

PENNY DREADFUL

They're horrid and useless. Why do pennies persist?

BY DAVID OWEN



Pennies are a problem, because their metal value exceeds their face value.

Several years ago, Walter Luhrman, a metallurgist in southern Ohio, discovered a copper deposit of tantalizing richness. North America's largest copper mine—a vast open-pit complex in Arizona—usually has to process a ton of ore in order to produce ten pounds of pure copper; Luhrman's mine, by contrast, yielded the same ten pounds from just thirty or forty pounds of ore. Luhrman operated profitably until mid-December, 2006, when the federal government shut him down.

The copper deposit that Luhrman worked wasn't in the ground; it was in the storage vaults of Federal Reserve banks, and, indirectly, in the piggy banks, coffee cans, automobile ashtrays, and living-room upholstery of ordinary Americans. A penny minted

before 1982 is ninety-five per cent copper—which, at recent prices, is approximately two and a half cents' worth. Luhrman, who had previously owned a company that refined gold and silver, devised a method of rapidly separating pre-1982 pennies from more recent ones, which are ninety-seven and a half per cent zinc, a less valuable commodity. His new company, Jackson Metals, bought truckloads of pennies from the Federal Reserve, turned the copper ones into ingots, and returned the zinc ones to circulation in cities where pennies were scarce. "Doing that prevented the U.S. Mint from having to make more pennies," Luhrman told me recently. "Isn't that neat?" The Mint didn't think so; it issued a rule prohibiting the melting

or exportation of one-cent and five-cent coins. (Nickels, despite their silvery appearance, are seventy-five per cent copper.) Luhrman laid off most of his employees and implemented his corporate Plan B: buying half-dollars from banks and melting the silver ones (denominations greater than five cents aren't covered by the Mint's rule); mining Canadian five-cent coins (which were a hundred per cent nickel most years from 1946 to 1981); and lobbying Congress.

Luhrman's experience highlights a growing conundrum for the Mint and for U.S. taxpayers. Primarily because zinc, too, has soared in value, producing a penny now costs about 1.7 cents. Since the Mint currently manufactures more than seven billion pennies a year and "sells" them to the Federal Reserve at their face value, the Treasury incurs an annual penny deficit of about fifty million dollars—a condition known in the coin world as "negative seigniorage." The fact that the Mint loses money on penny production annoys some people, because one-cent coins no longer have much economic utility. More than a few people, upon finding pennies in their pockets at the end of the day, simply throw them away, and many don't bother to pick them up anymore when they see them lying on the ground. (Breaking stride to pick up a penny, if it takes more than 6.15 seconds, pays less than the federal minimum wage.)

Various people have proposed various remedies, one of which is to get rid of pennies altogether. This is a step that many countries have taken with their least valuable coins—among them the United States, which stopped making half-cents in 1857, when a half-cent, by almost any measure, had significantly more purchasing power than a dime does today. There are problems, though. One is that many people are quite attached to one-cent coins. Another is that some people fear that merchants in a penny-free economy, when making change on cash purchases, might be more inclined to round up than to round down, thus penalizing consumers. A third is that eliminating pennies would increase our reliance on nickels, which now cost almost ten cents to manufacture and so

generate even more negative seigniorage, per coin, than pennies do. What is to be done?

America's assortment of circulating pocket change is anything but immutable. Colonial-era settlers initially had no coins (or bills) of their own. They therefore depended heavily on barter, and conducted cash transactions with British coppers and other foreign coins, especially Spanish reals. (The "dollars" mentioned in Article I of the Constitution were actually eight-real coins, also known as pieces of eight.) British silver coins were scarce in America because Britain, which had little domestic access to precious metals and hoped its colonists would soon get busy shipping treasure in the opposite direction, forbade their export. In 1702, the alchemy-obsessed master of the British Royal Mint, Isaac Newton, melted down and minutely analyzed the coins of a number of countries to determine their exact content. The results of Newton's assay were used, among other things, to set the bewildering, constantly shifting exchange rates that were a part of daily commercial life in England and America in the early eighteenth century.

