

CHAPTER I

Britain's Big Problem

O Yes! O Yes! Can any say,
Where all the Money's run away?¹

People aren't used to dealing with cash shortages these days. Of course, they 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 does anyone worry much about the condition or legitimacy of their coins. Counterfeit bills remain a peril, but no one even suspects that their dollar coins, quarters, or dimes—much less their pennies—might be fakes.² 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.

1. From the "Old turn[pike] man's hue-and-cry after more money" (London, 1721), cited in Gaskell 2000, 162.

2. Although some fake British one-pound coins have been discovered, the Royal Mint estimates that they make up only about 1 percent of the total of such coins.

Wanting Change

Two centuries ago, the situation was entirely different. Nations routinely suffered from coin shortages, and especially from shortages of small-value coins.³ 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 halfpennies. Urgent appeals for more small money were heard in 1380, again in 1404, and yet again in 1444.⁴ Yet those shortages were nothing compared to the one that first broke out in Ireland at the onset of the eighteenth 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" ([1729] 1856, 293-94).

The Irish coin shortage quickly spread to Great Britain, becoming especially serious there 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, "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."⁵

Besides witnessing an accelerating rate of population growth, the last, "revolutionary" decades of the eighteenth century also saw an unprecedented shift in employment away from agriculture and toward manufacturing, with a corresponding increase in the number of wage earners. Back during the mid-sixteenth century, less than a quarter of Britain's population depended on money wages; by the end of the eighteenth century, the fraction was close to three-quarters. According to Barbara and John Lawrence Hammond (1911, 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

3. See Sargent and Velde 2002.

4. See Redish 2000, 111. Redish refers to Ruding (1840, 111-25, 238-75) and also Peck (1970, 1-8).

5. Anonymous 1771, 3.

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, either on enlarged 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, especially nonagricultural labor. The benefits of industry—of 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, as George Crabbe insisted, 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, in contrast, 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

6. Goldsmith 1770.

7. *Ibid.* 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 Years’ War and the American and French revolutionary 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. Crabbe 1783.

9. Johnson to Boswell, July 22, 1777, in Johnson 1992.

fuel, and to purchase them with money. Having lost their cows, the new “waged proletariat” found themselves utterly dependent on their coppers (Rule 1992, 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 fewer than fifteen 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 three hundred 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. Yet the reign of “King Cotton” was just beginning, the industry having only just 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. A few years later, that figure, too, would be eclipsed, with Oldknow finding himself the owner of no fewer than twenty large textile mills (Unwin, Hulme, and Taylor 1924, 45, 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 was even bigger, with fifteen hundred workers to provide for. Yet all the copper mines together, with just over seven thousand workers, were puny beer compared to the coal mines, which boasted close to fifty thousand. 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 Portsmouth, Plymouth, and Chatham, which—thanks to the Seven Year’s War and then to the American insurrection—employed a staggering sixty-five hundred 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

10. Arthur Young (1776) guessed that peasants’ cows were worth approximately five to six shillings per week to them and their families. No commons, no cow. By 1780, unskilled adult male wage laborers earned only about seven or eight shillings a week.

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 decennial population growth rate, which was about 3 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, 167) exemplifies the British penchant for understatement. In fact, John Rule (1992, 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." 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 of decent coins, British industry, instead of rushing toward the next century, might have barely managed to limp 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, 20)—won't do: it was, as we shall see, not so much the mint's equipment as its policies that prevented it from supplying enough small change. Understanding those policies means coming to grips with some monetary jargon, which isn't all beer and skittles. Fortunately, the jargon is here mainly confined to the next few pages, after which it seldom turns up.

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 £ (derived from the Latin word *libra* referring to a Roman pound). Principal money units are usually accompanied by one or more subsidiary units. Nowadays, these tend to be based on decimal fractions (e.g., the U.S. cent is one-hundredth of a dollar), but in the United Kingdom until 1971, they were

based on vulgar fractions. A *shilling* (1*s*, with the abbreviation derived from the Latin word *solidus*) was one-twentieth of a pound sterling, while a *penny* (1*d*, with the abbreviation derived from the Latin *denarius*), was one-twelfth of a shilling, making 240 pennies, or pence, to the pound (see table 1).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

TABLE 1. British Money Units and Coins and Their Purchasing Power, circa 1787

Basic Monetary Unit: The pound sterling (symbol £, from the Latin *libra*), equivalent to 113 grains of fine gold.

