



Article

Disinformation by Proponents of Perkins' Patent "Metallick Tractors" (1798–1806) to Sway Public Opinion in Britain in Favor of a Fraudulent Therapy

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Abstract: In 1796, American physician Elisha Perkins patented "metallick Tractors" for the treatment of various ailments, particularly those associated with pain. They were subsequently rapidly and widely disseminated in the United States and Great Britain based on testimonials and deceptive marketing tactics. Dissemination was facilitated by endorsements from prominent physicians, politicians, and clergymen; quasi-theoretical, handwaving explanations of efficacy based on Galvani's then-current experiments; and the procedure's apparent safety and simplicity. However, blinded placebo-controlled trials in Great Britain using sham devices demonstrated that the therapy was ineffective. In response, in the period from 1798 to 1806, Perkinists unleashed a barrage of disinformation (ad hominem attacks, misleading arguments, unethical propaganda tactics, and poetic and graphic satire) to sway public opinion in favor of the fraudulent therapy and against its critics. The disinformation slowed the abandonment of "tractation", but higher-level scientific argumentation ultimately prevailed. The Perkinist disinformation campaign had antecedents with the Mesmerist disinformation campaign in the mid-1780s. Similar propaganda tactics are still widely employed to encourage the purchase and use of disproven or fraudulent therapies, as evidenced by propaganda from adherents of acupuncture in response to negative clinical trials and from supporters of unsafe and ineffective therapies promulgated during COVID-19.



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1. Introduction

Connecticut physician Elisha Perkins (1741–1799)¹ (Figure 1) introduced his "metallick Tractors" (Figures 2 and 3) in 1795 as a panacea, particularly "as a means of removing pains and inflammations from the human body" (Perkins 1796c; Quen 1963; Roth 1977; Lanska 2019a, 2019b). He patented them in 1796, aggressively marketed them in lay and professional periodicals, and sold them with support from glowing testimonials² spread through numerous pamphlets (Perkins 1796a, 1796b, 1797a, 1797b; Lanska 2019a, 2019b). The intent of this medical propaganda was to spread Perkins' message regarding the miraculous properties of his tractors to a large audience, and to influence or change their opinions regarding his device, by employing deceptive messaging from the testimonials which were at best cherry-picked to skew the message in the most favorable light possible.



Figure 1. Connecticut physician and quack Elisha Perkins (1741–1799). Rematted from Miller (1935). Creative Commons Attribution—NonCommercial—ShareAlike 3.0 Unported License (<http://creativecommons.org/licenses/by-nc-sa/3.0/legalcode>). Accessed on 6 March 2018.

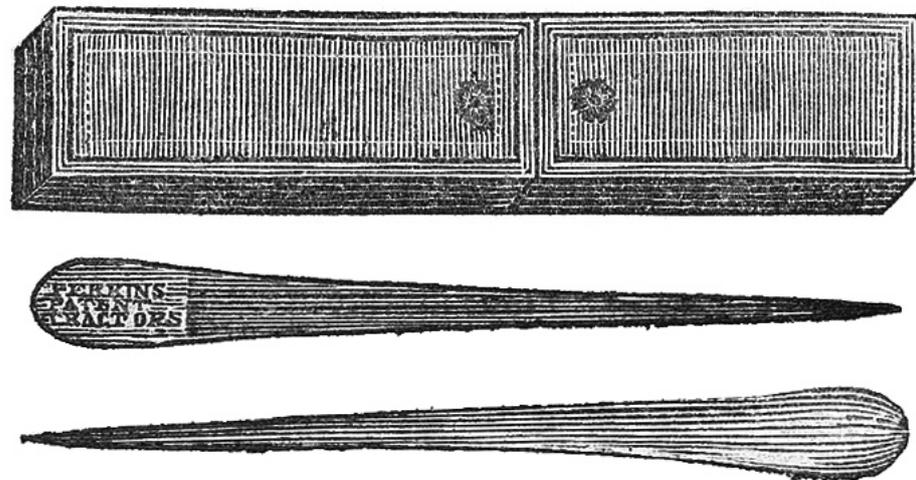


Figure 2. Perkins's tractors, as illustrated by his son, Benjamin Douglas Perkins (1774–1810), in 1801 (Perkins 1801a). These were made of steel and brass and were 8 cm (3.1 inches) and 8.2 cm (3.2 inches) long. From Perkins (1801a): "Two of these Instruments, one of which is Yellow and the other of a whitish Colour, constitute the Set. The Mode of applying them for the removal of a Disease on the Human Body and Horses, is explained, to the Comprehension of the smallest Capacity, in a Paper of Directions, which accompanies the TRACTORS." Top: red Morocco case. Middle: view of the front (flat) side of one of the tractors with the words "PERKINS PATENT TRACTORS." Bottom: view of the back (round) side. Note: This three-part image has been extracted from the background of an advertisement by Perkins from 1801 (Perkins 1801a), with the middle image rotated 90 degrees counterclockwise and the bottom image rotated 90 degrees clockwise from the original presentation. Courtesy of the Wellcome Collection, London, United Kingdom. Creative Commons license CC BY 4.0.

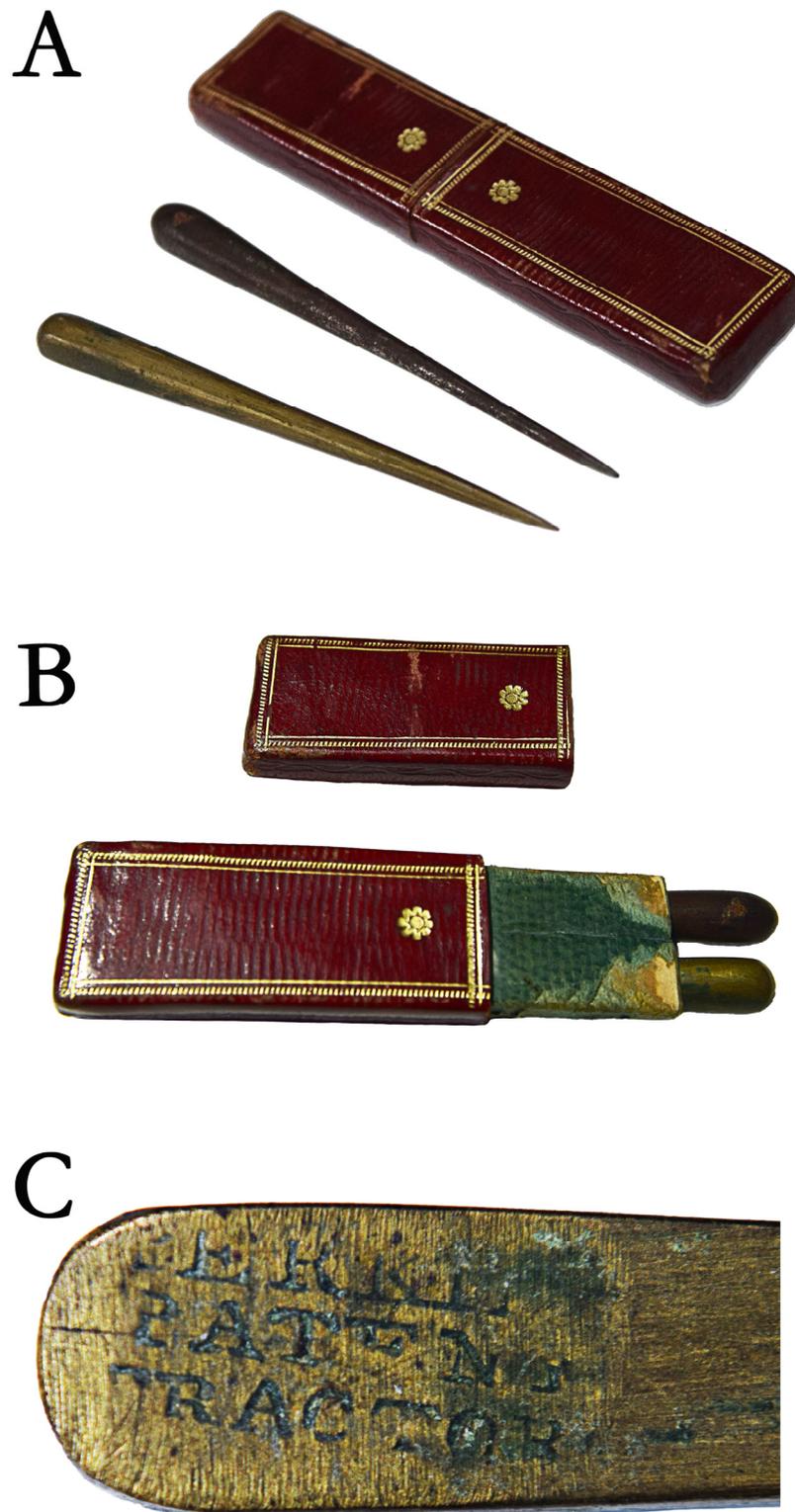


Figure 3. (A–C) Photographs of an extant set of Perkins’ patent metallic tractors and case. (C) Note the incomplete stamp of “PERKINS PATENT TRACTORS” on the flat side of the brass tractor. As the success of the tractors grew, counterfeit tractors were sold. As emphasized by Benjamin Perkins, “To guard against Impositions [counterfeits], Applicants will please to observe, that every Genuine Set of Tractors is stamped with the words, ‘PERKINS PATENT TRACTORS’” (Perkins 1802). Sets of tractors in both the Wellcome Collection in London and the Dittrick Museum in Cleveland lack this stamp and are therefore counterfeits. Photographs courtesy of Robert E. Greenspan, M.D., F.A.C.P. Photo editing and montage by Douglas Lanska, M.D., M.S., M.S.P.H.

In 1796, only four years after Perkins had been recognized as a founder and Fellow of the incorporated Connecticut Medical Society, the society firmly condemned Perkins's practice of "tractation" and labeled those who performed this practice as quacks unworthy of membership in the society; the following year, Perkins was formally expelled from the society for patenting the tractors and promoting them as a cure for many diseases, having ignored invitations to appear before the society to justify his actions (Quen 1963; Lanska 2019a). By 1798, the success of the tractors was fading in the United States, so Perkins' son, Benjamin Douglas Perkins (1774–1810)³—then just 24 years old—moved to London, where he continued efforts to disseminate the quack instruments in Great Britain and mainland Europe—at the opportune time when England was the "Paradise of quacks" (Wadd 1827, p. 152).⁴ Benjamin, like his father, attracted a large following, and used similar tactics to generate business and followers, but in conjunction with his followers, he also developed aggressive and fallacy-ridden tactics to stifle critics (Perkins 1798a; Perkins 1798b, 1799a, 1799b, 1800a, 1800b?, 1801a, 1801c, 1802).

