

Bad Money and the Chemical Arts in Colonial America



COINS.	Weights.			Value.	Lawful Money.	Silver Coins	Weights.			Value.	
	oz.	dwt.	gr.				oz.	dwt.	gr.		
Guinea	0	5	9	10	10	Eng Crown	0	19	8 1/2	2	10
Half D.	2	16 1/2	5	5	5	Half Ditto	9	16 1/4	1	5	
Moidore	6	22	13	10	10	Dollar	17	12	2	5	
Half D.	3	11	6	15	18	Half Ditto	8	18	1	2	6

4 Grains is one penny
Penny is one Ounce.

A notice in the *Virginia Gazette* from October 1752 announced the capture of four men in North Carolina accused of making their own doubloons, pistoles, pieces of eight, and half pistereens: a practice called *coining*. Despite the notice's small size in the newspaper, coining could have quite large implications for the monetary regime and consequences for those who attempted it. Among the conspirators were Daniel Johnson (alias Dixon) "a Chymist, or Doctor," Patrick Moore "a Taylor by Trade," and William Jillet "a Blacksmith," who had set up their forge in a swamp about thirty miles upriver from New Bern, the colony's capital at the time. The coastal basin around New Bern featured meandering streams and low-lying swamps bisected by the free-flowing Neuse River that connected Pamlico Sound to points inland. A swampy area described on later maps as the Dover Swamp lay to the west along the river's southern bank and was known to be difficult to navigate, muddy, and full of mosquitoes. Such an area offered the coiners a secluded place beyond state auspices to do the work of making and testing coins—including shaving and melting metal, applying corrosive mineral acids, and rubbing, biting, and polishing the coins—yet one still connected to riverine travel routes.



Figure 1. New Bern and the Neuse River with surrounding swamps. Detail from *Base map of North Carolina, 1893*. [Library of Congress](https://www.loc.gov/rr/geography/maps/), Geography and Map Division.

Coining entailed producing metallic currency that would pass at face value despite lacking the full amount of silver or gold in favor of some combination of base metals such as copper, brass, or lead. “Bad Money,” as the sheriff called it. Coining differed from other eighteenth-century monetary crime, such as clipping or shaving, because it resulted in a new coin rather than altering a preexisting one. In this case, the coiners endeavored to make Spanish gold and silver coins in a range of values rather than any British silver coins. Given the scarcity of coin across the British North American colonies those pistoles and pesos would have been just as useful, if not more so, than any pounds or shillings. North Carolina in the mid-eighteenth century experienced an acute specie shortage (meaning of both paper and metallic currency) adding further incentive and opportunity to pass bad money. Credit and barter systems helped facilitate trade in the absence of specie, but cash was still needed for some tasks including inter-imperial trade, settling debts, or paying taxes. In such cases, colonists lacking British coin relied on Spanish, Portuguese, French, and other foreign coin in addition to the paper legal tender issued by colonial governments. Perhaps the coiners set out to produce something familiar enough in the Spanish coins but not so familiar as shillings or pounds that might have been more easily identified as spurious. Either way, their enterprise offered the prospect of profiting from the variability, complexity, and scarcity of colonial currency.

COINS			Silver Coins		
Weights	Toler		Weights	Toler	
Guinea	133	68.40	100	52.10	10
Half G	66.5	34.20	50	26.05	5
Milroy	6	3.00	17 1/2	2.5	
Half L	5.11	2.55	8 1/2	1.26	
Quarter L	2.55	1.27	4 1/4	0.63	
Half S	8.15	4.07	10	5.16	3
Quarter S	4.07	2.03	5	2.58	1.5
Half P	2.4	1.20	3	1.54	0.75
Quarter P	1.2	0.60	1.5	0.77	0.37
Half D	2.7	1.35	1.7	0.85	0.42
Quarter D	1.35	0.67	0.85	0.42	0.21

Figure 2. Some of the coins available in British North America. [Currency conversion table] engraved, printed, and sold by Nathaniel Hurd (Boston, 1765). *Courtesy of the American Antiquarian Society*.