The government did not yet supply coins denominated in pounds. Banknotes were typically denominated in pound units, the smallest permissible denomination being one pound in Scotland and five pounds elsewhere in Great Britain.

Basic Coin Units:

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

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

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

Relatively Common Coin Types:

Copper: Minted at equivalent of 23*d* per pound avoirdupois copper.

Halfpence = $\frac{1}{2}d$

Farthing = $\frac{1}{4}d$

Silver: Minted at equivalent of 62*s* per troy pound of standard silver.

Threepence ("Thruppence") = $\frac{1}{4}s = 3d$

Sixpence = $\frac{1}{2}s = 6d$

Shilling = 1*s* = 12*d*

Half Crown = 2*s* 6*d* = 30*d*

Crown = 5*s* = 60*d*

Gold: Minted at equivalent of 44½ guineas per troy pound standard gold.

Guinea = 21*s* = 252*d*

Half Guinea = 10½*s* = 126*d*

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 thirteen-hour day.

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 thirteen Irish pence equivalent to one English silver shilling.

pound, or 5,400 grains, of sterling silver, which was equivalent to 4,995 grains of fine silver.¹² By the beginning of the seventeenth century, the pound had been reduced to only 1,719 grains of fine silver, where it remained for more than a hundred years. Then, in the first decades of the eighteenth century, the term *pound sterling* ceased to refer to any quantity of silver, becoming instead a unit 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 metal coined at the mint. If coinage is *gratuitous*, the mint charges nothing for this service, its costs (and profits, if these are allowed) being paid out of the public purse. Gold and silver were both coined 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, as it was in Great Britain, the two values are equal. Otherwise, the mint price will fall short of the mint equivalent by the charge for coinage, which may include a profit to the mint or government. That profit is known as *seigniorage*, after the lords, or seigneurs, who exercised the right of coinage in medieval France. During the seventeenth and eighteenth centuries, the mint price (and mint equivalent) of a *troy pound* (twelve ounces, each of 480 grains) of silver was sixty-two shillings. As 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 sixty-two shilling coins from one troy pound of silver would have been tantamount to redefining the pound sterling, the shilling, and the penny.

Under *bimetallism*, the government allows free coinage, usually with little or no seigniorage, of two metals, assigning a mint equivalent and corresponding mint price to each. The *mint ratio* is the ratio of mint

12. Concerning British weight units, see note 20.

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 2s (or 62 shillings) in silver coin for each troy pound of silver, the gold/silver mint ratio is $890 \div 62 = 14.355$. A pound of gold is, in other words, officially worth 14.355 times as much as a pound of silver.

In a gold and silver bimetallic arrangement, silver is said to be *overvalued* and gold *undervalued* at the mint if the gold/silver mint ratio falls short of the ratio of the metals' market prices. Suppose, for example, that a pound of gold is worth thirteen times as much as a pound of silver in the open market. In that case, a mint ratio of 14.355 overvalues gold while undervaluing silver. Even if some 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.

Which brings us to Gresham's Law. That 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 of the British government who advised Queen Elizabeth and founded the Royal Exchange.¹³ But the tendency it describes 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 newer coins might appear just as heavy as old ones despite containing less precious metal. "Bad" (debased) coins then tended to drive "good" (finer) ones out of circulation. In a bimetallic context, 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 "short" 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 de-

13. A line in one of Gresham's letters to Elizabeth—telling her that it was her "latte ffather" who had caused all of England's fine gold to be "conveyd out of this your realme" by "abasing his quoyne from vi ounces fine to iii ounces fine"—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.

clared values.¹⁴ The outcome is that only “bad” (impaired) coins made from overvalued metal still circulate.

