EARLY UNITED STATES COPPER COINAGE:  
THE ENGLISH CONNECTION

R. G. DOTY

The cent has traditionally been regarded as the most distinctly 'American' coin. It was the first denomination to be struck for circulation at the national Mint in Philadelphia. It is the only American coin whose production virtually mirrors the history of the Mint itself: struck every year save one from 1793 to the present, the denomination's abundance or scarcity, its being held in high repute or scornful disdain, bear witness to the shifting fortunes of the United States Mint itself, presenting a view matched by no other denomination in American history. In many ways, the one cent piece is the story of the federal coinage.

But first appearances can be deceptive. If the cent was meant to be, in part, a reflection of a new national pride and sovereignty (and coinage is always a reflection of autonomy, whether so intended or not), the first federal copper coinage mirrored the flaws in that sovereignty, the tentative nature of its status, along with the optimistic patriotism inherent in possessing money of one's own. For the new cents (and half-cents) might well have been struck in America, incorporating new and deliberately non-European designs; but the planchets which were the vehicles for the new nationalism were purchased from the former mother country and sometime enemy. Put most simply, every cent and half-cent struck at Philadelphia between 1796 and 1837 was very likely to have begun its career in England. And the odds were overwhelmingly in favour of its having come from a single firm, the industrial complex owned by Matthew Boulton and James Watt, located at Soho, near Birmingham.

If one were going to send out for copper planchets, the firm of Boulton, Watt & Company was an eminently logical choice for the work. First set up at Soho in the early 1760s, the Boulton organisation had been devoted to the production and sale of small, highly finished metallic goods, the buckles, snuffboxes, inexpensive jewellery, and novelty goods which the eighteenth century commonly referred to as 'toys.' Significantly, Soho was highly active in the manufacture of buttons, which is only a step removed from coinage, in terms of the processes necessary for production. In the middle 1770s, Matthew Boulton took as partner the Scotsman James Watt, designer of an improved steam engine. Watt's mechanical genius was to be perfectly complemented by Boulton's entrepreneurial skills. The inventor and the industrialist would soon be selling steam engines throughout Britain and well beyond, and Boulton himself would be constantly looking for new ways to utilise the motive force his partner had harnessed.\(^1\)

It was probably inevitable that he would turn to coinage, especially copper coinage. By the time Boulton presented his proposals in this area to the British government, the Royal Mint had been neglecting its duties for more than a decade, the result being that vast

\(^1\) The best biography on Boulton is still H. W. Dickinson's *Matthew Boulton* (Cambridge, 1937). Samuel Smiles's *Lives of the Engineers Boulton and Watt* (London, 1904) is also useful, particularly for its description of the relationship between the two partners. Readers are advised to treat both volumes with circumspection as regards coinage, however.
quantities of counterfeit halfpence and farthings were in circulation, grudgingly accepted by a populace desperate for small change in a growing wage economy.\textsuperscript{2} Matthew Boulton volunteered to provide the country with a new coinage, for which he would receive a contract from its government. The new money would stress intrinsicality, containing very nearly its full value in copper. It would also be struck by the power of steam, in a manner which would make it an impossible target for forgers not blessed with his new machinery and processes. It would take Boulton ten years to achieve these goals; meanwhile, in expectation that a coinage contract would be his in a matter of months and not years, he completed a new minting facility at Soho, the most modern in the world, and the first powered by steam.\textsuperscript{3}

But the regal contract was not immediately forthcoming, and Boulton was obliged to keep his mint occupied as best he could. He struck medals celebrating the great events and important people of the day. He manufactured tokens, where the ideas he would incorporate into coinage received a dress rehearsal. By the middle 1790s, he was thinking of exporting not only his coinage concepts but his coining contrivances, inviting the world to produce its own money on his new model. He materially advanced his prospects for reaching this particular goal in 1796, when he began talks with the Russian imperial government aimed at setting up a new mint along his lines in St Petersburg. But all the projects took time to achieve, and none was immediately lucrative: the Birmingham entrepreneur was always looking for additional sources of income, pursuits which would capitalize on his new machinery. Inevitably, he was drawn to the fledgling nation across the Atlantic. In turn, it was drawn to him.

The problems of the early United States Mint have been graphically described by Taxay,\textsuperscript{4} while Sheldon devoted several pages of \textit{Penny Whimsy} to the particular problems surrounding the production of the cent.\textsuperscript{5} The coining of copper presented a special challenge, in addition to those to be expected in coining other metals. That is, since copper occupied the bottom rung of the monetary system, and since wages in the young republic were low enough so that copper coins were a basic necessity to the average citizen rather than the minor annoyance they have now become, the Mint would have to produce many more of them than its combined total of coins in other metals.

This was difficult. The first coiners at Philadelphia tended to view copper in the same way as did their counterparts at the Royal Mint - that is to say, as beneath the regard and majesty of a national mint, as something better left to someone else. Added to this disdain was the fact that it was far easier to roll out the fillets necessary for precious-metal coinage than those for base-metal issues, again because of the numbers required. Rolling was always a major problem for personnel at the early Philadelphia Mint, because the machinery employed for the purpose was antiquated, still operated by horse-power. The cents of 1793–5 would have presented a particular challenge, because they were struck on thicker planchets than later issues, making them correspondingly more difficult to roll out from the ingot. Copper itself was in short supply, as Taxay and Sheldon point out. By the middle of the 1790s, these special problems, added to those attending production of

\textsuperscript{2} A correspondent calling himself 'S.S.' reported that 'not the fiftieth part' of the halfpence with which he met were genuine (letter of 16 September 1791, \textit{Gentleman's Magazine}, 61 [October 1791], p. 890). This estimate is almost certainly too low, but the problem was extremely serious, as other observers, including Boulton, attested both then and later.

\textsuperscript{3} R. G. Doyt, 'Matthew Boulton Revolutionizes Coinage,' \textit{Coin World} (1986), 38–40. This article is based on research on Boulton conducted in the Archives Department of the Birmingham Reference Library (the repository of the papers of Boulton, Watt & Company) in 1983 and 1985. As usual, I am greatly indebted to the principal archivist of this collection, Mr J. D. Davis, and to his excellent support staff.


American coinage in general, were creating crisis conditions for the cent and half-cent. The only American coins which most citizens were likely to see, their continued production was constantly threatened. An outside source of planchets would have appeared as a godsend to the hard-pressed employees of the Mint. The outside source existed, and he was about to appear on the scene.

Unfortunately, he would have competitors. While the Americans had determined upon British help in producing copper coinage by the early part of 1796 (a solution suggested by President Washington to the harassed director of the Mint, Elias Boudinot)6, Matthew Boulton was not the Americans’ sole choice for the work. Instead, political considerations intervened, and the Mint found itself dealing with a London firm called the Governors and Company of Copper Miners in England. Boulton’s connection with the United States would be secure only after this rival organisation had proved itself totally unfit for the labour.

One of the proprietors of the Company of Copper Miners was William J. Coltman, who also happened to be a director of the Parys Mine Company, Matthew Boulton’s old competitor in the 1780s. Coltman’s father-in-law was Thomas Clifford, a force to be reckoned with in Philadelphia politics in the 1790s.7 In his letter to Coltman of 1 March 1796, Boudinot explained what the Mint had in mind.

Of greatest importance, it wanted a constant supply of copper for coinage, amounting to thirty or forty tons per year. It was prepared to pay in advance for the copper it received, and Boudinot was enclosing instructions to Samuel Bayard, the United States Agent in London (who also happened to be Boudinot’s nephew) to pay the Company of Copper Miners £1250 for the first shipment of copper to be sent to Philadelphia. This cargo, some ten tons of it, was to be sent over in the form of sheets: Boudinot was enclosing a sample of the precise gauge wanted, which ‘must be strictly attended to, without which it would be useless to us’.

