Common Sense, Useful Knowledge, and Matters of Fact in the Late Enlightenment: The Transatlantic Career of Perkins’s Tractors

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If, by the word “sense,” we were to understand opinion and judgment and, by the word “common,” the generality or any considerable part of mankind, it would be hard . . . to discover where the subject of common sense could lie. For that which was according to the sense of one part of mankind was against the sense of another. And if the majority were to determine common sense, it would change as often as men changed. That which was according to common sense today would be the contrary tomorrow, or soon after.

Anthony Ashley Cooper, third earl of Shaftesbury, 1711

On the Theory of this Metallic Operation, little need be said.

Benjamin Perkins, 1799

On July 14, 1796, John Vaughan, a physician trained at the College of Philadelphia and member of the Medical Society of Delaware, wrote to Dr. Elisha Perkins (1741–1799) of Plainfield, Connecticut, about his experimental trials with Perkins’s recently...
patented therapeutic apparatus “Perkins's Metallic Tractors.” “I have operated in a few cases only with your instruments,” Vaughan explained, one of “nervous or hysterical head-ache,” the other of “odantalgia” (toothache), with remarkable success, curing the patients in both instances. A third case involved treating a young man who had fallen ten or fifteen feet “and received a considerable contusion in the umbilical region, with tumefaction.” Vaughan decided to bleed him, but this procedure proved useless. After “about two minutes operation with the instruments,” however, the man “exclaimed, in extasy [sic], ‘I am well—I am well—my pain is gone.’” Reprinted in Evidences of the Efficacy of Doctor Perkins's Patent Metallic Instruments, one of several collections of testimonials published in the United States and Great Britain in the late 1790s, Vaughan's account exemplified Perkins's strategy for marketing his device to consumers: using testimony based on the evidence of the senses to demonstrate that Tractors cured a variety of disorders, while leaving aside the question of how these cures were effected.¹

A set of Perkins's Tractors consisted of two three-inch metallic rods made of brass and iron (Figure 1), and they sold for twenty-five Continental dollars in North America and five guineas in Britain. At the close of the eighteenth century, they enjoyed such success that they became a currency of exchange in and of themselves. Dr. Benjamin Parker recalled that “a gentleman in Virginia sold a plantation and took the pay for it in Tractors.” “Nothing was more common,” he noted, “than to sell horses and carriages to buy them.” In addition to his own itinerant promotions, Perkins employed physicians and apothecaries as local agents to market Tractors from New England to South Carolina. In Britain, meanwhile, Tractors also became high therapeutic fashion. In 1797, Perkins sent his son Benjamin Douglas Perkins (1774-1810) across the Atlantic as his London agent. “Mr. P. imports his Tractors from America in parcels of two hundred sets, valued by him at one thousand guineas,” observed the Irish satirist and anti-Perkinist John Corry, equaling “fifty-two thousand guineas annually for this base metal!” Setting up a clinic in Leicester Square, in the former residence of the eminent London surgeon John Hunter, Benjamin Perkins's career paralleled his father's, selling Tractors through agents in Bath, Liverpool, and elsewhere in provincial Britain. Despite repeated accusations of quackery, damaging comparisons with the controversial Mesmerist movement of the 1780s, and the untimely death of Elisha Perkins in 1799, “Perkinism” proved durable enough to achieve an institutional culmination in the Perkinian Society of London in 1803. When Benjamin Perkins finally

Perkins's Tractors. Photograph by R. D. Rubic. Courtesy, the New York Academy of Medicine Library.

returned to the United States in 1807, he is thought to have treated or supplied as many as one and a half million patients and made ten thousand pounds.²

As Vaughan's testimony suggests, the central rhetorical strategy of Perkinism was to eschew problematic attempts to explain "Tractoration" in favor of emphasizing the "useful facts" of its effects. In these accounts, the human body figured as a spontaneous testifier, offering ostensibly unmediated evidence about its response to therapy. Promotional pamphlets for the Tractors, a dozen or so of which appeared between 1796 and 1804, were imageless and adjectiveless collections of successful case histories, featuring a series of key terms that reinforced in the reader's mind the single notion of demonstrated efficacy: effect, fact, influence, experiment, observation, sense, evidence, certificate, operation, performance—experientia docet. These testimonials were a peculiar form of what has been called "virtual witnessing"—the means by which written reports allowed readers to witness the performance of experiments conducted elsewhere and through which natural philosophers made claims about causal relations in nature. The peculiarity of Perkinist virtual witnessing was twofold. Readers could not "see" the successful trials performed with Tractors: effects were reported, but the manner of performing Tractoration was almost never described. Nor were readers presented in any direct fashion with an explanation of these effects; they were simply told by an array of testifiers that Tractors worked.3

How was the credibility of the Tractors established in the absence of any agreed-upon explanation? Previous accounts of the Tractors within disciplinary histories of psychology have taken the success of Perkinism to exemplify the epistemological quandaries and possibilities of the imagination (later referred to as "psycho-somatic" effects, faith healing, or altered states of consciousness).4 More recently, historians of eighteenth-century science and medicine have emphasized Perkinism's association with electricity, both as medical practice (experimental applications of static electricity to the human body) and as speculative natural philosophy (attempts to theorize the role of electricity in the

Both imagination and electricity are crucial to understanding the career of the Tractors. It would be a gross teleology, however, to dismiss Perkinism as destined to fail because it was a form of quackish deception, as some studies have done. What needs exploring are the processes through which Tractors became credible or incredible. But it would also be a mistake to isolate the philosophy and practice of electrical experiment as the sole criterion of this credibility or incredibility. The claims to authority made by Perkinism drew from multiple sources—social, legal, and ideological as well as philosophical. Above all, Perkinism made a moral virtue of plainspeaking and philosophical agnosticism, linking sensory evidence regarding bodily response to Tractoration to an ideological discourse pitting the capacities of the public to make sound judgments about useful facts against elitist philosophical explanation and the self-interest of physicians. In an important later phase of the movement, Perkinists did allow Tractors to become publicly associated with the vogue in medical and animal electricity during the 1790s. But that commitment to a body of philosophical experiment necessarily remained limited, given Perkinism’s antiphilosophical orientation. It was, rather, the ambiguous epistemological terrain between electricity and imagination that Perkinism inhabited and exploited through enlightened rhetorics of common sense, useful knowledge, and the fact.

Recent histories of science in early modern Europe offer early Americanists a panoply of conceptual and methodological approaches through which to explore the cultural history of natural knowledge. The historically variant status of the fact is a case in point. By the seventeenth century, a recognizable modern language of the fact emerged in the disciplines of law and natural science. With some exceptions, natural philosophers favored a probabilistic conception of the fact as part of an attempt to temper dogmatic truth claims and reduce the possibility of civil discord or authoritarianism. The career of the Tractors, however, shows us a later phase in this history, one in which a probabilistic sensibility had begun to yield to one increasingly self-evident and potentially antiphilosophical.6 Examining the relationship between material objects


and the human body and reading textual production and social practice as jointly constitutive of matters of fact provides one possible model for rewriting the history of the Enlightenment and enlightened science and medicine in North America. In the story told here, useful knowledge and common sense are not ideas, in the conventional sense, defining the meaning of the Tractors; they are ideals of knowledge production for the American Republic that were made to flow from them, ideologically prescribed in specific regimes of bodily management. Approaching the history of natural knowledge and its uses in this way may profitably serve


to address a long-neglected question, the implications of which reach well beyond the history of science: What kind of knowledge culture was early America? Beyond signaling the multiplicity of intellectual, social, and material concerns that must be brought to bear on this question, the transatlantic career of the Tractors should alert us to the continuities, epistemological and otherwise, that allowed for the movement of knowledge and practice across geographical space. Obscure instruments like the Tractors may thus be seen to hold object lessons for both the history of enlightenment in North America and the cultural geography of the British Atlantic world.

"Useful knowledge" and "common sense" are slogans traditionally taken to express some of the Enlightenment's core aspirations for natural knowledge. In the *Lettres philosophiques* (1733), Voltaire blasted what he regarded as the pretty but useless academic philosophy of France under the ancien régime, comparing it unfavorably with the empirical, improving tradition of Baconian and Newtonian science in Britain. American invocations of useful knowledge have been traced to the English Quaker Thomas Bray, who published *An Essay towards Promoting All Necessary and Useful Knowledge, Both Divine and Human . . .* (1697) and who founded the Society for the Propagation of Christian Knowledge in 1699. Bray's useful knowledge, characteristically for the early modern period, was both religious and secular: texts in history, classics, the sciences, and theology all commingled in the more than thirty thousand volumes he had shipped across the Atlantic. A similar fusion of Christian and secular concerns—improving the lot of human beings as a way to please God—has often been located in historical genealogies of modern science as useful knowledge, particularly in the writings of

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Francis Bacon, as the South Carolina physician and historian David Ramsay noted in an address on the history of medicine in 1801. Within programs for enlightenment, the notion of utility could accommodate a variety of meanings. In the industrializing and internationally competitive era of the late eighteenth century, however, useful knowledge increasingly came to be understood in material rather than spiritual terms. The complementary relationship between American and British views is well symbolized by the role played by Benjamin Thompson of Massachusetts, later Count Rumford in his European incarnation, in founding the Royal Institution in London during 1799–1800. According to its charter, this was to be “a public institution for diffusing the knowledge and facilitating the general introduction of useful mechanical inventions and improvements,” promoting “the application of science to the common purposes of life.” Benjamin Franklin had used the same language of practical improvement half a century earlier in Philadelphia to call for the organization of the American Philosophical Society “for promoting useful knowledge among the British Plantations of America,” based on the model of the Royal Society of London. Unsurprisingly, when pro-Independence writers celebrated Franklin as a national genius in the American Revolution, they emphasized the lightning rod as an incarnation of the practical utility and social benevolence of his electrical experiments.9