Elisha Perkins was a profiteer who ignored the medical traditions and ethical conventions of his day, duped the public concerning his "inventions", and charged exorbitantly for them (five guineas for a pair of tractors, equivalent to GBP 725 or USD 923 today),⁵ while nevertheless apparently believing in the efficacy of his therapeutic methods (Quen 1963). Although Elisha Perkins' motives were complex, Benjamin's motives appear to have been straightforward and driven only by financial gain, seeking to gain a pecuniary advantage from the gullible public by deception.

From 1799 to 1801, English physician John Haygarth (1740–1827) (Figure 4) led a group of British colleagues to conduct a series of trials with sham instruments constructed to resemble genuine tractors (Haygarth 1800a, 1800b, 1801; Weaver 1938; Booth 2005; Lanska 2019a, 2019b). The results with the sham instruments were indistinguishable from those produced by the genuine tractors. Haygarth charged that the apparent therapeutic actions of the tractors were mediated solely by suggestion and "imagination." Perkins and his disciples responded with a series of fallacy-ridden attacks on the trialists and other critics of Perkinism (Perkins 1800a, 1800b?, 1801a, 1801c, 1802; Fessenden 1803, 1804, 1806a, 1806b). An extraordinarily detailed historical record of this conflict as it evolved in Great Britain is available, which can be scrutinized for reactions, arguments, and counterarguments.

The documentary record of monographs and ephemera related to Perkins' tractors in Great Britain includes the following: (1) Benjamin Perkins' large output of supporting pamphlets and monographs (from 1798 to 1802), initially focused purely on promotion of his product (from 1798–1799), but later typically a combination of promotion and damage control (incorporating, for example, his contradictions, counterarguments, and other responses to claims from his detractors) (Perkins 1798a, 1798b, 1799a, 1799b, 1800a, 1800b?, 1801a, 1801b, 1801c, 1802); (2) advertisements by Perkins (e.g., in newspapers and journals, and also in separate broadsides); (3) extensive correspondence with Perkins, either included verbatim or extensively quoted in works by Perkins and his disciples (from 1798–1806); (4) monographs by disciples of Perkins (from 1798 to 1806), including particularly the early work of English surgeon Charles Cunningham Langworthy (1771–1847) in 1798 and the complex, extended, satirical polemic in both verse and prose by Thomas Green Fessenden (1771–1837) (Langworthy 1798; Herholdt and Rafn 1799; Fessenden 1803, 1804, 1806a, 1836, 1837); (5) a small number of favorable reviews of Perkinist literature in literary journals (Anonymous 1798), as well as clearly negative reviews (Anonymous 1801a; 1801b); and (6) various graphic satires, including an engraving by British caricaturist and printmaker James Gillray (1756–1815) in 1801 covertly commissioned by Perkins, a later interpretation of Gillray's engraving by British caricaturist Charles Williams (died 1830) in 1802, and a number of engravings commissioned by Fessenden for different editions of his literary satire (1803–1806).

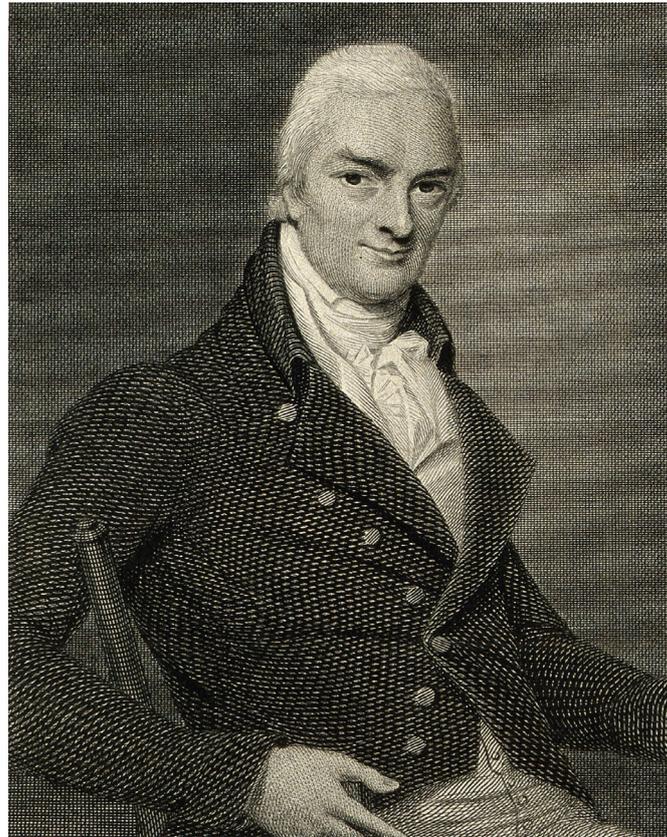


Figure 4. English physician John Haygarth, M.D., F.R.S., F.R.S.E. (1740–1827). Line engraving from 1827 by English engraver William Bernhard Cooke (1778–1855), Soho Square, London, after a painting by J. H. Bell (active 1708–1808). Haygarth (1740–1827) proposed placebo-controlled clinical trials to test the efficacy of Perkins’s patented “metallick Tractors.” Cooke made an almost identical engraving with an oval format in 1827 ([Lanska 2019b](#)). Courtesy of the Wellcome Collection, London, United Kingdom.

The anti-Perkinist documentary record in Great Britain is also extensive, and includes the following: (1) The initial salvos from Haygarth and his associates in 1800 and later elaborations in 1801 outlining the scientific results and their implications ([Wilkinson 1799](#); [Alderson 1800](#); [Haygarth 1800a, 1800b, 1801](#); [Thornton 1800](#); [Richardson 1802](#)); (2) correspondence between Haygarth and colleagues—particularly those who completed trials with sham instruments at Haygarth’s suggestion—which was included verbatim or extensively quoted in Haygarth’s works (from 1800–1801); (3) reviews and critiques of Perkins’ pamphlets and longer works published in British literary journals and other journals and books (from 1798 to 1802), some of which were elegantly polished forms of ridicule, particularly following publication of Haygarth’s works; (4) a literary anti-quackery satire by John Corry incorporating both prose and poetry ([Corry 1802, 1807](#)); and (5) ridicule heaped upon Perkinists and those duped by Perkinism following the clinical trials of Perkins’ tractors from physicians not involved in the trials and by British Romantic poets (1802–1809) ([Bardsley 1802, 1803](#); [Kentish 1806](#); [Alvarez Espriella 1807](#); [Urban 1808](#); [Byron 1809b](#); “K” 1809; [Thomas 1809](#); [Willich 1809](#)).

The purpose of this article is to examine and categorize the rhetorical arguments used on both sides of this conflict, and particularly the ones used by Perkinists in a disinformation campaign in response to their opponents who provided scientific evidence against the utility of the tractors in the form of then-novel controlled trials using sham instruments.⁶ The arguments used in the conflict over Perkins’ metallic tractors followed those used in a similar controversy in France over animal magnetism in the 1780s ([Mesmer \[1779\] 1948, \[1779\] 1980, 1781](#); [Franklin et al. \[1784\] 1997, Franklin et al. \[1784\] 2002a, Franklin et al. \[1784\]](#)

2002b; Lanska and Lanska 2007, 2014) and foreshadowed those in the modern controversy over acupuncture, another instrument-based therapy for pain; the animal magnetism and acupuncture controversies also concerned the interpretation of clinical trials using sham controls (Franklin et al. [1784] 1997, Franklin et al. [1784] 2002a, Franklin et al. [1784] 2002b; Brinkhaus et al. 2006; Haake et al. 2007; Lanska and Lanska 2007; Cherkin et al. 2009; Madsen et al. 2009; Berman et al. 2010; Lanska and Lanska 2014). Extensive disinformation campaigns were employed more recently with multiple fraudulent therapies for COVID-19 (Freckelton 2020; Bramstedt 2021; Mackey et al. 2021).

2. The Perkinist/Anti-Perkinist Conflict

In the period from around 1798, when Benjamin Perkins arrived in England, to at least 1806 (three years after he left), both sides of the Perkinism debate in Britain saw it as a conflict. For example, writing from the Perkinists' perspective, Fessenden wrote of the trialists using terms such as "the opposition" and "assailant" (Fessenden 1803, p. x; 1806a, p. xviii).

Henry Grimston (1758–1820), a supporter of the Perkinian Society, a benevolent but misguided organization which was founded to provide Perkinism to the impoverished, felt so bad about the ridicule he felt he had received that he published "*An Apology for Believing in the Metallic Tractors*" (1803), which was mostly an indignant defense rather than an apology. He dedicated it "To the Perkinian Society; who, in spite of the ridicule of the world, have stepped forward as volunteers in the cause of benevolence. . ." (Grimston 1803, p. 2), and added by way of introduction, "I should hardly have thought it necessary to make an apology for believing in the Metallic Tractors, had they not met with great opposition, and had not the Supporters of them been represented as dupes to the Patentee, and, consequently void of sense, or confederates with him in defrauding the public, and consequently devoid of honesty. . ." (Grimston 1803, p. 3).

After Haygarth's report (Haygarth 1800a), the editors of *The Gentlemen's Magazine* wrote of Perkinism as "a subject so apparently barren and useless as that of the metallic tractors, which, in point of medical as well as mechanical virtues, have always, in our estimation, ranked much below those of a tenpenny nail", while calling "the well-written letter from Mr. [Richard] Smith, of the Bristol infirmary, completely satisfactory and decisive, respecting these wonder-working instruments—more wonder-working than FICTITIOUS" (Anonymous 1800, p. 253). At the same time, they had "little inclination to labour through the cloud of attestations" contained in Perkins' most recent collection of testimonials (Perkins 1800a).

Haygarth tried to prevent publication of a "counter-declaration" from "respectable persons" who had been duped by Perkins, believing that this would make them the victims of sustained ridicule—a justifiable concern as it turned out (Haygarth 1801, p. 28). His intention was not to harm these credulous individuals, but rather to undermine the fraudulent purveyors of this therapy. Haygarth's restraint was laudable given the "great commotions, accompanied with threats and abuse" that he received from the "enthusiastick believers in the efficacy of the Metallick Tractors" (Haygarth 1801, p. 28). Haygarth's delay proved effective, as the uproar subsided quickly.

Directing their reports to professional colleagues and other educated persons, Haygarth and colleagues refuted the underlying basis of the therapy with placebo-controlled trials, particularly with the Haygarth/Falconer (1799) and Wilkinson (1799) trials (Wilkinson 1799; Alderson 1800; Haygarth 1800a, 1800b, 1801; Thornton 1800; Richardson 1802; Anonymous 1824; Munk 1878a; "W.W.G." 1881; Thornton 1967; Lanska 2019b). Even the uncontrolled trials using sham instruments—the Smith (1799) and Alderson/Byron (1800) trials—could be considered trials with historical controls (Smith 1799; Alderson 1800; Lanska 2019b). These direct and indirect comparisons of the therapy with a form of placebo showed that the tractors possessed no special therapeutic property, "refuting the central point" of the Perkinists, the highest level of argument in Graham's disagreement hierarchy (Graham 2008). To be sure, the reports of Haygarth and colleagues are not austere examples

of scientific writing, but are riddled with ridicule of the Perkinists, whom they indeed viewed as either predatory scoundrels or dupes.

