

Case Study #28

December 2022

Making Money: Mathew Boulton and the Industrial Revolution in Coins

When John Wilkinson could not amass enough small-change coins to pay his workers, he set up a tab and a “pay-table” at a local alehouse and instructed his employees to drink several pints until they whittled their wages down.¹ Due to coin shortages, workers drank their wages away until their boss had the correct amount of change to give. With nearly one thousand employees, Wilkinson was one of Great Britain’s largest employers at the beginning of the First Industrial Revolution.² An iron specialist, he invented a machine for boring cast iron, which was instrumental to the development of cannons and the steam engine. Arranging pay-tables at pubs was just one of a handful of ways that industrialists like Wilkinson managed to pay their workers when there was a severe shortage of coins in circulation.

Other common methods included long-pay and group-pay, where workers were given high-value coins less frequently, or high-value coins that had to be split among several families. In both cases, figuring out how to break down payment into smaller portions was a hassle. At times, Wilkinson also provided housing and coal in lieu of money. The small change shortage meant it was not only cumbersome for individuals to get paid, but it threatened to stall the economic momentum of the Industrial Revolution. The Royal Mint, for a variety of reasons, failed to supply enough coins for the economy to function. Eventually, Wilkinson, along with a few other leading industrialists, took the initiative and minted their own coins. To pay their workers, industrialists got into the business of literally making money. This marked the beginning of the commercial coin industry that blossomed in the 1780s and 1790s in Great Britain.

Matthew Boulton founded what was then the largest modern manufactory in the world: the Soho Works, situated in the outskirts of Birmingham. Most historians know Boulton primarily for his partnership with James Watt in developing the steam engine, but he was also at the centre of the currency politics of the period, and a reluctant but crucial figure in the illicit commercial coin industry. He established the most sophisticated mint the world had seen and became a heavyweight in the coin market. Over the span of roughly two decades, Boulton’s Soho Mint made coins and commemorative tokens for clientele across Great Britain and the globe, with buyers including the East India Company, the government of France, royalty in Sweden and Naples, and a colony of freed slaves in Sierra Leone. But, impressive as these contracts were, Boulton was never interested in dominating the private coin industry for its own sake. For Boulton, these smaller contracts served as practice and a way to advertise his skills to his ultimate client. Boulton had his eyes on a more ambitious goal: he wanted a contract from Parliament to mint coins for the entire country. He sought to supplant the Royal Mint’s monopoly on the minting of regal coinage.

By 1797, after years of persistent lobbying and perfecting his own technology, Parliament finally granted Boulton his first contract to mint coins for Great Britain, which he continued to do until shortly before his death. Before the end of his life, he equipped the Royal Mint with his own improved minting technology, thereby entrenching his legacy of improving the standardisation of coins for Britain and revolutionising the production of money.

Despite achieving his ultimate goal, Boulton’s path to success was strewn with dramatic failures.

Case study prepared by Michael Leger. Case study editor: Professor Christopher McKenna, University of Oxford.

Financial support for this case study was provided by Walter Scott & Partners Limited – a global investment firm based in Edinburgh, Scotland, and founded in 1983.

The peak of commercial coinage in 1794 offers a window into a world where the government did not have a de facto monopoly on currency – a world where competition took place between *thousands* of illegal regional currencies and regal coinage – and the singular royal option demonstrably lost. There was no guarantee that the commercial coin industry was going to come to an end. Boulton could have made a greater profit by using his technology to game the counterfeit market, or by bolstering the private market with commercial coins, rather than attempting to replace the regal coinage. But for Boulton, the priority was to perfect a machine that could consistently make a standardised coin. He was more interested in breaking new ground as an inventor and investor than he was in being a profit-driven businessman. Perhaps the greatest irony of all is that despite having made literally tons of coins, he never made very much money at all.

From Brummagem wares to ormolu for the King and Queen

Boulton was born in Birmingham in 1728 to a toymaker, which in the 18th century meant anyone whose expertise was in making small metal items, such as buttons and buckles. His father made him a partner in the small family business at the age of 21; the young Boulton took over most managing responsibilities shortly thereafter.³ While Birmingham had a reputation for metals, consumers associated the city with sub-par products, known at the time as “Brummagem wares”.

