CHAPTER ONE:  
BRITAIN'S BIG PROBLEM

‘Commodore!’ said the stranger, starting up, ‘my coach—place booked,—one outside—leave you to pay for the brandy-and-water,—want change for a five,—bad silver—Brummagem buttons—won't do—no go—eh?’ and he shook his head most knowingly.¹

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We aren't used to dealing with cash shortages these days. Of course people grumble about being short of money. But their complaint isn’t about a shortage in economists' sense of the term. They wish more wealth would come their way; but whatever they’ve got coming to them comes more or less the way they want it, as ready money. They’re able to swap checks for notes and coins, or vice versa, as they see fit. No one has to struggle much to change a twenty-dollar bill, or even a C-note. On the contrary: to judge from the little cups of free pennies found next to most cash registers, or (if I may offer a personal example) from the overflowing bowl of change on my dresser top, ours is an age, not of small-change shortages, but of small-change surpluses.

Nor do we worry much about the condition or legitimacy of our cash. Counterfeit bills remain a peril, but no one even suspects that their dollar coins, quarters or dimes, much less their pennies, might be fakes. Coin markings are for the most part clearly visible, uniform, and official looking. The occasional queer coin is merely a curiosity. It is something to give to one's nephew, not proof that things have gone awry at the mint.

Wanting Change

Two centuries ago, both in the U.S. and throughout the rest of the Western world, the situation was entirely different. Nations routinely suffered from coin shortages, and from shortages of small-value coins especially.² Great Britain was no exception. Shortages of small money there can be documented at least as far back as the Middle Ages, when commoners routinely petitioned Parliament and the King for more farthings and

¹ Charles Dickens, The Pickwick Papers, chapter 2.
halfpennies. Urgent appeals for more small money were heard in 1380, and again in 1404, and yet again in 1444. And those shortages were nothing compared to the one that first broke out in Ireland at the onset of 18th century. “We are in great Want of Half-pence and Farthings, are almost stripped of all Sorts of Silver Coin, and have very little of the small Gold Species,” wrote Thomas Prior in 1729. “Tis our Misfortune,” he added, “not only to have little Money current among us, but even that Little to consist of such Sorts, as are the most unfit for the Management of our Domestick Dealings.”

The Irish coin shortage quickly spread to Great Britain, becoming especially serious during the critical first stages of the Industrial Revolution. That revolution, which is supposed (by some historians at least) to have begun around 1760, generated a huge demand for coins suitable for paying wages of miners, factory workers, and journeymen. By 1771 an anonymous writer was telling anyone in Parliament who would listen that “The scarcity of Change has been severely felt by People in Trade for upwards of these Ten years past, and this Scarcity increases daily; and base designing People avail themselves of it, by getting Credit for trifling Sums, which they never intend to pay.”

Besides witnessing an accelerating rate of population growth the last, “revolutionary” decades of the 18th century also saw an unprecedented shift in employment away from agriculture and towards manufacturing, with a corresponding increase in the number of wage-earners. Back during the mid-16th century less than a quarter of Britain’s population depended upon money wages; by the end of the 18th century the fraction was close to three-quarters. According to Barbara and John Lawrence Hammond (1911, pp. 97-106) this shift was largely a consequence of the burst of Parliamentary enclosures of common fields between 1760 and 1780. The enclosures forced many small proprietors and a still greater number of cottagers and squatters to give up their “scratch-as-scratch-can” existence and to seek employment as landless laborers,

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3 See Redish (2000, p. 111), who refers to Ruding (1840, 111-25 and 238-75); and also Peck (1970, pp. 1-8).


either on enlarged commercial farms or, increasingly, in the growing numbers of urban workshops and factories:

Those fenceless fields the sons of wealth divide,
And e'en the bare-worn common is denied.⁶

But if enclosures pushed people out of the countryside, it is no less true that industry lured them out. The broadening of foreign markets, together with momentous mechanical innovations, served to substantially increase the productivity and real earnings of labor, and of non-agricultural labor especially. The benefits of industry—of Oliver Goldsmith’s “ten thousand baneful arts combined”—served not merely to “pamper luxury,” as Goldsmith himself would have it, but also, eventually, to increase workers’ living standards.⁷ Besides, most rural villages were a far cry from Sweet Auburn:

Ye gentle souls, who dream of rural ease,
Whom the smooth stream and smoother sonnet please;
Go! if the peaceful cot your praises share,
Go look within, and ask if peace be there.⁸

Nor should we overlook the liberating capacity of money earnings, so well appreciated by Samuel Johnson. Those who lived off the land, he observed, were also bound to it, having no portable wealth. Wages paid in gold, silver, or copper, on the other

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⁷ Although a debate raged for some years concerning whether the industrial revolution really did bring about a sustained improvement in workers’ living standards, most authorities now agree that it did so, but only starting around 1820 (see, e.g., Lindert and Williams 1983). Until then the demands of the Seven Year’s, American, and French wars often left workers impoverished, despite immense improvements in the British economy’s overall productive capacity. That Great Britain managed, despite a huge diversion of efforts toward making arms, financing foreign governments, and filling the ranks of its army and navy, to accumulate the stock of capital that would eventually provide for substantial improvements in its citizens’ well-being was itself quite a remarkable achievement.

⁸ George Crabbe, *The Village*, 1783.
hand, supplied “power of resistance and means for escape” from what was, essentially, a feudal system.\(^9\)

Whether the Industrial Revolution was liberating or not, the fact remains that, thanks to it, large numbers of families that had once pastured animals on the waste while obtaining gleanings, brushwood and turf from common fields now had to purchase their butter, flour, and fuel, and to purchase them with money. Having lost their cows, the new “waged proletariat” found themselves utterly dependent on their coppers (Rule 1992, pp. 87-90).\(^10\) But while landless workers multiplied, the supply of good money, and of good small money especially, dwindled.

By the 1780s even prosperous firms were fighting an uphill battle to pay their wage bills. Although most workers earned less than 15 shillings a week, some firms had huge payrolls. The cotton textile industry alone employed over 150,000 workers, half of whom were weavers. Individual textile mills often employed hundreds of workers. In Stockport in the autumn of 1786, for instance, Samuel Oldknow had 300 weavers working for him. That translated into a monthly wage bill of over £1,000. A second mill in Anderton cost Oldknow another £500 a month in wages. And yet the reign of “king cotton” was just beginning, the industry having only recently begun to take advantage of opportunities made possible by steam power. By the spring of 1792 Oldknow's wage bill had risen to over £750 a week; and some years later that figure too would be eclipsed, with Oldknow finding himself the owner of no fewer than twenty large textile mills (Unwin 1968, pp. 45 and 107).

Mining companies operated on a still grander scale. The Parys Mine Company in Wales employed a thousand workers, as did Cornwall's Chacewater and Dolcoath copper mines. Cornwall's Consolidated Copper Mines were larger still, with 1500 workers to provide for. Yet all the copper mines together, with just over seven thousand workers, were small beer compared to the coal mines, which boasted close to 50,000. Abraham Darby and John Wilkinson, the great ironmasters, each employed over a thousand workers, including colliers, and some of their less famous rivals were not far behind. The largest single employers of all, however, were the principal Royal Dockyards at

\(^9\) Johnson's *Letters*, Johnson to Boswell, 22 July 1777.

\(^10\) Arthur Young (1776) guessed that peasants' cows were worth approximately 5-6 shillings per week to them and their families. No commons, no cow. By 1780, unskilled adult male wage laborers earned only about 7 or 8 shillings a week.
Portsmouth, Plymouth, Chatham which—thanks to the Seven Year’s War and then to the American insurrection—employed a staggering 6500 workers.

Coming up with enough coins of any kind of the denominations needed to meet such enormous payrolls was never easy, while getting hold of enough good coin for the purpose was well-nigh impossible. And matters seemed bound to get worse: the recent appearance of rotary steam engines had vastly increased opportunities for the profitable exploitation of factory labor, while earlier marriages and reduced mortality rates were causing England’s population to grow more rapidly than ever. The population growth rate, which was about three percent before 1751, had doubled by 1781, and would come close to doubling again before the end of the century.

No one can say exactly how British industry would have fared had the shortage of good money not been addressed somehow. But in calling the shortage a cause of “much inconvenience and social disharmony,” T.S. Ashton (1955, p. 167) exemplifies the British penchant for understatement. In fact, as John Rule (1992, p. 304) has observed, “Complaints both of an absolute shortage of coin, especially of small denominations, and of the deficiency in weight of those [coins] that remained in circulation were frequent, bitter and widespread.”