Depending on one’s relationship to the monetary regime, coining could either appear a heinous offense that threatened the ruling order by undermining public trust in its currency, or a creative solution to the shortage of specie across much of the Atlantic world. Capital statutes passed in England from the 1690s to 1742 made many monetary crimes, including coining, punishable by death. In 1749, only three years before Johnson was apprehended, the North Carolina

Assembly enacted three statutes from England that classified coining and clipping as capital offenses. Previous punishments for counterfeiting, forging, altering, defacing, or knowingly passing counterfeit bills in the colony had included two hours in the pillory followed by having one's ears cut off. At the same time, counterfeit coins became integral to day-to-day economic life, sometimes in blatant violation of British law following Parliamentary statutes passed in 1751 and 1764 prohibiting further issues of legal tender paper money in the continental colonies.

The common problem of currency in the British Atlantic world led to creative workarounds such as paper currencies, the plugging and holing of existing foreign coin, new theories of value, and counterfeiting as other historians have shown so well. Individuals could choose to accept underweight coins at face value or deal in suspect coins. Colonial responses to the shortage of specie provoked Parliamentary legislation, notably the Currency Act of 1764, and local insurgencies like the North Carolina Regulators, whose grievances included tax policy and the lack of currency, little more than a decade after the example discussed here. The case of Johnson, Moore, and Jillet also shows that the condition of scarcity could catalyze a vernacular substrate of chemical know-how to appear in the historical record.

At the most basic level this example expands the range of characters, motivations, and skills included in studies of the shadowy practice of coining. It adds the coiners' work of making coins to the kinds of labor understood to have contributed to knowledge and value production in histories of medicine, science, and money. Over the past decade artisans and tradespeople have reappeared in scholarship as knowledge makers, eroding extant divisions between philosophers and mechanics, and recovering the connections between the head and the hands in histories of innovation or industrialization. For Johnson, making coins was a matter of chemistry that would ultimately determine the success or failure of their enterprise. Such an idea raises questions of who detected coins and thereby enforced monetary policy, as well as the role of subjective, seemingly irrational things like the senses in that enforcement. At its broadest, considering coining as a chemical act suggests the many interactions between productive arts and knowledges in the science of everyday life and points to the potential of examining together the realms of medicine and money.

William Jillet's trade as a blacksmith would clearly have been helpful to the metallic work that constituted the early stages of making coins. Perhaps less obvious, though no less crucial, were Daniel Johnson's contributions to the coining process as a chemist. The later stages involved pastes and mineral acids that were standard features of any apothecary's or chemist's practice. His training would likely have included hands-on experience with silver's chemical properties and familiarity with mineral acids, such as aqua fortis and vitriol, that dissolve metals (which was exactly the technique used by coiners to bring small amounts of silver to the surface of the coins they made to make them appear entirely silver). Johnson also probably would have known the steps to produce such reagents with his own equipment. The laboratories and

warehouses of London's merchants of medicines brimmed with these chemicals because they were frequently used in the production of popular medicines and were exported to colonial medical practitioners in significant quantities.

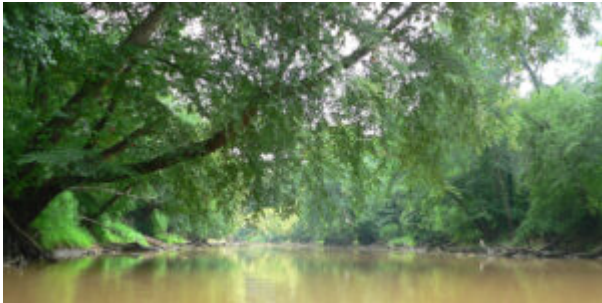


Figure 3. Banks of the Neuse River, North Carolina. Photo credit: Ken Thomas. Public domain via [Wikimedia Commons](#).

The dense forests and nearly impassable swamps of the mid-Atlantic and upper South were favorites of counterfeiters because, in essence, they provided natural laboratories outside of colonial authority. More generally, swamps offered liminal space for marginalized or illicit groups to establish communities and pursue their own goals. The Great Dismal Swamp to the north, for example, supported a multigenerational maroon settlement dating to the early 1600s based on recent archaeological evidence. Others seeking freedom or survival, such as indigenous people or indentured servants, drew upon the natural resources of the region's swamps, while self-emancipated people used the Neuse River to reach New Bern and the coast from plantations in the Carolina Piedmont. Johnson, Moore, and Jillet ferried their materials and equipment (including hammers, molds, and chemicals) south from Virginia, up the Neuse River, and into the swamp that would have masked the fumes and smoke from the coiners' fires while offering supplies of water and wood fuel for the metalwork. With the proper setup coining could become quite efficient, as one printed account suggested that a team of two could finish upwards of 500 shillings in two days' time.