Even in Boulton’s early days, he showed a serious interest in expansion and in improving the quality of his father’s work. He convinced his father to buy a nearby mill so that they could make their own sheet metal as opposed to buying it from others. This expansionary energy of Boulton’s only became more intense after his father’s death. By his early thirties, he committed to building a massive manufactory, which he called the “Soho Works”.

In addition to having inherited his father’s business, he secured further capital through the family



M. Boulton & Co. Buttons in General.
Boulton & Co. Buckles, Latchets &c.
M. Boulton & Co. Silver & Plated Goods.
M. Boulton — Mint for Government's ♀ Coin.

SOHO MANUFACTORY
under the Annex'd Farms

M. Boulton — Medals Roll'd Metals &c.
D. Mercantile Trade in Birmingham.
Boulton, Watt & Sons. Iron, Foundry & Steam Engines.
F. Watt & Co. Letter Copying Machines.

Published by J. Bisset, Museum Birmingham for his Magnificent and Grand National Directory 1800.

(singular) of his wives (plural). Boulton’s first wife, Mary Robinson, died ten years after they were married, after which he controversially married Mary’s sister, Anne – just a year later. Despite ruffling community feathers, Boulton’s second marriage helped Boulton secure a larger stake of the Robinsons’ inheritance.

But for Boulton, it did not seem to matter how much capital he could get, whether through his marriage into a wealthy family, or his inheritance of his father’s

Source: [Wikicommons](#) Soho Manufactory Marketing Material

business: Boulton’s projects were always grander than his pockets were deep. The construction of the Soho Works cost nearly five times the expected sum, and finally relied upon a “staggering amount of loans”.⁴ Boulton even hired an architect to help design Soho, which was highly unusual for a manufactory.⁵ Ever the self-publicist, he had a knack for design and fashion. He was an early branding specialist: he wanted Soho to be beautiful. By 1768, he claimed to have established “the largest Hardware Manufactory in the World”; he called his estate “the Monument I have raised to myself”.⁶

Before long, purchasers held the metalwork of Boulton’s Soho Works in higher regard than other Birmingham products.⁷ Boulton wanted to make articles of higher quality – but also higher variety. His workers made buttons, buckles, candlesticks, salvers, sword hilts, and bread baskets.⁸ Perhaps more importantly, Boulton marketed his metals to the upper echelon of society. He was Soho’s brand ambassador par excellence. He presented inlaid swords to various royal households; George III and Queen Charlotte personally commissioned ormolu pieces.⁹ Tourists came from across Europe just to see the Soho factory in operation. Replete with a showroom that served tea and showcased the most beautiful metals, Boulton presented Soho as a substantial hub of industry. Writers, too, travelled to the Soho Works and

waxed poetic on how he had transformed a barren land into an exemplary world-class site. It was an early equivalent to the hype surrounding the Silicon Valley offices of Apple or Google.

If the Boulton name was to move beyond lowly Brummagem wares, its factory had to show it – and it unquestionably did. England’s “most complete manufacturer” in metals was a site to behold. The Soho Works was a resounding success in the eyes of others, but remained troublingly unprofitable. Boulton was a great salesman, but poor at setting the right price.¹⁰ By 1773, Boulton’s main business partner, John Fothergill, thought they should cease trading altogether. But that same year, they successfully won a long political struggle to establish an Assay Office in Birmingham, which was a game-changer in legitimating the quality of their metals.¹¹ Fothergill was not about to dampen Boulton’s indomitable energy. It seemed that nothing could.