In contrast, Perkinists relied primarily on weaker forms of argument (Graham 2008), including (1) *ad hominem*⁷ attacks on the trialists and ultimately on physicians in general, (2) contradiction without supporting evidence, reference to the anecdotal experiences of authorities (typically persons of higher social standing), and (3) quotation of opponents' statements with snide remarks to give the appearance of refutation without providing substantial new evidence of comparable quality and without even sticking to the main point of contention. These approaches were primarily directed toward, and worked best with, individuals who did not think critically, and consequently, many of them appeared in mass media of the period, including advertisements in newspapers and periodicals (some not well hidden as letters to the editor).

In fact, in all their voluminous publications attacking the sham trials by Haygarth and colleagues, Benjamin Perkins and his disciples almost always resorted to bludgeoning the reader with one puffed-up anecdote after another while undermining their enemies with *ad hominem* arguments, sarcastic and satirical responses to tone, and simple contradiction—simply stating the opposite case with little or no supporting evidence. They also used satire and caricature as black propaganda to generate controversy and bring further publicity to their cause, particularly to support their conspiracy theories.⁸ Higher levels of disagreement, such as counterargument (i.e., contradiction plus reasoning or supporting evidence) and refutation (i.e., explaining why specific points are erroneous), were rarely employed, and, when they were used, they never really addressed the central point.

3. Fashioning Converts and Disciples

In his efforts to promote Perkins' tractors in Great Britain and Europe, Benjamin Perkins was able to secure two important disciples, English surgeon Charles Cunningham Langworthy (1771–1847) and American author and editor Thomas Green Fessenden (1771–1837) (Hawthorne 1838).

Langworthy, an unscrupulous and amoral individual,⁹ had been intrigued by the reports of Elisha Perkins and saw the financial potential of Perkins' tractors. He traveled to the United States, where he developed a friendship with Benjamin Perkins and eventually accompanied the younger Perkins to England in the spring of 1798 and became his agent (Langworthy 1798).

Once back in England, Langworthy rushed into print a set of case reports announcing "cures" for various disorders that he believed (or claimed) that he had produced, as well as summaries of testimonials previously published by Elisha Perkins from 1796–1798. The disorders anecdotally reported as cured included pains of various sorts (e.g., acute and chronic rheumatism, gout, pharyngitis, scalds and burns, stings and bites of poisonous insects, sprains, bruises and contusions, headaches, stomach pains, etc.). He even made dubious claims that he had cured cases of right hemiplegia with aphasia and gangrene of an extremity, among others. None of these reports display any critical thinking concerning cause and effect, and, whether willfully to misrepresent or through ignorance, Langworthy repeatedly attributed to the treatment clinical improvements that would be expected based on the natural histories of the conditions he was purporting to "cure" (the post hoc ergo propter hoc fallacy). From all available information, Langworthy seems to have been driven by pecuniary factors more than anything else.

Langworthy did make overtures to other providers to witness his "cures", couched in a superficially magnanimous offer, a tactic of quack tradecraft he seems to have learned from Elisha and Benjamin Perkins, but nonetheless a tactic sure to drum up business. At the same time, he managed to come across as pompous and condescending (Langworthy 1798, pp. 22–23):

I address this narrative to the public, 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. 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 to those of the philanthropist, the philosopher, and the physician. I believe a new discovery in the œconomy of nature to have been made, which is as capable of being converted to a happy alleviation of human affliction, as any that has preceded it, and my most ardent, [or] I might say, my only wish, is, that the truth or fallacy of my belief may be ascertained by others. The most effectual way of doing this, that occurs to me, is the submitting my practice to the test of experiment, under the eye of persons capable of detecting the fallacy, if my pretensions are unfounded, and of confirming them, if just. In order to [achieve] this, I propose to operate on all persons afflicted with any of the diseases here enumerated, in the presence of such physicians, surgeons, or others, as may be desirous of witnessing the operation; and I thus publicly invite them to procure such patients for the purpose, as may come within their knowledge. The numerous Hospitals, Infirmarys, Alms-Houses, and other charitable institutions, which grace the populous city of Bristol, must at all seasons, furnish fit subjects for my practice; and I will readily and willingly attend the Directors and Physicians who have the care of them, and make my experiments in their presence (Langworthy 1798, pp. 22–23).

Benjamin Perkin’s other key disciple was American poet and lawyer Thomas Green Fessenden, a native of Walpole, New Hampshire [Figure 5]. In 1801, Fessenden was in London as the agent for a new hydraulic machine, but the enterprise proved a failure and involved him in financial difficulties. While still in London, he became interested in the construction of a patent mill on the River Thames, and in this enterprise, he was financially ruined. Writing from Boston on 25 March 1836, for the preface of the third American edition of his satirical poem—three decades after the previous edition and with enough time to give some measure of reflection on what had transpired—Fessenden recalled how Perkins had recruited him at the time of his financial crisis to write a satirical work, one that superficially appeared to be an *attack* on Perkinism, but which was in reality a vicious satire on *orthodox* medical practice at the dawn of the 19th century (Fessenden 1836).

However, Fessenden’s satirical poem was not just a service-for-hire arrangement with Fessenden functioning as a paid propaganda machine. Perkins first sold Fessenden on the ideas he had come to link with the instruments he was purveying, and in the process converted Fessenden into a firm believer and willing accomplice in efforts to undermine Haygarth and other detractors of the tractors. To accomplish this, Perkins first fed his recruit some mumbo-jumbo about “animal electricity” and Galvanic currents, and then with a bit of hand waving convinced him to believe that the tractors could channel these mysterious forces to produce miraculous health benefits for recipients (Fessenden 1836, p. iv). For the clincher, using techniques Perkins’ father had pioneered, Perkins showed Fessenden testimonial after testimonial of cases wondrously cured when other means had failed, many reported by physicians and ministers (Fessenden 1836, p. iv). Unbeknownst to Fessenden, some of these *incredible* stories were planted by agents of Elisha Perkins, agents who sold and profited from the tractors, and who had a financial interest in the ongoing success of the tractors. Fessenden was also unaware that Elisha Perkins (and later Benjamin Perkins) had specifically targeted these occupational groups for testimonials, knowing that endorsements from these groups would be most convincing to others, because they would be assumed to be knowledgeable and trustworthy. Although Fessenden was apparently an honest but naïve and credulous dupe without many critical thinking skills, he was nevertheless a devoted and diligent proselyte, and was certainly adroit at satirical mock-heroic verse in iambic tetrameter—just the sort of fellow Perkins could use.

As Fessenden later sheepishly confessed in 1836, long after the Perkinian fad had been debunked, he “never would have written a syllable intended to give Metallic Tractors favorable notoriety, had he not believed in their efficacy” (Fessenden 1836, p. iv). In his defense, he acknowledged being convinced by Perkins’ blather about Galvanic currents as an explanation for the “modus operandi” of the tractors. Moreover, “Respectable English Reviews and other periodicals gave favorable notices of the Tractors, and Mr. Perkins exhibited to the author testimonials in favor of those implements from several professors of universities, many regular physicians, surgeons, clergymen, and others, men of as high standing and influence as any in community” (Fessenden 1836, p. iv).

Fessenden’s approach was to use satire to advertise the tractors and to mock physicians:

Although many of the subjects alluded to, or animadverted on were intended to be satirized, others were introduced merely to give them notoriety, or honorable mention in a humorous way; to *laugh with* rather than to *laugh at* the inventors, and rather to *advertise* than to *stigmatise* their inventions, &c. Persons of this description will perceive our objects, appreciate our motives, and recollect that Dr Caustic [Fessenden’s pseudonym], by virtue of a figure in rhetoric, called irony, can speak one thing and mean another, without uttering falsehood. Dr Caustic, who may be styled the hero of the poem, is represented as a visionary, eccentric, would-be philosopher, endeavoring to effect “grand discoveries and inventions” of most “immense Utility”, but had received so little encouragement that he was impelled by necessity to petition the Royal College of Physicians in London, for relief from penury, and assistance in his projects (Fessenden 1836, pp. iv–v).



Figure 5. American poet Thomas Green Fessenden (1771–1837), a disciple of Benjamin Perkins, who was paid by Perkins to produce a satire in verse attacking the contemporary medical practice of orthodox physicians. From Perrin (1925).

Fessenden advertised Perkins' "metallick Tractors" in the Hudibrastic¹⁰ poem *Terrible Tractoration!!* (initially published anonymously in 1803), which satirized the members of the medical profession who opposed the use of the instruments.¹¹ The following year, Fessenden returned to the United States and settled in Boston. Fessenden included a caricature of physicians as a graphic satire in the various editions of *Terrible Tractoration!!* with new engravings made for the editions in 1803, 1806, and 1838 (Figure 6) (Fessenden 1803, 1806a, 1836). The 1804 edition also includes an illustration of a practitioner performing tractoration on a patient (Figures 7 and 8) and a jester's cap labeled Haygarth perched atop the elaborate architectural frame serving as a mat for the image of tractoration (Figure 9) (Fessenden 1804).