One obstacle to the Mint’s activities would thus be removed. But Boudinot added that, if the London firm could undertake a second operation, that of cutting the sheets into planchets of seven pennyweights each, ‘cleaned ready for striking, at a moderate advance, it might greatly increase [sic] my Orders’. Speed was of the essence: the Mint director begged the Company of Copper Miners to send the copper by the first spring vessel. Coltman was promised additional work if this trial proved a success.8

Boudinot did not wager everything on this venture. In mid-February, Samuel Bayard had written to Matthew Boulton, asking what Soho’s terms might be for copper planchets. Boulton replied a week later, stressing the experience of his company in the type of work the Mint had in mind, and estimating that it could be done for £119 per ton, or 12¾d. per pound (a figure which would be slightly revised downward, as will be seen).9 Boulton’s letter to Bayard intercepted one from Bayard’s uncle, containing instructions to consider other sources for the Mint’s copper, ‘if Mr Coltman should refuse to supply me on such Terms as you shall think advantageous’: Bayard was to search out five tons or so of planchets for cents, and, if he could find the copper for less than the price demanded by the Company of Copper Miners, he was to buy it.10 Boulton’s lower offer, combined with the higher quality of his product, would eventually yield him the permanent American contract.

6 National Archives, Washington, D.C., Bureau of the Mint, RG 104 [hereafter NA], Elias Boudinot to Samuel Bayard, 5 March 1796. I am indebted to Mr W. F. Sherman, archivist with the Judicial, Fiscal, and Social Branch of this institution, for his great help and unfailing good cheer in the production of this study.

7 NA. Elias Boudinot to Samuel Bayard, 5 March 1796.

8 NA. Elias Boudinot to William J. Coltman, 1 March 1796.

9 NA. Matthew Boulton to Samuel Bayard, 25 February 1796.

10 NA. Elias Boudinot to Samuel Bayard, 6 March 1796.
By the middle of 1796, Boudinot was having serious second thoughts about continuing to do business with the Company of Copper Miners. Boulton had eventually offered to ship planchets to the Mint for 12\frac{1}{2}d. per pound – a decrease of twopence per pound from the Copper Miners’ price.\textsuperscript{11} Boudinot had accordingly ordered ten tons of copper from Soho, all to be shipped in the form of cent planchets if possible. Matthew Boulton had won one of the races against his competitors, that of price. Two more contests remained, those of prompt delivery and of quality.

In the case of the former, both firms were to disappoint the Mint director. William Coltman wrote him on 4 June, advising that, far from shipping on the first spring vessel, the Copper Miners’ concern to provide Boudinot with planchets of the exact size and thickness desired had held up the shipment for many weeks; indeed, the firm was only sending a small part of the copper in planchet form at the present time, fearing the Mint director’s displeasure at additional delay. The remainder of the copper would come as sheets, rolled to the proper thickness for cent pieces.\textsuperscript{12} By the following month, Coltman had better news to report: the Company of Copper Miners had succeeded in getting a larger percentage of the copper cut into planchets, and it, and the sheets making up the remainder of the order, were now on board the ship *Rebecca*, bound for America.\textsuperscript{13} The Mint received the shipment in mid October.\textsuperscript{14}

The record of Boulton, Watt & Company was even worse. By the summer of 1797, Boudinot had still not received the trial shipment of planchets from Soho, and he was becoming desperate, ‘having depended upon them’ for America’s copper coinage. Could Soho make an extra effort to send what had already been paid for? Could the firm also supply fifteen tons more as quickly as possible? If Philadelphia was satisfied with the quality of this second shipment, Boulton could ‘expect to supply [the Mint] with that quantity Spring & Fall’.\textsuperscript{15}

Boudinot’s patent desire to be supplied by Boulton, Watt & Company (even though the firm had ignored his entreaties for the past twelve months) was apparently founded on the fact that he had seen the competition’s product and was very disappointed by it. The first shipment from the Copper Miners was received at Philadelphia in October 1796. Boudinot was aghast at the poor quality of the planchets, and he wasted no time in letting Coltman know of his displeasure. They were ‘so badly executed that the principal Design we had in directing them to be cut is frustrated’. Cut from coarse rolled sheet copper, they were ‘almost as rough as sheet Iron’. Any savings achieved in having them cut from the sheet in England were essentially lost because of the extra cleaning and scouring necessary before they could be used in America. Many of them were also convex on one side. Boudinot then compared the sorry state of these planchets to the splendid quality of those promised – but not yet delivered – by Soho, concluding his letter with a threat to sever the Mint’s connection with the Company of Copper Miners unless the latter could improve its product.\textsuperscript{16}

On 24 May 1797, the trial shipment of planchets, some twenty-eight casks of them, finally left Soho on the first leg of its long journey across the Atlantic. The planchets sailed

\textsuperscript{11} NA. John Gunstone, secretary of the Governors and Company of Copper Miners in England, to Elias Boudinot, 3 May 1796. Gunstone’s price for sheet copper was 12\frac{1}{2}d. per pound; for the same price, Boulton, Watt & Company would provide the copper in planchets.

\textsuperscript{12} NA. William J. Coltman to Elias Boudinot, 4 June 1796.

\textsuperscript{13} NA. William J. Coltman to Elias Boudinot, 12 July 1796.

\textsuperscript{14} NA. Elias Boudinot to William J. Coltman, 20 October 1796.

\textsuperscript{15} NA. rough draft (unsigned but in Boudinot’s hand) to Matthew Boulton, 5 June 1797.

\textsuperscript{16} NA. Elias Boudinot to William J. Coltman, 20 October 1796. American cents dated 1796 frequently exhibit weakness in denticles on obverse or reverse, and, in the case of reverses, occasionally lack full legends. The planchets whose coins exhibit these deficiencies all have a peculiar rounding on one of their edges; could this be the basis of one of Boudinot’s complaints? (pi. 1, nos 1, 2)
from Bristol aboard the Adriana, a vessel which figured prominently in the early days of the Birmingham planchet trade. Their trip across the ocean was a leisurely one, and it was not until 4 December that Boudinot wrote to inform Samuel Bayard in London that this shipment, as well as a second one from the Company of Copper Miners, had finally reached Philadelphia.

He lost no time in comparing the two consignments for Bayard’s instruction. The planchets from the Copper Miners ‘were nearly the same as formerly’: once again, they ‘gave us the Trouble of cleaning & milling them over before they could be struck’. He added that they cost £11 per ton more than Soho planchets, ‘and were at least £11 pr Ton worse executed’.

But Boulton’s planchets were exactly what he desired, well-executed and ‘done in all things like a Workman’. They were so good, in fact, that they had all been turned into coins, while the Mint had not yet succeeded in cleaning the planchets from the Copper Miners so that their coinage could begin. That being the case, Bayard was instructed to ask Soho to send over about forty tons of planchets on a regular basis each year, twenty tons each in the spring and fall, ‘or a Proportion in Ships sailing at different Periods of the Year’. Time was of the essence: Bayard was set to leave Britain during the following spring, and Boudinot wished to have matters established with Boulton on a firm basis before the American diplomat’s departure. Shortly after the turn of the year, Boudinot reiterated these instructions to Bayard, raising the amount of shipments desired from Soho to an annual maximum of fifty tons. Implicit in all of this was the determination that the Company of Copper Miners was to be eased out of the Mint’s copper trade. And so they were, although Coltman spent most of the year 1798 in a vain attempt to revive the connection with the Mint, using his father-in-law as intermediary.

In the meantime, Soho set out to solidify its position. It has been noted that Boudinot had requested fifteen tons of planchets in June 1797. In February 1798, Boulton attempted to comply with the Mint director’s wishes. Some 198 cwt of blanks, shipped in sixty-five casks, left Soho on 14 February 1798. These planchets, nearly ten tons in all, were consigned to William Musgrove, Matthew Boulton’s agent in Liverpool, for reshipment to Philadelphia. The blanks were then sent to America on the Manchester, consigned to Elias Boudinot at the Philadelphia Mint. Their total cost amounted to £1338 19s., and they were definitely intended for cents, created on a standard of 41½ planchets per pound, weighing seven pennyweights each, the legal stipulation for the American cent. Boulton informed Bayard on 28 February that the planchets were on their way, presumably expecting him to relay the news on to Boudinot. He added an interesting aside. The Manchester and her cargo would not sail directly across the Atlantic; instead, she would join a convoy, probably at Cork, and make the crossing in the relative safety of an armed escort. One hardly thinks of the United States Mint in conjunction with the Napoleonic wars, but there was a connection all the same.