Only one year later, in 1774, James Watt – the celebrated Scottish engineer and inventor – joined forces with Boulton at Soho. For Boulton, surpassing the shoddy reputation of Brummagem wares was never going to be enough. Boulton was no genius inventor, but he was a quick study and demonstrated an interest in pushing the limits of what was known to be technologically possible. He was, after all, a chief member and host of the Lunar Society, a group of inventors and industrialists who met to discuss scientific theories and conduct experiments monthly, including Erasmus Darwin, Josiah Wedgwood, and Joseph Priestley. He became friends with Benjamin Franklin in his late twenties.¹² In the 1760s, he exchanged ideas with Franklin not only on coin-minting techniques, but also on the possibilities of a steam engine. The availability of water limited nearly every step of his manufacturing process; Boulton knew full well how unlocking a new source of energy would transform his own business, let alone industry across the world.¹³ Joining forces in 1774, Boulton and Watt spent several years developing Watt’s plans for a steam engine. Their efforts paid off; Watt’s engine became an integral part of the Industrial Revolution, and of the Soho Works.

Just as Boulton successfully petitioned Parliament for the establishment of the Birmingham Assay Office, Boulton also secured a 25-year extension to Watt’s original patent, without which Watt may never have had the time to develop his engine technology and clinch his everlasting fame.¹⁴ At times Watt was highly sceptical of the eventual success of the project. Not only did Boulton nearly run himself into bankruptcy in supporting Watt, but he was a source of friendship, writing letters of emotional encouragement to Watt when he was away selling other goods.¹⁵ Boulton was steadfast in his engineering ventures, with unrelenting determination and optimism. The steam engine would go on to power Lancashire cotton mills, pump out Cornish tin mines, drive the stone mill wheels to mill flour, and, later, carry steamboats on the Danube and around the British coast. Joseph Priestley, his fellow Lunar Society member, said that whatever Boulton did – whether he succeeded or failed – he would do it with grandeur.

Despite the enduring – perhaps eclipsing – impact of the steam engine, James Watt considered Boulton’s minting work a greater social contribution. Watt wrote: “had Mr. Boulton done nothing more in the world than what he has done in improving coinage, his fame would deserve to be immortalized”.¹⁶ In the 1770s, as Boulton sold ormolu abroad and boosted Watt’s steam engine experimentation, he was simultaneously writing to Parliament on the poor condition of currency.¹⁷ The currency problem plagued the country, and Boulton was only one of many who poured energy into fixing the problem.

Druids, Willeys, and the corruption of the Royal Mint

By the 1780s, Members of Parliament and industrialists alike were frustrated with the Royal Mint for its various failures. There is no single answer to why the Mint failed to increase production of small denomination coins. The Mint’s stubbornness was in part due to monetary ideology: the poor used copper coins as their medium of exchange, but the Mint prioritised the management of silver and gold. Moreover, the Industrial Revolution dramatically increased the number of individuals on wage labour, which caught the Mint off guard with its conservative minting schedule.¹⁸ Compounding the problem, the Mint’s technology was outdated; the Tower of London did not have the capacity to make many coins in a short period of time and resisted mechanical improvements for fears that new technologies would replace its workers.

Isaac Newton, who was Master of the Mint at the beginning of the century, brought about the last major technological changes at the Mint.¹⁹ The previous substantial recoinage had been advocated by the famous philosopher, John Locke, at the end of the 17th century.²⁰ Changes at the Mint were rare; but curiously, when changes did come about, they came through notable figures better known for other work, including



Source: [Wikicommons](#): The Royal Mint was based in the Tower of London from the 13th to the 19th century

change may add further enemies and critics to the Mint's ever-growing list.

By mid-century, half of all copper coins in circulation were counterfeits.²¹ In 1787, the Mint sampled halfpennies in circulation and found that just 8% were genuine. When the Mint ushered forth a minor gold recoinage scheme in the 1770s, it overran in both schedule and budget, and served mostly to line the pockets of sympathetic politicians. Lord Cadogan, Whig politician and then-Master of the Mint, earned £80,000 pounds through the recoinage – roughly £15 million pounds in 2022.

Edmund Burke charged that the Mint was “a great expense to the nation, chiefly for the sake of members of parliament”.²² Burke favoured viewing the Mint predominantly as a manufacturer and less as a guaranteed arm of government. This criticism opened the door to considering whether another manufacturer would be a better alternative than the Mint. It was in this context in 1782 that the state commissioned Samuel Garbett, a friend of Boulton, to write a report on the state of management of the Mint. As the owner of the world-renowned Soho Works, and an expert in metals, Boulton believed he was well positioned to take over the Mint's job. Anticipating a Parliamentary contract, Boulton began making plans for constructing a Mint at his famous Soho Works. While he did eventually achieve a contract, it didn't arrive until 1797, and a significant reason for the delay was the overwhelming success of various commercial coins.