But disharmony was the least of it: the coin shortage threatened to delay, if not halt, the process of industrialization that offered displaced peasants their best hope of earning a livelihood, instead of having to pick oakum in dreary workhouses. Had Britain not managed somehow to come up with a substantial quantity decent coins, British industry, instead of rushing forward, might merely have limped along.

**Coining Words**

What was behind Great Britain’s small change shortage? One economic historian's answer—that the Royal Mint's “obsolete” equipment kept it from meeting “the heavy demands of an expanding industrial society” (Whiting 1971, p. 20), won't do: it was, as we shall see, not just the Mint's equipment but its policies that prevented it from supplying enough small change. To understand those policies means coming to grips with some monetary jargon, which isn’t all beer and skittles. But if the going seems rough, take heart: the jargon is mostly confined to the next few pages, after which it seldom rears its ugly
head. And whenever it does, perplexed readers can always turn to the glossary at the back of the book.

A nation’s standard money unit is the principal unit in which prices are posted and accounts are kept. In the United Kingdom the unit has long been the pound sterling, represented by the symbol “£” (from the Roman “libra”). Principal money units are usually accompanied by one or more subsidiary units. Nowadays these tend to be based on decimal fractions (for example, the U.S. “cent” is one-hundredth of a “dollar”), but in the U.K. until 1971 they were based on vulgar fractions. A shilling (1s, from the Roman “solidus”) was one-twentieth of a pound sterling, while a penny (1d, from the Roman “denarius”), was one-twelfth of a shilling, making 240 pennies or pence to the pound (see table 1.1).\(^\text{11}\)

In a metallic standard the money unit refers to a precise quantity of some metal, usually gold or silver, or to a particular coin made from that metal. Originally the pound sterling was just what it sounds like: a Tower pound, or 5,400 grains, of sterling silver, which was equivalent to 4,995 grains of fine silver.\(^\text{12}\) By the beginning of the 17th century the pound had been reduced to only 1719 grains of fine silver, where it remained for more than a hundred years. Then, in the first decades of the eighteenth century, the pound “sterling” ceased to refer to any quantity of silver, becoming a gold unit instead, consisting of 113 grains of fine gold. As we shall see, this happened quite unintentionally.

Coinage is the conversion of metal ingots or “bullion” into disks meant to represent standard money units. Since ancient times coinage has usually been the exclusive prerogative of monopolistic government mints. In Great Britain it is and has long been the prerogative of the Royal Mint, which throughout the eighteenth century was housed in the Tower of London. When coinage of a metal is free, anyone can have any amount of the

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\(^{11}\) Scottish coin denominations were made uniform with those of England and Wales by the Treaty of Union of 1707. The Irish pound, however, remained a distinct unit until it was abolished in 1826. A proclamation of June 1701 made 13 Irish pence equivalent to one English silver shilling.

\(^{12}\) Concerning British weight units see note 21 below.
Table 1.1: British Money Units and Coins, and their Purchasing Power, circa 1787.

**Basic Monetary Unit:** The Pound Sterling (symbol £, from the roman “libra”). Equivalent to 113 grains of fine gold.

The government did not yet supply coins denominated in pounds. Banknotes, on the other hand, were typically denominated in pound units, the smallest permissible denomination being £1 in Scotland and £5 elsewhere in Great Britain.

**Basic Coin Units:**

**Silver:** The *shilling* (symbol s, from the roman “solidus”), with 20s = £1.

**Gold:** The *guinea*, with 1 guinea = 21s (or £1 1s)

**Copper:** The *penny* (symbol d, from the roman “denarius”), with 12d = 1s; thus £1 = 240d.

**Relatively Common Coin Types**

- **Copper:** Minted at equivalent of 23d per pound avoirdupois copper.
  - Halfpence = ½d
  - Farthing = ¼d

- **Silver:** Minted at equivalent of 62s per troy pound of standard silver.
  - Threepence ("Thruppence") = ¼s = 3d
  - Sixpence = ½s = 6d
  - Shilling = 1s = 12d
  - Crown = 2s = 24d

- **Gold:** Minted at equivalent of 44½ guineas per troy pound standard gold.
  - Guinea = 21s = 252d
  - Half-Guinea = 10½d

**Purchasing Power:** One British pound in 1787 was the rough equivalent of $90 in today’s money, making a shilling roughly equal to $4.50. Most adult male industrial workers earned between one and two shillings per 13-hour day.
metal coined at the mint. If coinage is *gratuitous*, the mint charges nothing this service; instead, its costs (and profits, if these are allowed) are paid out of the public purse. Gold and silver were both coined freely and gratuitously in England from 1663 to 1816, with the Royal Mint's coining costs and profits set forth in contracts, known as *indentures*, drawn between it and the government.

The *mint price* of bullion is the nominal or “face” value of coins given in exchange for bullion brought to the mint, while the *mint equivalent* is the nominal value of coins actually made from the bullion. When coinage is gratuitous the two values are equal. Otherwise the mint price will fall short of the mint equivalent by the charge for coinage. Besides covering the mint’s costs that charge, which is known as *seignorage* (after the lords or “seigneurs” who exercised the right of coinage in medieval France) typically includes some profit to the mint or to the government.

During the 17th and 18th centuries the mint equivalent of a troy pound of silver was 62 shillings. So long as Great Britain’s standard money units were understood as silver units, as they were for much of this period, for the Royal Mint to have made more than 62 shilling coins from one troy pound of silver would have been tantamount to reducing the metal equivalent of the pound sterling, the shilling, and the penny.

In a *bimetallic* system, the government allows free coinage, usually with little or no seignorage, of two metals—usually gold and silver—assigning a mint equivalent and corresponding mint price to each. The *mint ratio* is the ratio of mint prices for the two metals, which represents the relative values assigned to them by the mint. For example, if the mint pays £44 10s (or 890 shillings) in gold coin for each troy pound of gold brought to it, while paying £3 (or 60 shillings) in silver coin for each troy pound of silver, the gold/silver mint ratio is 890 ÷ 60 = 14.833. A pound of gold is, in other words, officially worth 14.833 times as much as a pound of silver.

In a gold and silver bimetallic arrangement silver is said to be *overvalued* at the mint, and gold *undervalued*, if the gold/silver mint ratio falls short of the ratio of the metals’ market prices. If, for example, a pound of gold commands in the open market only thirteen times the price commanded by a pound of silver, then a mint ratio of 14.833 overvalues gold while undervaluing silver. In general, even if a mint ratio is initially
consistent with market prices, changes in the metals’ relative scarcity are likely eventually to cause one to become officially undervalued relative to the other.

Gresham’s Law refers to the tendency, under certain conditions, for “bad” money to drive “good” money out of circulation. The law is named, rather misleadingly, after Sir Thomas Gresham, a financial agent to the British government who advised Queen Mary and Queen Elizabeth. But the tendency it refers to is as old as coinage itself. In ancient and medieval times the tendency was most often observed in connection with coin debasements, which were reductions in mint equivalents achieved by adding extra base metal to gold or silver coins, so that the newer coins might appear just as heavy as the old ones despite containing less precious metal. “Bad” (debased) coins then tended to drive “good” (finer) ones out of circulation. In a bimetallic context, on the other hand, Gresham’s Law typically refers to people’s tendency to stop bringing an officially undervalued metal to the mint, and (especially) to their tendency to melt officially undervalued coins or to lighten or “shorten” them, by clipping or filing them or by “sweating” them in nitric acid, until the metal still in them is worth no more than their declared values. The outcome is that only “bad” (degraded) coins made from the undervalued metal remain in circulation.

Gresham’s Law only takes effect where officially undervalued coins can’t command a premium, for such a premium might make up for the coins’ official under-valuation, removing the usual motive for melting or lightening them. It also has to be the case that officially overvalued coins are taken at face value or by “tale,” rather than at a discount or by weight, because a discount applied to officially overvalued coins would have the same

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13 It was a line in one of Gresham’s letters to Elizabeth, telling her that it was her “latte father” who had caused all of England’s fine gold to be “convayd out of this your realme” by “abasing his quoyne from vi ounces fine to iii ounces fine,” that induced Henry Dunning MacLeod to assign Gresham’s name to the tendency in question. In fact the tendency had been referred to by many writers before Gresham, including Copernicus, Oresme, and Aristophanes.

It was, by the way, not Elizabeth’s father, Henry VIII, but his successor Edward VI who reduced the fine silver content of English coins all the way down to just three ounces to the troy pound.

14 “I told you that my grandfather was a shorter... Filing and clipping he employed in reducing all kinds of coin, whether gold or silver; but aquafortis [nitric acid] he used merely in reducing gold coin... By laying a guinea in aquafortis for twelve hours, he could filch from it to the value of ninepence, and by letting it remain there for twenty-four to the value of eightepence, the aquafortis eating the gold away, and leaving it like a sediment in the vessel.” George Borrow, “The Jockey’s Tale,” in The Romany Rye.
effect as a premium on legally undervalued ones. These requirements have often been satisfied historically, thanks in part to the inconvenience of valuing coins at other than their face values, but also to legal tender laws, which have often included sanctions against receiving coins for more or less than their official ratings.  