The Manchester probably reached Philadelphia in May, although Boudinot does not appear to have acknowledged receipt of her cargo until midsummer. In a letter to Boulton of 10 July, he noted that the planchets were ‘just as I wished them and answer every purpose we expected’. He then repeated the query he had made via Bayard during the

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17 NA. loose, untitled document, labeled ‘9’.
18 NA. Elias Boudinot to Samuel Bayard, 4 December 1797.
19 NA. Elias Boudinot to Samuel Bayard, 17 January 1798.
20 NA. Thomas Clifford to Elias Boudinot, 20 November 1798.
21 Birmingham Reference Library. Archives Department, Matthew Boulton Papers (hereafter BRL), Mint Book [Number 4], Day Book Mint, 1795-8, pp. 189, 208.
22 NA. Matthew Boulton to Samuel Bayard, 28 February 1798.
preceding January: could Soho undertake a constant supply of planchets, some forty to fifty tons per year? Payment would be as prompt as possible, always allowing for accident – by which the Mint director may have meant accidents stemming from the conflict between Britain and France, as well as the annoyance of an undeclared naval war between his own country and France. Hoping that direct and permanent channels could be opened between Soho and Philadelphia, Boudinot confidently awaited Boulton’s favourable reply.

As it happened, he would have a very long wait, during which his anxieties rose to the point of desperation. His rising unease colours the letters he wrote to the British industrialist, which were rarely acknowledged. Boudinot’s problems were twofold. First, he appears to have definitely decided against any further reliance on Soho’s erstwhile competitors, the Company of Copper Miners. Their product was simply too inferior to merit serious consideration. Second, the lack of decent British planchets from Boulton made it virtually impossible for the Mint to coin copper: Soho’s lack of compliance with the Mint’s demands coincides with the nadir of cent production, 1799.

There was an additional reason for Boudinot’s dependence on Boulton, Watt, and for the note of anxiety which crept into his letters when that dependence went unmet. That is, he had also requested information from Soho concerning the hardening of coin dies, always a challenge for the infant United States Mint (‘for altho’ we have them tolerably well done, yet our Loss in them is much greater than I think necessary’). He desired the shipment of half a ton of high-quality steel suitable for making such dies, again in an attempt to extend the life of dies employed for American coinage. He was determined to effect improvements here, and Boulton’s long silence jeopardised another aspect of his campaign.

His concern was first expressed in a letter from New Jersey, written on 3 October 1798. He explained that he had fled Philadelphia ‘on Acct. of the prevailing Epidemick’ (yellow fever, another of the difficulties under which the infant Mint laboured), and that he had decided to make the best of his enforced idleness by making ‘a Jaunt thro’ this State’ as a tourist. He expressed his hope that, ‘agreeably to my several Letters’, Boulton had sent more copper planchets to Philadelphia, adding that he was enclosing a bill of exchange for £400, to be credited to the Mint. He then returned to the subject of planchets, pleading with Boulton not to disappoint him again, but instead provide the Mint with ‘a constant supply . . . from time to time, as opportunity offers’.

By the new year, Boudinot’s tone had grown more importunate, for Boulton had still not been heard from. The Mint director begged Boulton to send him something, anything, ‘by the very first Vessel . . . as I am again without any [cent planchets] to proceed in Business – Your next letter I hope will be decisive’. Boulton had already replied, in a letter of 24 December 1798, but Boudinot did not receive this letter until mid April 1799. As far as he knew, he was still existing in a vacuum, and he had no idea as to its cause or its remedy.

By March 1799, a note of hysteria was creeping into the one-sided correspondence:

23 BRL. Assay Office Non-Book Items, Incoming Letter Box B4 (Boa to Boz), Elias Boudinot to Matthew Boulton, 10 July 1798.
24 BRL. Assay Office Non-Book Items, Incoming Letter Box B4 (Boa to Boz), Elias Boudinot to Matthew Boulton, 3 October 1798.
26 NA. Matthew Boulton to Elias Boudinot, 2 April 1799.
Although Boudinot could not have been aware of the fact, Soho was about to come to the rescue of the beleaguered Mint. Boulton was busily preparing cent planchets, and he had nearly ten tons of them ready to send by the beginning of April 1799. He had not been able to ship anything to Philadelphia before that time because of an unusually bad winter, which had caused Britain’s canal system, upon which Soho depended for its shipments of cake copper, to freeze solid. The severity of the weather had also left the industrialist unable to honour his coinage contract with the Royal Mint. Things were now proceeding apace, but it would still take time to fill the Mint’s order.

Meanwhile, the letter sent to America the previous December had finally made its way to Philadelphia, with its welcome news that some ten tons of cent planchets would be coming. Boudinot’s anxieties were somewhat allayed (although he had still received no planchets). He pleaded with Boulton to establish a regular pattern of delivery, a theme common to much of his correspondence with Soho. He also observed something which would have interested the industrialist: parts of ‘our North Western Country,’ centring on the upper reaches of Lake Erie, had been discovered to hold immense copper deposits. In time, this area might well supply the American and British markets. Boudinot was correct: within a few decades, the Michigan copper country would be meeting much of the needs of Europe, replacing Cornish and Welsh copper as it did so. And it would one day ensure that copper for American cents would originate in America.

On 18 April 1799, the much-desired, first regular shipment of planchets left Soho for Philadelphia. Comprising 199 cwt packed in sixty wooden casks, the copper sailed on board the Amelia, Arthur Stotesbury, master. The Mint paid £1608 7s. 5d. for the shipment. Boulton had meanwhile prepared a second order, in a determined attempt to make up for lost time and avoid the loss of the Mint’s patronage. On 8 June, Boulton informed Boudinot that he had ordered another ten tons of blanks prepared in a fortnight, to be sent from Bristol or Liverpool as soon as they were completed. If no vessel were immediately available in either port, ‘I have in that case ordered [sic] 20 Tons to be prepared [sic] & sent by the first [ship] that Sails; one way or another, Boudinot would get his copper.

A suitable vessel was found at once, and an additional seventeen tons of cent planchets began their overseas journey. This larger order cost the Mint £2903 10s. 8d.

So the desperate times were over. The Mint’s low point of copper production during these years was reached in late 1798 and early 1799. In the latter year, a scant 42,540 cents were struck. And the American Numismatic Society owns a curious 1798 cent (Sheldon 176), which was struck over an Anglesey halfpenny token of 1788 (either Dalton and Hamer 282 or 294: portions of the distinctive reverse arrangement of the date, only used on those two varieties, can be seen, but the obverse has been obliterated by the restriking). The edge on this hybrid had been crudely planed down before recoinage (pl. 1, nos 3–10). Could the Mint have been so desperate for cent planchets that it was taking British tokens, bringing them into rough weight accordance with American coinage stipulations, and finally turning them into American cents? This is unlikely, and we are probably witnessing...
an accident or sport; but it is interesting that it should have appeared at the very time when we might expect it, given the Mint’s difficulties with orthodox planchet supplies.

But these hard times were soon forgotten. The Soho firm of Boulton, Watt & Company would serve the Philadelphia Mint on a fairly regular basis for almost forty years, and the trade in planchets was nearly always at the heart of things. This commerce was interrupted on two occasions, once by the war of 1812, and again in the early 1820s (although Soho continued to sell the Mint other commodities besides planchets during the latter period).

The impact of Boulton, Watt & Company’s copper planchets on the Mint’s operations may best be indicated by four tables. The first two give approximate numbers of planchets sent out (for cents and half-cents), based on shipping figures in the Birmingham Reference Library and the National Archives, Washington. These tables represent the maximum number of coins which could have been struck from Soho planchets, assuming that every one was eventually turned into a coin. The third and fourth tables give actual mintage figures for the period of the Soho trade.

### TABLE I

<table>
<thead>
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<th>Date</th>
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<tr>
<td>1798-February</td>
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<td>932,621</td>
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<td>1827-April</td>
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**SOURCES:** For 1797 figure, see NA, loose, unnumbered document labelled “9”; later figures come from BRL, Mint Books 4, 8, 13, 16, 20, 30, 34, and 36, and from unnumbered Mint Book – Mint and Coinage Day Book, 1834-49.

32 BRL. Mint Book (Number 8), Mint Day Book, 1798-9, p. 206
33 Not shipped until 1812 (see BRL. Mint Book [Number 30], Mint Day Book, 1808-1813, p. 243).
34 Sent via the Algonquin. This vessel was wrecked, but the planchets were recovered, refined, and sent to Philadelphia.
35 The entire shipment was the 5 tons 1 cwt 2 qtr usual by this time, or about 474,046 pieces. This cargo, sent via the Delaware, foundered off Willmington, Delaware. Approximately 3500 pounds of planchets were eventually received in Philadelphia fit for coining; hence a useful total of 145,950 for this shipment.
TABLE II

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<thead>
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<th>YEAR</th>
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<tr>
<td>1807-August</td>
<td>932,960</td>
</tr>
<tr>
<td>1825-April</td>
<td>951,619</td>
</tr>
<tr>
<td>1825-May</td>
<td>914,301</td>
</tr>
<tr>
<td>1834-January</td>
<td>946,954</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>7,704,501</strong></td>
</tr>
</tbody>
</table>

SOURCES: BRL. Mint Books 13, 16, 20, 38.