The presence of counterfeiters was not new, though their abundance was impressive. The rise of commercial coins, however, was unprecedented. Parliament restricted the ownership of screw presses as early as 1662, allowing only button-makers to own the machines.²³ In 1741, Parliament made counterfeiting silver, copper, and brass an act of high treason – one which carried the death penalty. In 1791, the state extended this to include smaller denomination coins like halfpennies and farthings. Button-makers (toymakers), as the only members of society with screw presses, were naturally the most prominent early counterfeiters.²⁴

Despite their reputation as being shadowy figures operating in dark alleys, as well as the array of laws that authorities set against their business, they provided a substantial economic service. Counterfeiters advertised their services loudly and proudly, and Parliament often turned a blind eye.²⁵ What changed in the 1780s was the rise of commercial coins. Beyond just making counterfeit coins, Thomas Williams, Welsh magnate and owner of the Parys copper mines, was the first to make a commercial coin for his workers – a coin that was not intended to mask itself as regal coinage, but a coin that was a currency in its own right.

In 1787, Williams, known as the “Copper King”, made what he called “Druids”, so that he could pay his employees with money – avoiding the highly inconvenient forms of non-monetary remuneration of the time. His Parys mine employees accepted the Druids without protest. Moreover, local merchants agreed to accept the coins until a new regal halfpenny became available. Druids circulated beyond the confines of North Wales and gradually made their way around the country. Redeemable in Anglesey, Liverpool, and London, people trusted that they would not be stuck with unexchangeable coins in their pockets.²⁶

Newton, Locke, and Boulton.

Perhaps the most significant reason for the Mint's reticence was the political nature of any major currency reform. No matter how careful or considered, major changes to currency pit some sectors against others. Toying with the value of currency pits importers against exporters, industrialists against rentiers, and stirs up latent regional and class politics.

The quality of 18th-century regal coinage was shoddy and the Mint's management of the blood supply that feeds economic exchange was subpar – to put it lightly – but a major

His designers had created coins that were more aesthetic and harder to counterfeit than regal coinage.²⁷ Williams constructed them with a collar to make sure they would be circular, and added edging. Despite their illegality, Parliament once again looked the other way, just as they did with most counterfeits. Williams went on to make his own mint, and established contracts with other industrialists to mint coins for their factories across the country.²⁸

One of the reasons why Thomas Williams invested so heavily in copper mines in the first place was because of the booming copper sales brought about by the slave trade.²⁹ Birmingham and Bristol housed some of the largest manufacturers of Manillas, metal bracelets used as currency in West Africa during the



Source: [Wikicommons](#): A 1790 Anglesey halfpenny

slave trade. England increased production of Manillas so that they could buy more Africans to ship as slaves across the Atlantic. Thus, Williams' business was defined by two different alternative currency projects: his copper supplied both the production of Manillas for distribution in West Africa, in addition to Druids and a handful of other commercial coins in England. These echoed the contemporary, short-lived paper *assignats* associated with the French Revolution. While England's situation was unique, the period was rife with the use of currencies that might seem radical to us today.

In addition to Druids, Williams made a set of coins called "Willeys" for John Wilkinson – the ironmaster who was at pains to pay his workers with regal coinage. The first run with Willeys was underwhelming. Wilkinson overvalued the price of Willeys by giving them a value of one penny, while they only weighed half as much as normal pennies.³⁰ His workers refused to accept them. However desperate Wilkinson's workers were

for a functional coin alternative, they still judged coins by their weight and value. The coins still needed to feel and carry a weight similar to what they knew and trusted in regal coins. Wilkinson's first failure with his Willeys proved that people were still the arbiter of what could pass as money.