But material utilitarianism also created obstacles to the progress of science in the early American Republic. In the first place, the United States lacked the powerful aristocratic educational and state patrons who had proven indispensable to the development of science in early modern Europe, nurturing instead antipathy toward aristocracy and political centralization. In the late eighteenth century, while France and Britain were industrializing and forging ever-closer links between the practical applications of science and the prestige and health of state and empire, the leading citizens of the United States were debating whether the

Republic should even aspire to become a major manufacturing power. Thomas Jefferson, president of the United States and the American Philosophical Society after 1801, best embodies the political paradox of early republican science: the nation's preeminent philosophe also embodied a political persuasion that favored a decentralized republic of agrarian yeomen over centralization, credit economies, urbanization, and large-scale manufacturing. In an era when whig narratives of liberty and cultural genius depicted the achievements of Isaac Newton in natural philosophy as born of the peculiarly English crucible of Protestantism and constitutional government, David Hume could confidently assert that "the only proper Nursery of [such] noble plants is a free state . . . and that a republic is most favourable to the growth of the sciences." Hume seems not to have anticipated the kind of challenge that post-Revolutionary republicanism posed to science in the United States by denying it its traditional sources of support. Natural history, as provincial self-description or national self-celebration, thus became the most recognizable scientific idiom in the early Republic. It was more prominent than natural philosophy, which aspires to speak with global authority about physical causation and to practical application through mechanics (although, by the Jacksonian period if not before, the Republic became rife with engineering projects applying post-Newtonian mechanics to projects of technological "improvement" in the states). As Alexis de Tocqueville was to suggest from the vantage point of the 1830s, science without obvious application appeared to strike the mass of Americans as worthless.10

Science was also ideologically vulnerable in the late Enlightenment. During the French Revolution, especially in the Anglophone world, science became associated with amoral instrumentalism, atheism, and radicalism, most famously in Edmund Burke's Reflections on the Revolution in

France (1796), where chemical metaphors helped to conjure political revolution in the specter of a murderous enthusiasm. Conservative commentators in the United States followed Burke's lead. Joseph Dennie, editor of the Federalist Port Folio after 1801, cast moral aspersions on the intellectualism of the new Democratic-Republican president, labeling Jefferson a "cool-headed philosopher." (Rather than the abstract rationalist political enemies liked to depict, Jefferson was, in fact, an archempiricist whose faith in the evidence of the senses later moved him to modify Descartes's rationalist "I think, therefore I am" to the sensationalist "I feel, therefore I exist.") Early modern English narratives arguing that gentlemanly civility provided a social and moral foundation for natural philosophers to speak with public authority about matters of fact do not automatically apply to the early United States. As Dennie's attacks show, American gentlemen like Jefferson were exposed to politicized rhetorics of anti-intellectualism, licensed both by American republicanism and fear of French Jacobinism. "Although there are no nobles in America," wrote the French minister Louis Otto in 1806, "there is a class of men denominated 'gentlemen,' who by reason of their wealth, their talents, their education, their families, or the offices they hold, aspire to a preeminence which the people refuse to grant them." Genius itself appeared suspect. According to Benjamin Latrobe, a British engineer who moved to Pennsylvania in 1796, the United States was an antiscientific culture. "The want of learning and of science in the majority is one of those things which strikes foreigners who visit us very forcibly," Latrobe wrote. "Superior talents actually excite distrust, and the experience of the world perhaps does not encourage the people to trust men of genius." In an era of incipient specialization, gentlemen of encyclopedic learning like Samuel Latham Mitchill of New York, editor of the leading Medical Repository, were lampooned for the absurdly virtuosic breadth of their interests as natural philosophers. Dangerously Jacobinical or simply lacking social relevance, science could appear by turns suspect or ridiculous in North America, a perception encouraged by its association with genteel privilege.12


As with useful knowledge, a variety of meanings attached to early modern invocations of common sense, a notion whose paradoxical complexity derives from its aspiration to universalize and naturalize that which is local and conventional. In the Anglophone eighteenth century, common sense featured as the centerpiece of three distinct though not unrelated discourses: social, political, and epistemological. The exemplar of social common sense was Anthony Ashley Cooper, third earl of Shaftesbury. In Sensus Communis: An Essay on the Freedom of Wit and Humour (1709), decisively influential in the age of genteel clubbability, Shaftesbury used common sense to describe the sympathetic social feelings that united gentlemen as a community of sociable beings, bound together by free enjoyment of the pleasures of wit and raillery. First and foremost, Shaftesburyan common sense emphasized the naturalness of social affections and civil commonality between men, a theme that was to figure prominently in the "moral sense" tradition articulated in the Scottish Enlightenment by Francis Hutcheson, Adam Smith, and others and that became a prominent feature of both moderate Protestant sermons and college curricula in North America during the second half of the century. In the words of the indomitable clubber and historian of the Tuesday Club of Annapolis, Dr. Alexander Hamilton (alias Loquacious Scribble), "there exists a certain affection or fellow feeling, between all bodies in nature, by which they have a strong tendency, to approach, one towards another, to Join." Fellow feeling was the physiological medium of sociability: "There is some very Subtile Effluvium, or Aura, that goes from one member to another, and Communicates a titulation [sic] or pleasure to the nerves, by setting the animal Spirits in a sort of undulatory motion."  


Shaftesbury also discussed common sense's second connotation, that of the moral reliability of sound practical judgment (even though, as the epigraph to this article shows, he was keenly aware of its limits). The political implications of invoking the reliability of the judgment of the public were made clear in the American Revolution, where the practical judgment of a sovereign people figured as both the motor and moral justification for the rejection of British parliamentary authority and the creation of the American Republic. In the novus ordo seclorum envisioned by the Declaration of Independence, legitimate governments now derived their authority, not from custom, but "the consent of the governed" and were called upon to submit the "facts" justifying their existence to "a candid world." In Common Sense (1776), British radical Thomas Paine deliberately fashioned his prose to embody the political self-evidence of the new Republic. Arguing for freedom from the anachronistic opacities of imperial government, he explained, "I offer nothing more than simple facts, plain arguments, and common sense." Regard for lay practical judgment and plainspeaking was not, of course, an American innovation; neither was the public to whom Paine and the other founders appealed a democratic or universal one, carefully limited in conception as it was to propertied gentlemen. Nevertheless, by comparison with European governments under the ancien régime, Revolutionary American commitments to written constitutions subject to public scrutiny placed an unprecedented formal emphasis on the role of lay judgment in public life. "Equality," Tocqueville later reflected, "stimulates each man to want to judge everything for himself." Democratic peoples "mistrust systems and like to stick very close to the facts and study them for themselves."

Third, common sense was part of an epistemological discourse that became linked in the Enlightenment to reaffirmations of the capacity of ordinary human beings to make reliable judgments about natural phenomena in the face of radical skepticism. Since Aristotle, philosophers had spoken of the sensorium commune as that faculty of mind that integrated the evidence of the five senses into a pattern intelligible to human beings. By the eighteenth century, leading physiologists such as Albrecht von Haller and Charles Bonnet believed the operation of such a faculty

14 In formal moral philosophy, this tradition is sometimes referred to as "common sense ethics" and is related to the common sense epistemology articulated by Thomas Reid and others (see below).

might be traced to a specific part of the brain where nerves from the five senses conjoined. To these practitioners, the integrative faculty of common sense became the key to locating and understanding human consciousness; to the less orthodox, such as the controversial healer Franz Anton Mesmer, integrative common sense was a sixth sense connecting the individual to the external influence of macrocosmic animal magnetic fluids. “Common sense realism,” meanwhile, was a distinctive late-century response to Humean skepticism, and original to the Scottish Enlightenment, but once again widely taught in American colleges, particularly in the decades after the Revolution. This school, led by the Aberdeen philosopher Thomas Reid, responded to Hume’s attack on the empirical demonstrability of the relationship between cause and effect, defending the human capacity to make reliable judgments about nature (and religion) based on the evidence of the senses. Sensory evidence enjoyed the status of self-evidence: “No man seeks a reason for believing what he sees or feels,” Reid asserted. “There is no reason,” he went on, “why the opinion of a philosopher should have any more authority than that of another man of common sense.” Yet he did not overstate his case. If reliance on the senses was not fallacious, neither were the senses infallible. From intuition, Reid argued, human beings justifiably if not inevitably believed in regular and efficient causation, but it was above the power of natural philosophy to demonstrate this belief. “We are very much in the dark with regard to the real agents or causes which produce the phenomena of nature,” Reid conceded. In an educational culture inclined toward Protestant piety and useful knowledge, however, as the early Republic was, common sense realism provided a serviceable alternative to skepticism and a serviceable justification for the pursuit of “Baconian” science.16

These social, political, and epistemological discourses of common sense were by no means unrelated; Reid, for example, linked his emphasis on the reliability of common sensory evidence to arguments about the moral importance of the public arbitration of knowledge.17 Perkinism


was in effect a practical intervention in continuing debates about both useful knowledge and common sense (in its epistemological and political rather than social modes), enacting and urging its own relationship between the two. In this relationship, reliable knowledge of the facts of cause and effect in Tractoration was seen to reside in the sensory evidence and practical judgment of lay consumers of useful medical technology, rather than in academically trained physicians or natural philosophers. In other words, notions of common sense were mobilized to establish Tractoration as useful knowledge independent of philosophical understanding. As Shaftesbury had suggested, however, one man's common sense often proved another's delusion; one man's utility, another's imposition.