A *fiduciary* or *token* coin, or simply a *token*, differs from a *full-bodied* coin in having a face value that is substantially above the value of the metal it is made of, that is, substantially above what is often referred to, again misleadingly, as the coin's “intrinsic” worth. The free coinage of tokens establishes a high mint price for the metal they're made of. Simultaneous free coinage of both token and full-bodied coins would therefore amount to a particularly unstable form of bimetallism. For that reason governments usually mint token coins on their own account, in limited quantities, and in small denominations only. The idea is to keep the tokens from driving more valuable full-bodied coins out of circulation.

Finally, a word or two concerning official 18th-century British coin types. Before 1662 all British coins were hand struck or “hammered.” But in that year hammered money gave way, at least in the case of gold and silver, to “milled” money, so-called because it was stamped, using a screw-press, from blanks punched from strips of metal called “fillets” that had been flattened to the required thickness in a horse-powered rolling mill. The first of these mechanically struck coins were made of gold, at 44½ pieces to the pound troy, and were known as guineas, after the Guinea Coast, where the gold came from. Although the guinea was originally assigned an official value of 20 shillings, guineas never traded at that rate. Instead, they commanded a premium that rose as high as 30s in 1694, when the silver coins were badly degraded, settling afterwards at 21s 6d—the rate at which guineas were received by Officers of the Revenue following the Great (silver) Recoinage of

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16 The expression is misleading because all economic values are subjective rather than intrinsic to goods themselves.

17 Confusingly, the term “mill” came also to refer to the screw press itself, while “milled money” is sometimes used to refer not simply to coins made with the help of mechanical presses, but specifically to those having “grained” or vertically striated edges, which were first introduced in connection with the switch to screw presses. In fact “milled edges” were not, until the very end of the 18th century, applied to coins directly when they were stamped, but were applied to blanks in advance of coining by means of a special edge-marking tool.
1696 to 1699. In 1717 Isaac Newton, who was then Master of the Mint, convinced the government to lower the official rating of the guinea to 21s, where it remained throughout the remainder of the century. Five guinea, two guinea, and half guinea coins were also minted during the 18th century, as were quarter guinea pieces, though the latter were discontinued (the public having found them inconveniently tiny) not long after first being introduced in 1718.\textsuperscript{18}

Turning to the silver coinage, this included shillings themselves (at 62 to the troy pound of silver), crowns (~5s), half crowns (26\textsd, and sixpence.\textsuperscript{19} Copper, finally, was coined into halfpennies and farthings (worth one-quarter of a penny) at the rate of 23\textd to the pound avoirdupois (for Great Britain) or 26\textd to the pound (for Ireland).\textsuperscript{20} No official copper pennies were struck before 1797.

\textbf{“We Blundered into It”}

Now we’re ready to consider how the British government might have tried to supply its citizens with small change.\textsuperscript{21} In principle, having defined its basic monetary unit in terms of one precious metal, the government had three options to choose from. It could:

1. Strike both large- and small-denomination coins from the standard metal, with the coins’ weights corresponding to their face values;
2. Resort to bimetallism, with low-denomination coins made from the less-valuable metal, and large-denomination coins made from the more valuable one; or

\textsuperscript{18} Quarter guineas made another brief appearance in 1762.

\textsuperscript{19} Twopenny, threepenny, and fourpenny silver coin denominations had ceased to be current after the Great Recoinage, though their production was revived starting around 1730 for inclusion in Maundy money presentation sets (Craig 1953, p. 247).

\textsuperscript{20} The avoirdupois pound, equal to 7,000 troy grains, was the preferred weight unit of private traders but was adopted by the Royal Mint for its copper coinage only. Mint prices and equivalents for silver and gold were reckoned in terms of the troy pound of 5,760 troy grains, which replaced the 5,400 troy grain Mint or Tower pound in 1526.

\textsuperscript{21} What follows is a much-simplified analysis of the small-change problem. For (occasionally mind-numbing) details see Redish (2000) and Sargent and Velde (2002). Edwin Cannan’s (1935) discussion is very brief and informal but excellent nonetheless.
3. Issue avowedly fiduciary or token small-denomination coins, on government account.\footnote{22}

Each option had its drawbacks. Under the first, if the standard metal was sufficiently valuable, coins of lower denominations would be too small to be practical. Such was the fate of the gold quarter-guineas issued during the 18th century. A more egregious case was that of the silver farthings the Royal Mint issued in 1464. Weighing only 3 troy grains each, these were “lost almost as fast as they were coined” (Snelling 1766, preface). The standard metal could, of course, be one from which convenient small-denomination coins might be made; but then large-denomination coins made from it would end up being too bulky.

A bimetallic system might avoid the problem of under- or oversized coins.\footnote{23} But it suffered from its tendency to give effect to Gresham’s Law, with one metal alone being taken to the mint for coining, and coins made from the other metal being clipped, filed, sweated, or melted. The nation would then be exposed to shortages of decent small or large change, depending on which metal was overvalued. The situation might not be much better, in other words, than if the mint stuck to a single metal.\footnote{24}

The token coinage alternative, finally, had its own peculiar drawback: the large difference between token coins’ nominal or face value and their “intrinsic” worth would tempt counterfeiters. Unless legitimate coins could be distinguished from fake ones, by Mint authorities if not by the general public, false coiners would foil the Mint’s attempts to keep the supply of token coins in line with the demand for them, causing both real and fake token coins to be discounted. If the Mint tried to limit the supply, and prop up the

\footnote{22} Sargent and Velde (1999) and, following them, Redish (2000, pp. 21-24), consider a fourth option: reliance upon freely minted coins all made from different \textit{alloys} of a common metal. However, as Redish (ibid. p. 21) observes, this approach was “not feasible for a variety of metallurgical reasons.”

\footnote{23} I say “might” because two metals alone may be inadequate to the task of providing conveniently for all needed coin denominations. In principle, though, \textit{tri}-metallism or some even more involved form of multi-metallism can cover any conceivable denomination range. All multi-metallic arrangements are, of course, subject to the working of Gresham’s Law, with the number of opportunities for over- and under-valuation being proportional to the number of metals involved.

\footnote{24} This summary is, I admit, rather unfair to bimetallism, which still has its defenders, who argue that it has worked reasonably well in some instances (see Redish 2000, pp. 180ff and sources cited therein). Suffice to say here that, although such exceptions did exist, 18th-century Britain wasn’t one of them.
value, of its token coins by offering to redeem them in full-bodied (silver or gold) coin, counterfeiters might take it to the cleaners. If, on the other hand, the Mint avoided going bankrupt by making no provision at all for withdrawing unwanted tokens, counterfeiting might result in a glut of tokens, eventually driving their value down to a level corresponding to their “intrinsic” worth, and making them no more fit to serve as money than matches, nails, or buttons.

So which option did the British government rely on? The answer depends on whether one speaks of the solution *actually* relied on, or the one the government *pretended* to rely on.

As far as British officialdom was concerned, the pound sterling, the shilling, and the pence continued throughout the 18th century to be silver monetary units, as they had been since Queen Elizabeth’s day, corresponding to 20, 1, and 1/12th shillings, respectively. As we have seen, gold guineas, which for a time had had a free-floating value, were assigned an official value of 21 shillings starting in 1717. From that point onward Britain was officially committed to bimetallism, with both gold and silver coins commanding unlimited legal tender status for most of the remainder of the century.  

But there was a wrinkle to Britain’s official bimetallism. For the Mint also supplied copper farthings and halfpennies, which were supposed, according to a 1672 proclamation, to contain “as much Copper in weight, as shall be of the true intrinsic value and worth of a half-peny [sic] or farthing respectively.” The government pretended, in other words, to provide for all of Great Britain’s small-change needs without making any use of tokens, that is, without issuing any coins having a declared value substantially above their “intrinsick” worth. Because there was no free coinage of copper, that metal had no official mint price, so it wouldn’t be quite right to characterize this policy as official tri-metallism. Nevertheless the Mint adhered throughout the century to a policy of making 46 halfpennies, or 92 farthings, from every pound avoirdupois of copper that it coined. Because it appeared to assign an official value to copper, while suggesting a tight link between that value and copper’s market price, Britain’s official coinage policy might fairly be characterized as a sort of *pseudo-*tri-metallism.