Gresham’s law only takes effect where officially undervalued coins cannot command a premium, for such a premium might make up for the coins’ official undervaluation, 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 effect as a premium on legally undervalued ones. These requirements have often been satisfied historically, thanks to the inconvenience of valuing coins at other than their face values and also to *legal tender laws*, which often prohibit the passing of official coins at anything save their official ratings.¹⁵

A *fiduciary coin* 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.”¹⁶ The free coinage of tokens establishes a high mint price for the metal they’re made of. Because simultaneous free coinage of both token and full-bodied coins would amount to an especially unstable form of bimetallism, governments usually mint token coins on their own account and in limited quantities. Doing so serves to keep the tokens from driving more valuable, full-bodied coins out of circulation.

Finally, a word or two concerning official eighteenth-century British coin types. Before 1662, all British coins were hand struck or *hammered* money. But in that year, hammered money gave way, 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.¹⁷

14. In “The Jockey’s Tale” George Borrow writes: “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 eighteenpence, the aquafortis eating the gold away, and leaving it like a sediment in the vessel” (Borrow [1857] 1906).

15. See Selgin 1996 and 2003a.

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 the term *milled money* is sometimes used to refer not simply to coins made with the help of me-

The first British milled coins were made of gold, at forty-four and a half pieces to the troy pound, and were known as *guineas*, after the Guinea Coast, where the gold came from. Although the guinea was originally assigned an official value of 20s, 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 afterward at 21s 6d—the rate at which guineas were received by officers of the revenue following the Great Recoinage (of silver) of 1696–99. 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 eighteenth century. Quarter guineas were tried as well, in 1718. But they were quickly discontinued because the public found them inconveniently tiny.¹⁸

British silver coins included shillings (minted at sixty-two to the troy pound of silver), crowns (= 5s), half crowns (= 2s 6d), and sixpence.¹⁹ Copper, finally, was coined into halfpennies and farthings (worth one-quarter of a penny), at the rate of 23d to the pound avoirdupois (for Great Britain) or 26d to the pound (for Ireland).²⁰ No official copper pennies were struck before 1797.

A Standard “Blundered Into”

How might the eighteenth-century British government have tried to supply its citizens with small change? Having defined its basic monetary unit in terms of one precious metal, the government faced three options. It could

chanical 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, until the very end of the eighteenth century, “milled edges” were not 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.

18. Quarter guineas made another brief appearance in 1762.

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, 247).

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 mint (or Tower) pound of 5,400 troy grains in 1526.

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
3. issue avowedly fiduciary or token small-denomination coins, on government account.²¹

Each option had its drawbacks.²²

Under the first option, if the standard metal was sufficiently valuable, coins of lower denominations would be too small to be practical, as happened with Great Britain's quarter guineas. A still more egregious case was that of the silver farthings the Royal Mint issued in 1464. Weighing only three 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 of the same metal would end up being too bulky.

A bimetallic system might have avoided the problem of undersized or oversized coins.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 with coins of 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 situa-

21. Sargent and Velde (1999) and, following them, Redish (2000, 21–24), consider a fourth option: reliance on freely minted coins all made from different alloys of a common metal. However, as Redish (*ibid.*, 21) observes, this approach was "not feasible for a variety of metallurgical reasons."

22. What follows is a much-simplified analysis of the small-change problem. For details, see Redish 2000. Edwin Cannan (1935, 33–42) provides a brief, excellent discussion. Because the elaborate formal theory developed by Sargent and Velde (2002, 15–36, 335–72) assumes a monometallic system, while abstracting from costs associated with the use of very large or very small coins, it isn't capable of shedding light on the British situation. Concerning this and other shortcomings of Sargent and Velde's theory, see Wallace 2003.

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, trimetallism or some even more involved form of multimetallism can cover any conceivable denomination range. All multimetallic arrangements are, of course, subject to the working of Gresham's law, with the number of opportunities for overvaluation and undervaluation being proportional to the number of metals involved.

tion might not be much better, in other words, than if the mint stuck to a single metal.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 value of its token coins by offering to redeem them in full-bodied (silver or gold) coin, counterfeiters might take the mint to the cleaners. If, on the other hand, it avoided losses by refusing to take back unwanted coins, counterfeiting might give rise to a glut, eventually driving the tokens' value down to a level no greater than their "intrinsic worth," and making them no more fit to serve as money than matches, nails, or . . . buttons.