Congress created the Mint in 1792, and its original headquarters, in Philadelphia, was the first government building to be erected under the authority of the Constitution. The first U.S. coins, produced that year, were silver "half dismes," or half-dimes. They were worth a twentieth of a dollar and may have been manufactured, at least in part, from silverware donated by President and Mrs. Washington. The first U.S. coins to circulate widely were probably one-cent pieces struck in 1792 or 1793. They were made of pure copper, and were slightly larger in diameter than a Sacagawea dollar and about half again as heavy. The first Lincoln cent was minted in 1909, on the hundredth anniversary of Lincoln's birth. It replaced the Indian-head cent, and was the first circulating American coin to be stamped with the likeness of a real, identifiable person. It was made of bronze and weighed about twenty-five per cent more than the cent we use today.

The scarcity of one metal or another has prompted sporadic crises in Ameri-

can coin production. In 1943, the Mint, hoping to preserve copper for military uses, experimented with a number of materials, including Bakelite, before settling on galvanized steel. These coins were prone to rust, especially near the edges, and were so unpopular that in 1944 the Mint went back to using copper, much of it from spent shell casings. Enough steel cents were made, however, that they were still turning up twenty years later, when I made a brief go at coin collecting. (I had all three versions—from the Mints in Denver, Philadelphia, and San Francisco.) In the early seventies, when the value of the copper in a penny had risen to almost a penny, the Mint produced about a million and a half Lincoln cents made of aluminum. Congress rejected that idea, and the Mint destroyed all the aluminum coins, except for a dozen samples that were kept by congressmen and others. Possessing these coins, which are dated 1974, is against the law, since they are considered by the Mint to be purloined government property; one of them—which numismatists refer to, ominously, as the Toven Specimen—is thought to be held by heirs of a Capitol police officer.

The most significant shift in the metal content of American coins occurred in 1965. The price of silver had risen so high that some bank employees were asking to be paid in change, and Congress passed a law that required the Mint to stop using silver in all circulating coins. The new, silver-free coins were of the "sandwich" variety still used today; they have a pure-copper core and thin top and bottom layers made of a copper-nickel alloy. Sacagawea dollars and the new Presidential dollars also have copper cores, with a coating of manganese brass.

Coin denominations higher than five cents don't present the same seigniorage challenge that pennies and nickels do, at least for the time being; a dollar coin, for example, costs only about twenty cents to make. In 2006, the Mint cleared \$750 million on revenues of \$2.3 billion, so it's in no immediate danger of violating its obligation not to spend more on manufacturing coins than it receives, from the Federal Reserve and other coin consumers, for manufacturing them. (Last year, the Mint sold some eight



*"Now, we can get all those repressed memories
the easy way or the hard way."*

hundred and seventy-two million dollars' worth of non-circulating coins and medals to collectors and to people who like to keep savings in precious metals.) Nevertheless, Edmund Moy, the Mint's director since 2006, worries about long-term trends in metals prices, and he and his staff have asked Congress to allow the Mint to periodically adjust the content of coins on its own, without going through the time-consuming process of seeking specific legislation. Congress probably won't give Moy everything he wants, but the problem is unlikely to go away, since demand for base metals is strong all over the world.

In January, I fulfilled a long abandoned schoolboy ambition by taking a field trip to watch coins being manufactured, at the Mint in Philadelphia. On arrival, I was required to empty my pockets of change, to make it easier for the Mint's police force to determine later whether I had tried to smuggle anything out. Then I met John M. Mercanti, a substantial, bearded middle-aged man, who is the Mint's supervisory design and master tooling development specialist, and is identified by a sign on his office door as the Big Cheese. "My wife laughs at me, but I pick up pennies," he said. "To me, a penny is a work of art that a lot of time and effort

have gone into, and I'm not just going to let it lie on the sidewalk. It becomes a personal thing."