Meanwhile, Boulton kept a close eye on Williams' developments, as he considered Williams a competitor for a government minting contract. Boulton badly wanted a government minting contract. Some scholars have emphasised Boulton's altruism as an explanation: Watt, for one, claimed that Boulton wanted to turn whatever invention he could into something that would benefit the public. The country needed a standardised coin, and Boulton believed he was the best man for the job.



Source: [Wikicommons](#) Manillas from Nigeria

While it is true that Boulton never made very much profit at all from turning his focus towards minting, the fact remains that the minting contracts served as a way to keep the rest of his businesses afloat. With a famous but unprofitable factory, hundreds of employees on the line, a serious financial stake in Cornwall copper mines, and a steam engine business that was not yet turning a profit, Boulton was anxious for any lifeline that would keep Soho afloat. The fact that the government needed an expert in metals and a factory with the capacity to complete massive contracts at high speed was opportune. There is no reason to think that either altruism or financial necessity exclusively motivated Boulton – it may well have been both.³¹ Either way, what drove Boulton from the early Soho days throughout his budding minting career was his commitment to expansion and to making bigger and better machines. The notion of getting a government contract to make millions of perfectly standardised coins, with a steam engine,

no less, tantalised him.

However, for a considerable number of years, the much-sought-after contract did not materialise. Boulton invested heavily in minting, and in 1786 he completed his first substantial international contract with the East India Company for coins destined for Sumatra. He made just under three million the first year, followed by another seven million coins for EIC the second. He lost money from the Sumatra contract, but it served as an immediate means to gain experience coining, to advertise his skills widely – most of all to Parliament – and to keep his trained employees employed. By 1788 he committed fully to building a mint at Soho (he completed the Sumatra contract with an ad-hoc set-up). Just like the original construction of the Soho Works, he poured more money than he had into the Soho Mint, believing that the Parliamentary contract would be his within a year. A year later, he went so far as to buy out his chief potential competitor, Williams – who was concerned with copper shortages – and had Williams sign a document agreeing that he would not directly compete with Boulton for a government minting contract.³²

In the span of three years, Boulton had such a dramatic amount of sunk costs that – government contract or not – he was committed to finding more minting contracts. Having bought Williams out, he became responsible for minting the various domestic industrial coins that Williams initiated. The perfection of coining processes became his late-life obsession. He wanted to make them perfectly round, of the same diameter, of the same thickness, and with ever more complicated designs – with the effect of impressing his clients and deterring counterfeiters. Ever the promoter, he sent shiny tokens to nobility across Europe with their faces on them. As with his ormolu and quality metalwork, he sought the patronage of the upper echelons of society by sending them free products – a stunt also employed by his Lunar Society friend and ceramicist, Josiah Wedgwood. He established a world-class mint at Soho replete with guard dogs. There was a perennial fear that spies – whether domestic or foreign – would come to tour Boulton’s new mint to get an edge on his improved technology. He was advised to push ahead with as many private contracts as he could, even though he stated that “I never will rest until I have accomplished a National Coinage”.³³

Early forays into commercial coins taught Boulton, Williams, and Wilkinson that the design and appearance of the coins mattered as much as their weight and contents. The look of the coin was the first thing a potential client would consider to determine whether they believed it to be legitimate or not. By paying attention to edge-markings, perfect circularity, and dramatic images on both sides of



Source: [Wikicommons](#) A “Battle of the Nile” commemorative medal from the Soho Mint, 1798

the coin, Boulton used his coins as advertisement, and relied on their detailed imagery as an obstacle against counterfeiters.³⁴ Wilkinson’s coins were a celebration of the Industrial Revolution in all its aspects, engraved with images of industrialists (including himself), factories, and machines.³⁵ Royalty and clergy hired Boulton to produce themed medallions to commemorate significant events. For perhaps the first time, coins and medals became a collectible item. They also became a popular medium for political statements: Josiah Wedgwood commissioned anti-slavery medallions as a way to encourage support for the anti-slavery movement.³⁶ Wedgwood’s medallions spread across England and across the Atlantic to the United States; they were both jewellery and a badge of solidarity.