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 penny continued throughout the eighteenth century to be *silver* monetary units, as they had been since Queen Elizabeth's day—corresponding to twenty, one, and one-twelfth shillings, respectively. As we have seen, gold guineas, which had had a free-floating value for a time, were assigned an official value of twenty-one shillings 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.²⁵

But there was a wrinkle to Britain's official bimetallism. The Royal Mint also struck copper coins—farthings and halfpennies—that were supposed, according to a 1672 proclamation, to contain "as much Copper in weight, as shall be of the true intrinsick value and worth of a half-penny [*sic*] or farthing respectively." The government pretended, in other

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, 180ff.; Flandreau 2004; Friedman 1992). Although such exceptions did exist, eighteenth-century Britain wasn't one of them.

25. In 1774, the acceptance of silver coin by tale ceased to be compulsory for payments above twenty-five pounds. This limitation lapsed in 1783 but was reinstated in 1798.

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 “intrinsic value.” 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 trimetallism. Nevertheless, the mint adhered throughout the century to a policy of making forty-six halfpennies or ninety-two 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-trimetallism.

Great Britain's actual eighteenth-century small-change system turned out to be a far cry from what was officially proclaimed. 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 1901, 12). It was 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, 2:87). The term *shilling* thus ceased to have a clear 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 1699, buyers insisted on treating it as a name for the grossly underweight and decrepit silver pieces still on hand. Under the circumstances, to have gone on treating pounds, shillings, and pence as silver units would have been asking for trouble, for this was bound to revive the endless haggling and disputes that had been all too familiar during the days before the Great Recoinage. Back then, Macaulay (1856, 499) 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 re-

proaches, 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. (1856, 499)

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, however, 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 happened to all the good silver coins? Gresham's law happened: silver was overvalued relative to gold at the time of the Great Re-coinage and remained so for a century afterward, despite Newton's decision to fix the value of the guinea at twenty-one shillings. Newton's effort to stem the outflow of silver appears halfhearted in retrospect, for although he lowered the mint ratio to just under $15\frac{1}{4}$ to 1, the new ratio was still well above the market ratio. So silver kept right on flowing east, where just thirteen pounds of it might buy a pound of gold.

So it happened that for most of the eighteenth century, the Royal Mint remained "closed to silver as effectually as if [it] had been closed by statute" (Carlile 1901, 14). Between Newton's reform and 1760, fewer than two million ounces of silver (about £500,000 worth) were sent there for coining (Ashton 1955, 171). Of this amount, £136,431 consisted of the spoils from George Anson's voyage around the world, while another £79,198 in shillings and sixpences was commissioned, at a loss, by the Bank of England to be handed out to its customers at Christmastime (Craig 1953, 246). For the remainder of the century, the mint made no silver coins at all—apart from minuscule (£60) batches of Maundy money—except on two occasions: in 1762–63, it produced £5,791 in threepennies and shillings using silver booty taken at sea; and in 1787, it once again obliged the Bank of England with £55,459 worth of Yuletide

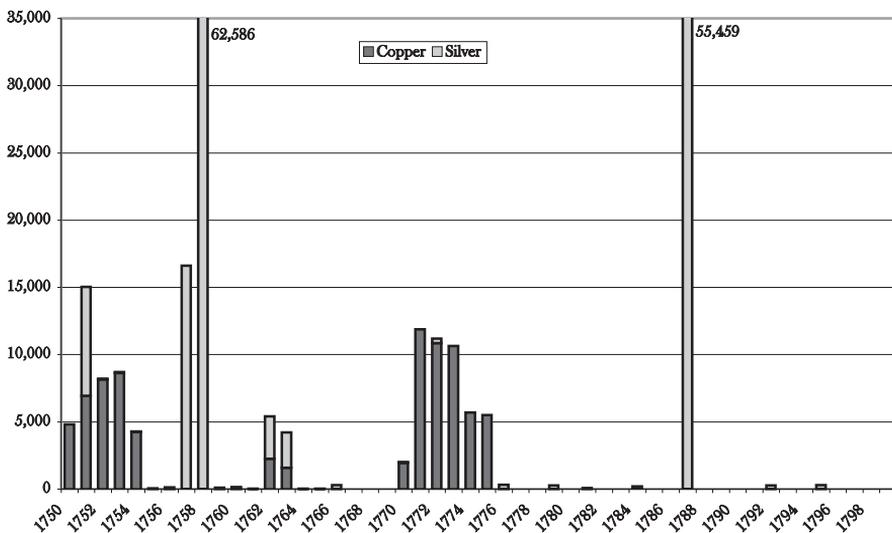


Fig. 1. Royal Mint silver and copper coin output in pounds sterling, 1750-99. (Data from Craig 1953, 417-18.)

silver (see fig.1).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 (W. Shaw 1896, 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. And the payoff from flouting the law was substantial.