New coins begin in Congress, which sets the themes, the metal content, and other details in consultation with the Mint and various interested parties, including coin collectors and historians. Next, the designs are created by Mercanti's staff of six in-house artists and a larger group of freelancers. For about a century, the Mint's sculptors have made eight-inch prototypes from clay and other materials, after which a machine called a Janvier transfer engraver has rendered those images onto coin-size metal dies. Now the Mint is moving toward an entirely digital system. I met Joseph Menna, a young staff artist who earned a master's degree at the New York Academy Graduate School of Figurative Art, and he let me try his virtual-engraving tool, which looked like a dentist's drill and gave realistic tactile feedback as I slashed away, on a computer tablet, at the face of James Madison. One of the biggest challenges of coin design is portraying realistic-looking three-dimensional facial features on a metal surface that is nearly flat. This difficulty explains why the faces on coins are almost always shown in profile: doing so keeps noses recognizable. The 2006 nickel, which features a likeness of

Jefferson and was sculpted by Menna's former colleague Donna Weaver, is the first circulating U.S. coin to have a forward-facing portrait; it is considered by coin aficionados to be an engraving tour de force.

After I had finished defiling Madison's face, Tim Grant, the Mint's public-affairs manager, led me down a staircase to the production floor, which was vast, clean, and noisy. Once specialists have turned coin designs into working dies, coin manufacturing proceeds much as it did in President Washington's day, adjusted for technology. A machine punches coin-size blanks, called planchets, from long coils of sheet metal, and another machine, in a process called up-setting, gives each planchet a raised rim. (All coins have this rim; without it their surface features would make them unstackable.) Another machine then stamps designs onto both sides simultaneously, one planchet at a time. "To make a penny takes thirty-five tons per strike," Grant said, as I ran my hand through a bin of warm, new coins. "We can make about a million pennies from one set of dies." All this happens very quickly. The U.S. Mint took more than two years to manufacture its first million coins; the Philadelphia Mint now makes that many every forty-five minutes or so.

Conveyor belts feed finished coins into large, box-shaped bags made of white-and-blue plastic webbing. Grant and I watched as workers loaded a number of these bags, each of which weighed more than a ton, onto trucks, for shipment to Federal Reserve banks. The trucks had nondescript markings—a superfluous precaution, probably, since robbing one would be a chore: a typical Mint bag full of pennies contains only about four thousand dollars' worth, yet you'd need a forklift to move it to the back of your getaway vehicle.

As I watched new pennies spewing from the Mint's stamping machines, I couldn't help wondering about the fate of all the pennies that had gone before them. The average life span of American pocket change is thirty years. During the past thirty years, the U.S. Mint has produced something like a half trillion coins, most of them cents, yet the Mint estimates that only about three hundred billion coins are currently in circulation. This estimate is probably

high, since it includes coins that haven't budged from their coffee cans in years. Even so, the missing change is worth billions. Where is it? Except in rare cases, old coins, unlike old banknotes, aren't withdrawn from circulation by the Federal Reserve. People simply mislay them, eventually, in one way or another, and in most cases they disappear as permanently as if they had been dropped into the sea. Pocket change leaks from the economy the way air leaks from a balloon, and most of what leaks is pennies.

In November, 1989, Representatives James A. Hayes, of Louisiana, and Jim Kolbe, of Arizona, having had just about enough of all this, introduced the Price Rounding Act. Its purpose was to phase out the penny by requiring that all cash transactions be rounded to the nearest five cents. The bill was actively opposed by Americans for Common Cents, a lobbying organization that had been founded specifically to defeat the legislation. A.C.C.'s main funding came from Jarden Zinc Products, which is one of the nation's largest producers of zinc, and which has supplied the U.S. Mint with penny planchets since 1982.

In 1990, A.C.C. enlisted Raymond E. Lombra, an economics professor at Pennsylvania State University, to make an academic case for preserving one-cent coins at a Senate Banking Com-

mittee hearing on the Price Rounding Act. Lombra, after studying prices at a retail store, had concluded that rounding cash transactions would be more likely to raise consumer expenditures than to lower them. He testified that eliminating pennies would "impose a significant and regressive rounding 'tax' on the American public"—about six hundred million dollars annually, or, at the time, a little more than two dollars per American. He also said that any putative productivity gains from eliminating cent coins were "an illusion," since "cash-register clerks would not suddenly be free to stock shelves or clean stores if the penny were no longer in circulation."