In these early years of the commercial coin boom, in addition to making tokens and commemorative medals, Boulton minted (predominantly halfpenny) coins for the domestic regions of Anglesey, Cronebane, Southampton, Cornwall, Glasgow, Leeds, Inverness, Lancaster, Essex, Dundee, and Bishop’s Stortford, among others. Elsewhere, he shipped *sols* and *livres* out to France, dollars to Sierra Leone, and



Source: [Wikicommons](#): Wedgwood's anti-slavery medallion

more to Bermuda and India.³⁷ Part of the advantages of having predominantly local-use currencies, made by Boulton and others, is that forgeries were easier to spot than for regal coinage.

Traders found it easier to identify the quality of a newly minted coin that was exchanged mostly in the local area than royal coinage that had been worn down through years of use. This also had the surprising effect that in many contexts the local coins were preferred, and more highly valued, than the Tower of London counterparts, for the simple reason that they were more trustworthy. The vast majority of royal halfpennies were counterfeits – whereas with coins made by Boulton, merchants could trust that there was as much real copper in them as advertised. While most coins made for each region stayed within the region's borders – meaning that most merchants only had to be accustomed to trade in two or three “currencies” – there are some accounts of commercial coins making their way to North America.³⁸

Commercial coin manufacturers, 1787 – 1797³⁹

<i>Mint proprietor</i>	<i>Principal occupation</i>	<i>Known clients</i>	<i>Output (tons)</i>
Matthew Boulton	Various	17	76.61
Parys Mine Co.	Copper mine	2	300.00
John Westwood	Metal roller	12	82.40
William Lutwyche	Die sinker /toymaker	71	66.90
Peter Kempson	Button maker	58	51.95

The commercial coin industry peaked in 1794. Early industrial entrants dominated the first stage, and a slew of craftsmen (working on a smaller scale) headed the second. In 1794, approximately 60 new entrants came to the market, though none produced more than 5 tons of coins.⁴⁰ The third stage of the industry was when production of commercial coins started to wane, and a cottage industry of coin-makers sold rare tokens as collectibles. For a brief period, the private market solved Britain's small-coin shortage. Indeed, the success of the commercial coins delayed Boulton's sought-after government contract – that is, until 1797, when war with France forced a change to the politics of currency in Great Britain, and Boulton's Soho Mint finally started producing its own regal coinage.

War with France, cartwheels, and the re-establishment of the Mint

1797 was a watershed moment in the monetary history of Great Britain. After an attempted French invasion in February, the fear of war destabilised the British economy, causing bank runs across the country. Parliament quickly passed the Bank Restriction Act, which made banknotes inconvertible. This marked the beginning of the Bullion Controversy. The restriction, which lasted until 1821, practically cut off the source of gold coins. More than just the poor felt the shortage at this point.⁴¹ To inject more reliable coins back into the economy, the Bank of England turned to a massive stash of Spanish silver *reales* it had accumulated from trade. Together, the Bank and the Treasury hatched a plan to hammer the Spanish *reales* into English money. Though it initially appeared to be a great success, it took only days before counterfeiters realised how easy it was to make a quick profit from the coins. Because of how hastily the Bank had acted, the coins were easy to fake. As one contemporary pundit put it: “The Bank to make their Spanish dollars pass,/ Stamped the head of a Fool on the head of an ass.”⁴²

It was when Parliament realised that a more substantive overhaul was required that it finally issued Boulton his long-awaited minting contract. Fourteen years had passed since Garbett's report castigating the weaknesses of the Mint, and since then Boulton had cultivated his resumé until he was the perfect man for the job. When it came time for Parliament to take a handful of bids, they interviewed a selection of other candidates, but it was clear that they would select Boulton. Lord Hawkesbury wrote to him that “there

is no man who can better judge of the propriety of this measure, of the plan that ought to be adopted, in issuing a coinage of this nature, than yourself; and no one will execute it with more accuracy, and more expedition". Specifically, Parliament called on Boulton to make a copper coin "for all Ranks of People and particularly those who are in less affluent Circumstances".