TABLE III

Actual Cent Mintage, 1797-1837

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MINTAGE (Thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1797</td>
<td>897,510</td>
</tr>
<tr>
<td>1798</td>
<td>1,841,745</td>
</tr>
<tr>
<td>1799</td>
<td>42,540</td>
</tr>
<tr>
<td>1800</td>
<td>2,822,175</td>
</tr>
<tr>
<td>1801</td>
<td>1,362,837</td>
</tr>
<tr>
<td>1802</td>
<td>3,435,100</td>
</tr>
<tr>
<td>1803</td>
<td>3,131,694</td>
</tr>
<tr>
<td>1804</td>
<td>96,500</td>
</tr>
<tr>
<td>1805</td>
<td>941,116</td>
</tr>
<tr>
<td>1806</td>
<td>348,000</td>
</tr>
<tr>
<td>1807</td>
<td>829,221</td>
</tr>
<tr>
<td>1808</td>
<td>1,087,000</td>
</tr>
<tr>
<td>1809</td>
<td>222,867</td>
</tr>
<tr>
<td>1810</td>
<td>1,458,500</td>
</tr>
<tr>
<td>1811</td>
<td>218,025</td>
</tr>
<tr>
<td>1812</td>
<td>1,075,500</td>
</tr>
<tr>
<td>1813</td>
<td>418,000</td>
</tr>
<tr>
<td>1814</td>
<td>357,830</td>
</tr>
<tr>
<td>1815</td>
<td>NONE</td>
</tr>
<tr>
<td>1816</td>
<td>2,820,982</td>
</tr>
<tr>
<td>1817</td>
<td>3,948,400</td>
</tr>
<tr>
<td>1818</td>
<td>3,167,000</td>
</tr>
<tr>
<td>1819</td>
<td>2,671,000</td>
</tr>
<tr>
<td>1820</td>
<td>4,407,550</td>
</tr>
<tr>
<td>1821</td>
<td>389,006</td>
</tr>
<tr>
<td>1822</td>
<td>2,072,339</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>7,054,862</strong></td>
</tr>
</tbody>
</table>


TABLE IV

Actual Half-Cent Mintage, 1800-35

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MINTAGE (Thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1823-24</td>
<td>1,262,000</td>
</tr>
<tr>
<td>1825</td>
<td>1,461,100</td>
</tr>
<tr>
<td>1826</td>
<td>1,517,425</td>
</tr>
<tr>
<td>1827</td>
<td>2,357,732</td>
</tr>
<tr>
<td>1828</td>
<td>2,260,624</td>
</tr>
<tr>
<td>1829</td>
<td>1,414,500</td>
</tr>
<tr>
<td>1830</td>
<td>1,711,500</td>
</tr>
<tr>
<td>1831</td>
<td>3,359,250</td>
</tr>
<tr>
<td>1832</td>
<td>2,362,000</td>
</tr>
<tr>
<td>1833</td>
<td>2,739,000</td>
</tr>
<tr>
<td>1834</td>
<td>1,855,100</td>
</tr>
<tr>
<td>1835</td>
<td>3,878,400</td>
</tr>
<tr>
<td>1836</td>
<td>2,111,000</td>
</tr>
<tr>
<td>1837</td>
<td>5,558,300</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>73,830,369</strong></td>
</tr>
</tbody>
</table>


In sum, Soho was responsible for approximately two of every three planchets used to strike cents between 1797 and 1837. At the same time, the firm apparently supplied the Mint with all the planchets for half-cents during roughly the same period. In reality, mintage figures for the latter denomination are less than the numbers shipped. This oddity is explained by the fact that half-cents, struck to supply the needs of a monetary economy still partially dependent on the Spanish-American real (worth 12½ cents), were never
popular with the public; the Mint possibly still had several thousand of Boulton, Watt's planchets in storage well after it had severed its connection with the firm.

For cents, Soho's providing of two out of every three planchets is certainly impressive. But all the same, the Mint obtained nearly twenty-five million blanks elsewhere. Why should it have done so, and where did it get these others?

That the Mint should have looked elsewhere was due to several factors, some of which were under Soho’s control, others not. The Birmingham firm did not always pay careful attention to Mint stipulations in planchet production, making copper blanks heavier than the Mint desired. Since cents and half-cents were the only American coins upon which the Mint made a profit as it placed them in circulation, it naturally wanted the planchets for these coins somewhat on the light side, if any variation from its official stipulation were to be considered.36

Planchets for half-cents came in for similar criticism. After a very long lapse in production, occasioned by the unpopularity of this denomination, the Mint determined to resume coinage of half-cents in the mid 1820s. Samuel Moore, who had succeeded Robert Patterson as Mint director in 1824, wrote to Matthew Robinson Boulton at the end of that year to advise him of that decision. He wished Soho to prepare the necessary planchets, but to pay particular attention to their weights, ‘as I learn from the correspondence of my Predecessor with you, that in some instances the half cent planchetts [sic] have particularly been too heavy’.37 Several other instances of such complaints exist.

Whether too light or of the correct weight, the Mint sometimes had additional grievances over the quality of the planchets it received from Soho. In mid 1817, Mint Director Robert Patterson expressed the Mint’s irritation over the latest shipment of cent blanks. The edges of a typical planchet from this cargo were ‘rather concave, and surrounded with a slight projecting burr’; in future, the burr must be removed, and a slight bevel put in its place. The resulting profile of the edges of planchets sent in future should appear .

Zacchaeus Walker Jr replied for the younger Boulton. There had evidently been a misunderstanding. Along with the planchet shipment of March 1816,

I had transmitted 6 specimens of Blanks, each mill’d [sic] in a different manner, & number’d [sic] 1 to 6, retaining Duplicates, so, that if any one of them corresponded to your wishes in the milling, by mentioning the number of that one, the following Order would have been executed in perfect conformity. Receiving no instruction from you on the subject, I had mill’d the Blanks in your next Order . . . to correspond with No. 4, conceiving that to be the nearest to the object in view, as far as I could judge by your description, & am sorry to find that my ideas of it have proved incorrect.

Walker added that he was sending two planchets with other proposed edges, both with rounded surfaces. He hoped that one or the other of these patterns would meet the

36 For example, acknowledging receipt of cent planchets in October 1819, Robert Patterson, current director of the Mint, chided Matthew Robinson Boulton for overweight cent planchets, stating that, while Soho could not be expected to ‘exactly correspond’ to the stipulation of 7 dwt per planchet, ‘it would be more desirable that this difference should be rather the other way’ (NA. Robert Patterson to Matthew Robinson Boulton, 16 October 1819). The Mint’s concern with turning a profit on its copper coinage is frequently reflected in documents in the National Archives. Patterson’s boast to Alexander J. Dallas, Secretary of the Treasury, that the 1815 shipment of cent planchets from Soho had yielded ‘a clear profit on the average, of 24% per Cent’ between the price paid for the blanks and their stated value as coins, is typical of Mint thinking at the time and beyond (NA. Robert Patterson to Alexander J. Dallas, 30 January 1816).

37 BRL. Assay Office Non-Book Items, Incoming Letter Box M2 (Mol to Mz), Samuel Moore to Matthew Robinson Boulton, 6 December 1824.

38 BRL. Assay Office Non-Book Items, Incoming Letter Box P1 (Pa to Pin), Robert Patterson to Matthew Robinson Boulton, 10 June 1817. A typical cent struck from one of these planchets is reproduced in pl. 1, nos 11–13. Based on my die studies, I estimate that about half the cents dated 1817 were struck from this planchet shipment. The edge anomaly does not appear on cents of later dates.
requirements of the Mint director, but ‘by your sketch on so small a scale it is not easy to form an exact idea of the sort of edging required’. 39

Soho encountered other, minor difficulties in design on at least one more occasion. In May 1835, Samuel Moore relayed the complaints of his chief coiner that ‘in the later invoices there appears a tendency to a trivial enlargement of the disk of the planchet [sic]’; he advised Soho to correct the problem, carefully testing its products against the patterns which the Mint had sent it for such purposes. 40 The record is silent on whether Boulton, Watt complied with this request.

