of three types of press – first, a cylinder- or roller-press in which metal strip is passed between two cylindrical rollers one of which carries several obverse designs of the coin to be made and the other an equal number of reverse designs; second, a rocker-press in which dies mounted in two curved surfaces are rolled together imparting their impressions on the blank as it passes from one side of the press to the other; and, third, a screw-press in which the dies are held vertically as in the traditional hammer process and hit from above, as in the hammer process, the difference between the two processes being that the blow in the screw-press is imparted by a threaded ram which is made to descend rapidly down by being turned with a bar attached to its top.

The first of these possibilities we can dismiss simply because a cylinder-press which stamps continuously as it is rotated must be fed with strip metal and this, as we have seen, Mestrell did not produce. This leaves the rocker- and the screw-press and in deciding between these two we should return to the estimate of 1561 and remind ourselves of the description of the press it contained:

- a press, i.e. the frame holding the moving parts
- a worm, cast from 50 lb of copper
- a bar of iron to the press
- a box of steel for the vice
- [a pair of tongs with stamps fitted to them]

Now we must readily concede that ‘a press’, i.e. the frame holding the moving parts, could apply equally well to both a rocker-press and a screw-press; and much the same can be said of the tongs fitted with the dies. It could also be argued that the bar of iron was the lever by which the mechanism of the rocker-press was moved from side to side. At this point, however, the possibility that the press of the 1561 estimate was a rocker-press ceases. Although we do not know precisely what the vice and the box of steel to the vice were, we can feel fairly confident that there was no place for them on the rocker-press and we can be absolutely certain that the large worm, or threaded screw, can have had nothing to do with a rocker-press. A rocker-press did have threaded screws but there were two of them and, because they were used only to adjust the tolerance between the dies, they were relatively small. The screw of the 1561 estimate is in the singular and is very heavy; it would answer precisely as the ram of a screw-press and this being so we may imagine the bar of iron being threaded through its end for use in activating the screw. A 50 lb screw driven by a bar of almost equal weight could deliver a powerful blow. This identification of Mestrell’s press as a screw-press is clinched by the fact that there is in the 1561 description of a press’s components no mention of the cogs which are on the ends of the axles bearing the dies in a rocker-press, and which lock together to give synchronised movement.

This story I have told from contemporary manuscripts is, to my mind, conclusive: Mestrell did use a screw-press. Such a conclusion does not, of course, resolve the problem raised by Professor Gaspar’s initial logic: namely, why did not the use of a screw-press, without a collar, produce fish-tails in the lettering on Mestrell’s coins just as a similar combination of coining techniques did in the letters on eighteenth-century coins? But why should we even accept this logic? To begin with, we know that hammered coins were made without collars, from dies which were struck from above just as dies were in a screw-press yet fish-tailing of the eighteenth-century kind is not a distinctive feature of hammered coins. Secondly, while it is perfectly true to say that fish-tailing is not a normal feature of Mestrell’s
coins it is not true to say that it never occurred, as may be seen from a shilling from the national collection in Wales, to which Mr Besly very kindly drew my attention.

The residual question which emerges at the end of the discussion is not, therefore, what kind of press did Mestrell use or, yet again, why did his coins not display fish-tails. Rather it is why did his screw press produce fish-tails on some occasions but not on others? Since the solution must be related to the type of blank with which the press was fed, as well as to the relief of the die and the speed and force with which the press was operated I intend over the coming period to consider two kinds of experiments. The first, which is already well begun by my colleagues in the department of metallurgy in the University of Leeds, is a comparison by electron microscopy of Mestrell's coins with those struck both by the hammer and by the presses of Blondeau. Here the coins will be sawn up and polished so that we can look at the inclusions in the silver both in plan and in section to determine how the blanks were flattened and how their edges were made. The second, which I hope to organise through the good offices of the Royal Mint, will seek to strike blanks of the same size and alloy as Mestrell's coins, without the use of a collar, at different pressures and/or speeds to determine if we can say precisely at what point distortion of the lettering or other parts of the design, such as the beading, will take place. I shall look forward to presenting my findings to you in the not too distant future.

In the meantime I leave you with Mestrell still in possession of his screw-press, still the true father of mechanised coining in this country.