Figure 4. North Carolina in the eighteenth century. *A compleat map of North-Carolina from an actual survey* (London: S. Hooper, 1770). [Library of Congress](#), Geography and Map Division.

Though counterfeiting cases involving medical practitioners like Johnson are difficult to find, contemporary accounts of tradespeople supporting coining operations and what we know from Carl Wennerlind's work about who was charged, tried, and ultimately punished for monetary crimes suggests that there existed a broader infrastructure for counterfeiting in Britain and its Atlantic colonies. The exploits of Seth Hudson, a coiner and forger who had worked as a doctor, captivated Boston during the early 1760s. In Rhode Island, Samuel Casey sold medicines before his inventory burned in a fire, likely prompting him to begin coining in the 1760s.



Figure 5. Seth Hudson in popular print. H-ds-n's Speech from the Pillory (Boston, 1762). Yale University Art Gallery, public domain.

Other medical practitioners in New England, such as Benjamin Stockbridge (1704-1788), tried their hand at making gold and silver legally by conducting alchemical experiments alongside their medical practices. In another case, Gershom Bulkeley (1635-1713) took notes about medico-alchemical experiments in his home laboratory in Connecticut. Bulkeley possessed a Harvard education and owned copies of European medical and alchemical texts to aid his pursuits, while Stockbridge had received formal medical training and also read European texts. In general, however, we know little about the development, circulation, and adaptation of early modern chemistry practices, but the presence of the key techniques for coining—coloring base metals like copper, iron, and brass—in widely available printed texts suggests that those methods were not particularly esoteric or secret. For example, Godfrey Smith's *The Laboratory, or School of Arts* included directions “to silver all sorts of metals” using aqua fortis, a key mineral acid for chemical remedies and coining alike.

Far from extraordinary, many eighteenth-century ideas about credit, value, and medicine could trace their roots to prior strains of European alchemical thought. More practically, many of the chemicals used in making medicines and coins had attracted the attention of tradespeople for centuries and were

already associated, at least tangentially, with ideas of value and money creation before they entered mainstream medical practice in the form of chemical remedies that required practices that could be categorized as metallic transmutation or pharmaceutical production depending on one's interpretation. The takeaway being that for a long time there existed little practical distinction between the alchemical, medical, and industrial arts.

We don't know if Johnson, by comparison, had access to any such texts or if he could even read. Had he apprenticed or learned from someone in a port city with connections to the wider Atlantic world? Regardless of his training, he believed he possessed sufficient chemical skill to attempt to make coins that would pass as legitimate, a level of experience acknowledged by the *Virginia Gazette* and several other newspapers when they described him as "a Chymist, or Doctor." This convergence of titles at once reflects the fuzziness of pre-professional occupational categories but also the integration of chemical techniques and remedies into accepted pharmacology by the eighteenth century. There had emerged a vibrant trade in chemical remedies and, importantly for our purposes here, the substrates required to make them that had its roots in alchemical experiments of previous centuries. Mineral acids and other chemicals filled the official pharmacopoeias and dispensaries that nominally structured medicine manufacturing during this period.

The early modern Americas feature less prominently in studies of chemical knowledge production given their perceived distance, both physically and intellectually, from Europe's hubs of formal experimentation, but they still boasted robust interaction with chemistry in a variety of applied guises in response to common problems of labor and scarcity. Perhaps the most obvious example is in the silver mines at Potosí in New Spain where metallurgical techniques drew upon a long tradition of Paracelsian chemistry that combined aspects of alchemy, pharmacy, and medicine. By the close of the eighteenth century, sugar production too began to be described in chemical terms, often to "improve" production and discredit the experiential knowledge of enslaved laborers. Chemical techniques, such as distillation, saw everyday use in homes and kitchens across North America, while medical practitioners crossing the Atlantic carried chemical training into new contexts. Specie and health were both in short supply across the British Atlantic world.