Little is known about the youth, education, or religious persuasion of the inventor of the Tractors. Originally from Plainfield, Connecticut, Elisha Perkins was the son of a physician, Dr. Joseph Perkins of Norwich, Connecticut, and might have attended Yale College before establishing his own medical practice. By the mid-1790s, Elisha (father of ten) was heavily in debt and had taken to mule trading to improve his finances. In 1795, he noticed that his penknife appeared to have certain curative effects on his patients, and he hit upon the use of what he initially called metallic "transfers," owing to his belief that they cured nervous disorders by drawing off "surcharge[s] of the electric fluid"—responsible for "the greatest part of our pains"—from the human body. Through trial and error, Perkins worked out a method of treatment superficially similar to the practice of "stroking," a controversial therapy employed by the seventeenth-century English healer, Valentine Greatrakes. According to the extant Directions for Performing the Metallic Operation with Perkins's Patent Tractors, later issued by Benjamin Perkins with each set of Tractors sold in Britain, a large number of rheumatisms, convulsions, inflammations, and aches could be relieved by "drawing the Points of the Tractors over the Parts affected, and continuing them along on the Skin to a considerable Distance from the Complaint, usually towards the Extremities." "Thus, if the Pain, is in the Shoulder or Elbow, operate over those Parts, and extend the Tractors along on the Skin, to the Hands; if in the Hip or Knee, from those Places to the Foot." In all cases, "Tractors should be used alternately, changing them in the Course of two or three Minutes." Guarantees of automatic success were studiously avoided. The Directions stressed some complaints were more susceptible to treatment than others; moisture or oil on the hands of the operator or the body of the patient inhibited the therapy's effectiveness. The method described was the one "generally practised . . . though it is sometimes necessary to vary
it as the Circumstances of the Case require”; additionally, it might be necessary to experiment with different operators, as the Tractors “in a few instances operated more effectually in the Hands of some Persons than in those of others.” These qualifications notwithstanding, the Directions declared that “many Complaints which have for Years baffled the Efforts of Medicine, have been perfectly cured.”

Tractors appealed through their practical simplicity, which contrasted with a number of eighteenth-century therapies. The 1790s witnessed an outbreak of yellow fever on the eastern seaboard, which claimed Elisha Perkins as one of its victims, reportedly in the course of performing experimental cures (though not with Tractors) in New York in 1799 (his body is thought to be buried under Washington Square). The notorious persistence of Benjamin Rush, the preeminent American physician, in using “heroic” bleeding as a response to the epidemic demonstrated how, even with enlightened practitioners, therapeutic cures often remained as painful as the ailments they targeted. The same could be said of the use of shocks applied from electrostatic machines to relieve a variety of nervous and mental disorders, an increasingly common strategy in the 1790s. Unlike heroic medicine and medical electricity, using Tractors required minimal expertise and was a painless and brief undertaking, allegedly requiring only twelve to thirty minutes on average. This austerity also contrasted with the practice of Mesmerism, the therapeutic movement that claimed to restore nervous health by harmonizing “animal magnetic” fluids in the human body and that became a spectacular Parisian craze of the 1780s until rounded upon by French medical authorities as the work of the imagination. Mesmerist sessions lasted at least two hours and were conspicuously performative, involving the direct physical manipulation of participants’ bodies, the use of mysterious tubs containing glass, water, and protruding metal tubes, atmospheric devices like the playing of musical instruments such as the glass

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harmonica, and the organization of “crisis” rooms with mattresses onto which patients could comfortably swoon. Through its discourse of channeling animal magnetic fluids, Mesmerism also claimed to explain the invisibly related workings of body and cosmos.²⁰

Next to the “ridiculous” practice of Mesmerism, Tractoration appeared a far less performative affair, billed as an external treatment only, where small metal rods rather than human hands intervened in the animal economy, but without making falsifiable claims to causal physiological explanation, inviting instead merely visual verification of effects through self-evident bodily response. “The knowledge, which may authorise us to speak on effects produced by an external application,” wrote Benjamin Perkins, “is very unlike that which would be necessary, where internal remedies are used.” “Good eyes, in a character uninfluenced by prejudice, or interest, may give testimony respecting the change observable in an inflammation or a tumefaction, on an application of the Tractors, which is more satisfactory than all the medical knowledge in the universe, without those requisites.” Useful facts derived from the senses formed the “solid basis” of Perkinism. “I flatter myself,” Benjamin Perkins confided to his readers, wearing his empiricism on his sleeve, that “I shall have the satisfaction, on being favoured with suitable subjects, of affording evidence, which to every person must be more satisfactory than any testimony, viz. the evidence of the senses.” According to Dr. James Tilton, an associate of John Vaughan who helped to market Tractors in Wilmington and president of the Delaware Medical Society, the crucial difference between Elisha Perkins and Mesmer was that the Austrian had “obscured those simple facts, which should have been used for

the benefit of Society, with a pile of empirical frauds.” Perkins, on the other hand, “barely disclose[d] useful facts.” Perkinism triumphed by rejecting what Elisha Perkins dismissed as the “delusive tendency of theories,” which had resulted in the disgrace of animal magnetism. Taking pains to distinguish itself from the cultish secrecy that surrounded Mesmerism, Perkinism claimed to promote the public interest through a transparency it described as “perfectly intelligible to every capacity,” including even “the most unlettered in society.” “The opinion I early imbibed of the inutility of theories, has induced me not to attempt them,” Benjamin echoed his father. “I have thought it more worthy my attention to collect facts, articles more substantial in their nature, and useful in their tendency.” Perkinism thus argued for a particular relationship between common sense, useful knowledge, and matters of fact: lay practical judgment exercised by the public, and based on the evidence of the senses, demonstrated that the utility of the Tractors was a fact independent of explanation. “The judicious physician at first leaves the flowery path of speculation, for the more arduous one of experiment,” Benjamin quoted Elisha, “and builds his theory, so far as is possible, on the solid basis of facts.” “These facts he establishes by the concurring testimony of his senses, accompanied with such critical and candid observations, as alone are competent to detect a fallacy, or support the truth.” “The great object with Dr. Perkins,” he emphasized, “was first to ascertain the truth relative to the usefulness as well as the existence of the discovery.” “To accomplish this, it was not absolutely necessary to understand minutely the theory, but rather to observe critically the effects.”

In a series of pamphlets and books published in America and Britain, both Elisha and Benjamin Perkins marketed Tractors directly to consumers by allowing them to “witness” the ostensibly spontaneous testimony of the human body, unmediated either by philosophical theorizing or the interference of skeptical academic physicians. For example, in a letter to Elisha Perkins on October 7, 1796, which was subsequently published in Evidences of the Efficacy of Doctor Perkins’s Patent Metallic

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Instruments (1797), Pierpont Edwards, federal district attorney in New Haven, reported the case of a neighbor of his named Mrs. Beers who had been so distressed by her rheumatism that “she had not been able to walk across her room even with crutches.” She “procured a set of your Metallic Substances, and in less than an hour after she had begun to use them, in the manner directed by you,” she rose from her chair and walked about the house, and “on the next day she went abroad to her neighbors, having thrown aside her crutches.” “She is,” Edwards concluded, “in a fair way to be restored to perfect health.” “It is a duty,” he insisted, “you owe yourself and the world, to promulge this event.” In a similar account from the same year, the Reverend Elhanan Winchester testified to seeing the “Metallic Tractors tried with success, upon several patients in the Alms or Bettering house in Philadelphia, especially upon a man who was unable to lift his right-hand to his head . . . but who in a few minutes, was able to move it at pleasure.” All those whom Winchester witnessed receive the treatment agreed that they had been successfully cured, and he pledged his unswerving gratitude to the inventor. “From what I saw with my own eyes, and what I heard, I have great hopes that this discovery will greatly tend to alleviate the miseries of mankind.”

Josiah Meigs, professor of natural philosophy at Yale College, described an experiment with Tractors on his eight-year-old son in 1797 in exemplary Perkinist fashion:

Dr. Munson being again called, pronounced his case a hazardous one; after having prescribed what he thought proper, suggested a trial of your Tractors. This I immediately undertook, and in about half an hour he declared the pain was gone, turned himself without difficulty on his right side, and fell into a profound sleep. . . . he awoke in perfect health, and has continued so to this day. . . . I cannot tell why the waters of Jordan should be better than Abana and Pharpar, rivers of Damascus, yet since experience has proved them so, no reasoning can change the opinion. Indeed, the causes of all common facts are, we think, perfectly well known to us, and it is very probable that fifty or an hundred years hence, we shall as well know why your Tractors should in a few minutes remove violent pains, as we now know why cantharides and opium produce opposite effects; viz. we shall know but very little about either, excepting facts.