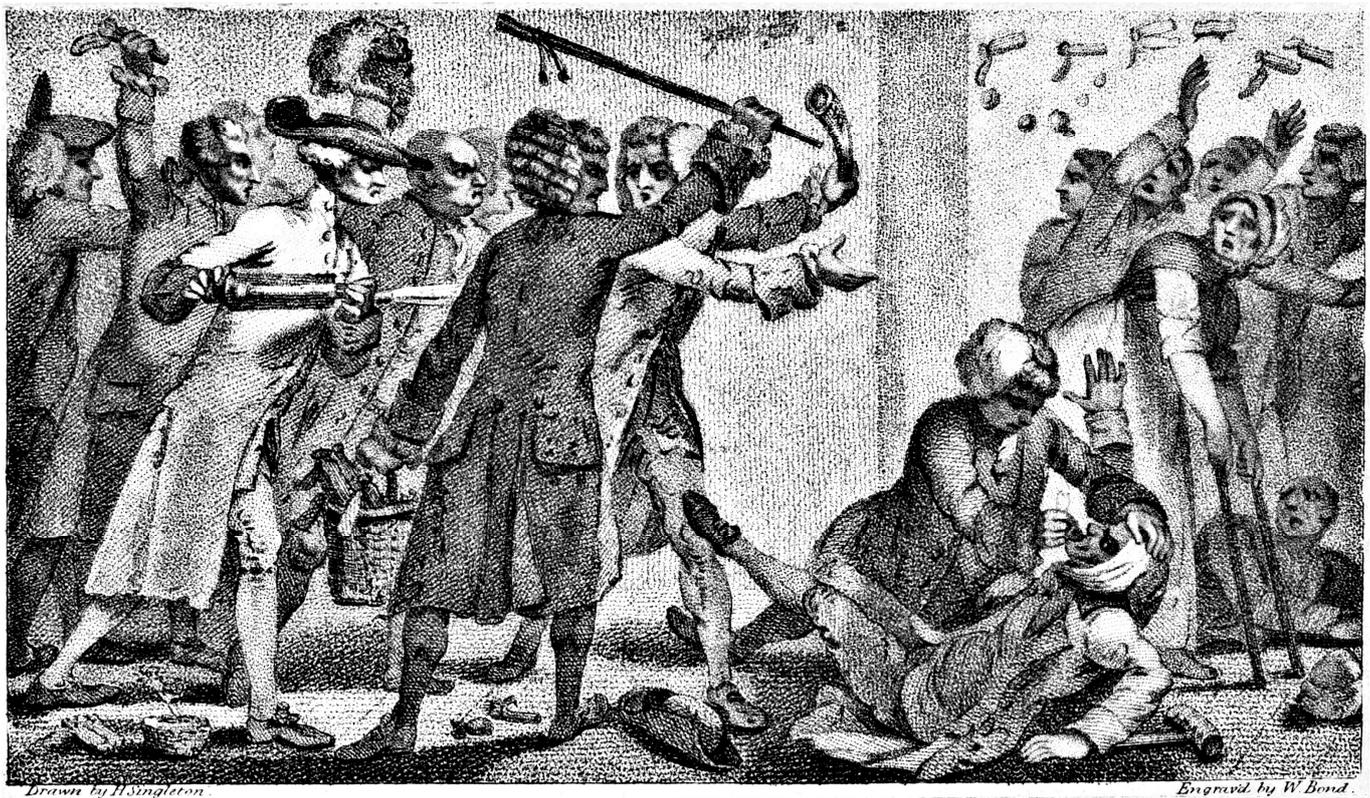


Figure 6. Graphic satire frontispiece by a proponent of Perkinism, used as an attack on the character of physicians and the harmful methods of 18th-century physician practice: "Come on begin the ground attack/ And I'll be there and blow Mars' trumpet./ Pelt the vile foe with Weapons Missile/ Make Phials round their sconces whistle"¹² (Fessenden 1803). Physicians with angry faces are shown attacking poor, sick, and disabled people with their canes, clyster-pipes (used to inject "cleansing" medicines into the rectum), pill bottles, and even wigs, while one forces pills into the mouth of the man on the ground. Pill bottles and a few loose pills are falling onto the heads of the poor people. Frontispiece from the first British edition of *Terrible Tractoration!!* (Fessenden 1803). The same artwork was used in the first American edition (Fessenden 1804) but placed in front of Canto IV. New engravings, but with the same basic theme as that of the first British edition (Fessenden 1803) and the first American Edition (Fessenden 1804), were made for the second American edition (Fessenden 1806a) and for the third and fourth American editions (Fessenden 1836, 1837).

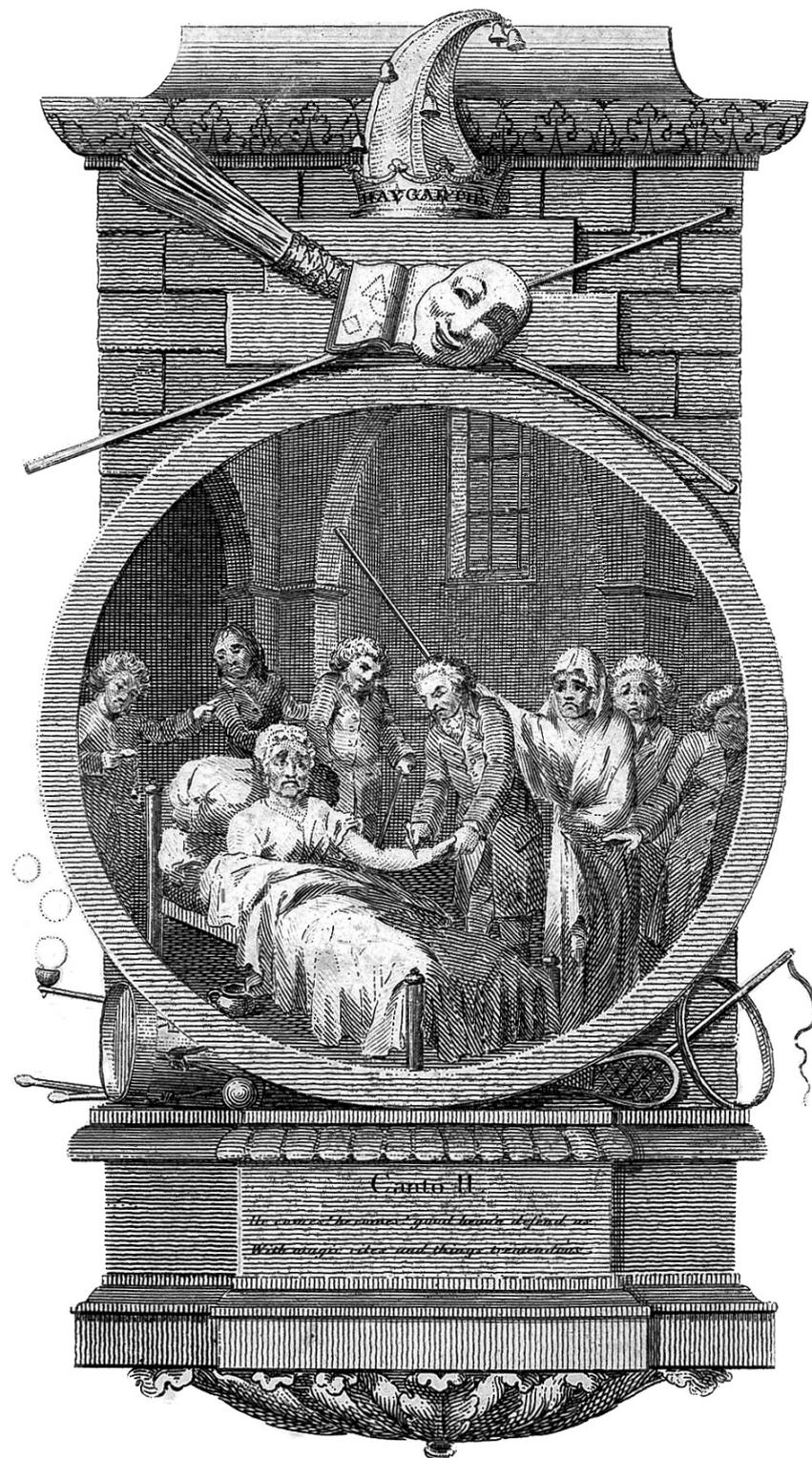


Figure 7. Elaborate figure and architectural frame showing the use of Perkins’s metallic tractors on a sick patient. From Thomas Green Fessenden’s (1771–1837) satirical poem *Terrible Tractoration!!* (1804): “Canto II. He comes! he comes! good heav’n defend us. With magic rites and things tremendous” (Fessenden 1804, p. 56). Fessenden’s *Terrible Tractoration!!* was actually a vicious satire attacking orthodox physicians and particular opponents of Perkinism.



Figure 8. Detail of Figure 7, showing the performance of the “Metallick Practice” of tractoration, using Perkin’s tractors on a sick patient. This is the centrally placed subject within an architectural frame. Source: [Fessenden \(1804\)](#).



Figure 9. Detail of Figure 7. The jester’s hat at the top of the architectural frame is labeled “Haygarth’s” in reference to English physician John Haygarth (1740–1827), who induced colleagues to perform clinical trials with sham tractors that ultimately led to the abandonment of this quack therapy. The jester’s hat was clearly meant to mock Haygarth. Source: [Fessenden \(1804\)](#).

Perkins' tractors also appeared in a famous (though typically misunderstood) satirical print (Figure 10) by British caricaturist and printmaker James Gillray (1756 or 1757–1815), the “father of the political cartoon” (Figure 11). Although the print itself appeared to be highly critical of the device, it was, in fact, commissioned by Perkins (Freere 1800; Hill 1965), apparently as a form of “black propaganda” (not unlike Fessenden’s poem)—disinformation that is deniable by (and not traceable to) its source—intended to generate more controversy, and hence publicity, for the device¹³ Like Fessenden’s *Terrible Tractoration!!* (Fessenden 1803), which was presented as a faux attack on Perkins when really it was a vicious satire of physicians, Gillray’s engraving “*Metallic-Tractors*” was also suggested by the man it purports to attack (Freere 1800; Hill 1965; Haslam 1993, 1996). On 24 November 1801, less than two weeks after Gillray published his “*Metallic-Tractors*” caricature, Perkins sent him the following note:

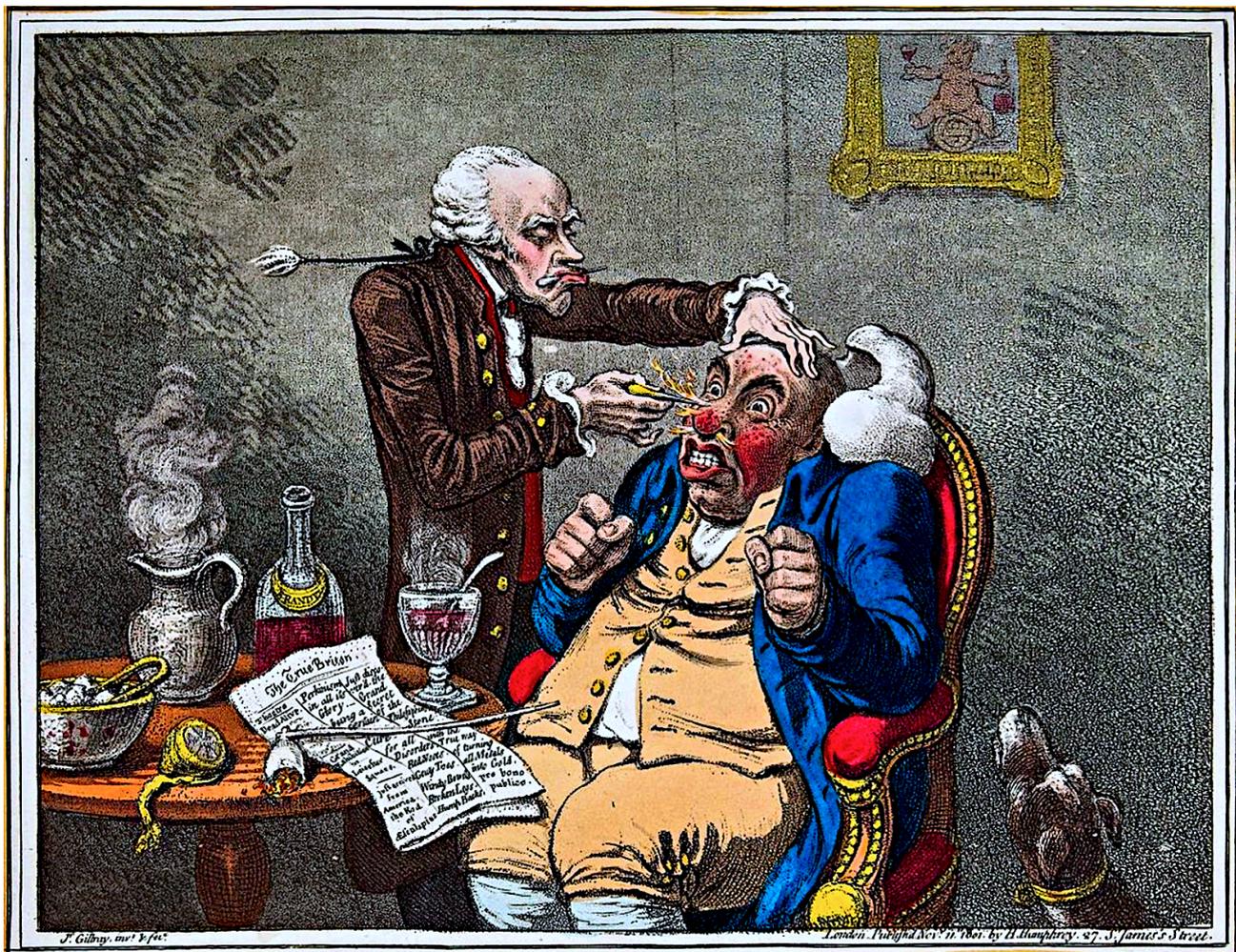


Figure 10. “*Metallic-Tractors*” (11 November 1801), a colored etching by British caricaturist and satirist James Gillray (1756–1815). A man is applying a Perkin’s tractor to a patient’s nose while holding the other tractor of the set in his mouth. The effect of the treatment has knocked the patient’s wig off and produced flames from his nostrils. A dog howls nearby. On the table are a pipe, decanter, steaming pitcher, and a broadside. The broadside, *The True Briton*, proclaims the miraculous effects attributed to tractoration: “Grand Exhibition in Leicester Square. Just arrived from America, the Rod of Æsculapios. Perkinism in all its Glory being a certain Cure for all Disorders: Red Noses, Gouty Toes, Windy Bowels, Broken Legs, Hump Backs.” The right column provides a similar impossible claim: “Just discovered the Grand Secret of the Philosopher’s Stone with the True way of turning all Metals into Gold pro bono publico.” Courtesy of the United States National Library of Medicine, Bethesda, Maryland.



Figure 11. British caricaturist and satirist James Gillray (1756–1815), who was covertly recruited and paid by Benjamin Perkins to produce a graphic satire of the metallic tractors. Cropped to a rectangular format from the original oval format within a printed mat. Mezzotint by Charles Turner (1819), after James Gillray (circa 1800). Source: Wikimedia Commons. Public domain.

Mr. Perkins presents his compliments to Mr. Gillray, with many thanks, and the enclosed acknowledgement, for the print, which he has seen, with great satisfaction—Mr. G[illray] will please excuse Mr. P[erkins] for not sending specie [money in the form of coins rather than notes], in room of the paper enclosed, as that could not have been conveyed in a letter, and he also asks, as a particular favor, that no person may ever know any communication has taken place between Mr G[illray] and Mr P[erkins] on this subject, and that no Discovery of that nature may be made through the presentation of this Check—will Mr. Perkins be gratified in his wishes to see this print exhibited in other print shops also? He likewise begs to ask what would be charged him for a dozen impressions? Leicester Square Nov 24—1801 (Frere 1800; quoted in Hill 1965, pp. 140–41; Haslam 1993, p. 298; 1996, p. 216)

Perkins had clearly commissioned the work. The timing after Haygarth’s revised monograph suggests this was part of a ploy to show that Perkins’ wonder cure was being ridiculed, thus increasing the apparent controversy and generating further publicity and interest in Perkins’ treatment.

A similar British caricature from this period was “*The Tractors*” (16 September 1802), a hand-colored etching by British caricaturist, etcher, and illustrator Charles Williams (died 1830) (Figures 12 and 13).



Figure 12. “The Tractors” (16 September 1802), a hand-colored etching by British caricaturist, etcher, and illustrator Charles Williams (died 1830) (Simon 1975). The legend says “A New discovered Virtue in these invaluable Operators most cordially recommended to the Public at large and to Dr. Perkins in . . . particular as a likely means of preventing more Murder than all the Poenal Statutes. The Tractors most cordially recommended to the Public at large and to Dr [Doctors].” The caricature shows a woman, whose head and limbs are restrained, being treated with the metallic tractors on her “envenomed Tongue.” The first woman behind her exclaims: “good Heavens? could you suppose my Aunt had such an envenomed Tongue.” The second replies, “oh yes[,] my dear[,] there are many more such in our Town[.] If this good man cures all such Tongues he will deserve a Statue.” The third says, “Yes and all our Young Friends I am sure will subscribe liberally.” The room is that of the patient. Behind the patient is a low screen with an illustration of the earth in flames on the left-most panel, under which is the caption “Observe the End.” A parrot rests above this panel. On the far right is a round table where spectacles have just been laid down; on it are writing materials, a large “Bible”, and a paper: “Mem[orandum]—not to forget at Miss Magpy’s Tea party[,] the hints respecting the Young Miss Tumid also the round appearance [i.e., pregnancy] of Mrs Generous who was married last Week. Particulars Insinuate how Miss Lively lives so genteel When we cannot find out what resources she has—to take Care I do for Miss Bold who insolently said she did not believe the story of Miss Virtues Slip.” Beside it in the right background is an open cupboard with a bunch of keys in the lock; three decanters on the top shelf (“Ratafia” [a liqueur flavored with almonds or the kernels of peaches, apricots, or cherries], “Peppermint”, and “Caraway”); four books on the middle shelf (*Duty of Man*,¹⁴ *Eloise*,¹⁵ *Sermons*, and *Glass Cookery*); and on the bottom shelf a large bottle of “Nig” (i.e., gin), a flagon of “Cherry Brandy”, and a glass. On a chair (left), a cat suckles kittens. Courtesy of the Wellcome Collection, London, United Kingdom. Creative Commons license CC BY 4.0 (<https://creativecommons.org/licenses/by/4.0/> accessed on 20 November 2023).

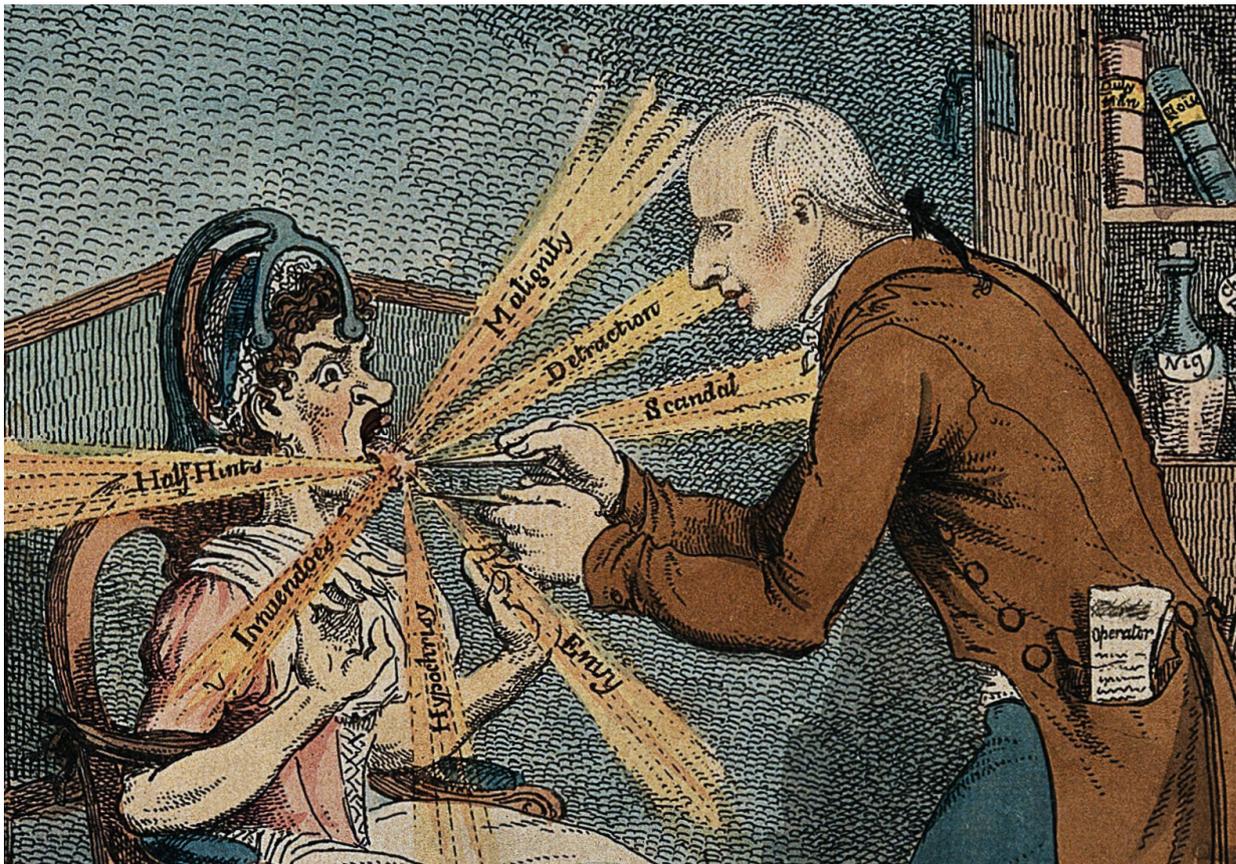


Figure 13. Detail of Figure 8. A restrained woman is being treated with Perkins' tractors. From the woman's tongue, rays are projected labeled (clockwise from top right) "Malignity", "Detraction", "Scandal", "Envy", "Hypochricy" (sic), "Innuendoes", and "Half-Hints". On the shelf behind the practitioner is a large bottle of "Nig" (i.e., gin). Courtesy of the Wellcome Collection, London, United Kingdom. Creative Commons license CC BY 4.0 (<https://creativecommons.org/licenses/by/4.0/> accessed on 20 November 2023).

4. Paul Graham's "Disagreement Hierarchy" (DH)

Paul Graham's "disagreement hierarchy" (DH)¹⁶ will be employed to help evaluate and frame the contrasting arguments from Perkinists and anti-Perkinists (Graham 2008). Graham's "disagreement hierarchy" ranks the quality of common strategies of dissent or argumentation from low to high: DH0—name calling; DH1—ad hominem attack; DH2—responding to tone; DH3—contradiction; DH4—counterargument; DH5—refutation; and DH6—refuting the central point. Low-quality arguments (below DH5) may sway public opinion but are unconvincing to a better educated or more sophisticated audience, while only the highest-quality arguments (DH6) have the potential to truly refute the opposing position.