From one perspective, we can interpret these chemical activities as responses to scarcity (of money or labor, for example) and precarity (of health, for example) seeking to solve common problems. The chemical approach to money in the Americas illustrates the circulation of experiential knowledges across the Atlantic world as well as local configurations of those knowledges that arose out of necessity both in accordance with imperial law and not. A range of approaches emerged because though the eighteenth century was a period of quickening transatlantic commerce and increased commercial value placed on accurate descriptions of nature, it lacked widespread forms of verification that made truth-claims tricky and embodied despite assertions to the contrary. In the cases of medicine and money, the possibility of counterfeits shaped

specific routines of detection and credibility that could have life-or-death consequences.

While some counterfeit coins deceived the eyes, ears, fingers, and tongues of even the most experienced evaluators, most of the cases that remain for us today are of those that were detected. In other words, they likely failed a physical test as Johnson's did. Contrary to the assumption by historians that many colonists, and Londoners even, would have lacked sufficient familiarity with genuine coins to recognize fraudulent ones, extant examples suggest a wider fluency in coinage and the sensory indicators of their veracity.



Figures 6a and 6b: Counterfeiters attempted to copy true Mexican coins, like this 2 reales piece from 1742, that circulated in the American colonies [top]. Numismática Pliego, [CC BY-SA 3.0](#), via [Wikimedia Commons](#). By contrast, a counterfeit Spanish dollar (piece of eight or peso) from the same period now shows its lead alloy interior having lost the silver coating that would have hidden it [bottom]. [Portable Antiquities Scheme, CC BY-SA 4.0](#).

When the sheriff found the coins at the forge in the North Carolina swamp, he noted they were "so badly done as not to be easily imposed upon any Body; which may be owing to the timely Discovery of the Plot, which prevented their finishing them in the Manner they intended." The finishing process he refers to included achieving a realistic silver or gold coloring on the coin's surface that would have been Johnson's job as the chemist. After the metallic disc was removed from its mold, it had to be brought to the color of a silver coin even though in actuality it was not entirely silver. To do so, the coiner would first apply vitriol (sulfuric acid) or aqua fortis (nitric acid) that dissolved whatever silver was in the new coin (often filed off another coin) and forced it to the surface. Mineral acids like vitriol and aqua fortis were used broadly to dissolve metals in various manufacturing processes and make spirituous tinctures for stomach ailments, for example. Next, tartar was added to the

silver and acid mixture to form a paste that could be rubbed into the coin's surface to give it the color of a true peso or pistareen. Forms of tartar were commonly used to make the pastes and mashes that were rolled into pills using similar hand motions to the process of coloring a coin.

Any number of physical characteristics related to the finishing process could suggest that a coin was bogus, besides being found near a forge set up in a swamp, of course. The sheriff who uncovered Johnson's cache noted that the coins appeared to be of correct size but were "wanting in Colour." Perhaps Johnson's coins showed some of the brass underneath the silver coating like the counterfeit pesos mentioned in the October 6, 1760, issue of the *Boston Gazette* that "if rubbed they will look brassy." Other bogus coins appeared coppery or bluish rather than silvery white, the surface providing physical clues to their internal composition akin to the role of the skin in medical diagnosis as a screen showing what occurred underneath. Or maybe they still felt wet or smelled of the tartar paste like several counterfeits reported from New Hampshire in 1774 that emitted a chemical odor giving away their recent production. People bit their coins to determine if they seemed too soft (indicating lead content) or rang them against a hard surface to evaluate the metal's resonance against how they thought silver should sound.

Without standardized testing, except in certain circumstances, identifying coins remained a form of artifice requiring experience and embodied knowledge of using the senses to evaluate a coin's characteristics. The references evoked to determine genuine appearance, texture, smell, sound, and taste remained flexible and quite local, such as the example of the blue hue of the local slate used in grave markers. Combined with the usefulness of circulating coin, whether suspicious or not, this meant that counterfeiters often avoided punishment due to acquittal or escape, though many others across the Anglo-Atlantic world suffered physical injuries and death for their actions, including Daniel Johnson.