In his testimonial, Meigs swore to the effectiveness of the treatment without either describing his method or invoking any physical process to explain its effects. Perkinist prose allowed the reader to witness the “fact” of the body’s responsiveness to Tractoration, but little more. Tractoration was useful even though it occasioned no knowledge claims as such.23

In both America and Britain, Perkinists effectively pitted the common sense of the public against the trustworthiness of academically trained physicians. Charles Langworthy, a surgeon who acted as the Perkinist agent in Bath, expressly addressed his promotional writing “to the publick, and have of course chosen to write it in a popular way, without applying the technical language of the profession, where it was possible to avoid it.” Langworthy went on: “It is not to display myself that I write, but in the language of simplicity to convey my subject ‘home to the business and bosoms’ of the illiterate and the afflicted, as well as to the philanthropist, the philosopher, and the physician.” It did not matter that the cause remained unknown, since the good effects of the treatment were self-evident. The causes underlying the effects of magnetism, opium, and the Peruvian Bark were also obscure, but their efficacy was scarcely questioned. “None can pretend to say how the bark cures an intermittent fever; mercury the syphilis,” Benjamin Perkins protested, “or how opium produces sleep, and yet they are not rejected on that account.” Even Professor Peter Christian Abildgaard of the Danish Royal Academy of Science (a set of Tractors had found their way to Denmark, apparently by chance), who worked at formulating a physical theory of Tractoration in Copenhagen, thought it unwise to reject the practice just “because we cannot immediately see the connexion between the cause and effect.” Thomas Green Fessenden, the Vermont projector and London associate of Benjamin Perkins, in his Hudibrastic satire Terrible Tractoration (1803), directed against critics of the Tractors while parodying Erasmus Darwin’s long philosophical poem The Botanic Garden (1789), had his narrator (“Dr. Christopher Caustic”) warn opponents that by condemning the Tractors “you make a sacrifice of truth, decency and common sense.” Fessenden underscored the point with characteristic aplomb in a lyric reportedly delivered at the opening of the Perkinean Society in London on July 15, 1803: “What, though the causes may not be explain’d, / Since these effects are duly ascertain’d, / Let not self-interest, prejudice, or pride, / Induce mankind to set the means aside: / Means, which, though simple, / are by Heaven design’d, / T’alleviate the woes of human kind.”24

23 Perkins, Influence of Metallic Tractors, 37–39. At times, Perkins spoke of Tractoration as a kind of faith healing: “Many people are and more will be brought to the faith daily.” Elisha Perkins to Benjamin Perkins, Oct. 19, 1798, Elisha Perkins Letter and Account Book.

24 Charles Cunningham Langworthy, A View of the Perkinean Electricity; or, An Enquiry into the Influence of Metallic Tractors . . . , 2d ed. (Bath, 1798), 28; Perkins,
Their pronounced antiphilosophical rhetoric notwithstanding, the Tractors’ advocates encouraged an association between the Tractors and the fashionable philosophy of animal electricity, or “Galvanism.” A cautious engagement with this experimental program would not necessarily produce irrefutable explanations of Tractoration, but it might garner additional plausibility by association with a set of compelling, if controversial, claims about the role of electricity in the animal economy. The pursuit of electricity as a leading branch of experimental science dates to the 1730s–1740s, owing to technological developments and public demonstrations: the proliferation of electrostatic machines for artificially generating electric charge, the discovery of the Leyden jar (a bottle that stored electricity and could discharge stunning blows), and the popularization of corporeal electrification—passing electricity through the human body for philosophical, spectacular, or therapeutic purposes. In British America, Benjamin Franklin and his Philadelphia circle made fundamental contributions to this program, contriving a new language of “positive” and “negative” charges to explain the functioning of the Leyden jar, applying this notion of an electrical economy to demonstrate the identity of lightning and electricity and designing (as an unintended by-product) the first protective lightning rod in 1752.25

By the late eighteenth century, the speculative writings of Isaac Newton, experiments with electrical fish, and investigations of the nervous system of frogs appeared to support claims that electricity underlay all animal life. Between 1713 and 1718, Newton had influentially speculated that the “animal spirits” that communicated messages from the brain to the muscles might be related to the existence of a subtle ethereal or electrical fluid. By the 1770s, research conducted by the London experimenters John Walsh and Henry Cavendish confirming the generation of electricity in the internal organs of torpedo fish and electric eels supplied strong encouragement for the belief that the essential vital

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force in all animal beings was electrical. Although taken up by natural philosophers like Abbé Pierre Bertholon during the 1780s to explain the functioning of the nervous system, the concept of animal electricity attained more spectacular notoriety with the work of the Bolognese natural philosopher Luigi Galvani. In De viribus electricitatis in motu musculari (1791), Galvani argued that the physical responsiveness of the bodies of dead frogs to metallic stimulation conclusively demonstrated the existence of an electricity inherent in the animal economy. Animal electricity (or "nerveo-electric fluid") thus provided an alternative to the animal spirits as the conducting medium by which muscular motion was enacted. This contention was taken up by several established British practitioners, including the London-based Neapolitan natural philosopher Tiberius Cavallo and the Edinburgh-trained physiologist Richard Fowler. Yet Galvanism also became one of the most contested bodies of experimental knowledge in the late Enlightenment. Alessandro Volta, the subsequent inventor of the first modern electric battery, questioned the existence of an inherent animal electricity, arguing that the "ambiguous frog," as it has aptly been described, convulsed because it served as a conductor for electricity between two charged pieces of metal, not because it discharged any electricity of its own. A war of interpretation ensued throughout the 1790s between Galvani and Volta and their supporters. Other commentators conformed to neither camp: Fowler viewed Galvanism as a "new influence," whereas the German polymath Alexander von Humboldt believed the nervous fluid to be Galvanic, but not electrical per se. Galvanism also became morally controversial when Galvani's nephew, Giovanni Aldini, attempted the electrical reanimation of human corpses in London in 1802, a scandalous episode that inspired the plot of Mary Shelley's Frankenstein (1818). If, for Volta and his allies, animal electricity ultimately proved to be an exploded doctrine, it nevertheless achieved spectacular public notoriety and stimulated unprecedented interest in the theory and practice of medical electricity.²⁶

Americans began to explore the relationship between electricity and life during the same period. In 1789, even before Galvani’s work, Moses Willard of Worcester, Massachusetts, sent the “Treatise on Medical Electricity” to Benjamin Rush, in which he began by explaining that “the nerves are tubes which conduct the nervous, or Electrical fluid from the brain.” During 1794–1795, the prominent Philadelphia physicians John Redman Coxe and Charles Caldwell offered reviews of European writing on Galvanic phenomena in their early publications, as did polite periodical literature like the American Monthly Review. Joseph Macery’s Inaugural Dissertation on the Principle of Animation (1802), written at the University of Pennsylvania, was one of several medical theses produced at American colleges advancing the view that “all the phenomena of life and motion, are owing to the energy of a subtile, active principle, called the electric fluid.”

Animal electrical ideas circulated beyond the academy as well. In 1803, as the New-York Herald published front-page reports of Aldini’s attempts to reanimate the London dead, Sigismund Niderburg, an itinerant physician from Vienna who claimed to have been Galvani’s assistant in Italy (and who later moved his practice to Havana, Cuba), published Improved Galvanismus and established his own electrical clinic in New York, observing that “the life of organized bodies consist in a continual Galvanic activity.” The formation of a New York Galvanic Society was announced that same year, organized by one


“M. Carreudessez,” who intended to use the “Galvanic Pile” to explore animal electricity’s “astonishing power over living things.” “The Apparatus pours unfeelingly the principle of life,” David Launy, yet another medical electrician, declared in 1804, “and restores health without the help of medicine.” The Humane Societies of London, Boston, and Philadelphia also adopted Galvanic theories to justify their advocacy of electrical reanimation for those apparently dead from drowning or lightning strikes. Even general compendia like Samuel Miller’s Brief Retrospect of the Eighteenth Century (1803) and Thomas Dobson’s American Encyclopaedia (1803) made room for detailed summaries of Galvanic phenomena.28

Perkinists made no attempt to resolve the ambiguities surrounding the ontological status of animal electricity; rather, they exploited them. From the very beginning of his use of “transfers” in 1795, Elisha Perkins evidently believed that the therapy he devised was electrical in nature; after all, he wrote privately in that year of his view that transfers (Tractors) relieved pain by drawing “surcharge[s] of the electric fluid” from the human body. His account book verifies that he possessed a copy of Franklin’s writings on electricity. However, Perkinism was a public promotional strategy that deliberately marginalized the issue of causation. Elisha’s early pamphlets, published around 1797 mostly in New England, barely mentioned electricity at all, featuring only eyewitness testimonials affirming the efficacy of the Tractors. It was in the years after 1797, in pamphlets published in Britain by Benjamin Perkins after Elisha’s death, that Perkinism began its tentative engagement with Galvanism. In one passage, for example, Benjamin recounted his father’s

discovery of the Tractors and immediately related it to the experiments of Galvani, publicized at roughly the same time. This conjunction might suggest that the issue of causal explanation, and the relevance of animal electricity specifically, were unique to the British context. Indeed, the American patent under which Tractors were sold (the first federal medical patent granted in the United States) was for “Removing Pain, etc., by Metallic Points” (1796), whereas the royal British patent explicitly referred to Tractors as an “Application of Galvanism as a Curative Agent” (1798). But it should be recalled that the Tractors’ British career exceeded their American one for reasons of historical accident—Elisha’s death in 1799. Moreover, although it was the later British pamphlets that explored the relation between Tractors and Galvanism, the first person to do so was an American: Dr. John Vaughan, the associate of Tilton, the Perkinist agent in Delaware.