5. Ad Hominem Attacks (DH1)

In public notices, Perkins described in glowing terms physicians that responded favorably concerning the efficacy of the tractors, while making ad hominem attacks on opponents. Those who supported Perkinism were described as eminent, learned, worthy, respectable or honorable, unbiased ("disinterested"), and discerning, while opponents were labeled as prejudiced, self-interested, and deceptive. Such fawning praise of the supporters in mass media served two purposes: (1) it elevated the status of supporters for the primary target audience, with the implication that if such esteemed professionals supported the product, it *must* be good; and (2) it helped to garner and sustain support from influenceable medical professionals by appealing to their vanity. For example, Perkins

proclaimed that, “It would be the extreme of injustice and ingratitude not to acknowledge, that very lately, many of the most eminent of the medical profession have honourably come forward, acknowledged the merits of the Tractors, and adopted them in their practice” (Perkins 1800a, p. l). With even more puffery, Perkins lauded his supporters:

Here, then, the reader has been presented with the decisions of learned and disinterested men; persons who, before they judged, candidly examined, reflected, and compared. These characters are not of that school where we found the devotees of prejudice and self-interest aiming to deceive the public, by misrepresenting cases, and consequently concealing those facts, which would refute their purposes, and expose their groundless pretensions (Perkins 1800a, p. lv).

The Perkinian acolyte and master of satiric prose and poetry, Thomas Green Fessenden (1771–1837)—writing under the burlesque pseudonym of Christopher Caustic, M.D., A.S.S.—wrote paired couplets that implied that Haygarth was despised:

Since doctor Haygarth, as we’ve stated,
These points pernicious has prostrated,
Our college ought to canonize him;
Instead of that the rogues despise him.

(Fessenden 1806a, pp. 153–54)

The bogus “A.S.S.” degree of the pseudonym was a somewhat crude satirical invention, meant to be read without the periods, to subvert the pretensions of physicians with their medical and scientific credentials. Although not targeted to a specific individual, this is the basest form of argument: name-calling (DH0).

Perkinists charged that the basis of the scientific attack on Perkinism reflected a conflict of interest by physicians who simply saw the success of Perkinism as unwanted competition. Consequently, this presumed bias implied that physicians in general could not be trusted to tell the truth. Fessenden, for example, alleged that “The contest respecting the merits of the tractors has lain entirely between disinterested persons who have approved of them, after a cautious and faithful experiment. . . and interested or prejudiced persons, who have condemned them without any trial whatever, generally indeed who have never seen them” (Fessenden 1803, pp. xix–xx; 1806a, pp. xxiv–xxv).

Fessenden (and, later, Oliver Wendell Holmes (1841–1935)) quoted an English Perkinist, Dr. Fuller, who dismissed the opposition of physicians because of presumed self-interest (Fessenden 1803, p. 112; Holmes [1842] 1891, p. 19). Fuller contended sarcastically that “It must be an *extraordinary* exertion of virtue and humanity for a medical man, whose livelihood depends either on the sale of drugs, or on receiving a guinea [equivalent to approximately GBP 133 or USD 169 in current currency]¹⁷ for writing a prescription, which must relate to those drugs, to say to his patient, “You had better purchase a set of Tractors to keep in your family; they will cure you without the expense of my attendance, or the danger of the common medical practice” (Fessenden 1803, p. 112; Holmes [1842] 1891, p. 19). Because of this conflict of interest, physicians “must *never* be expected to recommend the use of Perkinism” (Fessenden 1803, p. 112; Holmes [1842] 1891, p. 19). Instead, “The Tractors must trust for their patronage to the enlightened and philanthropic out of the profession, or to medical men retired from practice, and who know of no other *interest* than the luxury of reliving the distressed” (Fessenden 1803, p. 112; Holmes [1842] 1891, p. 19).

This argument was undoubtedly effective as a rhetorical device because it had at least a grain of truth (presumed face validity), but it was really a diversionary ad hominem tactic that attacked the characteristics or authority of the medical profession without addressing the fundamental question of whether Perkins’ tractors achieved anything at all, and secondarily, if they did, how they achieved it. Nevertheless, ad hominem arguments are a low form of argument, just above name-calling in Graham’s hierarchy of disagreement, and not much better than “responding to tone” or contradiction—*none* of which prove *anything* regarding the central points under contention (Graham 2008).

Of course, Haygarth and colleagues did not invite the Perkinists to participate in or disrupt their trials, but this was presented by Perkins as an affront “to every friend to science, to humanity, and to truth” (Perkins 1800a, p. xxxiv). However, this bombastic response, with its exaggerated emotional tone, had no bearing on the actual results of the trials, as Perkins well knew. He simply included this as another ad hominem attack on the *character* of the trialists: “The extreme illiberality of this party, and the evident design in not admitting [Perkins’ agents] Mr. [Charles Cunningham] Langworthy [1771–1847] or Dr. [Jeffery] O’Connell [of Bath] to be present, could not but awaken the resentment of every friend to science, to humanity, and to truth” (Perkins 1800a, p. xxxiv).

Perkins continued with heavy sarcasm and further ad hominem attacks, suggesting that opposition to the tractors meant that the trialists were abusing and ridiculing those who had provided testimonials (Perkins 1800a, pp. xxxiv–xxxv).

In an ad hominem attack on Dr. Richard (“Dick”) Smith (1772–1843) (Figure 14) at the Bristol Infirmary, Perkins suggested that Smith was biased in his assessments, pathologically “happy” to find fault with a noble discovery that would otherwise “relieve the sufferings of humanity”, and driven solely by greed: “*Ob! auri sacra fames! quid non mortalia pectora cogis?*” (“What do not you force mortal hearts [to do], accursed hunger for gold” or “To what lengths will man’s passion for gold not lead him?”)¹⁸—a clear projective defense mechanism (as in the idiomatic expression “the pot calling the kettle black”) (Perkins 1800a, p. xxxviii).



Figure 14. Richard (“Dick”) Smith (1772–1843), chief surgeon at the Bristol Royal Infirmary, conducted single-blind trials of sham tractors in adults (1799) and uncontrolled trials of genuine tractors in infants (1801) at the suggestion of John Haygarth. Frontispiece portrait from Smith (1917).

Perkins charged that Smith had actually *caused* disease in his patients by the application of sham instruments, using Smith’s own amazed account of the proceedings as documentary evidence (Haygarth 1801, pp. 10–13, 20–23). Because of Smith’s use of sham instruments, Perkins further asserted that Smith himself belonged in a mental institution instead of serving in a role of healthcare provider to others who were “sick and afflicted”:

Then, reader, judge whether it is surprising that there should have been produced on the poor victims exposed to his tricks and imposture such powerful operations, and often unfavourable ones, as is acknowledged in [various] cases, where he “caused diseases” instead of removing them; and indeed well nigh did injury to the patients, of which they afterwards with difficulty recovered. And will it not be apparent, that a man who should commit these acts, and so abuse the confidence placed in him by his suffering patients, is more deserving of the habitation of a mad-house, than the guardian of the lives of the sick and afflicted? (Perkins 1800a, pp. xxxviii–xxxix)

Haygarth, for his part, denied that self-interest biased the trialists in their assessments of the tractors, and further claimed that if the tractors actually worked, physicians would be happy to use them:

If the metallick Tractors can produce instant and visible effects in the presence of an intelligent and impartial observer, medical witnesses will undoubtedly become their firmest and most strenuous friends. The heartfelt joy of giving relief to a suffering patient is the most delightful solace of the innumerable anxieties and fatigues inseparable from the medical profession. I will engage for my brethren that they will reject no remedy of whose salutary efficacy they can obtain clear conviction, from whatever quarter it may come. And if metallick Tractors can produce effects so much superior to all other remedies, the testimony of medical witnesses will be given with candour and alacrity. (Haygarth 1801, p. 39)

Haygarth nevertheless cautioned that numerous quack remedies had been touted as providing magical cures, but rarely had such claims withstood scrutiny or the test of time.

There is an erroneous opinion which too generally prevails, that the medical profession is unreasonably prejudiced against quacks. During the last century, though the most enlightened of any since the creation, let us recollect how many quack medicines have annually appeared, and, for a time, have been supposed to perform incredible cures. Of the many myriads which like meteors have shone and vanished, not one in many thousands has stood the test of experience. Yet it is well known, that whenever any of these transitory visions has suggested a single good quality preferable to other known remedies, it has always been carefully preserved as a valuable acquisition to medical science. Such considerations justly make men of discernment cautious in believing any magnificent and interested promises, and ought to preserve the unthinking multitude from the shameful delusion which continues to be practised with astonishing success (Haygarth 1801, pp. 39–40).

Perkinists charged physicians with biased assessments of “tractoration” driven by pecuniary self-interest while also deflecting similar charges against themselves (Perkins 1800a, p. xlvii). Perkins expressed annoyance that the price of the tractors and the fact that they were patented (and so considered a quack therapy) were considered objections to their use: “These do not in reality merit a serious reply; what person who ever employed a physician, through one fit of sickness, will pretend that five guineas is an unreasonable sum for a remedy, which may be so long preserved in a family, and cure so many of the diseases to which it is daily liable” (Perkins 1800a, p. xlvii).

Fessenden charged that physicians were incapable of recognizing the positive effects of Perkins’ tractors and were ignorant of the mechanisms of their own medicines:

That a physician should neglect
To notice e’en a good effect,
Unless the cause, as he supposes,
Is nine times plainer than his nose is;

And though it may be urg'd by some,
That this grave reasoning's all a hum,
Because the learn'd are in the dark
How opium, mercury, acts, and bark[.]¹⁹

(Fessenden 1803, p. 125; 1806a, p. 191)

6. Responding to Tone (DH2)

Another weak form of argument, only slightly higher than ad hominem attacks, is to respond to the tone of the opponents' statements. For example, Perkins wrote of Haygarth's "temerity" in inferring that his trials illustrated the illusory effects of the tractors (Perkins 1800a, p. xxxiii). Perkins sidestepped the need to disprove what he termed "the palpable falsehood" of Haygarth's "audacious declaration", which was based on various clinical trials, by claiming that this would "affront" (i.e., cause outrage or offense in) the reader after Perkins presented his series of testimonials (Perkins 1800a, p. xxxiii).

Reader, after the Cases before you in this book, I should affront your understanding did I give myself the trouble to prove the palpable falsehood of this audacious declaration.—And now see what measures our author himself acknowledges are necessary to make the poor credulous paupers in the hospital *believe* themselves immediately and three [*sic*] remarkably relieved by the false Tractors (Perkins 1800a, p. xxxiii).

According to Perkins' argument, the anecdotal cases and testimonials were supposed to be sufficient evidence, so much so that it would affront the understanding of the reader for Perkins to bother to prove the falsehood of the clinical trial methods or Haygarth's conclusion. After sidestepping the need to refute Haygarth (without actually refuting anything), Perkins then suggested that Haygarth applied unethical measures on "poor credulous paupers in the hospital" (admittedly with the intent to assess the utility of the tractors), without acknowledging the irony of his own application of precisely the same measures on equally credulous paupers for his own profit.