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25 In 1774 the acceptance of silver coin by tale ceased to be compulsory for payments above £25. This limitation lapsed in 1783, but was reinstated in 1798.
But Great Britain's actual 18th-century small change system turned out to be a far cry from what it purported to be. First of all, the pound sterling had ceased, sometime during the first decades of the century, to be a silver unit, having come to refer instead to a distinct quantity of gold, namely, 20/21 of a gold guinea. The change “came about without any action, or indeed any thought of action, on the part of the legislature” (Carlile, p. 12). It was also so subtle that many people, including the great Adam Smith, failed to notice it, thinking instead that, because values continued for the most part to be quoted in pounds, shillings, and pence rather than in guineas, they could only refer to quantities of silver.

The spontaneous switch to gold units took place in part because of the increasing scale of payments, which made gold coins convenient for an increasing share of transactions, but also because the full-weight silver coins so abundantly supplied during the Great Recoinage of the 1690s had taken flight, or had become badly impaired (Ruding 1840, v. II, p. 87). The word “shilling,” consequently, no longer had an unambiguous meaning when reckoned as a quantity of silver: while sellers liked to think of it as standing for the sort of full-weight silver coin last seen in ’99, buyers insisted on treating it as a name for the grossly underweight and decrepit silver pieces still on hand. To have gone on, under the circumstances, treating pounds, shillings, and pence as silver units would have been asking for trouble, for it was bound to revive the endless haggling and disputes that had been all too familiar during the days before the Recoinage. Back then, Macaulay relates,

The workman and his employer had a quarrel as regularly as the Saturday came around. On a fair day or a market day the clamour, the reproaches, the taunts, the curses, were incessant: and it was well if no booth was overturned and no head broken. No merchant would contract to deliver goods without making some stipulation about the quality of the coins in which he was to be paid. Even men of business were often bewildered by the confusion into which all pecuniary transactions were thrown. ... The labourer found that the bit of metal, which, when he received it, was called a shilling, would hardly, when he wanted to purchase a pot of beer or a loaf of rye bread, go as far as sixpence.
By agreeing, implicitly, to treat the shilling and the pound as gold units, while using worn silver coins as mere counters or claims to gold, to be accepted at face value only in limited quantities, merchants were able to avoid confusion and to keep things civil. Workers, on the other hand, were hardly better off than they had been just after the Glorious Revolution, for they were seldom if ever paid in gold, and were often compelled to receive silver coins by tale. To save silver for larger purchases was to expose oneself to a loss, so this added up to real hardship.

What had happened to all the good silver coins? Gresham's Law happened: silver had been overvalued relative to gold at the time of the Recoinage, and remained so for a century afterwards, despite the steps Newton took to limit the value of guineas to 21s. Newton's effort to stem the outflow of silver appears in retrospect to have been halfhearted, for although his actions lowered the mint ratio to just under 15¼ to 1, the new ratio was still far higher (as Newton's own calculations suggested it would be) than the market ratio. So instead of flowing to the Mint, silver flowed to the Orient, where just thirteen pounds of it were worth as much as a pound of gold.

Thus, from the time of Newton's reform to 1760, the Mint remained “closed to silver as effectually as if [it] had been closed by statute” (Carlile p. 14), with fewer than two million ounces of silver (about £500,000 worth) arriving at the Mint for coining (Ashton 1955, p. 171). After 1760 the market price of silver rose still further relative to that of gold so that, between that year and 1787, the Mint struck no silver coins at all save for “a ridiculously small quantity for a special occasion” (Oman 1967, p. 355).26 In contrast, during 1717 alone the East India Company exported close to three million ounces of silver bullion, much of which came from heavier silver coins that were culled from circulation and tossed into bullion dealers' melting pots (Shaw 1895, p. 231). That the melting and exportation of coin was illegal hardly mattered, because the law was unenforceable. Dealers merely had to swear, under oath, that they made their bullion from foreign coins or silver plate. The payoff from flouting the law, on the other hand, was often substantial:

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26 Besides some ceremonial “Maundy” money the Mint struck £150 of shillings during 1763 to commemorate the Earl of Northumberland’s appointment as Lord Lieutenant of Ireland. About one-quarter of the silver used for this coingage consisted of loot taken from a couple of Spanish treasure ships back on the '40s. Although Northumberland was supposed to distribute his shillings among Irish well wishers, it seems that the Countess, an avid coin collector, ended up with more than her fair share.
By law, 62 shillings are to be coined out of One pound, or 12 ounces of Standard Silver. This is 62 pence an Ounce. Melt these 62 shillings, and in a Bar this Pound Weight at Market, will fetch 68 pence an ounce, or 68 Shillings. The difference therefore between coined and uncoined Silver in *Great Britain is now* 9 2/3 per Cent (*Reflections*, in McCulloch).

Although gratuitous coinage was supposed to help by making coins more plentiful, in Great Britain’s bimetallic arrangement it did just the opposite. Thanks to it dealers found it profitable to melt good silver coins as soon as the relative market value of silver rose even slightly above the value reflected in the mint ratio. Also, because it assigned the costs of coining, not to those who stood to gain most by having more coins at hand, but to the government, gratuitous coinage gave the government reason to overlook any want of small change “until the pressure of that want [became] extreme” (Ruding 1799, p. 12).

Not all silver coins were melted and exported: so long as gold coins couldn’t serve as small change, market forces saw to it that some silver money stayed behind. But the same forces also saw to it that the coins that remained had shrunk enough, either through natural wear or through deliberate shortening, as to render their export unprofitable. Thus time, assisted by shears, files, aqua fortis, and even the vigorous shaking of half-filled money bags, raised the *de facto* mint equivalent of standard silver from 62 to no fewer than 68 shillings to the pound. In this way at least some silver coins were kept from going “to grace the bodies of women in India, to provide votive offerings in the temples of China, or simply to swell hoards in these far-off places” (Ashton 1955, p. 169). According to a Royal Mint study reported in Oman (1967, p. 357), a sample of silver coins circulating in 1786 revealed half-crowns to be twelve percent below their proper weight, on average, with shillings and sixpence 23 and 36 percent below, respectively.²⁷

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²⁷ Indeed, after 1760, a rise in the relative market value of gold caused it to become undervalued at the mint, not relative to the *de jure* mint equivalent for silver, but relative to the *de facto* equivalent, as measured by the number of actual, worn silver shillings it took to make up a pound weight of standard silver. Consequently, guineas and half guineas began to be aggressively and illegally trimmed in what came to be known as the “yellow trade,” and Great Britain soon found itself deprived of good full-bodied coins of any kind.
Besides being light the silver coins that stayed behind were badly defaced, if not mere blanks. So long as such dilapidated coins could be put off, even in limited quantities, at their face value, and especially to the extent that Officers of the Revenue received them at that value, they were in truth, not full-bodied coins at all, but fiduciary ones “held up in value by gold” (Carlile p. 12). They were, in other words, mere tokens—unacknowledged tokens, to be sure, but tokens nonetheless.

So, just as it had, in Walter Bagehot's famous formulation, “blundered into” its Constitution, Great Britain blundered into a gold standard supplemented by a token silver coinage. But these were token coins of the very worst sort, because they were so easy to counterfeit, and because the Mint couldn’t add to their supply, since no one would supply it with silver. To the extent that the stock of silver money increased at all, it did so thanks only to counterfeiting.

*Good* silver money, on the other hand, was altogether unobtainable. And no wonder: the Mint couldn’t be expected to administer properly a token coinage whose very existence it refused to acknowledge.

“Let the Vulgar Wait”

The shortage of silver coin meant that copper halfpennies and farthings had to serve, not only for all transactions below sixpence, but also in place of missing silver in larger retail and wage payments. On paper, as we’ve seen, the Mint’s copper coins were full bodied, allowance being made for coining costs only; in reality their nominal value was for most of the century roughly twice the market value of the copper they contained. They too were tokens, in other words; and ones that also were all too easy to counterfeit.

While fraudulent coppers multiplied, authentic copper coins grew more and more scarce as the 18th century wore on, partly because many genuine copper coins, “underweight” as they were, were melted down to be turned into still lighter fakes, but also because the Mint periodically chose to stop coining copper altogether, and did so even while industry pleaded for more. So there were never enough good regal copper coins around to make very small change with, let alone to fill the void left by the exportation of silver.
Some coinage historians have blamed the shortage of regal copper coin on officials’
disdain for the metal, which Mint officers condemned as “base in virtue and dishonorable”
(Powell, p. 50). British monarchs are also supposed to have considered it beneath their
dignity to have their images stamped on such an “unworthy” material. There’s something
to this, for although the Royal Mint first began to make copper coins in 1672, even as late
as 1782 Mint officials could claim that copper coinage was not an activity “properly
belonging to the Mint” (Craig 1953, p. 250). The fact is that Mint indentures never
provided for any copper coins. The minting of copper was instead treated by the Mint as
well as by Parliament as an extracurricular affair, undertaken on the basis of special
contracts, known as “Royal warrants,” negotiated between the Mint’s Company of
Moneyers and the Crown (Craig 1953, pp. 174-5, 250). So, while the King himself didn’t
mind having his portrait done on copper, Parliament never included the cost of such
portraits in its regular budgets.