Although Vaughan’s testimonial lacked philosophical content, the academically trained physician (who knew Rush and Caldwell from his university days) published his own separate pamphlet on precisely this issue, as early as 1797, titled Observations on Animal Electricity, in Explanation of the Metallic Operation of Doctor Perkins. His account adapted several preexisting electrical knowledges and practices: the electroconductivity of metallic points (epitomized by Franklin’s lightning rod), the concept of animal electricity as articulated by Galvani, and Franklin’s argument that electricity functioned as a teleological natural economy, according to which all bodies sought a natural equilibrium of charge. “Electricity is already proved by philosophers, to be concerned in almost all natural phenomena,” Vaughan proffered. His attention centered on providing an electrophysiological account of the will in which the brain imbued the nerves with motion by surcharging the muscles—conceived of as organic Leyden jars—with electricity. All physical sensation depended on excess or deficiency of nervous energy, or what he called “hominal electricity”: the “different movements [of muscles] may very rationally be imputed to their different degrees of electricity.” Pain, pleasure, and health, therefore, became simply a matter of equalizing positive and negative charges in the animal economy. Perkins’s Tractors, Vaughan argued, performed just this function: “The metals being susceptible of this fluid, conduct the extra degree of energy to parts where it is diminished, or out of the system altogether, restoring the native law of electric equilibrium.” Tractors relieved fever, aches, pains, and convulsions by redistributing excess accumulations of electricity from one

part of the body to another, conducting it out of the body, or supplying
a bodily deficiency of charges, as needed. In effect, sensibility was el-

tricity. "Pain, is merely an accumulation of electricity, in a particular
part; and the subsequent state of ease is obtained by abstracting the
extra degree of sensibility." Vaughan's account was a frankly articulated,
though not unique, late-Enlightenment attempt to rationalize human
health by mapping the notion of electrical economy, analogically carried
over from experimental philosophy, onto the animal economy. Even
though Tractoration produced no electric shocks or sparks verifiable by
the senses, its claim to electrical status could appear credible in the
1790s when experimenters were exploring the invisible, insensible, non-
sparking "weak" electricity that issued from different metals when
brought into contact, the forerunner of the electric "current" that was
later to flow from the Voltaic pile. "The influence of metals on the
Galvanism of man and other animals," Vaughan concluded in 1800, "is
now so well established, that the sceptic himself can scarcely doubt it."30

Benjamin Perkins excerpted long sections of Vaughan's Galvanic
time of Tractoration in his promotional pamphlets as well as similar
writings by other American supporters, such as Yale Medical School
founder Eneas Munson's "Dissertation on Animal Electricity and
Magnetism" and a treatise by the Reverend John Devotion of Old
Saybrook. On one occasion, after Tractorizing several patients, Devotion
declared himself to be possessed by a "universal relaxation and nausea"
akin to "the sensation of an electric shock." Unusually for a Perkinist,
Devotion took this experience as an invitation to theorize. "Thus, sir,"
he triumphantly announced, "with experiments on my own leg opens a
system of philosophic speculation." "I then reasoned thus," he contin-
ued, relying on Vaughan's theory: "I have drawn the electric fluid of
three persons into my own body." His conclusion was unequivocal: "As
the Metallic Tractors act upon an established law of nature, there is no
fear they will want power so long as the electric rod will draw electric
fire." Lengthier accounts by Matthew Yatman, a member of the
Company of Apothecaries and one of the directors of the Perkinean
Society in London, and Professor Abildgaard of Copenhagen (whose
electrical theories Benjamin Perkins also reprinted) both linked
Tractoration to Franklinist electricity. The different metals in each rod,

30 Vaughan, Observations on Animal Electricity, iv, 10, 15–16, 20–21, 25, 27–31. See also John Vaughan, The Valedictory Lecture Delivered before the Philosophical Society of Delaware (Wilmington, Del., 1800), 16–22 (quotation on 19). Vaughan was one of the few Americans who published remarks on the Voltaic pile (and its elec-
trochemical applications) around the year 1800 (14–15). On Alessandro Volta, see
Giuliano Pancaldi, Volta: Science and Culture in the Age of Enlightenment (Princeton,
it was argued, created a “galvanic circle” of positive and negative electric charges (even though patients were instructed to use their Tractors alternately); their pointed ends could draw off, redistribute, or supply electricity to afflicted areas of the body.31

But Perkinists never made the concept of animal electricity integral to the credibility of the Tractors, and the ideas of Vaughan, Yatman, and Abildgaard remained undemonstrated hypotheses. Even after these theories were published, the Bath Perkinist Charles Langworthy publicly admitted that there was no “satisfactory theory on their phenomena; nor has Dr. Perkins as yet published any theory upon which the effects produced by his discovery may be accounted for.” Vaughan himself equivocated about the status of his interpretation. “Call it electricity,” he insisted, “the nervous fluid, the galvanic fluid, or what you will.” When the surgeons C. G. Herholdt and J. D. Rafn of the Royal Frederick Hospital in Copenhagen performed experiments with the Tractors with favorable results (their reports were translated from German and edited for incorporation in the British pamphlets), the best they could do was to offer multiple possible explanations. Perkinismus, as they called it, “must be explained on the principles, either of mechanical stimulus, electricity, galvanism, or imagination.” The relative unimportance of a precise theoretical understanding of Tractoration was also signaled by Benjamin Perkins’s indiscriminate lumping together of an array of electrical philosophers, some of whom, such as Eusebio Valli and Volta, were in open conflict. Such clumsy discussions achieved a less-than-prominent place in the pamphlet literature, being relegated in one case to a long footnote appearing after some three hundred pages of eyewitness testimonials. The footnote included the opinion of Cavallo that the “surprising effects” of electricity were “generally inexplicable” and seemed “to admit of no theory sufficiently probable or satisfactory.”32

Benjamin Perkins dismissed the relevance of the speculative interpretations he himself quoted, preferring to return his readers instead to the more solid ground of facts. “That the Tractors act on the Galvanic principle is very generally believed,” he averred, “but I shall not consider it any disparagement to the Practice, if I admit that the present knowledge of the laws and properties of that principle is so limited, as not to allow of our giving of the modus operandi a complete and satisfactory

31 Perkins, Influence of the Metallic Tractors, 27, 78, 81, 90–100; Matthew Yatman, Animal Electricity; or, Observations on the Origin and Identity of the Electric and Galvanic Fluids; with a Practical Review of the Use of the Metallic Conductors, 2d ed. (London, 1805), 1, 3, 9, 10, 25; Abildgaard, quoted in Perkins, Experiments with the Metallic Tractors, 41–50.

32 Langworthy, View of the Perkinean Electricity, 25–26; Perkins, Experiments with the Metallic Tractors, 73, 305–307.
explanation.” After discussing Abildgaard’s theories in particular, Perkins reminded his audience that “electricity and Galvanism are now just enough involved in mystery to afford an ingenious theorist an ample field for expatiating on the principle of this metallic operation.” Perkinism displayed once again its disdain for causal explanations: “As theories, on almost every operation in nature, are generally as various as the individuals who give them, I shall at present confine myself to what I conceive of more importance, viz., to establish the facts, and leave it with the philosophic reader to gratify himself with theorising as much as he pleases.” Perkinist utilitarianism made the very concept of electricity—indeed, any concept—irrelevant to successful therapeutic practice. The importance of electrical ideas to the career of the Tractors, therefore, proved evanescent. The promoters of the Perkinean Society argued that such philosophical innocence was a moral virtue, and a distinctively American one: “Whilst the Philosophers of Europe were engaged in their researches into the phenomena of Galvanism, or the effect of metals on the nerves and muscles of various animals, and thus ascertaining the extent of the metallic influence upon the inferior parts of creation, the late Dr. Perkins, an eminent physician of Connecticut, in North America, conceived the more noble purpose of directing his pursuit to the examination of their effects in the diseases of man.”

Public healing traditionally relied on various forms of showmanship to attract customers; even enlightened medical electricians routinely promoted their services through theatrical display. For example, William King was an itinerant physiognotrace artist and ivory-turner who performed electrical cures at venues like the Providence Bathhouse in 1800, which he “exhibited” as “amusements”; Sigismund Niderburg sold admission tickets to his electrotherapeutic clinic in New York, where “spectators [were] admitted from one to two o’ clock every day.” Conspicuous display in public healing, however, conjured up specters of wondermongering and charlatanry. James Graham and Anthony Yeldal, British itinerants who toured North America as “oculists” and “aurists” in the early 1770s (before they turned with great controversy to electrical healing on their return to Britain), evidently inspired such fear of imposture in New England that in October 1773 the Connecticut legislature passed the Act for [the] Suppressing of Mountebanks. The law, passed against those “publicly advertising and giving notice of their skill and ability to cure diseases,” took seriously the power of the spec-

tacular in medical fraud, banning public stages and prohibiting "any plays, tricks, juggling or unprofitable feats of uncommon dexterity and agility of body, [which] tends to draw together great numbers of people, to the corruption of manners, promoting of idleness, and the detriment of good order and religion." From the colonial period—when authorities legislated against the establishment of the theater, citing mainly religious and moral objections—to the emergence of an independent republican nation, theatricality bred suspicion in North America.34

Perkinism did not seek to persuade its public through elaborate rhetoric or conspicuous theatrical display, the traditional strategies associated with unorthodox healers. That is, Perkinists were neither charismatic "charlatans" (loquacious verbal deceivers) nor "mountebanks" (itinerant doctors who literally mounted stages publicly to display their wares), traditionally understood. Rather, as the product of and a product for a culture committed to anti-theatrical republican transparency; and, hence, the superior morality of common sense and useful facts, Perkinism employed a form of "natural theatricality": the art of making nature appear to speak for itself. The moral and epistemological credibility of Perkinism resided, not in the social status of its supporters or any institutional affiliation, but, rather, in a depersonalized material object (the Tractors) amenable to universal manipulation. Such a strategy resonated with the morality of depersonalizing the public sphere in the age of republican revolution. Whereas the "charlatan wanted to be seen," the Perkinist aimed "not to display [himself]," in Langworthy's words—it was, to recall Paine's Common Sense, the instrument rather than its advocate that deserved public attention. Rejecting the conspicuous performance and controversial natural-philosophical engagement of animal magnetism, Perkinism aimed to display, not itself, but merely the bodily effects of the Tractors. Charles Wilkinson, a hostile British critic, drew a particularly illuminating distinction between the two therapies in

this respect: “In the Mesmerism doctrine there is something fascinating, something calculated to strike the minds of the multitude. . . . It is difficult to conceive what interest can be attached to the tractors, which are founded on no medical or philosophical principles.” If there was anything mesmerizing about the Tractors, it was paradoxically their very matter-of-factness. The distinctiveness (and success) of Perkinism’s appeal to common sense and useful knowledge lay in its appearance as a form of republican nonperformance.35