Source: [Wikicommons](#) A medal that Britain distributed in France to advertise the Mint's improved technology

Boulton's first order was for 480 tons of pennies and 20 tons of twopenny pieces, six times greater than the total amount of commercial coins he had minted over the span of a decade. Before Boulton even began minting the order – before the contract was signed and officially his – he made plans to completely rebuild the Soho Mint once the project was done. He knew such a massive order would cripple his equipment. These were the first regal coins to be struck by steam engine. Although they lacked edging, they had raised rims to protect their face, which bore a portrait of the King, with the reverse showing BRITANNIA on a rock amid the ocean with an olive branch and a trident. Their raised rims were reminiscent of the wheels of a cart, which gave them their new name: the Soho Mint struck 17.5 million "cartwheels" in fewer than eleven months, far surpassing the Parys Mine's earlier record for output.

Despite the contract being a major achievement for Boulton and a turning point at the end of his career, the cartwheel's success was less impressive.



Source [Wikicommons](#) A 1797 cartwheel

Parliament made a surprising decision to mint a denomination they had never minted before – pennies and twopenny pieces. Halfpennies were the most common denomination in the commercial coin market – it was like being given a pound when what is more useful is two fifty pence pieces. Merchants were reluctant to accept the coins. Cartwheels met the same fate as all other unwanted coins in the economy: they made their way to the alehouse, at which point they circulated no further. Their presence did, however, chill the commercial coin market, resulting in the entire industry trickling to zero output in 1797. Indeed, acceptance of the cartwheels was so slow that the government even shipped off unwanted coins to colonies such as Newfoundland, Cape Town, and New South Wales. The rising price of copper certainly did not help: the nominal value of a ton of cartwheels was about £150, and by 1799 one could

sell a ton of copper for £175 in Europe. Not only did counterfeiters succeed in copying the coins – much to Boulton's chagrin – but other, less artistically-minded criminals melted them down to sell for a tidy profit. Within eight years, much of the cartwheel production had been turned back into raw copper.⁴³

Boulton had secured the contract he so desperately desired, yet ultimately failed to solve the coin shortage crisis. He persisted. Despite the failure of the first run of cartwheels, Boulton successfully lobbied Parliament to provide him with not only a second contract, but a third contract to mint more cartwheels. The domestic commercial coin industry had dried up, and the French market had also chilled because of the war. Boulton desperately needed more business – not just to keep his workers paid, but also to pay back loans he still owned for the *original* Soho Mint, let alone its reconstruction. Boulton, in typical form, was running a world-class business that teetered constantly on the brink of collapse.

In the years that followed, Boulton successfully made a halfpenny coin for Great Britain, which the state and its citizens accepted with less resistance; Soho also carried out minor contracts for other regions. Soho sent millions of blanks to the United States, and at one point a potential contract for minting coins for the country seemed on the horizon, but the contract never came to fruition. Though there were shortcomings in Boulton's first regal coinage, he nonetheless proved to make millions of coins faster than the Royal Mint and at a much better price, thanks in no small part to the use of the steam engine in the process.

Before Boulton's death in 1809, he helped set up a new Royal Mint with his equipment. His son continued to operate the Soho Works factory, while the Royal Mint continued as the country's chief mint, albeit with significantly improved machinery. On the reasons for his success, a close friend remarked: "He possessed above all other men the faculty of inspiring others with a portion of that ardent zeal with which he himself pursued every important object... it was impossible to be near him without becoming warmly interested in the success of his enterprises."

At his funeral procession, 10,000 mourners lined the streets of Birmingham. In 2011, the Bank of England immortalised Boulton and Watt on the £50 note – just as Boulton had once honoured royalty and aristocracy by putting their faces on medals and coins.

Boulton's story offers a glimpse into a brief period when a plethora of regional currencies were exchanged across England with great success. As some scholars have remarked, the notion of operating in a world with no de facto state monopoly on currency strikes present-day readers as chaotic – but chaotic for whom? Evidence suggests that while the period was certainly tumultuous for the state's coffers and its grasp on the management of the economy, the Industrial Revolution and trade between regions of England and across the Atlantic continued unabated. In this instance, private solutions to government failure helped to keep the economy afloat. Understanding the history of the currency shortages in the late 18th century can help us to reconsider currency politics of today, and possibilities for imagining what conditions a currency requires to be legitimate and stable in the long term.