7. Contradiction (DH3)

Perkinists never addressed Haygarth's main point that the results produced by the tractors were indistinguishable from those produced with sham instruments. Instead, Perkinists erected straw-man arguments,²⁰ for example by distorting the complaints of orthodox medicine that some quack therapies were obviously harmful (which was true), although this was not a concern invoked with the tractors.

The objection raised against quack medicines is, that, as they are often composed of powerful ingredients, if not used with judgment, they may do material injury, instead of service. The innocence of the Metallic Practice silences every clamour on this head (Perkins 1800a, p. xlvii).

The allegation Haygarth levied against the Perkinists was that the tractors held no specific efficacy in combating illness, so contradicting a contrived straw-man argument about their safety could not possibly refute the main point of the anti-Perkinists.

8. Counterargument (DH4): Conspiracy Theories and the "They Persecuted Harvey!" Defense

Many new ideas struggle to gain acceptance, including ones that are subsequently shown to be correct. The old guard may even ridicule or torment individuals who challenge the existing framework. Useful ideas eventually run this gauntlet successfully. Clearly, such initial opposition does not imply that all new ideas or products are valuable; most are, in fact, worthless or harmful. Nevertheless, promoters of quack therapies typically itemize the opposition from establishment practitioners to either imply or directly claim that the establishment is conspiring to keep the novel and valuable therapy from the public (i.e., a conspiracy theory):

When first I connected myself with Mr. Perkins, the history of the oppositions which every discovery in natural philosophy, and in the healing art in particular, has ever had to encounter from prejudice and ignorance, afforded me ample proof, that wherever I might commence my practice, it would meet with discouragement from a certain description of professional men; and that I should have difficulties both moral and physical to contend with, which Time only, by enabling Truth to assert its superiority over Falsehood, could overcome. And it has proved as I expected; for, although I have hitherto had little opportunity of promulgating the practice or of procuring patients, some dogmatical pharmacopolists [i.e., apothecary] are already launching against me the arrows of traduction [i.e., defamation, slander], and others, I am informed, who apprehend that their craft will be affected by the discovery, have their quivers full and their bows bent to attack me when time shall serve (Langworthy 1798, p. 5).

Another common tactic employed in promoting quack and fraudulent therapies is to link the innovator with other famous innovators of the past who were persecuted, a form of propaganda called the “transfer technique” that seeks to unjustifiably link the audience’s good associations to a totally unrelated idea—what could be called the “They persecuted Harvey!” defense. Indeed, Perkins claimed that his invention of the tractors was part of a long line of important medical advances that elicited initial opposition, including the discovery of the circulation of the blood and various established pharmaceuticals.

Every innovation in medicine must meet with opposition; an instance to the contrary has not occurred in medical history. Harvey was persecuted, and attempted to be ridiculed, during most of his life, for asserting the circulation of the blood. The bark,²¹ opium, mercury, and antimony,²² four of the most valuable medicines in the *materia medica* have all had their persecution, by the faculty, and have been brought into use only by the unremitting exertions of benevolent and disinterested men; and those generally of the lower orders in society. James’s Powder²³ was supported by testimony nearly as respectable as that in favour of the Tractors, and who has not a recollection of the opposition it received, and that a pamphlet was published against that also? (Perkins 1800a, p. xlvi)

It does not follow, however, that because a new idea is challenged, the challenge itself establishes the righteousness of the innovator and the correctness and utility of the supposed innovation. Useful medical advances will withstand such challenges and will ultimately be incorporated into medical practice, even if acceptance is delayed or partial,²⁴ whereas useless or harmful therapies will eventually be abandoned despite the propaganda of self-interested promoters.

9. Refutation (DH5)

Perkins tried, in melodramatic prose, to refute the trialists’ findings by suggesting that the investigators *themselves* caused such terror in their subjects that it produced the observed effects (Perkins 1800a, p. xxxvii). Perkins claimed that the medical “*paw waws*” (wizards)²⁵ made their subjects apprehensive and nearly frightened them to death: “A parade of eight medical men . . . will be readily admitted to be sufficient to strike terror and awe into the stoutest heart, and to give spasms in every muscle, as was the case with some of the poor creatures who were the subjects of their experiments” (Perkins 1800a, p. xxxvii).

By alleging bias, Perkins sought to undermine the evidence of the trialists and to prioritize his claims over theirs, ignoring the fact that he was the one with the most prejudice and interest—a form of “cherry picking” or “card stacking”²⁶: “The opinions of those whose profession it is to decide on truth and error, by fair investigation, are entitled to greater weight, than those of prejudiced and interested men” (Perkins 1800a, p. l).

The indignant wording aside, Perkins asserted that Smith never “cured a disease, dissipated an inflammation, or tumefaction” with his sham instruments, with the unstated (albeit false) implication that he, Perkins, *had* done these things: “Now, was there ever a

more preposterous inference than that Mr. Smith should have regarded the results of these trials as unfavourable to the merits of my Patent Metallic Tractors, when, with all these exertions on the imagination, he never, with his fictitious Tractors, unequivocally cured a disease, dissipated an inflammation, or tumefaction!!" (Perkins 1800a, p. xxxix).

The Perkinists presented testimonials with the repetitive mantra: (1) the treatment was applied; (2) the patient then got better; and (3) therefore, the treatment was the cause of the improvement (i.e., the post hoc ergo propter hoc fallacy). They itemized as many testimonials as possible, implying that these individuals couldn't *all* be wrong, and, therefore, that the "Metallic Practice" *must* be useful (i.e., the argumentum ad populum fallacy). This barrage of testimonials served as another form of refutation to the more objective trials, and Perkins could muster many more anecdotes that the trialists could produce trials, ignoring the fact that the quality of anecdotal information was markedly inferior to that of a placebo-controlled trial for establishing a cause-and-effect relationship.

The major part of the cases . . . are from medical gentlemen of high and distinguished character; some, however, are from persons not of that profession—These must not be regarded as of one whit less importance. They are from men of science, understanding, and probity. It is not required to have spent three years in dissecting the human body, or in learning the use of different drugs, to be competent to give testimony on this subject.—The knowledge, which may authorise us to speak on effect produced by an external application, in topical diseases alone, is very unlike that which would be necessary, where internal remedies are used, in complicated affections. 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.—So evident was this, it could not but be acknowledged, even by medical writers (Perkins 1800a, pp. lv–lvi).

Another form of refutation served as a blanket excuse for apparent failures of tractoration: when someone improved after the treatment, Perkinists claimed that the treatment was responsible for the improvement, but if someone *failed* to improve, it was not the responsibility of the treatment. Instead, Perkinists conveniently attributed such outcomes to faulty selection of cases that were inappropriate for the treatment, or to inadequate application of the treatment due to impatience of the responsible practitioners. This technique is a form of cherry-picking or card-stacking propaganda, promoting positive outcomes while inappropriately discarding, omitting, or severely downplaying negative outcomes.

The circumstance of the innocence, as well as the efficacy of the remedy, must occasion an indiscriminate circulation of it, in the hands of persons totally unacquainted with the nature of diseases. The Tractors will consequently be tried in a thousand cases for which they are not recommended, and must necessarily often fail, and thereby have discredit attached to them. . . . Among many also there will never be found patience to give them half a trial. Their apparent simplicity, so much unlike the consequence attached to a pompous display of drugs, often excites disgust and an unwillingness to have them even applied; and here I should notice a most egregious error, which many have imbibed, in consequence of the publication of several cases, where the cures were performed in a few minutes, and by a single operation. Very much to the injury of the Tractors, this has been generally expected, and they have been laid aside when this has not taken place. Whereas it is often necessary, that they be repeated three times a day for many weeks. To this circumstance may be added, the disposition there must ever be, where medical influence prevails, to have recourse to them only as a dernier resort after medicine, and the skill of the [medical] faculty have failed, and when the disease, in consequence, has advanced to such a state, as not to be subdued by human means (Perkins 1800a, p. xlvi).

In another diversionary tactic, Perkins acknowledged that the evidence presented by Haygarth might convince individuals who were new to this issue that the tractors were ineffective, but then claimed that Haygarth had failed to address the supposed anecdotal cures in horses and infants or the supposed ability of the tractors to cure epileptic fits, inflammations, and tumefactions (i.e., swellings or tumorous growths) (Perkins 1800a, p. xl). This is an application of the “moving the goalposts” fallacy, an informal fallacy in which evidence presented in response to a specific claim is dismissed and some other (typically greater) evidence is demanded. Perkins apparently did not expect Smith to then immediately address the shifting target with further trials of the genuine instruments in subjects who would not be deemed to be subject to influences of the “imagination”, i.e., infants and horses. Haygarth was happy to include these results in a later edition of his monograph, “*Of the Imagination as a Cause and as a Cure of Disorders of the Body; Exemplified by Fictitious Tractors, and Epidemical Convulsions*” (Haygarth 1801), and they, not surprisingly, provided no evidence that the tractors had any therapeutic effect in such subjects.

10. Refuting the Central Point (DH6)

What exactly were the central points of the trialists? First, that the results achieved with the application of the tractors and of sham instruments were indistinguishable, and second, that the apparent benefits of the tractors were, therefore, due to suggestion by the administrator and the resulting imagination of the subjects. The trialists failed to appreciate that they had already conceded that there were, in fact, apparent benefits of the *process* of tractoration. They had simply dismissed such benefits as inconsequential because they could not be attributed to some intrinsic property of the tractors themselves and were, therefore, presumably due to the imagination of the recipients.

The Perkinists, of course, could not refute the first central point of the trialists without conducting a similar trial that produced opposing results, or finding a fatal flaw in the conduct to the trials that obviated the conclusions made by the trialists. The Perkinists could, however, refute the trialists’ actions concerning their second central point. If imagination is so powerful, why *not* use it as a therapy?

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,
 To alleviate the woes of human kind;
 Life’s darkest scenes with radiant light to cheer,
 Wipe from the cheek of agony the tear.

(Fessenden 1803, p. xxx; 1806b, p. xxxii)

That though imagination cures,
 With aid of a pair of patent skewers,
 Still such relief cannot be real,
 For pain itself is all ideal.

—Christopher Caustic, M.D., A.S.S.