Lombra and A.C.C. prevailed, and the Price Rounding Act was tabled out of existence. In July, 2001, Kolbe—this time alone, Hayes having retired—tried again. His new bill, the Legal Tender Modernization Act, played a supporting role in an episode of "The West Wing": Sam Seaborn, the White House deputy communications director (played by Rob Lowe) is given the task of coming up with a plausible-sounding excuse that President Bartlet (played by Martin Sheen) can use in declining to support the Legal Tender Modernization Act (played by the actual bill), and he settles on the fact that the Speaker of the House is from Abraham Lincoln's native state. The bill's opponents in real life also included

Lincoln-loving people from Illinois, along with people who hold "penny drives" for charity, people who would prefer that everything remain the way it is now, and, of course, Americans for Common Cents. The bill went nowhere. Kolbe tried one more time, in 2006, when the price of zinc was at a record high and inflation had further eroded the penny's minimal purchasing power—again without success. He retired the following year, leaving Congress without an active penny-hater.

In 2001, Lombra published a paper in the *Eastern Economic Journal*, in which he elaborated on a number of the ideas that he had introduced in his congressional testimony a decade before. The direct and indirect effects of the "rounding tax," he wrote, would be "no less than \$1.5 billion over five years and \$2.5 billion over a decade," estimates that he described as "conservative." Yet Lombra's analysis was highly selective. Consider, after all, the opportunity cost of storing billions of dollars' worth of small coins in dresser drawers, often for decades, and then losing track of them entirely. This taxlike penalty is self-imposed, since no law prevents anyone from filling his pockets with pennies before leaving the house, but even people who do use small change bear the burden of lugging it around and sifting through it—the old-lady-with-a-coin-purse problem, which has doubtless been slowing checkout lines since the Lydians invented coinage, in 500 B.C. or so. Nor is it clear that merchants, who have to cover the considerable cost of handling, sorting, transporting, and redeeming excess change, would invariably abuse a rounding system. When I was in Washington visiting the executive director of A.C.C., I made three small purchases in the gift shop of my hotel and noticed that the cashier avoided handling pennies on all three occasions, and twice rounded in my favor. We were both happy to keep bothersome metal disks out of the transaction.

Even if retailers consistently fudged in their own favor, rounding's impact on individual consumers today would be imperceptible. For one thing, rounding would apply only to the final five cents, no matter how high the price: a \$1.98 purchase would be rounded up two



cents; so would a \$1001.98 purchase. Americans have taken this sort of thing in stride for years. Sales taxes are rounded when assessing them results in fractional cents, and most consumers don't even try very hard to avoid A.T.M. fees, which are far more costly than any form of rounding. Besides, the growing percentage of transactions that are handled by credit card, PayPal, and other non-cash media wouldn't be subject to rounding at all.

A modern penny simply isn't worth enough to worry about. In 1940, an average one-pound loaf of bread sold for eight cents, according to the U.S. Census Bureau. That means that a penny in those days bought enough bread to make a good-sized sandwich. These days, a penny doesn't buy much more than a bit of crust. Accurately comparing monetary values (and bread loaves) across decades is impossible, but by almost any economic measure a 1940 penny had more purchasing power than a modern quarter does; in 1940, then, consumers got by, quite contentedly, without the equivalent of our penny, nickel, or dime. And many people continue to get by without these coins today, since in the actual marketplace consumers tend to treat the quarter as the smallest meaningful denomination.