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* $9 \frac{2}{3}$ per Cent.

([WHATLEY] [1762] 1856, 519)

Although gratuitous coinage was supposed to help by making coins more plentiful, in Great Britain's bimetallic arrangement it did just the

26. According to Craig (1953, 246), "the Bank doled these treasures out without extravagance and had £22,800 still in stock in 1798."

opposite by making it profitable for dealers to melt good silver coins as soon as the relative market value of silver rose even slightly above the value implicit 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, 12).

Not all silver coins were melted and exported: so long as gold coins couldn't serve as small change, some silver money stayed behind. But market forces saw to it that the coins that remained had shrunk enough, either through natural wear or through deliberate shorting, 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 sixty-two to no fewer than sixty-eight shillings to the pound. In this way, at least some British silver was prevented from being used "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, 169).

According to a Royal Mint study reported by Oman (1967, 357), a sample of silver coins circulating in 1786 revealed half crowns to be 12 percent below their proper weight, on average, with shillings and sixpence 23 and 36 percent below, respectively.²⁷ Besides being light, the silver coins that stayed behind were badly defaced, if not mere blanks. As 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" (Carlisle 1901, 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 Cabinet government, Great Britain blundered into a gold standard supplemented by token silver coins. 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

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.

with silver. If the stock of silver money grew 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 not only had to serve for all transactions below sixpence but also had to take the place of missing silver in larger retail and wage payments. On paper, as we've seen, the Royal Mint's copper coins were full-bodied coins, 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—ones that also were all too easy to counterfeit.

While fraudulent coppers multiplied, authentic copper coins grew more and more scarce as the eighteenth 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 chose periodically to stop coining copper altogether, and did so even while industry pleaded for more. So there was never enough good regal copper coin around to make very small change with, let alone to fill the void left by the exportation of silver.

Some coinage historians blame the shortage of regal copper coin on officials' disdain for the metal, which mint officers condemned as “base in virtue and dishonorable” (Powell 1993, 50). British monarchs are likewise 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, mint officials could claim even as late as 1782 that copper coinage was not an activity “properly belonging to the Mint” (Craig 1953, 250). In truth, mint indentures never provided for any copper coins. The minting of copper was instead treated by the mint (and also by Parliament) as an extracurricular affair, undertaken on the basis of special contracts, known as “royal warrants,” negotiated between the autonomous Company of Moneyers and the Crown (Craig 1953, 174–75, 250). So although the king didn't actually 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). An anonymous bard put it succinctly:

’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. (ANONYMOUS 1739)

The Company of Moneyers itself profited more from coining gold and silver than from coining copper. Before 1799, the master of the mint was paid a commission on output, which he shared with the moneyers. Before 1770, that commission was based on the value of money being struck, rather than the number of pieces (Ashton 1955, 167–68). Coining costs tended to be proportional to the number of pieces struck, rather than to their value: 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 large-value coins. Indeed, they might never have coined copper at all had the Privy Council not asked them to start doing so 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, the coining of copper was frequently made possible from 1672 onward 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 in 1762–63 and 1770–75 (see fig. 1).²⁸

What has to be addressed, then, isn’t simply the mint’s low regard for

28. Official copper pennies would not be issued until 1797 and would not be produced by the Royal Mint until 1821.

copper, which alone might have kept it from coining that metal altogether, but its tendency to coin copper by fits and starts. The explanation for the pattern is twofold. First, the token nature of regal 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 the 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 brewing companies, where they piled up. Banks wouldn't take them, and the mint never seriously entertained the idea of providing for their redemption. Also, as Sir John Craig (1953, 251) points out, "no substantial transaction could be negotiated nor Bill of Exchange bought with coppers, and they were refused for tax and excise." In consequence, by midcentury, 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 1763 and during the one ending in 1775.