News about the coiners caught outside New Bern spread quickly along the Atlantic coast during the autumn of 1752. There remains no record of what defense they offered, though alleged coiners in London pointed to their trades in related fields, including as apothecaries and belt buckle makers, as reasons for possessing suspicious equipment or materials. Still others claimed the difficulties of telling good coin from bad as the reason for their working with coins to learn the distinctions. Whatever their assertions, North Carolina's General Court sentenced William Jillet and Daniel Johnson to death for treason after one of their group, Patrick Moore, the tailor, turned evidence against them to avoid a similar fate. Despite several attempts to escape the jail in New Bern, which quite a few seem to have been able to do, Johnson and Jillet arrived at gallows erected outside New Bern in October 1752 where they both died by hanging according to accounts.

The case of Johnson, Moore, and Jillet at once reflects the patchwork enforcement of imperial monetary law in British North America and the

conditions of scarcity underpinning it, but their failure underscores the complexity of the ideas and practices involved in making veracious coins at the time. Success involved craft skill, chemical knowledge, sufficient materials, a suitable place to work, and quite a bit of luck—not all of which the men ended up having. The remaining traces of their story help us reframe currency as a chemical art in addition to a political project and to think about it in terms of work at the margins of the law at a time when concerns about money occupied the minds of so many across the Atlantic world. By pairing the study of medicine and money, the labor of artisans, including those experienced in the vernacular chemical arts, can be made a bigger part of histories of knowledge *and* value production, especially in spaces or by people usually invisible in narratives of monetary development or scientific innovation. The embodied components of detection, likewise, encourage us to consider the role subjective qualities played in practices of enforcement that have been made to appear more objective or standardized over time.

Further Reading

Newspaper accounts of the New Bern coiners can be found in the *Virginia Gazette*, October 12, 1752, and the *Boston Post-Boy*, December 5, 1752, as well as in other regional newspapers from around that time. Kenneth Scott, *Counterfeiting in Colonial America* (New York: Oxford University Press, 1957) and Philip Mossman, *From Crime to Punishment* (New York: American Numismatic Society, 2013) offer detailed background on the histories of counterfeiting and coining in British North America, while articles including Carl Wennerlind, “The Death Penalty as Monetary Policy: The Practice and Punishment of Monetary Crime, 1690-1830,” *History of Political Economy* 36 (no. 1, 2004) and Katherine Smoak, “The Weight of Necessity: Counterfeit Coins in the British Atlantic World, Circa 1760-1800,” *William and Mary Quarterly* 74 (no. 3, 2017) give nuanced analyses of the enforcement, hierarchies, and variability of money across the British Atlantic world. On chemistry in the Americas, see *Annals of Science* 77 (no. 2, 2020); and for the connection between alchemy and medicine, see William R. Newman and Lawrence M. Principe, *Alchemy Tried in the Fire: Starkey, Boyle, and the Fate of Helmontian Chymistry* (Chicago: University of Chicago Press, 2002). The move toward uniting the head and the hands in studies of science is exemplified by Pamela H. Smith, *The Body of the Artisan: Art and Experience in the Scientific Revolution* (Chicago: University of Chicago Press, 2004) and Lissa Roberts, Simon Schaffer, and Peter Dear, eds., *The Mindful Hand: Inquiry and Invention from the late Renaissance to Early Industrialization* (Amsterdam: Royal Netherlands Academy of Arts and Sciences, 2007). *The New Dispensatory* (London: 1753) offers examples of the practical overlap between making medicines and making coins, while the broader context of merchants of medicines in this period can be found in my book, Zachary Dorner, *Merchants of Medicines: The Commerce and Coercion of Health in Britain’s Long Eighteenth Century* (Chicago: University of Chicago Press, 2020). Marronage in the Great Dismal Swamp has been the subject of renewed interest over the past

decade, including Sylviane A. Diouf, *Slavery's Exiles: The Story of the American Maroons* (New York: New York University Press, 2014) and Daniel O. Sayers, *A Desolate Place for Defiant People: The Archaeology of Maroons, Indigenous Americans, and Enslaved Laborers in the Great Dismal Swamp* (Gainesville: University Press of Florida, 2014).

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Zachary Dorner is an assistant professor in the Department of History at the University of Maryland, College Park. His work blending histories of health and commerce has appeared in the *William and Mary Quarterly*, *Journal of British Studies*, and *Boston Review*; while his first book, [*Merchants of Medicines: The Commerce and Coercion of Health in Britain's Long Eighteenth Century*](#), was published by the University of Chicago Press in 2020.