There were also what are nowadays termed “public choice” reasons for the
government’s disdain for copper: copper money was, after all, money for the middling and
especially the poorer classes, and the poor had no clout. The well-heeled wanted gold
guineas and silver crowns, the former for large payments, especially among gentlemen; the
latter for profitable exportation (if good), and for commercial transactions (if bad):

’Tis Gold buys Votes, or they’d have swarmed ere now,
Copper serves only for the meaner Sort of People;
Copper never goes at Court.
And since one shilling can full Twelve Pence weigh,
Silver is better in Germany.
’Tis true the Vulgar seek it, What of that?
They are not Statesmen,—let the Vulgar wait. (Anon. 1739)

The Company of Moneyers itself profited more from coining gold and silver than from
coining copper, for before 1799 the Master of the Mint was paid a commission on output,
which he shared with the moneyers, and before 1770 that commission was proportional to
the value of money being struck, rather than the number of pieces (Ashton 1955, pp. 167-
8). Coining costs, on the other hand, tended to be proportional to the number of pieces struck, rather than to their value: putting material costs aside, a farthing cost almost as much to make as a guinea. Consequently both the Master and the moneyers preferred to devote their efforts to making coins of the largest denominations. Indeed, they might never have begun coining copper at all, sticking entirely to gold and silver, while leaving smaller change to the private sector, had the Privy Council not ordered the first regal copper coinage in 1672.

But the Mint’s disdain for copper, considerable though it may have been, was just one aspect of a more complicated picture. Although Mint indentures didn’t provide for any copper coinage until the nineteenth century, from 1672 onwards the coining of copper was frequently made possible through Royal warrants procured by the Treasury in response to the public clamor for small change. While the Mint produced very little copper coin between 1700 and 1728, it issued substantial, if less than adequate, quantities of farthings and halfpennies between 1729 and 1753 and again during the periods 1762-1763 and 1770-1775 (Table 1).

What we must account for, then, isn’t simply the Mint’s low regard for copper, which alone might have caused it to stop coining it altogether, but its tendency to coin copper by fits and starts. The explanation for the pattern is twofold. First, the token nature of Royal copper coins (that is, the fact that they were valued at over twice their metallic worth) together with their indifferent if not wretched quality caused them to be aggressively counterfeited. Legitimate copper coins were sometimes melted down and turned into a larger nominal stock of lightweight fakes. The Mint thus found itself inadvertently boosting the output of spurious copper coins whenever it tried to add to quantity (and improve the average quality) of genuine ones.

Second, both real and counterfeit regal coppers tended to make their way from publicans’ tills to the strongboxes of London’s brewing companies, where they piled up. Banks wouldn’t take them, and the Mint never seriously entertained the idea of providing for their redemption. Finally, as Sir John Craig (1953, p. 250) points out, “no substantial transaction could be negotiated nor Bill of Exchange bought with coppers, and they were

28 Official copper pennies would not be issued until 1797, and would not be produced by the Royal Mint until 1817.
refused for tax and excise.” In consequence, by mid-century many London breweries, as well as other London wholesalers and even a few retail firms, found themselves “burdened with £50 to £500 each of halfpence.” The same thing happened in the half-decade or so leading up to 1768 as well as during the one ending in 1775.

It was in response to complaints by London brewers and merchants, and also in order to stop the flow of raw material to counterfeiters, that the Mint ceased producing copper coins from 1701 to the accession of George I in 1714, and again from 1755 to 1762, and yet again from 1764 through 1769, and then from 1775 onwards. Each of these attempts to relieve London of its surplus copper coin was, however, met by another chorus of complaints, from different sources. For in the provinces many tradespersons and, after 1775 especially, manufacturers and mining companies, found themselves shorter than ever of decent coins for making change or for paying their workers.

Indeed, even when the Mint was producing copper coin, the coin might never get to some places where it was most needed, for Royal warrants made no provision for the distribution of copper coins, delivering them, in 5s and 10s packets, at the Tower only. That made Tower halfpence a bad deal for anyone outside London, since the Mint “sold” them at their full face value. Many provincial manufacturers, and especially those in the far north, found the delivery-cost burden too great to bear, and were therefore obliged either to hope that new Tower issues would somehow trickle up to them, or to turn to copper counterfeiters, who at least had the virtue of delivering their products for no more than a modest markup above cost.

So, a dilemma: the Mint could either try, however inadequately, to please desperate manufacturers at the cost of saddling London’s brewers and merchants with more unwanted coins, or it could please the brewers and merchants at the cost of depriving manufacturers of coins they needed to pay their workers. Either option seemed to encourage counterfeiting, because the first rewarded counterfeiters with a ready supply of raw material, while the second increased the public’s willingness to accept even obvious forgeries for want of anything better. For a generation starting in 1775 the Mint stuck to the second strategy, producing no copper coins at all. This was, remember, a time during which Gresham’s Law kept the Mint’s silver output to a mere trickle. It was also the crucial, take-off phase of the Industrial Revolution.
One gets some idea of the severity of the resulting small change shortage from a 1785 Mint estimate which, allowing for a downward adjustment to correct for an error in the Mint's production figures, put the total outstanding face value of legitimate copper coin at £306,000, or just 3 shillings' worth per person. That wasn't enough by a long chalk, especially considering the lack of good silver coin. More importantly, a large part of the small stock of regal copper was resting in the coffers of brewers and merchants who didn't want it, instead of being available for wage payments. “The roots of the problem,” Sir John Craig (ibid. p. 252) rightly insists, “were not in the two score halfpence a head but their maldistribution”:

Not only was there no power, had there been knowledge, to direct provision by the Mint towards or away from particular areas according to need; there was no organization whatever...to redistribute the burdensome loads which silted up certain cities.

So long as the British government failed to officially recognize the fiduciary status of its silver and copper coins, it couldn't be expected to take seriously the requirements for an adequate token coinage, and especially the requirement that such a coinage be safeguarded from counterfeiting. And so long as it denied making use of tokens, the government felt obliged to retain the appearance, if not the reality, of bi- (if not tri-) metallism. Great Britain's blundered-into gold standard was, therefore, forced to lead a shadowy existence, playing mistress to an economy still married, in the eyes of the law, to a silver standard, and giving birth to a bastard token coinage system that public authorities disavowed. And both the gold standard and its offspring would have to endure their ignoble status until the government broke its vows with silver, while acknowledging the presence of a regal token coinage. That, of course, meant finding a way of distinguishing token coins issued by the Royal Mint from others, so that counterfeiters might not make claims against the royal estate. Regrettably, so far as the Mint was concerned, no foolproof method was at hand for doing this: its own copper coins and those made in Birmingham's back alleys were, in some instances at least, as alike as identical twins.
Table 1.2: Royal Mint Copper Coin Production, 1729-1775

<table>
<thead>
<tr>
<th>Year</th>
<th>Farthings</th>
<th>Halfpennies</th>
<th>Total</th>
</tr>
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<td>19</td>
<td>26</td>
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<tr>
<td>1775</td>
<td>2</td>
<td>15</td>
<td>2,349,812</td>
</tr>
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</table>

Total  82  8.15  16,982,538  970  9.6  99,998,259  1052  17.75  226,019

*Estimated values, based on coinage at 23d/lb copper. Because Mint output included
Irish farthings and some halfpence produced at 26d/lb copper, the actual figures may have been higher.
Making Do

How did employers cope with coin shortages? Some simply “spent days riding from place to place” in search of shillings or halfpennies, paying a premium for them if they had to (Ashton 1962, p. 99). Others resorted to the partial substitution of payment in kind for money payments, bucking the trend that had given rise to the “waged proletariat” in the first place. In fact almost every trade offered its workers some sort of non-monetary remuneration, often consisting of waste products, each known by precise if peculiar argot:

cabbage to the tailor, blue-pigeon flying to the plumbers and glaziers, chippings to the ship-wrights, sweepings to porters, red sail docking to navy yard workers, flints and thrums to weavers, vails to servants, privileges to west country clothiers, bontages to Scottish agricultural workers, scrapings and naxeses to coopers, wastages to framework knitters

and so on. Skilled workmen and apprentices were, on the other hand, often supplied with raw materials and tools, the costs of which were deducted from their money wages. Finally, large factories and mines ran company stores or “Tommy” shops, where workers could buy goods using company-issued Tommy tickets or notes paid them in place of coin of the realm.