In response to complaints from London brewers and merchants and also in order to stop the flow of raw material to counterfeiters, the mint ceased producing copper coins from 1701 to the accession of George I in 1714, from 1755 to 1762, from 1764 through 1769, and yet again after 1775. 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 five- and ten-shilling packets at the Tower only. That made Tower halfpence a bad deal for anyone outside London, since the mint "sold" its coins at their full face value. Many provincial manufacturers, especially those in the far north, found the burden of the delivery cost too great to bear and therefore had either to hope that new Tower issues would trickle up to them somehow 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 means for paying their hands. Either option seemed to encourage counterfeiting, for the first rewarded counterfeiters with a ready supply of raw material, while the second increased the public's willingness to accept 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, takeoff phase of the Industrial Revolution.

One gets some idea of the severity of the resulting small-change shortage from a 1785 mint estimate that, 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 three shillings' worth per person. That wasn't enough by a long chalk, especially considering the lack of good silver coin. Yet a large portion of this meager 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 (1953, 252) rightly insists, "were not in the two score halfpence a head but their maldistribution." He explains,

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.

As 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. As long as it denied relying on tokens, the government felt obliged to retain the appearance, if not the reality, of bimetallism (if not trimetallism). 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. To relieve the gold standard and its offspring of their ignoble status, the government would have to stop pretending that the pound sterling was a silver unit, while admitting the existence of official token coins. That, in turn, meant finding a way of distinguishing the Royal Mint's tokens from counterfeits. Regrettably, so far as the mint was concerned, no fool-proof means existed 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.

Making Do

How did eighteenth-century British employers cope with coin shortages? To start with, many "spent days riding from place to place" in search of small change, sometimes paying a premium for it and often having to settle for bad halfpence (Ashton 1962, 99). To pay his weavers, Samuel Oldknow was willing to look to anyone, "however distant, whose business brought a regular supply of currency and who was prepared to give credit" (Unwin, Hulme, and Taylor 1924, 176); even humble journeymen having one or two apprentices spent hours every week seeking change (Merrey 1794, 68). In importing cash from far-off places, employers had to take special steps to avoid becoming the prey of highwaymen. One of Oldknow's principal cash sources—his uncle Thomas—made a point of hiding his regular shipments of one hundred to two hundred pounds in bales of goods (Unwin, Hulme, and Taylor 1924, 177).

Because even the most intense searching couldn't make up for an overall shortage of cash, businessmen also 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 nonmonetary remuneration, often consisting of waste products, each known by precise (if peculiar) argot, as in the following tally by Peter Linebaugh:

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. (QUOTED IN RULE 1992, 182)²⁹

Skilled workmen and apprentices were also 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 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, 180-89). Oldknow, for example, 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 especially scarce, Oldknow resorted to paying his workers' net wages almost entirely in notes that local shopkeepers agreed to accept, limiting his cash payments to "no more than two shillings in the pound" (Unwin, Hulme, and Taylor 1924, 187).

Some economic historians attribute the persistence of truck and Tommy shops to employers' attempts to get around wage regulations (see, e.g., Hilton 1960). Others attribute it to workers' fondness for "old customs" (see, e.g., John Styles 1983, 184). It's clear, however, that shortages of good money were also to blame (see, e.g., Unwin, Hulme, and Taylor 1924, 197ff). Far from making life easier for either employers or their workers, reliance on truck was both a nuisance and a potent generator of industrial ill will. "The system," the Hammonds (1917, 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;

29. The terms' meanings can generally be guessed. "Thrums," for example, are web ends left in a loom after removal of finished cloth.

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 . . .³⁰

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 “saw to it that the crumbs from their master’s table were ample” (Ashton 1955, 209), and abuses sometimes amounted 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 scrap metal. 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 1992, 185). According to Ashton (1955, 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.