In lieu of conspicuous performance or methodological secrecy, inscription became an important strategy for controlling the marketing and use of Tractors. According to critics, Tractors were simply expensive pieces of metal. Legal inscription thus helped to justify the cost of the therapy, which was higher than conventional electrotherapies. Dr. T. Gale, in some ways a more conventional medicoelectrician in New York State, claimed that readers of his handbook on electrotherapy (the first to be published in North America, in 1802) could build their own electrical machines for only two to three dollars, following his instructions. Gale advocated using the Tractors in one instance but was deeply skeptical of the electrical status of Tractoration, suggesting that “perhaps a pair of steel-pointed scissors would answer the same purpose.” Tractors, Gale concluded, appeared to work through mechanical frictional stimulus or the imagination.36 Legal inscription also guarded against counterfeit reproduction by drawing on the patent system then taking shape in the industrial revolution and thereby establishing claims to the Tractors’ legal originality. Elisha Perkins had been expelled from the Connecticut Medical Society in May 1797 for practicing (in the words of his colleagues) “delusive quackery” (apologists claimed this expulsion was a coup carried out in the absence of members sympathetic to Perkins). In addition to the opprobrious claim that Perkinism had been “gleaned up from the miserable remnants of animal magnetism,” it was the charge of


monopolizing his invention as a "nostrum" for personal gain that provoked the expulsion. Gentlemanly social benevolence and self-interest were incompatible, the Society insisted.37

Exploiting an industrial ideology of inventor compensation, Elisha Perkins maintained that no such conflict existed. Commenting publicly on his expulsion, Perkins cited the United States federal patent signed by George Washington, Timothy Pickering, and Charles Lee, which granted Tractors legal protection by giving the inventor "the full and exclusive right and liberty of making, constructing, using and vending to others to be used the said improvement" for fourteen years. United States federal patent law weighed equally the rights of inventors with the good of society. Perkins's patent served "to defray the expenses that have arisen in disseminating a knowledge of its importance" under "the sanction of our first constituted authorities," nothing more. In Perkins's view, he was loyally "promoting the progress of useful arts," as the Federal Constitution demanded, to which no loss of moral face or social credit attached. Tractors were easy to counterfeit, however, so these claims to legal originality ultimately had to be engraved on the body of the Tractors themselves. "Instances occurred during the last Year, where the Tractors suffered discredit through illegal and dishonourable attempts to circulate spurious imitations," Benjamin Perkins informed his British readers in 1801. It was essential, therefore, to mark genuine articles from false ones for consumers. "To guard against Impositions, Applicants will please to observe, that every Genuine Set of Tractors is stamped with the words 'PERKINS PATENT TRACTORS;' and to the printed Directions accompanying them is subjoined a receipt for the Five Guineas, signed in the Handwriting of the Patentee. To counterfeit this is Felony."38 Fetishization via inscription promised control over the identity and sale of "real" Tractors.


38 Elisha Perkins, "To All People to Whom These Presents Shall Come, Greeting" (1796?), New York Academy of Medicine; Benjamin Perkins, Was Published, April 1st, 1801, Price is. an Entire New Work, Entitled, Cases of Successful Practice with Perkins's Patent Metallic Tractors, Communicated since January 1801, by
Benevolence and immediatism were also central, and related, claims that flowed from the use of Tractors. “Did not the magnanimous Mr. Perkins, in open defiance of the winds and waves, traverse the vast Atlantic Ocean, to work miracles in this favoured isle?” asked the Irish satirist John Corry. Universal benevolence was precisely the claim. “The writer has crossed the Atlantic,” Benjamin Perkins declared, “and become a resident of London, that he may devote his time and attention to the diffusion of this important discovery, and its application to the relief of the miseries of mankind.” By presenting Tractors directly to the “candid and enlightened public,” moreover, Perkinists were selling the ideal of autotherapeutic healing: the placement of unmediated control over bodily health into the hands of consumers, free from the interference and potential objections of allegedly self-interested gentleman physicians. This moral crusade was no rhetorical innovation: unorthodox healers had always been wont to cast themselves in opposition to tyrannical medical institutions. The ideal of autotherapy already possessed a visible history in the Enlightenment, medical electricity in particular. Some of the best-known autotherapeutic advocates were evangelical Protestants, those outside the mainstream of religion, science, and medicine, such as John Wesley, the founder of Methodism. Wesley kept a journal detailing his responses to self-applied medical electricity and published several related works such as *Primitive Physic* (1747) and *The Desideratum; or, Electricity Made Plain and Useful, by a Lover of Mankind, and of Common Sense*, published in 1760 (the American Gale was a disciple of Wesley). In addition to its seeming epistemological immediatism, Perkinism thus laid claim to a tradition of benevolent social immediatism as well.39

Although presented as spontaneous bodily testimony, the credibility of eyewitness testimonials was in fact mediated by the social authority of the testifier. Perkinists did not dismiss the authority of all gentlemanly physicians, merely those who decried the Tractors. Physicians like Tilton in Delaware and Langworthy in Bath composed a network of entrepreneurial promoters crucial to the Tractors’ geographical reach, from New

Many Scientific Characters (London, 1801). The words “Perkins’s Patent Tractors” appear to have been stamped only on Tractors sold in Britain.

England to the Carolinas in North America, from London to Liverpool and the West Country in Britain.40 Although his testimony about his son's cure emphasized sensory self-evidence, Josiah Meigs was clearly identified to readers as a professor at Yale College; recall also that Tractoration was a therapy he adopted on the advice of his physician. Beyond those with a direct financial stake in the Tractors (Tilton and Langworthy) or a medical interest in them (Vaughan), the authors of American testimonials were overwhelmingly drawn from the professional classes, especially clergymen, judges and lawyers, military officers, and college professors. Recommended to the public not so much as men of high class than as men of good character, they nevertheless included some of the most prominent citizens of the United States, like the geographer, Federalist politician, and Calvinist minister Jedediah Morse, Massachusetts congressman and envoy extraordinary to France Elbridge Gerry, and United States Supreme Court chief justices Oliver Ellsworth and John Marshall. Perkinists even claimed that the father of the nation, George Washington, had bought a pair of Tractors.41

In Britain, by contrast, where the Perkinean Society was sponsored by patrons like Lord Rivers, Sir William Barker, and William Franklin (Franklin's loyalist son and former governor of New Jersey), the social character of Perkinism was more aristocratic. Perkinists claimed that the Tractors had been successfully used in institutional settings in both countries: in poorhouses and almshouses in Philadelphia (including the Pennsylvania Hospital), New York, Boston, and around New England as well as in the St. Pancras Poorhouse, Guy's Hospital, the Regimental

40 For a list of agents in the United States, see [Elisha Perkins], Certificates of the Efficacy of Doctor Perkins's Patent Metallic Instruments (Newburyport, Mass., [1796]), 24.

41 Perkins thought the endorsement of clergymen was crucial in New England: “I have found essential service from the Clergy especially in New England where they are generally pious men and seek the Happiness of their fellow creatures.” Elisha Perkins to Benjamin Perkins, Oct. 19, 1798, Elisha Perkins Letter and Account Book; Perkins, Influence of the Metallic Tractors, 69; and Perkins, Experiments with the Metallic Tractors, 255–256. Elisha Perkins quoted Oliver Ellsworth defending him in a letter to John Marshall in 1797: “Strange as his hypothesis may be, experiments give it countenance. In some cases the effects wrought are not easily ascribable to imagination, great and delusive as is its power” (Ellsworth to Marshall, Mar. 7, 1797, in Perkins, Influence of the Metallic Tractors, 9). I have not found any external corroboration for these specific endorsements. The receipt for a purchase of Tractors in 1796 in the name of Jeremy Belknap, however, is extant in the collection of broadsides at the Massachusetts Historical Society; and Rufus King, whom Elisha Perkins asked to write a letter of introduction for his son in London, owned a copy of the latter's Experiments with the Metallic Tractors. Its pages, however, were never cut (the copy is now in the library of the New-York Historical Society).
Hospital of the Duke of York, and several locations in provincial Britain, the most important being Bath. It was in Britain, however, rather than America, that Perkinism gained an institutional footing in the form of the Perkinean Society, an "Institution for Relieving the Poor," sponsored by aristocratic patrons and offering free treatments for London's impoverished laborers. This process of institutionalizing social benevolence mimicked the formation of self-styled humane societies in Amsterdam, London, Boston, and Philadelphia and the creation of specialized medical establishments like the London Electrical Dispensary. The principles put forward in the first edition of the Transactions of the Perkinean Society (1803) expressed Perkinism's claim to a superior social morality by aiming to "afford relief to the diseases of the afflicted and industrious poor of the metropolis." In Britain, therefore, where urbanization and industrialization were more advanced than in America, Perkinists identified Tractors with noblesse oblige and projects of physical uplift for urban laborers. To this end, the Perkinean Society was to serve as a clearinghouse, vaguely styled after the Royal Society, in which disinterested persons might publish the results of experiments with the Tractors. If physicians railed against the institution, they did so to protect their livelihoods, even at the expense of the health of the poor.42