Some firms also arranged to have their Tommy notes taken by independent local retailers (Rule 1992, pp. 180-9). Like most other owners of rural factories Samuel Oldknow supplied houses, milk, coal, meat and beds to many of his workers, deducting the costs of these items from their wages. During the financial crisis of 1793, when cash was particularly scarce, Oldknow went so far as to pay his workers' net wages almost entirely in notes that local shopkeepers had agreed to accept, limiting his total cash payments to “no more than two shillings in the pound” (Unwin 1968, p. 187).

While some economic historians (e.g. Hilton 1960) have treated the persistence of truck and Tommy shops as a means for circumventing wage regulations, and others (e.g.

29 The terms' meanings can generally be guessed. "Thrums," for example, are web ends left in a loom after removal of finished cloth. The passage is from an article by P. Linebaugh, as summarized in the Bulletin of the Society for Studies of Labour History 25 (1972), p. 13.
John Styles 1983, p. 184) blame it on workers' fondness for “old customs,” there's no denying that shortages of good money encouraged the practice (see, for example, Unwin 1924, pp. 197ff). Far from making life easier for either employers or their workers, reliance upon truck was often an all-around nuisance, as well as a potent generator of industrial ill will. “The system,” the Hammonds (1917, p. 67) observe, “poisoned the relations of masters and men, and it vitiated the calculations of the wages paid.” Journeymen complained that their employers assigned inflated values to equipment and materials they supplied, while factory and mine workers, conscious of similarly “stuffed” prices at company stores, resented pay practices that forced them and their families to obtain necessities on credit, which often meant either patronizing the factory shop or going without toiletries, fuel, or food:

You Boatsmen and colliers all,
Come listen to my ditty,
I'll sing you a song before its long,
It is both new and pretty;
It is concerning the Tommy shops,
And the high field ruffian
He pays you with a tommy note,
You must have that or nothing
Fal de riddle ral...
Then to the tommy shops we go,
To fetch our week's provision,
Their oatmeal, sugar, salt and soap,
Short weight and little measure...
Saying if we had money instead of this,
Provisions we could have plenty,
The profit they get out of us,
Is nine shillings out of twenty...

---
On the other hand, wherever workers were allowed partial payment in leftovers, the line separating perquisite from purloining was often vaguely drawn. With means of payment left literally lying around, the temptation to pilfer was great. Workers also “saw to it that the crumbs from their master’s table were ample” (Ashton, 1955, p. 209) by making poor use of raw materials in order to better remunerate themselves. Abuses sometimes added up to what T.S. Ashton calls “barefaced robbery” (ibid). Receivers did a brisk business with Sheffield nailors, who helped themselves to whole spools of wire, and with Birmingham brass workers, who did the same with metal pieces and valuable floor sweepings. Colliers thought nothing of adding an extra draught or two to their coal allowances, while shipwrights could be spotted taking home wood “chips” that looked suspiciously like deliberately divvied up lengths of timber.

In more than a few cases, it should be admitted, embezzlement affected a kind of crude justice, as when workers in the Royal dockyards allowed themselves interest, in the form of sailcloth, on wage payments that were often months in arrears (Rule Vital, p. 185). According to Ashton (1955, p. 209), “there was a close connection between 'long pay' and embezzlement,” both practices being ultimately attributable, at least in part, to the shortage of small change. Official justice was, however, blind to such extenuating circumstances, and many a poor worker ended up in jail just for trying to approximate the pay he or she had been promised to begin with.

Evidence from the Royal dockyards, where government investigations produced an unusual wealth of information, also provides some idea of the extent to which in-kind perks might supplement cash payments. Thanks mainly to new regal copper coins produced at Matthew Boulton’s Soho Mint starting in 1797, the Navy was able to end the custom of granting its workers customary allotments of chips by commuting those allotments into cash payments. Asked how much coin they would accept instead of their daily armful, the workers stipulated, and got, eight pence, which was almost a third again of their daily monetary wages before the reform!

Predictably, as the shortage of good small money became more severe, the problem of purloining of materials grew worse, as reflected in increasing penalties as well as in increasing arrests. In 1703 a worker found guilty of the offence had “merely” to forfeit twice the value of whatever he or she stood accused of pilfering, with corporal punishment
in the offing for those who could not or would not pay the requisite fine. In 1740 prosecution costs (or more lashes or stock time) were added to the old penalty. Nine years later what was once a mere breach of contract was made a crime punishable by fourteen days’ imprisonment; and in 1777 the sentence was lengthened—to three months for a first offense, and six for repeat offenders (Ashton, p. 210).

Another way in which employers dealt with coin shortages was by arranging payments so as to minimize the need for small change, without otherwise altering their money wage bills. Many firms resorted to group pay, asking several employees to share a gold guinea or half guinea, or a banknote, and thereby forcing them to drink or shop together (Craig 1953, 247; Bell 1963, 9). Although this practice wasn't particularly onerous when the “group” consisted of members of the same family, as was sometimes the case, the rest of the time it was a pain in the neck. So was the equally common practice of “long pay,” in which workers were forced to wait several Saturdays instead of just one or two between reckonings. Employers also staggered wage payments, so that the same batch of coins might do double or even triple duty. A Lancashire cotton spinner, for instance, paid a third of his workers first thing in the morning, and then let them go to town so that he could retrieve coins they'd spent from the shopkeepers and victuallers later that same day, to use in paying a second group of workers. The spinner had recovered many of the coins once more by early evening, for use in a third and final round of payments (Ashton 1962, pp. 99-100).

A less cumbersome way of making available coins go further involved setting up “pay tables” at ale houses. This practice saved employers the trouble of retrieving surplus coins from pubs only to have them taken back the same evening. To reduce their wage bills, employers arranged with pub owners to have their workers drink “on the strap.” They then deducted the workers’ tabs from their pay, settling them collectively at closing time using guineas or banknotes. With beer at three pennies a quart, deductions could reduce employers’ small-change needs substantially. In his Autobiography Ben Franklin (2003, p. 45) observes that, when he was working for a London printer in 1725, his fellow workmen were all “great Guzzlers of Beer.” One “drank every day a Pint before Breakfast, a Pint at Breakfast with his Bread and Cheese; a Pint in the Afternoon about Six o’Clock,
and another when he had done his Day’s-Work,” thus causing “4 or 5 Shillings to pay out of his pay-table Wages every Saturday Night.”

Pay tables were seen by many as evidence of a conspiracy of employers and brewers aimed at encouraging workers to tipple, with employers sharing in brewers’ profits:

But if to an alehouse they customers be,
Then presently with the ale wife we agree;
When we come to a reckoning, then we do crave
Twopence on a shilling, and that we will have,
By such cunning ways we our treasure do get,
For it is all fish that doth come to our net.31

Tippling was, to be sure, a serious problem, with many a poor worker returning home after midnight as bereft of money as ever, and drunk to boot. Wives complained; blows were struck; arrests were frequent; and Saint Monday—an unofficial weekly “holiday” created by hung-over workers—was zealously kept (George 1925, pp. 287ff.):

And when at night he staggers home, he knows not what to say;
A fool is more a man than he upon a fuddling day
For it's drink, drink, smoke, smoke, drink, drink away
There is no pleasure in the house upon a fuddling day!

But there's no need to suppose that employers were in league with brewers or publicans, or that they were otherwise interested in promoting domestic unrest, which reduced their own firms' productivity, after all. They resorted to pay tables solely because they could not otherwise meet their wage bills. Had there been enough good coin, they might better have served their own interests by linking wage payments to Sunday sermons.

31 From *The Clothier's Delight*, reproduced in Mantoux, pp. 75-7.
Brummagem Ha'pence

Understandably, shortages of official small change boosted the production and circulation of all sorts of unofficial money, including large quantities of counterfeit copper coin.

The very nature of the counterfeiting trade rules out precise estimates of its magnitude. But there is no doubt that it was a big business, with Birmingham and London serving as its manufacturing headquarters, and that its magnitude grew as the 18th century wore on. Already in 1676, only four years after regal copper coins were first introduced, extensive counterfeiting triggered an Order of Council putting a temporary stop to regal copper coin production. In 1693 and again in 1701 the copper coinage was assigned to private patentees, with even more disastrous consequences. In 1717 the Mint took charge again, but neither that step nor other legal reforms and private initiatives sufficed to put a stop to false coining. By mid-century, according to an informed contemporary estimate and also to the contents of a hoard of that period’s copper coins unearthed many years later, close to half of all the copper coins in circulation were fake. By the end of the century the fraction had grown larger still, with estimates placing it between five-sixths and over nine-tenths!