Endnotes

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- ² George Selgin, *Good Money: Birmingham Button Makers, The Royal Mint, and the Beginnings of Modern Coinage, 1775-1821* (Oakland, CA: Independent Institute, 2011), pp. 7, 27.
- ³ Rita McLean, "Introduction" to Shena Mason, ed., *Matthew Boulton: Selling what all the world desires* (New Haven, CT: Yale University Press, 2009), p. 2.
- ⁴ McLean, "Introduction", p. 2.
- ⁵ *Ibid.*, p. 3; Val Loggie, "Picturing Soho: Images of Matthew Boulton's Manufactory," in Mason, ed., *Matthew Boulton*, p. 23.
- ⁶ Loggie, "Picturing Soho", p. 27.
- ⁷ McLean, "Introduction", p. 3.
- ⁸ Selgin, *Good Money*, p. 62.
- ⁹ McLean, "Introduction", p. 5.
- ¹⁰ *Ibid.*, p. 3.
- ¹¹ See especially Jennifer Tann and Anthony Burton, "Birmingham Assay Office," chapter 10 in Tann and Burton's *Matthew Boulton: Industry's Great Innovator* (Stroud: The History Press, 2013).
- ¹² McLean, "Introduction", p. 2.
- ¹³ *Ibid.*, p. 5.
- ¹⁴ Sue Tungate, *Matthew Boulton and the Soho Mint: Copper to Customer* (Redditch: Brewin Books, 2020), p. 61.
- ¹⁵ Jennifer Tann, "Matthew Boulton", *Dictionary of National Biography*, 23 September 2004, <https://www.oxforddnb.com/view/10.1093/ref:odnb/9780198614128.001.0001/odnb-9780198614128-e-2983>
- ¹⁶ Mason, *Matthew Boulton*, p. 15.
- ¹⁷ Tungate, *Matthew Boulton*, p. 61.
- ¹⁸ Selgin, *Good Money*, p. 10.
- ¹⁹ Selgin, *Good Money*, p. 61.
- ²⁰ See Stefan Eich, "John Locke and the Politics of Monetary Depoliticization", *Modern Intellectual History* (2018), pp. 1-28.
- ²¹ Selgin, *Good Money*, p. 32.
- ²² Graham P. Dyer and Peter P. Gaspar, "Reform, the New Technology and Tower Hill, 1700-1966," in *A New History of the Mint*, ed. C. E. Challis (Cambridge: Cambridge University Press), p. 441; also quoted in Selgin, *Good Money*, p. 63.
- ²³ Selgin, *Good Money*, p. 132.
- ²⁴ *Ibid.*
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- ²⁶ Selgin, *Good Money*, p. 43.
- ²⁷ *Ibid.*, p. 44.
- ²⁸ *Ibid.*, p. 46.
- ²⁹ E.W. Herbert, *Red Gold of Africa* (Madison, WI: University of Wisconsin Press, 1984); and J. R. Harris, *The Copper King: Thomas Williams of Llanidan* (Ashbourne: Landmark Publishing Ltd, 2003).
- ³⁰ Selgin, *Good Money*, p. 54.
- ³¹ *Ibid.*, p. 54.
- ³² *Ibid.*, p. 73.
- ³³ Tungate, *Matthew Boulton*, p. 149.
- ³⁴ Selgin, *Good Money*, p. 45.
- ³⁵ See F. . Klingender, *Art and the Industrial Revolution* (London: Noel Carrington, 1947), quoted in Selgin, *Good Money*, p. 133.
- ³⁶ Lloyd E. Hawes, "Antislavery Medallion," in *The National Museum of American History* (1987), https://americanhistory.si.edu/collections/search/object/nmah_596365)
- ³⁷ See Tungate, *Matthew Boulton*, Appendix, p. 209.
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- ³⁹ *Ibid.*, p. 126.
- ⁴⁰ Ken Elks, *Late 18th Century British Token Coinage* (London: Ken Elks, 2005), p. 23.
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- ⁴² *Ibid.*, p. 160.
- ⁴³ *Ibid.*, p. 173.