Making American testimony travel across the Atlantic to establish the credibility of the Tractors did not always convince skeptical Europeans, however. A specifically European challenge to Perkinism emerged over the issue of social rank. Langworthy, the Perkinist agent in Bath, introduced Elisha Perkins to Britons as "a man of honour and integrity," reassuring his readers that the Tractors enjoyed the support of "some of the most eminent physicians, and natural experimentalists of the United States." Perkinists, however, hedged their bets by using both high status and socially anonymous testifiers, "not wish[ing] to rest the credit of the discovery merely on the authority of great names, however repeatable and influential [sic]." This approach encountered problems. Tractors had apparently reached continental Europe when the wife of one Major Oxholm, animated by "a laudable desire of extending their utility to her suffering countrymen," had brought a pair back to Denmark. With pride, Benjamin Perkins could subsequently boast of a universal therapy, presenting to his readers "cases in America," "cases in England," and "cases at Copenhagen." But the response of a Danish professor named Tode indicated the limitations of using classless, nonpro-

fessional testifiers for European audiences. "Who may this Mr. CALVIN GODDARD be that we should so implicitly give him credit," Tode inquired, deriding "the fashion with all those physicians, who trumpet forth their cures, to bring witnesses who have no other credentials than their names." Extraordinary cures, in particular, merited attention to "the rank and condition of the witness"; ideally, "he should have a certain notoriety." "How can a person in Europe trust to such witnesses," Tode persisted, "when they certify to things so extraordinary'? Perkins protested in reply that "the success of the practice in America was substantiated by as full and respectable testimony as has ever been deemed necessary to establish any medical facts," claiming that the German translations of Perkinist tracts had accidentally omitted professional titles from the testimonials. But Tode was implacable: "They are from persons of no note or character, and consequently entitled to no credit."
The evidence of Ebenezer Robinson, a Connecticut physician who was not identified as such in the German translation, "does not deserve any credit," concluded Tode, "as the witness is not a professional man." Although mistranslations might have occurred, as Perkins claimed, the occasional use of socially anonymous testimonials in the American and British pamphlets was deliberate, not accidental.43

More damagingly, opponents of the Tractors drew on satirical and theatrical traditions to put Perkinist common sense on display for public ridicule. Attacks on the Tractors emerged quickly in the United States. Even before Elisha Perkins had been expelled from the Connecticut Medical Society, local wits lampooned Tractoration in the Connecticut Courant in a "Patent Address" in 1796. In this belles-lettres salvo, which anticipated some of the themes of Fessenden's mock-critical Terrible Tractoration, a fictional Elisha Perkins sings of the Tractors' ability to restore sight to the blind and speech to the dumb, while lining his pockets with Continental dollars. Tractors would make the old young again ("Yet, notwithstanding it so strange appears, I soon stroke sixty, down to twenty, years"), even redeem human sin ("Man shall no longer feel old Sin's controll— / The powers of sickness no more pain his soul / . . . You shall cure the maladies of all, / Old sores expunge—and wipe away the Fall"). In Philadelphia the following year, Dr. James Currie reported to the American Philosophical Society that Tractors worked by "the impression made on the Patient's mind," invoking the comparison with Mesmerism once again. But these criticisms failed to offer any demon-

stration that Tractors were fraudulent, and they did not reach a broad enough public (the anonymous satire was only published locally in Connecticut, and Currie never published his paper) and so were easily outrun by the interstate and transatlantic itinerary of the Perkinses.\textsuperscript{44} The more decisive public attacks on the credibility of the Tractors took the form of published accounts of theatrical dramatizations of the power of the imagination staged in Britain. When unchecked by reason or the senses, the faculty of imagination in its "pathological" mode inspired trepidation among enlightened natural philosophers, incarnating the persistent threat of un governable powers of mind. By the 1790s, the American and French Revolutions had moved critics to link imagination explicitly with the specter of mobbish populaces. Natural philosophers understood this problem in terms of politicized passions and secular enthusiasm, in which artificially engineered effects were mistaken for having real natural causes. The strategy of the placebo trials used by the Royal Commission headed by Franklin in 1784 to discredit Mesmerism was therefore revived to debunk the Tractors: making the work of the imagination visible by putting the hidden theatrical work of common sense on display.\textsuperscript{45}

The lead was taken by the respected Bath physician John Haygarth. Concerned that "persons of rank and understanding" were lending their support to Perkinism in Bath (where Langworthy operated as the Perkinist agent), Haygarth asked publicly "how the Patent Tractors produced such wonderful effects" and determined to intervene, if necessary, to "correct public opinion." In Of the Imagination as a Cause and as a Cure of Disorders of the Body (1800), he described experiments he and others (including Richard Smith, a status-conscious hospital-trained surgeon who worked at the Bristol Infirmary) had performed both with wooden and real Tractors, declaring that "the whole effect undoubtedly depends


upon the impression which can be made upon the patient’s Imagination.” By passing off a pair of false Tractors as real, then secretly substituting the genuine article, Haygarth claimed to have secured virtually identical results. Of those patients treated with the false Tractors at the General Hospital in Bath, he reported that one “could walk much better,” another “was easier for nine hours,” and a third “had a tingling sensation for two hours.” Those treated with real Tractors, meanwhile, “were in some measure, but not more relieved by the second application, except one.” Haygarth reassured readers of his pamphlet that “a fair opportunity [had been] offered to discover whether the metallik Tractors possessed any efficacy superior to the ligneous Tractors, or wooden pegs.” Rather than electricity, he concluded, it was “the wonderful force of the Imagination” that had been at work all along.46

Haygarth’s trials dramatized a competition over the direction of experimental subjects and triggered a series of accusations and counter-accusations about witness manipulation. Perkinist pamphlets claimed that unsuccessful treatments resulted only “for want of a proper knowledge of the mode of using the Tractors, and of the diseases subject to their influence”; directions were carefully included with each pair. Naturally, Benjamin Perkins denied any manipulation, insisting that successful Tractoration resulted specifically from “the perfectly tranquil state of the patient’s mind.” His opponents were the true manipulators, Perkins insisted, forcing fantastic stories on experimental subjects about the healing powers of the Tractors before treating them with false ones. This accusation was true, as Haygarth himself gleefully admitted. “It was often necessary to play the part of a necromancer,” he confessed, “to describe circles, squares, triangles, and half figures of geometry, upon the part affected, with the small ends of the Tractors.” He played up the

46 John Haygarth, Of the Imagination as a Cause and as a Cure of Disorders of the Body (Bath, 1800), 3–5, 15, 23. On Smith, see Jacyna, “Galvanic Influences,” in Bresadola and Pancaldi, eds., Luigi Galvani International Workshop Proceedings, 182–183; and Mary E. Fissell, Patients, Power, and the Poor in Eighteenth-Century Bristol (Cambridge, 1991), 55–57. Haygarth was not shy in criticizing American expertise. He characterized the response of the Philadelphia Academy of Medicine to the yellow fever epidemic as “frivolous, inadequate and groundless.” This charge produced something of a nationalist furore among American physicians, leading to the publication, for example, of Dr. Charles Caldwell’s Reply to Dr. Haygarth’s “Letter to Dr. Percival on Infectious Fevers” ... Exposing the Medical, Philosophical, and Literary Errors of That Author, and Vindicating the Right Which the Faculty of the United States Have to Think and Decide for Themselves, Respecting the Diseases of Their Own Country, Uninfluenced by the Notions of the Physicians of Europe (Philadelphia, 1802). On Haygarth as a medical reformer, see Francis M. Lobo, “John Haygarth, Smallpox, and Religious Dissent in Eighteenth-Century England,” in Andrew Cunningham and Roger French, eds., The Medical Enlightenment of the Eighteenth Century (Cambridge, 1990), 217–253.
association between Tractoration and Galvanism with particular zeal:
“During all this time we conversed upon the discoveries of Franklin
and Galvani, laying much stress upon the power of metallic points
attracting even lightning, and conveying it to the earth harmless.” The
tests were, above all, a theatrical satirization of the Tractors and their
advocates, portraying them as fraudulent and, equally important, sub-
jecting them to ridicule and laughter. “To a more curious farce I never
was witness; we were almost afraid to look each other in the face, lest an
involuntary smile should remove the mask from our countenances, and
dispel the charm. But to return to my patient:—In one minute, he felt a
smarting in his loins. . . .” In identifying the imagination as the occult
and illicit agent of Tractoration—the same charge made by the report of
the Franklin Commission on Mesmerism more than a decade earlier—
Haygarth’s and Smith’s performances lent the Tractors that aspect of
conspicuous theatricality that Perkinists had so scrupulously avoided.
When put on display in this manner, the commonsensical facts about
Tractoration could be rewitnessed as “marvellous” and “astonishing”
effects that owed more to the “wonderful and powerful influence of the
passions of the mind upon the state and disorders of the body” than any
physical influence proceeding from the metallic rods.47

True to ideological form, Benjamin Perkins attempted, in turn, to
rewrite anti-Perkinism as an elitist attack on the ability of the public to
make judgments about useful technologies. Whereas Haygarth had been
concerned lest respectable citizens unwittingly endorse quacks, the
satirist John Corry openly derided the affluence of Perkinism’s
hypochondriac London patrons, who imagined themselves “indisposed
when only labouring under the torpor of indolence.” Perkins, however,
claimed a public transparency of practice that the trials with wooden
Tractors lacked, conducted as the latter were behind closed doors. It was
in these private settings that anti-Perkinists had used “terror and awe” to
contort “the minds of the credulous patients,” some of whom they had
“almost frightened to death.” In asserting that Tractors were a fraud,
anti-Perkinists had insulted “the penetration of the public,” since thou-
sands believed they had been successfully treated. Indeed, how suddenly
to dismiss the testimony of all those convinced they had been cured?
How could these physical effects possibly be the work of the imagina-
tion? “Can the imagination cure a gout?” Perkins implored. Children,

47 Perkins, Efficacy of Perkins’s Patent Metallic Tractors, 16; Perkins, Influence of
the Metallic Tractors, 2; Haygarth, Of the Imagination, 15, 17, 25, 28, and as quoted in
Fessenden, Terrible Tractoration, 84–86. Cf. Rapport des Commissaires chargés par le
roi, de l’examen du magnétisme animal (Paris, 1784). On witness manipulation in
Mesmerism, see Schaffer, “Self Evidence,” in Chandler, Davidson, Harootunian,
even horses, had been cured “in the presence of many spectators.” Surely the work of the imagination could not explain “the cure of an animal of the brute creation”? 48