30. Raven 1977, 53–54.

When, starting in 1797, new regal copper coins produced at Matthew Boulton's Soho Mint finally allowed the navy to commute daily chip allotments into cash payments, the workers asked for eight pence, which was almost a third of their daily monetary wages before the reform.³¹

Predictably, as the shortage of good small money became more severe, the purloining of materials grew worse—a fact reflected in increasing penalties as well as in increasing arrests. In 1703, a worker found guilty of the offense 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 1955, 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 insisted on “group pay,” which meant that several workers had to share one or more gold guineas, half guineas, or banknotes (Craig 1953, 247; Bell 1963, 9). Unless the group happened to consist of members of the same family, as was sometimes the case, group pay was a pain in the neck. A manufacturer explained:

If the work of two men comes to near a guinea, or three men to near two guineas, we give them the gold and they must go together till they can get change by purchasing what they want. If they go to a grocer he will not give change unless the quantity of sugar, tea, &c. amounts to a certain sum, and then he stipulates for their taking a certain quantity of [bad] halfpence. . . .

It very often happens that groceries are not wanted by poor men who come from villages around, who seldom care to take tea and sugar home; but they generally have a public house in the market town at which they call to refresh; And to it these two or three fellows (though not all countrymen) go, with a good excuse to get their gold changed: if they find, after drinking a pint or two, that they cannot succeed, what can they do but go to another house. . . . [B]ut whether

31. The workers eventually settled for three to six pence, depending on their trade (Morris 1983, 104).

they get change at the first or second attempt, they are not served without taking several shillings in copper, and this of the worst quality that can be forced into circulation. (MERREY 1794, 67-68)

An equally troublesome and common practice was “long pay,” by which workers were made 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, 99-100).

A less cumbersome way of making available coins go further involved setting up “pay tables” at alehouses. 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, 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.³²

32. From *The Clothier’s Delight*, reproduced in Mantoux 1927, 75-77.

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 hungover workers—was zealously kept (George 1925, 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 were otherwise interested in promoting domestic unrest, which reduced their own firms' productivity. More than a few resorted to pay tables because they couldn't meet their wage bills otherwise. Had there been enough good coin, they might better have served their own interests by linking wage payments to Sunday sermons.

Brummagem Ha'pence

Understandably, shortages of official small change boosted the production and circulation of all sorts of unofficial substitutes, 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 eighteenth century wore on. Already in 1676, only four years after regal copper coins were first introduced, extensive counterfeiting triggered an Order in 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 Royal Mint took charge again, but neither that step nor other legal reforms and private initiatives sufficed to put a stop to false coining. By midcentury, 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 the dark lanes of Birmingham and London”

(Raspe and Tassie 1791, p. xlii) 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. Though true in parts, this view distorts important features of the counterfeit trade in eighteenth-century England, especially in Birmingham, where techniques developed for making metal coat buttons were easily adapted to making fake 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” (quoted in Langford 1868, 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” (*The Morning Chronicle*, February 10, 1851, quoted in Powell 1993, 49). 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, MP) that “Many of our Knights of the Saddle Bag, take out on their journeys, pattern cards of halfpence to get orders from us regularly as they do of Buttons” and that some counterfeit manufacturers even had “the audacity to hang up Signs in the street ALL SORTS OF COPPER COINS MADE HERE” (MBP 253/251). In London, the trade was so extensive that, according to police magistrate Patrick Colquhoun (pronounced “Calhoon”), 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 (1800, 16).

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 to large dealers for, depending on quality, anywhere from one-half to about a fifth of their face value. The dealers 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 of those German Jew boys are regularly supplied with counterfeit halfpence" (ibid. 182).

The abundance of counterfeits toward the end of the century points to the huge scale of the counterfeit manufacturing business. Colquhoun, having examined the problem at length in preparing his influential *Treatise on the Police of the Metropolis*, found that in the course of a six-day week, two or three persons could stamp and finish counterfeits worth (in face value) two to three hundred pounds, or between 96,000 and 144,000 halfpennies. By the midnineties, there were over fifty counterfeit manufacturing operations at work, mainly in Birmingham, London, and Bristol, with several large-scale operations running several presses at once.

Although counterfeiters' scale of production was impressive, the quality of their products was often anything but. This brings us to a distinction that plays a crucial part in the discussion to follow: that between "good" counterfeits, meaning those that were convincing enough to fool even Royal 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 midcentury, all counterfeits were cast rather than stamped, despite the fact that 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 seventy-two pence per pound of copper compared to the Royal Mint's forty-six pence. 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. 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, quoted in Powell 1993, 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 un-

derweight 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 forgo payment entirely. “Ordinary folk,” Royal Mint historian Sir 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.³³

Publick Virtue?