Nor were these the only points of friction between the Birmingham firm and the United States Mint. Soho sometimes paid less than strict attention to the way in which its planchets were packed, or shipped; the company was also likely to hear from the Mint on these occasions. Indeed, complaints on these matters went back nearly to the beginning of the trade: as early as July 1799, while thanking Matthew Boulton for having finally sent the planchets ordered many months earlier, Elias Boudinot complained about their price, which was higher than expected, and about their quality. It appears that the captain of the vessel which had brought them to America had carelessly put them into ‘a very wet part of the Ship, by which means about one fifth part of them are almost spoiled’, necessitating recleaning. 41 Considering Boudinot’s previous desperation for planchets, the Mint’s observations border on the churlish, and, in any case, Soho might not have been able to tell a ship’s captain where to store its goods. But a later complaint had firmer grounds. Boulton, Watt did not always put the planchets it sent in casks of sufficient strength to safely contain them during a rough sea voyage. In the case of an 1818 shipment, a number of the kegs actually broke, ‘and it is believed that upwards [of] a hundred weight of Planchetts [sic] have been lost, and a considerable quantity so much bent, as to render the coinage slow and difficult’. 42

A final difficulty with the Soho firm was that, even after it had established a regular connection with the Mint, it did not always deliver its products on time. While matters never again reached the conditions of 1798–9, the company’s somewhat whimsical notion of promptness in shipments caused considerable anxiety in Philadelphia on several occasions. In one case, Elias Boudinot wrote to Rufus King, the American minister in London, speculating whether Soho’s delay in sending much needed blanks might be ascribed to the death of its founder, Matthew Boulton. 43 Concern and complaint over delayed deliveries continued to appear in the Mint-Soho correspondence down to its end in the later 1830s.

But Boulton, Watt & Company had complaints as well. Chief among them was the fact that the Mint rarely paid its bills on time. It was encouraged to do so by financial discounts: Soho agreed to give the United States a 2½ per cent discount on planchets to be sent if timely payment had been received for the last shipment. Scattered references in the Mint Books indicate that the Philadelphia Mint did occasionally take advantage of this provision. 44 but it was much more likely to be dunned by Soho for late payment, a reflection of its unwillingness or inability to meet its obligations. Curiously, these falls from fiscal grace were not confined to the early days of the Mint, when money for any activity of the new federal government was likely to be in short supply. There are also a number of instances of extra charges for tardy payment in the 1830s, by which time the government,

39 NA. Zacchaeus Walker Jr to Robert Patterson, 19 July 1817.
40 NA. Samuel Moore to Matthew Robinson Boulton, 19 May 1835.
41 BRL. Assay Office Non-Book Items, Incoming Letter Box B4 (Boa to Boz), Elias Boudinot to Matthew Boulton, 3 July 1799.
42 NA. Robert Patterson to Matthew Robinson Boulton, 28 August 1818; emphasis in original.
43 NA. Elias Boudinot to Rufus King, 15 May 1801.
44 For example, see an entry for 11 August 1807, when the United States Mint was granted a rebate of nearly £90 for its promptness in this respect (BRL. Mint Book [Number 20], Mint and Coinage Day Book, 1805–8, p. 275).
and its Mint, should have done better. At one point, the problem reached such a state that, when Mint Director Patterson approached Soho for a shipment of planchets in 1816, he appears to have been politely but firmly told that no additional blanks could be sent out until the Mint had paid for two earlier cargoes. Patterson made good on the Mint’s debts in November 1816, but not without some grumbling.

In January 1816, an individual named William Harrold approached the Mint with an alternative offer of planchets. Doing business in Philadelphia, he was one of the principals of the Birmingham firm of Belles & Harrold. Harrold proposed that his company supply the Mint with its cent planchets, ‘ready for the die at one shilling and three pence halfpenny sterling pr lb’; if half-cent planchets were desired, his firm could also supply them, at 1s. 4d. per pound. The planchets would be invoiced at cost, and the Mint would pay a commission of ten per cent, plus shipping and insurance.

His advances fell on receptive ears. The following day, an agreement was drawn up between the Mint and Belles & Harrold, by which the latter was to supply a trial shipment of five tons of copper cent planchets, under the conditions of Harrold’s original proposal. Soho’s deficiencies had caught up with it, and, for the next seventeen years, the Mint would have two foreign suppliers of planchets.

Philadelphia appears to have had fewer difficulties with this second firm than with the first, and Belles & Harrold took over an increasing share of the planchet trade. In mid 1821, the Mint determined to dispense with the services of Boulton, Watt altogether, at least for the time being. Beyond the obvious fact that it now had a second source, two other factors were adduced for this decision. First, the planchet shipment which Philadelphia had received in June 1821 had proved to be a disappointment: many of the blanks had been so badly damaged in transit that they were no longer fit for coinage. The presence of a cargo of salt on board the Kensington (the vessel which brought them) was advanced as a possible cause of the trouble.

The second problem centred on the current high rate of exchange, some 9½ per cent above par. The sum allotted to the Mint to pay for its copper was actually less than the amount now due to Boulton, Watt. Since demand for cents had diminished, a decision was taken to end the Mint’s connection with Boulton, Watt & Company.

These observations were expressed in a letter from Mint Director Patterson, who was not being entirely candid. The rate of exchange was adverse at the time, a consequence of the economic dislocations which had begun in 1819 and which would continue through the earlier 1820s. But the public still needed cents, and Philadelphia was still procuring planchets for them in England, regardless of exchange ratios; but now it was receiving them from Belles & Harrold, not Boulton, Watt & Company.

In reply to this decision by the Mint, Zacchaeus Walker Jr admitted that the faulty shipment had in fact crossed the Atlantic in company with a cargo of salt, and that this had caused the damage that the Mint Director had mentioned. But the resolution to ship the planchets in this fashion had actually been the lesser of two evils: the Kensington was the only vessel in Liverpool available at the time, and, rather than risk Patterson’s wrath because of a late shipment, Soho had preferred to take its chances with the salt. Walker apologised profusely, added that he was closing out the Mint’s account with great regrets,

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45 For examples of later payment problems, see entries of 14 and 24 April 1832 in BRL. Mint Book [Number 38], Mint and Coinage Day Book, 1820–34, pp. 228–9.
46 NA. Robert Patterson to Matthew Robinson Boulton, 14 November 1816.
47 NA. William Harrold to ‘Patterson Esqr’, 31 January 1816.
48 NA. ‘An Agreement between the Mint and Belles & Harrold’, 1 February 1816.
49 NA. Robert Patterson to Matthew Robinson Boulton, 21 July 1821.
50 In point of fact, the National Archives contain records for planchet shipments from Belles & Harrold throughout this period: one on 10 February 1821, a second on 22 March of the same year, one each in October and November 1823, etc.
and that he ardently hoped that the connection with the United States would be resumed.51

In fact, it would be re-established in three years, and it would then endure for another thirteen. That it should have been resumed was certainly not due to the fact that the Mint had no other choice for planchets: its connection with Belles & Harrold would endure, even as it diminished in importance, down to 1833. There was another, major reason for a resumption of the commerce: for all its faults, Soho was able to supply the Mint with products and expertise which the latter could not find elsewhere.

It furnished high-quality steel for coinage dies, along with advice on how to employ that steel to best advantage. The Mint had requested help here as early as 1798; the problem of hardening dies seems to have given it particular difficulty, 'for altho' we have them [dies] tolerably well done, yet our Loss in them is much greater than . . . necessary'. This theme was returned to a year later, as Elias Boudinot admitted to Soho that die manufacture was 'the greatest difficulty I have experienced', - which, considering that the Mint director was also encountering problems with planchet shipments, the annual visitation of yellow fever on Philadelphia and its Mint, and the United States Congress, which was threatening to close the institution for good, must have meant that the die difficulty was serious indeed. More British steel was requested, and thanks were tendered for previous instructions on hardening dies.52

Advice and materials were requested in another area. One of the coining specialities of Boulton, Watt was the production of copper proof coinage with a rich, mahogany surface. Early in 1825, the then director, Samuel Moore, wrote the firm to solicit information concerning 'the process by which the covering or finish called bronzing, or bronzing, is prepared and applied to Medals'. Matthew Robinson Boulton responded by sending out some of the bronze powder used to achieve the effect, as well as detailed instructions on its application. The Mint was attempting to bronze some of its products by the following year, with inconclusive results;53 but it soon became adept at the work, and it would shortly be creating specimen strikings of its copper coinage with the new surface. These special coins, intended to show the Mint at its best, were emitted in very small quantities through 1831;54 one such piece is illustrated (pl. 2, nos 14, 15).