His benevolent appeal to the public interest notwithstanding, Perkins refused to grant credibility to anti-Perkinist testimony because of the lowly social standing of the subjects involved. Ironically, social status now became an openly avowed criterion for credibility, even for Perkins. Trials conducted at public hospitals were “far less satisfactory than those on persons of respectability in private practice,” he now declared, “where the character of the patient, as well as the disease, is better known,” contradicting his own demand that all trials with the Tractors should be public, not private. Perkins’s anxiety over the Tractors’ public status induced him to discuss the class and stage dynamics that Perkinism had always rhetorically ignored. “No declaration of relief from the poor credulous paupers in a hospital, ought to be admitted as evidence in this practice, unless there is a visible proof to the bystander of the alteration,” he demanded. Suddenly, in order to regain control over testimony about the efficacy of real Tractors, the mediation of the eyewitness became more reliable than the spontaneous testimony of the experimental subject’s body. “To persuade patients of this class to declare, that they are relieved, and even to think so, nothing more is necessary than to impress on their minds a favourable opinion of the remedy, to induce them to believe that thousands have been cured by the same wonderfully efficacious means, and they will be very ready to acknowledge that they begin to feel what others have previously experienced.” Here was the “trick which has been played off on Fictitious Tractors, and public hospitals have been sought as the best theatre where such experiments ought to be exhibited.” Even at a basic linguistic level, the Tractors’ identity was becoming unstable, refashioned as “pieces of stick,” “igneous Tractors,” and “wooden skewers.” Smith admitted to using pieces of bone, slate pencils, and tobacco pipes at the Bristol Infirmary specifically “to render the trials the more ridiculous.” 49

The satirical writer Corry supplied the coup de grâce, reinforcing the image of Perkinism as theater. It was no longer the Age of Reason, Corry observed, but the “age of Quackery,” in which “miracle-mongers”

49 Perkins, Efficacy of Perkins’s Patent Metallic Instruments, xxix–xxx; Perkins, Influence of the Metallic Instruments, 94–95. “Dr. Christopher Caustic,” Fessenden’s narrator in Terrible Tractoration, argued that horses and other animals treated were, in fact, peculiarly “susceptible of impressions from imagination” (94); Richard Smith, quoted in Haygarth, Of the Imagination, 5, 13, 18.
and "retailers of sanity" preyed upon an inexhaustible "public credulity." "Cheats can seldom stand long against laughter," he cheerfully announced, invoking Samuel Johnson and revealing his literary weapon to rouse those "who cannot think or judge for themselves": "well-intended Satire." In Quack Doctors Dissected (1810), he recounted the tale of "Wilkinson," a John Bullish "rural philosopher," whose custom it was to make common sense examinations of all forms of "literary quackery" (including the moral effects of "the new philosophy," the doctrine of sexual egalitarianism, and "similar paradoxes of this enlightened age"). The fictitious Wilkinson, mimicking Haygarth, employed fictitious Tractors to embarrass a foppish female aristocrat named "Dame Thomson," made to flee in shame when, imagining herself cured, Wilkinson revealed that the "genuine American metal" had had no effect on his own dog. Wilkinson's "Tractors" were, in fact, "part of my old kitchen poker, which Ben Perkins, our blacksmith, took to the smith yesterday and hammered into skewers." Corry consigned Perkins to a pantheon of quackery styled "The Grand Pantomimic-farcical-tragi-comical Drama." "Their theatre," he wrote, "might be a temporary structure of wood, emblematic of the transitory nature of all earthly blessings. . . . The first scene should exhibit a number of old men and women hobbling in on crutches, and groaning, to the great delight of the hearers, while Mr. Perkins, like a kind magician, came forward and by touching the old women with his talismanic Tractors, they should appear suddenly restored to health and ease." In the next scene, "masquerade" and "pantomimic gesticulation" dazzled the eyes of the spectators, before a Faustian denouement brought "Justice" down from heaven and "by one touch of her fiery sword the ground . . . opens beneath the feet of the beneficent advertising physicians and their satellites." Some years before, the American writer Fessenden had jokingly made his fictional anti-Perkinist Dr. Caustic warn that he was "preparing a most awful Tragedy for Drury Lane Theatre" titled the "Dreadful Downfall of Terrible Tractorising Confounded Conjuration." For Perkinists, however, the farce proved to be no laughing matter: with their common sense exposed as theatrical manipulation, Tractors passed from the Age of Reason to the Age of Quackery.50

The sale and use of Tractors petered out on both sides of the Atlantic about halfway through the first decade of the nineteenth century, although the metallic rods continued to be invoked for years as an emblem of quack medicine. Benjamin Perkins returned to Connecticut

50 Corry, Detector of Quackery, title page, 10, 21; Corry, Quack Doctors Dissected, 25, 27–37; Fessenden, Terrible Tractorisation, 133.
in 1807, where in his final years he continued to pursue commercial promotions of useful medicine (such as mineral waters), became involved in publishing science texts, and even associated with leading American scientific figures like Benjamin Silliman of Yale, to whom he sold a mineralogical cabinet of some two thousand specimens he had collected while in Europe. In the end, Perkinism was an incoherent discourse, composed of a jumble of contradictions, but incoherence proved no obstacle to persuasiveness. Advocates of the Tractors were immediatists, seeking to place the technological means for autotherapy directly into the hands of consumers, yet aiming to do so through a coordinated network of agents; they invoked the authority of common sense testimony about the efficacy of material objects, but took care to identify the specific social and professional status of the testifier; they claimed to oppose the financial self-interest of trained physicians, but drew extensively on the authority of physicians (including some academically trained) willing to endorse the Tractors; and, despite urging the moral honesty of unphilosophical “plain facts,” nevertheless encouraged public belief in a causal relationship between animal electricity and Tractoration. Most ironic of all, a therapy whose credibility was tied to self-evident “facts” became embroiled in charges of secular enthusiasm, wondermongering, and imagination. Tractoration was a “marvelous fact” in both senses of the phrase—a process that produced genuine effects defying explanation or a delusion masquerading as a fact, depending on one’s point of view. To the extent that Tractoration became a branch of electrical thought and practice, Perkinism was also a deeply ironic concluding chapter to the history of American electricity in the Enlightenment. Half a century after international praise was lavished on Franklin’s philosophical and technological achievements, well-known parts of his Philadelphia program were deployed to support a commercial therapeutic regime many came to regard as a fraud.51

Without question, there were differences between the late-eighteenth-century American and British contexts in which Perkinism flourished. According to one view, whereas British science became increasingly imperial in its reach and significance, science in the early United States remained determinedly provincial in outlook. British critics of the Tractors were undoubtedly more familiar than their American counterparts with specific techniques for policing knowledge claims (the placebo trials used against Mesmerism) and could draw on a robust British tradition of antiscientific satire. But Perkinism’s success in

Britain and America more strikingly suggests the existence of important continuities uniting the knowledge cultures of the North Atlantic world. It has been argued that Mesmerism signaled the end of the Enlightenment in France in that it represented the triumph of pseudoscience, abusing rhetorics of natural philosophy and universal fraternity as well as the practice of spectacular philosophical demonstration. But, in appropriating recognizable enlightened ideals and styles, Perkinism (like Mesmerism itself) did not mark the end of the Enlightenment so much as reveal precisely the difficulty of telling where enlightenment ended and imposture began. By appealing to common sense, useful knowledge, and the moral reliability of plain facts and employing anti-theatrical and antirhetorical modes of performance, Perkinism demonstrated how across late-Enlightenment Anglophone cultures the anticharlatan and antimountebank were becoming uniquely potent persuaders.

In 1803, the Presbyterian divine and intellectual historian Samuel Miller expressed the hope that Americans would soon “be able to make some return to our transatlantic brethren, for the rich stores of useful knowledge which they have been pouring upon us for two centuries.” The Tractors were one such return. Their capacity to travel east across the Atlantic was made possible by the circulation of philosophical discourse and practice, both European in origin and disseminated in the United States (Galvanism) and American in origin yet current in Britain (Franklin’s electrical economy and the electroconductivity of metallic points). The entrepreneurial structure of Anglophone medical culture also enabled this eastward passage: united by a thriving open market for unorthodox therapies, the North Atlantic could form a single commercial itinerary for independent promoters like Benjamin Perkins. But

52 Darnton, Mesmerism and the End of the Enlightenment.
53 Miller, Brief Retrospect of the Eighteenth Century, II, 410.
54 British medical culture was ostensibly more regulated, with stricter licensing of physicians and a clearer class distinction between physician, surgeon, and apothecary; American healers typically combined these functions and operated without licenses. But as the work of Roy Porter demonstrates, the British class-based licensing structure did not prevent unorthodox medical entrepreneurs from successfully creating and exploiting markets for alternative therapies, particularly forms of autotherapy, in an era of heightening nervous disorders. Precisely because British medical culture did not inhibit unorthodox entrepreneurialism, men like Haygarth took it upon themselves to defend sound practice and the public interest. For an overview of early North American medicine, see Richard H. Shryock, Medicine and Society in America, 1660–1860 (New York, 1960); and Helen Brock, “North America: A Western Outpost of European Medicine,” in Cunningham and French, eds., Medical Enlightenment of the Eighteenth Century, 194–216. For the British scene, see Roy Porter, Health for Sale: Quackery in England, 1660–1850 (New York, 1989); and Porter, Doctor of Society: Thomas Beddoes and the Sick Trade in Late-Enlightenment
even more important are the broader epistemological continuities evident here. In the Enlightenment, Americans and Britons articulated similar ideals for natural knowledge. The Tractors' Atlantic circulation demonstrated Perkinism's successful invocation of a shared English language of knowledge making at the turn of the nineteenth century: common sense, useful knowledge, and the value of empirical facts. Tractors sold in both America and Britain because Perkinism spoke languages of enlightenment that "transatlantic brethren" understood.