A popular view paints counterfeiters as solitary and shadowy figures, forging their wares in dark hovels and surreptitiously taking smallish parcels of them in person to the marketplace to fob them off on unsuspecting retailers or to sell them quietly at discount to unscrupulous factory owners. The view, though true in parts, distorts important features of the counterfeit trade in eighteenth-century England, and especially in Birmingham, where techniques developed for making metal coat buttons were easily adapted to making copper coins. For one thing, the trade was to a surprising extent conducted in the open, and on a large scale. This was especially so toward the end of the century, despite a substantial harshening of penalties in 1771. Thus in 1780 Aris’s *Birmingham Gazette* noted with regret “The amazing Quantity of Counterfeit Halfpence now in Circulation, and the great Effrontery with which they are given in Payment, in open Contempt, or Defiance of the Laws for their Suppression” (Langford 231). Another Birmingham witness, writing some decades later, observed similarly that “the trade was carried on so openly, that I often
wondered at people’s hardihood considering the severity of the punishment.” At the tail-end of the century, as he was preparing to launch his own (authorized) regal coppers, Matthew Boulton also noted (in a letter to Sir George Shuckburgh-Evelyn, M.P.) how “Many of our Knights of the Saddle Bag, take out on their journeys, pattern cards of hallpence to get orders from us regularly as they do of Buttons” and how some counterfeit manufacturers even had “the audacity to hang up Signs in the street ALL SORTS OF COPPER COINS MADE HERE.” In London the trade was so extensive that, according to police magistrate Patrick Colquhoun, scarcely a wagon or coach left town that wasn’t laden with boxes of fraudulent coin bound for various provincial camps, seaports, and manufacturing towns.

Second, like legitimate commercial token makers who appeared on the scene starting in 1787, and unlike the Royal Mint, counterfeit manufacturers generally did not participate in the retail end of the business. Instead, they acted as artisans or journeymen, selling their products in bulk for anywhere from one-half to about a fifth of their face value, depending on quality, to large dealers. The dealers in turn resold the shams for a smaller discount to manufacturers, merchants and other clients who placed regular orders for small change, as well as to retail utterers or “smashers.” In London counterfeit smashers consisted, according to Colquhoun, of Irishmen and the “lower orders of the jews,” with certain dealers holding “a kind of market, every morning, where from forty to fifty Jew boys are regularly supplied with counterfeit hallpence.”

The abundance of counterfeits toward the end of the century itself points to the huge scale of the counterfeit manufacturing business. According to Colquhoun, who examined the problem at length in his influential Treatise on the Police of the Metropolis, two or three persons could stamp and finish £200-300 worth (face value) of counterfeits—or between 96,000 and 144,000 halfpennies—in the course of a six-day week. And there were, by the mid-90s, over 50 counterfeit manufacturing operations at work, mainly in Birmingham, London, and Bristol, with several large-scale operations running several presses at once.

Although counterfeitors’ scale of production was impressive, the quality of their products was often anything but. We thus arrive at a crucial distinction that plays an important part in the discussion to follow: the distinction between “good” counterfeits,
meaning those that were convincing enough to fool even Mint authorities, and “bad” ones, meaning those that at best fooled members of the general public only, and probably not many of them.

“Bad” counterfeits were far more common than good ones. Up to mid-century all counterfeits were cast rather than stamped, even though the Royal Mint had not made use of cast copper blanks since the reign of William III. In the early 1750s counterfeiters began using screw presses, with dies intentionally cut shallow to imitate old “milled” Hanoverian coppers. But even these stamped products were usually very much inferior to regal halfpennies, or at least to regal halfpennies in mint condition, being typically made to a standard of 72d per pound weight of copper, as compared to the Mint’s 46. By century’s end the proportion of “bad” counterfeits was especially high, with few counterfeiters even bothering to endow their coins with engravings resembling those on their official counterparts. Instead, many produced “plain halfpence,” possessing no engravings at all, or so-called regal “evasives,” which bore legends that just barely got around the anti-counterfeiting statutes. As one eyewitness recalled, years after the fact, “Almost any kind of rubbish used to pass as copper money…. And all this made the trade of the false coiner more easy” (Morning Chronicle, February 10, 1851, cited in Powell 1993, p. 49).

Some writers lay the blame for such obvious frauds on widespread illiteracy. But while illiteracy might conceivably account for someone being unable to tell the difference between “GEORGIUS III REX” and “GOD SAVE US ALL,” it can’t explain all the plain and decidedly underweight halfpence. A better explanation is that the lack of legitimate regal copper coins, and (before 1787) the lack of any commercial substitutes, forced people to accept obvious fakes rather than forego payment entirely. “Ordinary folk,” Royal Mint historian John Craig has observed, “if short of small change, cared nothing about intrinsic value, high quality of copper, pattern or limits of legal tender” (Craig 1953, 253). Indeed, when provincial shopkeepers attempted, as they did on numerous occasions, to cooperate with each other in refusing counterfeit money, their resolutions merely succeeded in curtailing sales and sparking riots.32

32 Individual retailers were, on the other hand, powerless to do anything about counterfeits, for if one of them attempted independently to refuse them, he merely drove his business away to rivals. But retailers could also err in the opposite direction: when one Birmingham hawker went so far as to advertise his willingness to trade for counterfeits, his audacity landed him in court (Wager p. 16).
Publick Virtue?

In light of the facts just considered, modern historians have tended to treat 18th-century counterfeiters as criminals whose crime was not only victimless, but largely beneficial, like the conduct of so many Robin Hoods. “In point of fact,” Feaveryear (1963, p. 169) observes, “so long as the Government was unable to find a method of providing the country with a sound and adequate coinage [counterfeiting] was a good thing... The counterfeiter tended to fill up the void, and he could do no harm to the standard.”

There is much to be said for this view: after all, people needed small money, and the poor needed it most; and even shoddy money was better than no money at all. Paradoxically, the very badness of the clumsiest counterfeiters made them especially benign, because they could only gain acceptance where good coin was in short supply. “Bad” halfpennies can for this reason be said to have made the general public better off than it would have been otherwise. But let one of these “Brummagem buttons” speak on its own behalf:

In these modern times, though I am often found among the mean and the vulgar, I am more frequently to be met with in pompous courts and palaces. Without me, many think trade and commerce would dwindle to a shadow, and the retail trades be totally ruined. In short, there is scarce any situation whatever, in which I am not particularly serviceable; and yet such is the ingratitude of mankind in general, that my name in public is universally despised and disowned, even by those who in private endearingly caress me.33

“Good” (that is, convincing) counterfeiters were another matter, for while they also appeared to alleviate shortages, their ability to fool even Mint authorities meant that they could be placed into circulation even where legitimate coins weren’t in short supply,

potentially leading to a surplus. So long as official coins weren’t redeemable such a surplus could drive the entire stock of small change to a discount, seriously undermining the efficiency of exchange. If, on the other hand, official coins were made convertible into full-bodied ones on demand, then the multiplication of good counterfeits would undermine their convertibility by exhausting the issuing authority’s reserves of legal tender.

Good counterfeits thus threw a wrench in what might otherwise have been a smoothly working small change system. Rather than simply making up for shortages of official coin, they deserved at least part of the blame for those shortages, for so long as the Royal Mint had reason to fear that its tokens might be convincingly and profitably copied, it didn’t dare offer to redeem them; and so long as the Mint refused to redeem its tokens, it couldn’t address local shortages without adding to surpluses elsewhere.

So good counterfeits made room for bad ones. And for that reason, even though bad counterfeits were far more abundant, and were more likely to be refused, it was the good ones that ultimately did the most damage to the British monetary system, preventing it from addressing the public's small-change needs. Unless someone could come up with a way to rule such counterfeits out, British manufacturers and workers would have to muddle their way through the rest of the century without an adequate coin supply, even if that meant putting off of the Industrial Revolution.

Yet the Royal Mint, far from doing whatever it could to make its copper coins hard to fake, did nothing at all. So far the Mint was concerned, making good coins, including token coins, was strictly a matter of putting legally-authorized amounts of metal in them. Thus when, in February 1788, Lord Hawkesbury, the President of the Board of Trade, asked the Mint’s officers to respond to the suggestion that they might make regal copper coins harder to fake by resort to fine polishing and lettered edges, the officers dismissed both ideas as “a departure from the simple primitive Institution of Material Money,—that of carrying full weight for value,—which is its only natural and best Security” (Add MSS 38421, f.221; 8 February 1788).