The supply of dies, bronzing powder, and advice on their uses set Boulton, Watt & Company apart from its competitors and kept Mint interest in the firm alive even during times of troubles. But Soho very nearly occupied a much more important role in its relation with the Americans, that of a supplier of coinage machinery.

This theme runs like a thread through most of the years of the English connection. Simply put, the Americans were finding that setting up and operating a national coining facility were difficult ventures, surrounded with problems that the people of Soho had already met and solved. Elias Boudinot's letter to Matthew Boulton of 22 April 1799 deserves a second examination here: in it, Boudinot described the current state of the Mint, and how he believed it might be improved with help from Birmingham.

The Philadelphia Mint was a backward establishment:

We use the common Presses with Levers that go by manuel [sic] Labor, excepting that as to small Coin & Cents, the Press is fed by means of a Hopper instead of being put under by Hand — We strike about half a Million of Dollars in Gold & Silver pr. Ann. and as many Plachetts [sic] of Copper as we can get — It would have been very pleasing to me to have had our Coin struck by abler Artists, if Policy and the national Prejudices permitted it — but this [was] found impracticable.

51 NA. Zacchaeus Walker Jr to Robert Patterson, 5 October 1821.  
52 BRL. Assay Office Non-Book Items, Incoming Letter Box B4 (Boa to Boz), Elias Boudinot to Matthew Boulton, 10 July 1798, and 22 April 1799.  
53 BRL. Assay Office Non-Book Items, Incoming Letter Box M2 (Mol to Mrv), letters of Samuel Moore to Matthew Robinson Boulton, 16 February 1825, 22 May 1826.  
Boudinot contrasted this with what he had heard about Matthew Boulton’s improvements in the art of coining, particularly the latter’s efforts to make coins which could not be counterfeited. He would greatly appreciate any advice Boulton chose to give him leading to the amelioration of America’s coinage, and he would of course keep such counsel to himself.

The Mint director eventually came to the primary point of his letter:

I have had it in Contemplation to request you to let me have an Estimate of the Expence of a Mint compleat in all its parts, but on a small Scale, to be executed by you, & sent out here with full Directions for putting it up, including the Engine &c. &c. If you could favour me with such an Estimate, accompanying it with such Explanations as would enable me to induce Congress to agree to it, I should be much obliged, as it might render the Business more expeditious & easy in future.

Boudinot added that he had been emboldened to request this information by the hints which Boulton had dropped as to Soho’s activities on behalf of the Russian imperial government.

The industrialist’s reply must have come as a disappointment: he merely advised that he would take the estimate for the refurbished Philadelphia Mint under consideration as soon as he returned to Soho (he was in London at the time, possibly in connection with his British regal coinage of that year). Boudinot would receive an outline of costs by the next post. Perhaps attempting to whet Boudinot’s appetite, Boulton appended two observations on the current state of Soho: ‘my new Mint is quite finished & is a beautifull [sic] Machine as it’s free from Noise & Complex Machinery[.] I have coined with 8 presses in one Hour 40,000 pieces of Copper Money 64 in the pound wt’. Boudinot would count himself lucky to coin that many cents during the entire year of 1799.

Despite his promise of a prompt reply, Boulton lapsed into lethargy as far as the project was concerned. Having heard nothing by early November, Boudinot was obliged to bring up the subject again. He had apparently told members of Congress who opposed the Mint about his correspondence with Boulton concerning a new coining facility, in hopes that they would withdraw their criticism and allow his organisation to get on with its work. But his plans had miscarried: far from withdrawing, his critics were now pressing their attacks, raising difficult questions about exact expenses, queries which the Mint director could not answer without help from Matthew Boulton. He therefore reiterated his request, in somewhat more precise terms:

I am preparing to lay before Congress, an entire new Plan of a Mint, as I am dissatisfied with our present Establishment – To enable me to do this with Precission [sic], will you be so good as to let me know what you will charge for a compleat Apparatus of a Mint on your own best approved plan, with a Steam-Engine equal to the Force of 8 Horses constantly at work – the Whole shipped on board a Vessel bound for this Port, so that Congress may have a View of the entire Expence by adding the Freight & Insurance.55

No further record exists of these first negotiations. It is likely that Matthew Boulton, by now supplying Britain with regal copper coinage, involved as well with the difficult Russian mint project, decided that he had challenges enough for the time being. But his decision (if it were his) was unwise: never again would Soho come so close to refurbishing the United States Mint. Had its founder acted in the enterprising way which he usually did, the history of the Mint, and the fortunes of Soho, might well have been very different.

As it was, there ensued for the next thirty-five years a complicated ritual dance, in which first one side, then the other, coyly suggested the sale of British machinery to the United

55 BRL, Assay Office Non-Book Items, Incoming Letter 22 April and 6 November 1799, Matthew Boulton to Elias Boudinot, 8 June 1799.
States Mint, then backed away when the other party took the suggestion seriously. We hear no more of the matter during the elder Boulton's lifetime, but his son, writing to Philadelphia a year after his father's death, made a most interesting proposal. Matthew Robinson Boulton offered to manufacture American cents from start to finish, adorning them with the regular designs 'or with any other device'. He also stood ready to sell 'my coining apparatus' to the United States Government. No American reply has been found, and Anglo-American hostilities would in any case have soon rendered such a scheme impossible.

For a decade after the end of that conflict, dealings between Soho and the United States Mint centred on planchets, and, as we have seen, Soho's position was even challenged here, in the form of Belles & Harrold. But the Mint was requesting other products and advice by the middle of the 1820s, and in these these would lead to a second round of talks concerning minting machinery.

Late in the summer of 1827, Philadelphia made what was probably its most detailed request for moneying information from Boulton, Watt & Company. Director Moore observed that it was 'not impossible' that the American Congress would soon authorise the modernisation of its Mint. He was therefore anxious to learn as much as he could about the nature of Soho's 'improved combinations for the purpose of coinage by steam power, of which fame speaks so highly': could Matthew Robinson Boulton do him the favour of answering the following questions?

First, how much coinage could be struck in a given time by an engine of, say, ten horsepower? Moore requested specific data for gold and silver money of various sizes, the number of presses involved, and so on. Secondly, what was the smallest steam engine with which Boulton had coined successfully? Thirdly, did an engine of that power perform all of the operations involved in producing coins, or merely that of striking them from prepared planchets? If the latter, did Boulton use a second engine for the preliminary operations of rolling, drawing, and milling? How could these steps be accomplished by steam? Fourthly, if the United States Mint did decide to modernise, how large an area 'would be sufficient to accommodate the coining machinery complete of four presses adapted to the coinage of your half crown pieces[?]'. The director of the Mint was almost certainly thinking of half-dollars here and throughout his letter, because these coins were roughly comparable in size to the English denomination, and they were also the most widely struck American coins of the later 1820s.

Now to basics. Moore next inquired about 'the terms on which you furnish that system of Machinery' and how long it would take to supply it. Indeed, would Boulton be willing to sell 'such drawings and instructions as may enable foreign [American] Artists to construct the Machinery in question'? Further information was requested on this point. Finally, the Mint director asked to be reassured that Soho's coining methods were 'liable to few irregularities, by which the accurate application of the die would be deranged, the coin impaired, or the machinery injured'. This last request was probably for Congressional consumption rather than the director's peace of mind: Boulton, Watt & Company had been successfully striking coins with its presses for nearly forty years, had been exporting the presses themselves for thirty. There had been no serious complaints in the past, and Moore was doubtless perfectly aware of it.

An ultimately fruitless correspondence continued for the next two years. Boulton replied on 10 November 1827. His letter has not survived, but Moore apparently found its

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56 BRL. Assay Office Non-Book Items, Incoming Letter Box R2 (Roa to Rz), Matthew Robinson Boulton to William Rush, Director of the Mint, 24 August 1810.
57 BRL. Assay Office Non-Book Items, Incoming Letter Box M2 (Mol to Mz), Samuel Moore to Matthew Robinson Boulton, 31 August 1827.
The Americans debated the matter throughout 1828, Moore informing prominent officials of his correspondence with Birmingham. The Mint director forcefully argued that the establishment needed modernisation for an enlargement of its operations, and that Soho was willing to furnish the equipment necessary for the purpose for around £7000, plus freight charges from Liverpool. On the other hand, Moore added that he had heard that there was 'machinery of this description constructed by Mr. Boulton for a Mint in South America . . . now in New York for sale'. Providing it could be adapted to the Mint's requirements, 'it would be judicious to embrace the opportunity of securing it'. It would probably cost no more than Boulton's apparatus, and heavy transatlantic shipping costs would also be avoided.