In light of the facts just considered, modern historians have tended to treat eighteenth-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,” Feavearyear (1963, 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,” as the counterfeiter “tended to fill up the void” and “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 of all; and even shoddy money was better than nothing. Paradoxically, the very badness of the clumsiest counterfeits made them particularly benign, because such miserable coins 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 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 partic-

33. Individual retailers were powerless to do anything about counterfeits. If one attempted independently to refuse them, he merely drove his business away to rivals. 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 1977, 16).

ularly 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.³⁴

“Good” (that is, convincing) counterfeits were another matter, for while they also appeared to alleviate shortages, their ability to fool even Royal 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, however, official coins were made convertible into full-bodied ones on demand, 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 as 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 as 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. For that reason, even though bad counterfeits were far more abundant and were more likely to be refused, the good ones 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 slowing down (if not putting off) the Industrial Revolution.

Yet the Royal Mint, far from doing whatever it could to make its copper coins hard to fake, did next to nothing. So far as the mint was concerned, making good coins was strictly a matter of putting legally authorized amounts of metal in them. 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 resorting to fine polishing and lettered edges, the officers dismissed both ideas as “a departure from the simple primitive

34. Anonymous 1772.

Institution of Material Money,—that of carrying full weight for value,—which is its only natural and best Security” (BL Add. MSS 38421, 221, February 8, 1788). This opinion was, mind you, offered less than two months after the same authorities reported that at least half of Great Britain’s copper coins were fake (PRO PC1/37/114, December 1787).

Paper Money

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 paper notes wore out too rapidly to take the place of copper coin, they might at least have filled in for silver, thereby going a long way toward addressing Great Britain’s overall coin shortage. As it happened, though, 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, the Bank refused to set foot outside of the City until the government forced it to set up branch offices in 1826. The Bank thus earned its second (since forgotten) moniker, the “Bank of London.” Moreover, the Bank refused to issue notes for less than the princely sum of twenty pounds before 1759 or for less than ten pounds before 1793, when it began to issue five-pound notes. 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.

It was up to other banks, especially banks in the countryside, 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, 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 banknotes for less than one pound in 1775. In 1787, the minimum legal denomination was made five pounds, 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 it in England and Wales. By midcentury, several "public" or joint-stock banks had been established there, and both they and smaller "private" banks issued notes for less than one pound beginning in the 1750s. Some private banks 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."³⁵ 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, in 1765, the issuance in Scotland of notes under one pound. After 1777, the one-pound 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.³⁶ In short, as Jonathan Rule (1992, 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

35. Boase 1867, 2, cited in L. White 1984, 29–30. Compare Macleod 1892–93, 436ff.

36. 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 (2002, 263) thus 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.

do with such except by aggravating, if not further injuring, their workers, manufacturers and other businessmen 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 unauthorized 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 came 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.³⁷

For a while, the government tolerated the unauthorized tokens, but then it made up its mind to reaffirm its coinage prerogative by ordering milled copper coins from the Royal Mint and declaring the private tokens illegal. Despite the availability of regal substitutes, the private tokens proved so popular that the 1672 proclamation declaring it "His Majesty's pleasure that no person or persons should for the future make, coin, exchange, or use any farthing or tokens, except such as should be coined at His Majesty's mint" had to be followed by others on October 17, 1673, and December 12, 1674. The last proclamation prolonged tokens' legality until February 5, 1675, after which magistrates were under strict orders to prosecute offenders (Snelling 1766, 36).

That the law proscribing private tokens was still on the books made

37. See Berry 1988.

renewed resort to such tokens during the late eighteenth century risky. Despite this, the new tokens were issued on a far vaster scale than their seventeenth-century predecessors had been—a scale exceeding, in the space of a decade, the combined regal copper issues of the previous 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, in some cases, 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 partly thanks to them and the people who made and issued them, that Great Britain managed to become the world's first industrial nation.

The story of Great Britain's commercial coinage is, above all else, as John Roger Scott Whiting (1971, 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, competition that was the ultimate force driving them to produce coins of such exceptional quality, but that 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."