In that 2001 episode of "The West Wing," the Sam Seaborn character states that the only coin-operated machines that accept pennies anymore (apart from automated tollbooths on highways in Illinois) are "those coin-wrapping machines people buy to get rid of pennies." Since 1992, there has actually been one more: change-redeeming machines owned by the company Coinstar—which people also use to get rid of pennies. Coinstar's founder, Jens Molbak, got the idea for his company while considering his own mounting collection of unredeemable change, in his dormitory room at the Stanford Graduate School of Business. A senior vice-president at Coinstar—Molbak himself retired in 2001—told me, "Jens interviewed some people outside supermarkets, and realized that a ton of them had hordes of coins sitting at home in jars or shoeboxes, too, and nobody really wanted to deal with them. He needed a project for a class, so he did some research and discovered

a business. Now, everybody always says, 'Why didn't I think of that?'" Today, Coinstar's kiosks can be found in more than fifteen thousand supermarkets and other locations, including the lobbies of some banks.

Coinstar charges most of its customers 8.9 per cent of any amount they feed into a machine. The fact that consumers happily pay this considerable fee suggests that they wouldn't be bothered by the vastly smaller penalty that rounding to the nearest nickel might entail. Of course, eliminating cents would also eliminate the middleman—in this case Coinstar, which, Camara told me, annually processes about forty billion coins, more than half of which are pennies. Not surprisingly, therefore, Coinstar has been an advocate of preserving pennies. Since 1998, the company has conducted an annual currency poll, which always shows that Americans still love pennies and would prefer to continue getting rid of them by collecting them for months or years and then paying Coinstar to put them back into circulation, instead of getting rid of them once and for all by having the Mint stop making them.

Whether or not the United States ever does drop the penny, Congress will presumably have to do something about the nickel, which now costs almost a dime to make. That won't be easy. Tinkering with the metal content of the nickel is more challenging than tinkering with that of the penny, because nickels are used in vending machines and vending machines distinguish real coins from slugs by measuring size and weight. The modern five-cent piece was introduced in 1866, and was made of the same copper-nickel alloy that is used today. Its weight was set at exactly one gram per cent, and it therefore memorializes a moment in American history when the United States was thinking somewhat seriously about adopting the metric system. The nickel still weighs five grams—nearly as much as a quarter, and heavy enough that it is almost guaranteed to generate negative seigniorage, no matter what alloy it's made from.

One solution to this problem would be to replace the nickel with an updated version of the coin that the nickel itself replaced, back in 1866. Frank Lucas,

who is a Republican congressman from Oklahoma, a lifelong coin collector, and a potential inheritor of Jim Kolbe's anti-penny mantle, told me, "I think we need to assess stepping back from the nickel, the five-cent piece, and consider readopting the traditional five-cent coin, the old half-dime." Lucas's version would be smaller in diameter than a dime, and weigh half as much—not light enough to blow away in a strong breeze, though almost.

An even simpler solution might be to get rid of five-cent coins altogether—along with the penny, of course. This idea may not be as radical as it sounds. In 2006, in an initiative called Change for the Better, New Zealand eliminated its five-cent coins, and dramatically reduced the size and weight of its ten-, twenty-, and fifty-cent coins. It had already stopped making one- and two-cent coins, in 1989, and had replaced one-dollar and two-dollar notes with coins, in 1991. This total transformation of the country's currency was received with calm pragmatism by most New Zealanders—even though the lowest-denomination coin in the new system, the redesigned ten-cent piece, is worth about eight American cents at the current rate of exchange.

Canada, too, has streamlined its currency. It has stopped printing one- and two-dollar notes, and officials are considering further changes. Last year, economists at the Desjardins Group, an association of Canadian credit unions, published a study that strongly advocated the elimination of the Canadian one-cent coin, which would most likely be followed by the elimination of the five-cent coin as well. The study makes many references to the experience of New Zealanders. It also gets in several digs at foot-dragging Americans: "Canada does not have to follow their example. After all, American society is very conservative, particularly with its symbols (for example, the U.S. did not adopt the metric system and has not replaced the dollar bill with a dollar coin)." This sort of slur from an (alleged) ally probably isn't worth going to war over, especially now that its money is sometimes worth more than ours. But we could still strike back, by doing Canada—and New Zealand—one better: we could get rid of dimes, too. ♦