Moore mentioned this second mint to Boulton, perhaps in a desire to inject a note of competition into the proceedings. He observed that the United States Mint had been approached 'thro' a Gentleman in New York,' representing the Anglo-Mexican Mint Association. The director of the Mint had requested such plans from this individual, Major W. G. Buckner, 'as will enable us to determine whether it is adapted to the capacity of our . . . Mint'. Providing that Boulton, Watt had in fact executed the coining apparatus, would Boulton stand ready to give his views on its perfection, 'both to efficiency and elegance?'

Soho was perfectly ready to extol the excellence of its machinery, but it had no intention of gratuitously sending its plans to America. Major Buckner attempted to extract them from Boulton, Watt & Company and failed utterly. The Soho firm cited the sheer complexity of its apparatus, which would necessitate the making of general and detailed drawings, 'far beyond what we have the necessary facility for preparing'; the machinery was excellent, fully comparable to that executed by Boulton, Watt for the Royal Mint and other establishments, and Philadelphia should be content with this general form of guarantee. The firm added two observations of some importance to this narrative. First, the machinery under discussion was 'lying here' at Soho. Secondly, if the Americans wanted it, it would cost them £3824. This odd figure confirms that this machinery had originally been destined for Guanajuato, Mexico; and we now know its whereabouts, four years after it had originally been ordered for the federal mint in that city.

Soho's citation of the complexity of its plans as an excuse for non-compliance with the American request was disingenuous: the real reason is likely to have been a fear that, once the plans were in the United States, they would quickly be copied, used, and returned to England without a payment for the privilege. And considering the problems with securing and maintaining copyright in the early nineteenth century, this fear, if it existed, would have not been groundless.

In any event, negotiations for the machinery were about to collapse. The company which had been chosen to ship it refused to guarantee it 'subject to any responsibility on our part,' arguing that the name of Boulton, Watt & Company ought to be surety enough. In addition, the American Government would have to make payment in England before the machinery was sent. The United States decided against this demand, and the matter was allowed to lapse.

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59 NA. Samuel Moore to John Sergeant, Chairman of the Committee on the Mint, 23 December 1828.
60 NA. Samuel Moore to Matthew Robinson Boulton, 27 May 1829.
61 NA. Boulton, Watt & Company to unnamed correspondent (Major W. G. Buckner), 22 June 1829 (copy).
62 For a detailed account of the connection of Boulton, Watt & Company with the Anglo-Mexican Mint Association and the Guanajuato Mint, see the author's "A Mint for Mexico": Boulton, Watt and the Guanajuato Mint, 1825-1849, BNJ 56 (1986).
63 NA, extract of a letter from Messrs. Rougemont (?) & Company to unnamed correspondent (presumably W. G. Buckner), 27 June 1829.
The final movement in the complicated dance came from the American side, several years later. It is contained in a postscript to a letter which the new director of the Mint, Robert Maskell Patterson, wrote to Matthew Robinson Boulton in the summer of 1836:

P.S. - It may not be uninteresting to you to mention that we are coining your copper, very successfully, with a Lever press, moved by a Steam Engine. The press is a modification of one made in Paris by Tonnelier [probably Thonnelier]. It is striking, with great ease, and without noise or jar, 80 pieces per minute, and we think of increasing its speed to 100. The motion is communicated from a drum shaft, by a strap and pulley. We are preparing similar presses for all our coining.⁶⁴

There was food for thought here: if the United States were now advanced enough in technology to connect a steam engine to a modified coining press, securing results which were fully comparable with those in England, it was probably also advanced enough to provide its own planchets for cents.

In point of fact, it was already doing so by the time of this letter. At the beginning of 1834, the Mint began regularly receiving planchets from a new, completely domestic source, the firm of Crocker, Brothers & Company of Taunton, Massachusetts. Its connections with this supplier began towards the end of the preceding year,⁶⁵ and they were initiated on a purely trial basis, just as had been Philadelphia's dealings with Boulton, Watt & Company so many years before. As with its foreign suppliers, the Mint had some complaints about the quality of the wares offered by its new, domestic one: the planchets it had received on trial from Crocker, Brothers varied greatly in weight, the casks in which they were sent were too flimsy adequately to protect their contents, etc. But all things considered, the Taunton firm would do well enough, and regular shipments now commenced.⁶⁶

Crocker, Brothers offered distinct advantages over Boulton, Watt. An obvious one was that Massachusetts was several weeks closer to the Philadelphia Mint than was Soho, which made communications and the promise of a regular flow of planchets infinitely easier than it had been. It would also be possible to effect payment for planchets in dollars rather than in sterling bills of exchange, which had always presented difficulties for a Mint with severe financial problems. Crocker, Brothers & Company would even oblige the Mint by accepting payment in the coins struck from its planchets,⁶⁷ an option which was gladly and gratefully accepted by the Mint.

The element of timing is important here. Just as the Mint was considering a new, domestic connection, a sequence of events took place which underscored the fragility of its foreign one with Boulton, Watt. These incidents were two shipwrecks, taking place in rapid succession. Collectively, they gave the United States Mint food for serious thought, at a time when it was outgrowing its relationship with Soho.

In the first episode, the firm and the Mint which it served got off lightly. On 22 September 1832, twenty-nine casks of cent planchets left Birmingham for Liverpool. (This odd number of casks was favoured for shipments during the period, probably because it was almost exactly equal to five tons net weight.) On 1 October, Soho sent a second package to join the first, consisting of a large box with 5 cwt of fine Swedish grain copper, which the United States Mint favoured as an alloy in its precious-metal coinage. These two cargoes were put on board the Algonquin, which cleared Liverpool for America on 8 October.

⁶⁴ BRL. Assay Office Non-Book Items, Incoming Letter Box Pi (Pa to Pin), Robert M. Patterson to Matthew Robinson Boulton, 25 August 1836.
⁶⁵ NA. Samuel Moore to R. B. Yancy, interim Secretary of the Treasury, 10 October 1833. Moore mentioned that planchets had been received from the Massachusetts firm, but he did not state an amount.
⁶⁶ NA. Samuel Moore to Crocker, Brothers & Company, 1 January 1834.
⁶⁷ NA. Robert M. Patterson to Crocker, Brothers & Company, 22 August 1837.
The vessel was wrecked. Neither the Birmingham nor the National Archives pinpointed the location of the accident, but it is likely to have been on the British coast, perhaps off Cornwall. I base this conjecture on an examination of sailing patterns during that period, and on the fact that Mint Director Moore was notified of the wreck on 18 October, from Liverpool.

The planchets were recovered, indicating at least that the wreck took place in shallow water. They were returned to Soho, where they were refinished and annealed. Boulton, Watt's canal carrier, Worthington & Company, dispatched them to Liverpool for reshipment to America the following month. The charges for the refinishing of the copper, plus porterage and reshipping, came to £87 3s. 5d., a sum paid by the underwriters of the Algonquin.

The Algonquin seems to have been repaired and refloated - at least, we find a vessel by that name (but with a new master) involved in the final Soho planchet shipment, which took place in the spring of 1837. But the wreck of the second ship, the Delaware, was far more serious, for much of her cargo was never recovered, and she never sailed again.

The planchets involved in the Delaware disaster started out in the ordinary fashion: some twenty-nine casks of them (slightly more than five tons, in this instance) left Liverpool on 26 October 1833, Samuel Moore being so advised on 6 November. The cost of the planchets amounted to £660 (which included a late charge of £2 7s. per ton, an attempt by Soho to get the Americans to pay for their shipments on time). Insurance and shipping charges added another £17 10s. 5d. to the bill.

The ship had been involved in the planchet trade the previous summer, clearing Liverpool for Philadelphia at the end of June. Based on sailing schedules for the period, the Delaware would have barely had time to return to Liverpool and take on additional cargo before she was once again crossing the Atlantic: the haste with which the business was conducted might have had a part to play in her later troubles.