This opinion, it bears noting, was offered less than two months after the same authorities reported that at least half of Great Britain’s copper coin was counterfeit (PC1/37/114; December 1787).
Today, excepting traveler's checks, “private money” is practically synonymous with bank deposits that can be transferred using checks or plastic cards. During the eighteenth century, however, checks were rarely used. Instead private banks issued their own circulating paper notes. Although these notes wore out too rapidly to be practical substitutes for copper coin, they might at least have filled in for silver, thereby going a long way towards addressing Great Britain’s overall coin shortage. In practice, however, oppressive regulations prevented them from doing even that much.

The first British bank to gain widespread acceptance for its notes was the Bank of England, founded in 1694 not, as some suppose, to shore-up the British monetary system, but to fund Great Britain’s ongoing war with France. Besides coming up with the million pounds the government needed as fast as you can say “monopoly,” the “Old Lady of Threadneedle Street,” as the Bank came to be known, proved to be exceedingly profitable. But for reasons difficult to square with the profit motive, she refused to set foot outside of the City until the government forced her to do so, by setting up branch offices, in 1826. The Bank thus earned its second (since forgotten) moniker, namely, the “Bank of London.” Moreover the Bank refused to issue notes for less than the princely sum of £20 before 1759, or for less than £10 before 1793, when it began to issue five-pound notes. So Bank of England notes were seldom seen in the provinces, and were of no use at all to most workers, let alone paupers, even in London.

So it was up to other banks, and banks in the countryside especially, to supply paper currency that could serve in retail trade and in the payment of wages. Unfortunately, an act of 1708 had given the Bank of England a monopoly of joint-stock banking in return for its agreeing to purchase some Exchequer bills that the government badly wished to sell, causing so-called “country” banks to remain undercapitalized, and to fail disconcertingly often. As Lawrence White has observed (1984, p. 39), “It became popular in England to attribute the instability of these banks to their issues of small notes rather than their undercapitalization.” Parliament responded by banning all bank notes for less than one pound in 1775. In 1787 the minimum legal denomination was made £5, and the ban, which originally had to be renewed every few years, was made indefinite.
North of the Tweed banking was free from many of the constraints and privileges that hindered its development in England and Wales. By mid-century several chartered “public” or joint-stock banks had been established there, and both they and smaller, private banks issued notes for denominations under £1 beginning in the 1750s. Some smaller banks actually made small notes their specialty, issuing paper worth as little as one shilling. As such notes became more abundant, complaints arose, mainly (according to one Victorian-era source) from “country gentlemen, led on by some who visited Edinburgh occasionally,” and given to “exaggerated assertions, fallacious inferences, and ridiculous fears.” Whether warranted or not, the claim that Scotland was in the grips of a “small note mania,” which representatives of Scotland’s chartered banks were all too happy to affirm under oath, eventually caused Westminster to intervene, by prohibiting the issuance in Scotland of notes under one pound effective 1765. After 1777, the £1 notes of Scottish banks, which had already been circulating in northern England, gained greater currency there and could even be found further south. But by that time even Scottish banks were powerless to counter shortages of smaller change.

In short, as John Rule (1992, p. 203) points out, “however impressive historians may find the range of accepted paper in use in the eighteenth-century economy, for the bulk of the population money still meant coin, and that was short in quantity and poor in quality.”

**Commercial Coins**

Deprived of small banknotes, ignored by the Royal Mint, sick of having to deal with bad shillings and doubtful halfpennies, and unable to make do with such except by aggravating if not further injuring their workers, manufacturers and other businessmen

34 Boase (1867, p. 2), as cited in White (984, pp. 29-30). Compare Macleod *Theory and Practice of Banking* (pp. 436ff).

35 Because the Bank of England had been issuing redeemable notes since its establishment in 1694, and Scottish banks had been doing the same for many decades before 1776, Sargent and Velde (2001, 269-70) err in writing that Adam Smith “proposed that banks be allowed to issue paper notes if they would promise to convert them into specie on demand” and that he got the idea by observing the successful private issuance of copper tokens. Smith could not propose what was already established practice. Nor did he propose any further liberalization of Scottish banking law. On the contrary, he endorsed the 1765 ban on small notes.
desperately sought some other source of relief. Finally, in 1787, one of them decided that, if the Mint wouldn’t supply his firm with decent small change, he’d do it himself, by issuing private tokens bearing his firm’s own markings. Others followed his example, and before long Great Britain found itself equipped with a brand-new “commercial” small-change system.

This wasn’t the first time in which unauthorized private tokens served as Britain’s principal small change. A similar arrangement flourished following the failure of Lord Harrington’s copper farthings. Those farthings, issued under Royal patent starting in 1613, had been especially light and shoddy, and were therefore aggressively counterfeited. Not surprisingly, Harrington refused to honor his commitment to redeem them in silver, turning the farthings, which were not legal tender even in small payments, into so much junk copper. Harrington’s copper farthing patent was extended to others until 1644, when Charles I finally put a stop to further issues.

The unauthorized private tokens (mostly farthings and halfpennies, with some pennies) that appeared in the wake of Harrington’s failed effort were, unlike Harrington’s coins, redeemed in silver, though only locally. Their issuers were mainly reputable town authorities or councils and some private tradesmen and shopkeepers. Precisely how these private issuers protected themselves from counterfeiters isn’t clear: although their tokens were certainly better than Lord Harrington’s, they were still on the whole of mediocre design and execution. In any event they never circulated very widely, and there weren’t all that many of them.\(^{36}\)

For a while the government tolerated the unauthorized tokens, but then it made up its mind to re-affirm its coinage prerogative by ordering milled copper coins from the Mint, and by declaring the private tokens illegal. Despite the availability of regal substitutes the private tokens proved so popular that the original, 1672 proclamation suppressing them had to be followed by others on October, 17th, 1673 and on December 12th, 1674. The last proclamation prolonged the tokens’ legality until February 5th, 1675. As of the latter date magistrates were under strict orders to prosecute offenders: it seems that the unauthorized coins were preventing the new Royal farthings from being dispersed! (Snelling 1760, p. 36).

\(^{36}\) [References to be supplied.]
That the old law proscribing private tokens was still on the books made renewed resort to such tokens during the late 18th century a risky undertaking. Despite this the new tokens were issued on a far vaster scale than their 17th-century predecessors had been—a scale exceeding, in the space of a decade, the combined regal copper issues of the preceding half century. The new tokens proved to be some of the best and most beautifully designed coins ever made anywhere. They were also the first token coins to be sufficiently counterfeit-proof to carry redemption pledges credible enough to make them current not only where they were issued, but often many miles away.

Great Britain’s commercial coins were, in short, the best small change the world had ever seen. And their appearance couldn’t have been more timely, for it was only thanks to them, and to the people who made and issued them, that Great Britain managed to become the world’s first industrial nation.

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The story of Great Britain’s commercial coinage is above all else, as John Roger Scott Whiting (1971, p. 11) puts it, “a story of the initiative of local authorities, companies and individuals in the face of state ineptitude.” But it is also the story of intense and often cutthroat competition among the commercial token makers themselves, which was the ultimate force driving them to produce coins of such exceptional quality, but which had little in common with economists’ textbook notion of “perfect competition.” In particular, the commercial coinage story is the story of a superficially cordial but often rancorous battle of wits between two of Great Britain’s industrial giants: Matthew Boulton, the visionary and fatherly Prince of Soho, and Thomas Williams, Anglesey’s hard-boiled Copper King.
Chapter 1 Sources

While Thomas Sargent and François Velde’s *The Big Problem of Small Change* (Princeton University Press, 2002) is now the definitive general historical and theoretical treatment of the small change problem, the best discussion of the problem in 18th-century Great Britain is still to be found in Ashton’s *Economic History of Great Britain during the 18th Century* (1962, chap. ). Two recent works by John Rule (...) serve as a useful supplement to Ashton’s work, by bringing together more recent research findings, especially concerning labor market conditions and the development of Great Britain’s manufacturing sector. These works also contain good discussions of truck and other devices resorted to by employers partly or mainly in order to economize on coin.

Concerning British coinage policy the essential work is Sir John Craig’s *The Mint*, which despite being more than half a century old is far more readable, if not more informative, than *A New History of the Royal Mint*, ed. C. A. Challis ( ), which was supposed to supersede it. My treatment of bimetallism has mainly been informed by Angela Redish’s recent book on the subject, *Bimetallism* (Cambridge University Press, 2000). Lastly, details concerning the counterfeiting trade come mainly from Patrick Colquhoun’s highly influential *Treatise on the Police of the Metropolis*.

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Aristophanes. 405 B.C. *The Frogs*.


Chapter One Sample Pictures

Sir Thomas Gresham

Coining at the Tower Mint

George II Halfpennies: (1) Genuine. (2) Genuine but worn. (3) Counterfeit.