She went down off Wilmington, Delaware in weather which was so bad that attempts to salvage her were fruitless. Of her planchet cargo, nine casks were lost completely, as well as parts of two others. Another nine casks were recovered, carried into Wilmington, condemned there as salvage, and sold to John Vaughan, who was the Philadelphia agent for the insurer, Lloyds. Vaughan had earlier reached an agreement with Samuel Moore, by which the latter promised to purchase the blanks for twenty-eight cents per hundred if undamaged, twenty-two cents per hundred if damaged ("which was the price of alloy"). Thus armed, the insurance agent bought the nine casks (at twenty-six cents per hundred, some of the planchets having been damaged during their adventure). The other nine casks of the original shipment were also recovered, 'unit for any purpose but alloy'; they and the remnants of the two broken casks were sold at Philadelphia, the ubiquitous Vaughan managing to buy the lot. All told, of the original five tons of the shipment, 7681 lb. of planchets eventually reached the Mint; but another 3687 lb. were never received. The value of the salvaged copper, paid for at the Mint, was $1830.94. On 18 October 1834, Samuel Moore wrote to Matthew Robinson Boulton, appending Vaughan's report on the accident. He requested Boulton, Watt & Company to pass along whatever monies they received from the underwriters. In the event, however, the account would not be settled

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68 BRL. Mint Book [Number 38], Mint and Coinage Day Book, 1820-34, pp. 233-8. The entries pertaining to the Algonquin begin on 22 September 1832 and end on 29 November 1832. The collection of the American Numismatic Society contains several 1832 and 1833 cents which show damage consistent with having been immersed in salt water during the planchet stage and later refinished (pl. 2, nos 16–19).


70 BRL. Mint Book [Number 38], Mint and Coinage Day Book, 1820-34, pp. 252-3, 258-9.

71 BRL. Assay Office Non-Book Items, Incoming Letter Box M2 (Mol to Mz), Samuel Moore to Matthew Robinson Boulton, 18 October 1834. Moore included clear copies of Vaughan's report on events, as well as the latter's statement 'C' on the copper recovered and the charges pertaining thereto.
until August 1835, when the Mint found itself acceding to the underwriters' account of things, 'so that this unfortunate transaction may now be cleared'. The difficulties arising out of the Delaware affair had gone on for nearly two years, a constant reminder of the Mint's vulnerability as long as the British connection was maintained. Meanwhile, the new association with an American planchet supplier was working fairly well. One more jolt to the transatlantic trade might well see its total abandonment in favour of the new arrangement. But the final blow had nothing directly to do with Boulton, Watt & Company. That firm became a victim of far larger economic difficulties, which had created a panic and a severe depression in the United States. The shoddily-constructed house of speculation, encouraged by outgoing President Jackson, collapsed around the head of his hapless, handpicked successor, Martin Van Buren. Taking office in March, Van Buren found himself confronted with economic hard times by May. Inevitably, he, and all branches of his administration, would be influenced by the economic implosion which his predecessor had helped to ignite.

In the case of the Mint, it suddenly became impossible to render payment to Soho by the usual method of sending sterling bills of exchange, unsettled economic conditions having caused the disappearance of this form of money. But there was a deeper source of trouble, and Director Patterson touched upon it when he wrote to Soho in late September. The 'pecuniary relations' between America and Britain were in a sorry state. Until they improved, 'I cannot feel myself justified in giving you any additional order for planchets'. If Boulton, Watt & Company would send an account of the balance due, the Mint would immediately pay it. This letter must have come as a shock to Soho. The firm was doubtless aware of tensions, political and pecuniary, between the United States and Great Britain, and it may have been aware that sterling bills of exchange were difficult to procure. But it did not know of the existence of an American rival, which was the reason why the Mint could take an independent stance during this time of crisis.

It was shortly told of this altered state of affairs. As he had requested, Robert M. Patterson received a final account from Soho, dated 2 November. He remitted the amount due, a trifle under £150, on 27 December 1837, appending a note which informed Boulton, Watt of the existence of Crocker, Brothers & Company. He poured salt in the wound by observing that the arrangement with this company 'for furnishing us with Copper planchets, by which our payments are made in Copper coins, is so advantageous, that while it can be continued, we cannot resort to your manufactory'. But Patterson then held out a faint hope: if circumstances ever changed, he would be happy to send Soho further orders, 'as I shall ever remember the faithful, honourable, and most satisfactory manner, in which all your engagements with this Mint have been executed'.

While Boulton may have appreciated the gracious thanks expressed in this farewell letter, he was nevertheless perfectly aware that it was a farewell letter, that a major part of the history of Soho was coming to an end. His final words to Patterson, the Mint, and to America have an almost elegiac quality:

Sir

I am favored [sic] with your letter of the 27th ulto. covering [?] a bill of Exchange valued £147.12.5, the balance of my Acct. with the Mint of the United States — It is with much regret I observe from the conclusion of your letter that the Commands of that Establishment with which I have been honored [sic] for a long series of

72 BRL. Assay Office Non-Book Items, Incoming Letter Box PI (Pa to Pin), Robert M. Patterson to Matthew Robinson Boulton, 8 August 1835.
Years, are directed into another Channel; the interruption of a commission of nearly 40 years duration & one always esteemed as a valued mark of Confidence & Distinction cannot be otherwise than deeply felt, altho’ it is no inconsiderable mitigation to know that the event has not proceeded from any cause within my control. Beside [?] this impression I need merely add [?] that should circumstances hereafter allow of the renewal of it, you may rely on every disposition existing on my part to avail myself of the opportunity – For your obliging exposition of the sentiments accompanying the communication of your intentions I beg you to accept my best acknowledgements, as also the assurance that a lively sense & recollection of the attentions uniformly experienced with the Directors of the Establishment, along with great respect & esteem will not cease to be entertained by

Sir
Yours very faithfully
M. Robn Boulton

Once broken, the ties to Soho were never renewed. The United States Mint continued its new policy, obtaining its copper planchets from domestic manufacturers. And the firm which had served it for so many years would soon come to an end as well, as its owners died and their heirs decided not to continue their labours. The contributions of a British firm to the central coin of American history was scarcely known to more than a handful of Mint employees of the time, and of course fewer people still are aware of them today. In any case, one might surmise that the ordinary nineteenth-century American citizen would have not been particularly happy to learn of the ‘unpatriotic’ reliance on the expertise of the ancient enemy in the production of the coin with which he most typically came into contact. But all the same, the reliance on Soho for millions of American coins was an immutable fact.

And the importance of these myriad bits of copper, which began their lives as ore in Cornwall, and ended them as cents and half-cents spent in Eastern cities and on Western prairies, should be given due credit. Without these pieces of Soho, a central chapter in the numismatic history of the United States could not have been written. And their significance as symbols, signposts along the winding road of America’s history, should receive due attention as well. The need to import them speaks volumes about that country’s adolescent stage of development at the time of the trade; its ability to sever the English connection and provide for itself indicates that it had gone beyond it, and come of age.

KEY TO THE PLATES

2. Cent, 1796, Sheldon 109 (obverse). Note weakness near edges, caused by the convexity of the planchet.
5. Anglesey halfpenny, Dalton & Hamer 282 (obverse).
7. Detail of edge, Anglesey halfpenny (Dalton & Hamer 282).
8. Detail of edge, United States cent (Sheldon 176).
10. Detail of reverse, United States cent (Sheldon 176). The second 8 in the date of the undertype can be seen below the left limb of the A, while tops of THE are visible from ICA of AMERICA to the near wreath ribbon.
11. Cent, 1817, Newcomb 7½ (obverse).
12. Cent, 1817, Newcomb 7½ (reverse).

BRL. Letter Book, Copies of Letters Soho, 1836–40, Patterson, 29 January 1838.

PP. 1421–2, Matthew Robinson Boulton to Robert M.
15. Cent, 1831, Newcomb 9, proof (reverse).
16. Cent, 1832, Newcomb 1 (obverse).
17. Cent, 1832, Newcomb 1 (detail of the obverse). The discoloured area between the star and the date is actually below the normal level of the field.
18. Cent, 1833, Newcomb 2½ (obverse). The discoloured area extending from the head to the right of the date shows evidence of corrosion under magnification. As with the preceding coin, this piece never saw circulation.
19. Cent, 1833, Newcomb 5 (detail of the edge). Traces of porosity may be seen, and there appears to have been an attempt to plane the edge flat.