(Fessenden 1803, pp. 97–98; 1806a, pp. 163–64)

In response to Haygarth’s charge that the apparent benefits of the tractors were due to suggestion and the imagination, Perkins counterclaimed that *failure* to use the proven beneficial effects of the imagination is not only unethical, but *negligent*:

Nay, it shall not be my part to give an opinion of the views of Dr. H[aygarth] . . . respecting his new discovery, that the imagination can produce effects on the human body. I must not do that violation to reason, as to suppose that the learned Dr. H[aygarth] should not have before had a knowledge of this fact; and indeed that an operation on the mind will and has a thousand times been recorded to

produce greater effects than those he has stated. . . . And here let me ask, why a remedy, which possesses such powers, which is capable of rendering such services, is not adopted? Can there be found, in human form, any base enough to abuse the confidence reposed in him, and, from motives palpably lucrative, prefer consigning a patient to disease and death, rather than adopt an innocent and simple operation on the mind, which would so easily and expeditiously restore him to health. . . . To believe that the imagination will perform the cures in the innocent manner which thousands have attested are done by the Patent Metallic Tractors, and not to employ the imagination in preference to internal medicines, which at all times, it is admitted, are not administered without some hazard, is a crime which, for the honour of human nature, it is earnestly to be wished, might be chargeable but to [a] few (Perkins 1800a, pp. xli–xlii).

Although Fessenden, ever the loyal acolyte, was one of the most vociferous who leveled such fallacy-laced attacks on anti-Perkinist physicians (Fessenden 1803, 1804, 1806a), Fessenden was apparently oblivious to Perkins' predatory behavior toward desperate and gullible individuals, himself included. Fessenden apparently did not recognize Perkins' fraud even after Perkins skedaddled back to the United States in the fall of 1803, taking with him an amazing fortune of GBP 10,000—worth about GBP 1.3 million (or USD 1.6 million) in 2023.²⁷ Indeed, Fessenden continued to update his attacks on the anti-Perkinists through 1806.

[W]hen we next find that Dr. H[aygarth] and his adherents, whose duty it is to cure diseases in the most *safe, cheap, and expeditious* manner anathematize the tractors, because they cure diseases (as they pretend to suppose) by an operation on the *imagination* (a pleasant remedy!)—when they exclaim against the tractors, and assert that no confidence is to be placed in their effects, because the *modus operandi* is not explained and demonstrated, like a mathematical problem, although the *modus operandi* of the best and most approved medicines in the *materia medica* is even more inexplicable—when we find it objected to the tractors, that the testimony of those who support the discovery is not admissible, nor satisfactory, although such testimony is, in every sense, preferable to that on the other side of the question, inasmuch as it is from learned and disinterested men, many of them medical characters, retired on their fortunes from business—it is difficult to show the ridiculous conduct of the part opposed to Perkinism. . . (Fessenden 1806a, pp. xxiii–xxix).

An anti-physician anecdote recounted by Fessenden argued that, since patients reported benefits from tractoration, some good had clearly been done, while physicians did little good with their drugs and other remedies and yet charged a great deal more (Fessenden 1803, pp. 104–5; 1806a, pp. 168–69). Moreover, why, if Haygarth was aware that a placebo effect could be produced to relive suffering, was he loath to employ this helpful remedy? Fessenden translated from a French publication (Anonymous 1802) to obfuscate the origin of the tale, which actually originated with and was likely fabricated by Benjamin Perkins (Perkins 1801c). This concocted anecdote is, therefore, fake news, i.e., false or misleading information presented as news.²⁸ Nevertheless, Perkins' application of fake news as medical propaganda is enlightening.

A gentleman came from the country to London for the advantage of medical assistance, in a complaint of peculiar obstinacy and distress. After being under the care of an eminent physician several weeks, and paying him upwards of thirty guineas, without any relief, he was induced to try the tractors. To be short, they performed a remarkable cure; the person was perfectly restored in about ten days. The physician, calling soon after, was informed of the circumstance. He began lamenting that so sensible a person as the patient should be caught in the use of so contemptible a piece of quackery as the tractors. After assuring the patient that he had thrown away his five guineas [for treatment with the tractors], for that it

was well established by Dr. Haygarth, that a brick-bat, tobacco-pipe, goose-quill, or even the bare finger, would perform the same cures, he was interrupted by his patient: 'And are you sincere in your belief that you could have produced, by those means, the same effects upon me, which I have experienced from the tractors?' 'Do I believe it?' Ay, I know it; and that a thousand similar cures might be effected by means equally simple and ridiculous.— 'And sir,' interrupted the gentleman again, in a more stern and serious tone, 'why did you not cure me then by those *simple* means? Remember I have paid you thirty guineas, under the supposition that you were exerting your utmost endeavours to cure me, and that in the most safe, cheap, and expeditious manner. You now in substance acknowledge, that, although in possession of the means of restoring me to health, for the dishonourable purpose of picking my pocket, you continued me upon the bed of sickness! Who turns out to be the imposture? Let your own conscience answer (Fessenden 1803, pp. 104–5; 1806a, pp. 168–69).

In the guise of Christopher Caustick, M.D. A.S.S., Fessenden set the above theme to quatrains of paired couplets (i.e., an AABB rhyme scheme):

What though they say, why to be sure,
 If we by Fancy's aid can CURE,
 Then why not use imagination,
 A cheap and simple operation? . . .
 Say nature through her works intends
 All things to answer some great ends:
 thus she form'd drugs to purge and shake,
 Then man, of course those drugs to take.
 That learn'd physicians pine with hunger,
 The while a spruce young patent-monger
 Contrives to wheedle simple ninnies,
 And tractorize away our guineas.

(Fessenden 1803, pp. 101–4; 1806a, pp. 167–69)²⁹

Unlike even the testimonials, none of the individuals in this story are identified, and there is an unrealistic recording of the dialogue that supposedly transpired. Nevertheless, the story has components that can be considered an ad hominem argument against physicians (as it attacked their character on multiple fronts), as well as a curious form of counterargument that seemed to accept the findings and conclusions of Haygarth and colleagues. The twist, though, was that, if imagination is so powerful and effective, orthodox physicians should be employing similar techniques rather than abusing their patients with the expensive, ineffective, unpleasant, and often harmful treatments they were accustomed to using.

However, despite the smokescreen by the Perkinists, Haygarth had not, in fact, entirely dismissed facilitating imagination as a potential therapeutic consideration, and indeed had concluded that imagination (and, by implication, suggestion) was a powerful therapeutic factor, although his recommendations for using this in practice were quite subtle:

[These various experiments] prove . . . that the Imagination can cause, as well as cure, diseases of the body. They clearly establish one rule of medical practice which has always appeared to me highly important. In the best manner possible a patient ought to be always inspired with confidence in any remedy which is administered. . . . These trials . . . clearly prove what wonderful effects the passions of hope and faith, excited by mere Imagination, can produce upon diseases. On this principle we may account for the marvelous recoveries frequently ascribed to empirical remedies, which are commonly inert drugs, and generally applied by the ignorant patient in disorders totally different from what the quack himself pretends that they can cure. Magnificent and unqualified promises inspire weak minds with implicit confidence (Haygarth 1801, pp. 31–32).

11. The End of the Fad: Ridicule and Reflection

Anti-Perkinist physicians (as opposed to the scientifically oriented trialists who maintained a largely professional decorum) began satirizing the tractors shortly after the publications of Haygarth and colleagues from 1799 to 1802. One notably savage example was the “Whimsical Hand-Bill distributed at the Preston Masquerade”³⁰ on 10 September 1802 (Tuket 1882a, 1882b), by English physician Samuel Argent Bardsley, M.D. (1764–1851), physician to the Manchester Infirmary, in the character of a quack doctor (with some overtones of British colonial racism) (Bardsley 1802, 1803): According to one personal account, “The most spirited and successful candidate for public notice was that of a Quack Doctor [i.e., Benjamin Perkins], undertaken by Dr. Bardsley, of Manchester, whose apposite eloquence gave a ready circulation to his hand-bills” (Abram 1882, p. 116). Bardsley satirized Benjamin Perkins as a preposterous quack and provided a different and intentionally absurd origin myth for the tractors based on the supposed “sympathetic attraction subsisting between metals and maladies” and “the transmutation (by a new kind of alchemy) of the baser into more precious metals” (Bardsley 1802, 1803):

The justly far-famed and highly celebrated Dr. von³¹ Isaac Slaukenbergius, High German, Hebrew Doctor; Seventh son of a seventh son,³² unborn Doctor,³³ educated at twelve universities, and who has travelled through fifty-three kingdoms, and been counsellor to counsellors of several monarchs; takes this public method of announcing his arrival at the present period of the celebration of that renowned gala, the Guild at Preston.³⁴ The Doctor submits to a discerning public the following cursory statement of a *few* of those *rare medical secrets*, which he has discovered, in consequence of his great pains, long travels, and nocturnal lucubrations [i.e., studies]. . . . His *Sympathetic Tractors, or Metallic Conundrum*.—The Doctor justly claims to himself the invention of metallic tractors, while he resided at the court of the monarch of Pegu [in Burma, now Bago, Myanmar].³⁵ The King had unfortunately swallowed a knife, which the ignorant physicians of his court intended to dissolve by aqua fortis [i.e., nitric acid]. Stuck with the horror at the injury likely to arise to the coats of his Majesty’s stomach, from this highly corrosive fluid, the Doctor invented a sympathetic tractor, of such energetic powers, that, by gently drawing it along the surface of the body, it *attracted* the dangerous weapon, to *where* it might be safely and expeditiously *extracted*; which operation was performed to the no small joy and surprise of his Majesty and all the Royal Family! This wonderful experiment laid the foundation for many others, which have demonstrated (at the moderate price of only five guineas) the sympathetic attraction subsisting between metals and maladies; and likewise the transmutation (by a new kind of alchemy) of the *baser* into more *precious* metals (Bardsley 1802, pp. 293–94; 1803, pp. 352–53).

Benjamin Perkins returned to the United States in 1803. The enthusiasm of even his most ardent supporters soon faded, and jibes from British physicians increased. German-borne physician Anthony Florian Madinger Willich (d. 1804), then living in London, wrote in contemptuous amazement of “the strange infatuation of the opulent to pay *five guineas* for a pair of metallic tractors, not worth a six-pence” (Willich 1809, p. 80). By 1809, British physician Robert Thomas had written with relief that “The delusion has . . . at length ceased, and these baubles [tractors] are now seldom heard of” (Thomas 1809, p. 187).

A Bristol physician, G. Kentish, reflected insightfully that the ergo hoc propter hoc fallacy was a major driver of Perkins’ testimonials, whereas the only approach that could give a clear idea of efficacy would have been a comparative trial. Anecdotes of “cure” following treatment were insufficient: truly efficacious treatments must improve upon the natural history of the disease:

A gentleman was scalded, and he used Perkin’s tractors; he got well, and recommended the tractors in all cases. Was he capable of judging? . . . Dr. Warwick, to convince him of their inutility, allowed both [of] his hands to be scalded; the

one was tractorised, and other done nothing to; the pain of each was equal, and they went through the curative process in the same time. To please the patient or practitioner in the cure of a disease may be delusive, but to know that you have been instrumental in aiding Nature, requires a knowledge of her law in that disease, and to know what she would have done without your assistance. When the comparative effects of different treatment in the same disease are fairly made, we may surely then expect to arrive at the first principles on which the treatment of such diseases ought to be conducted (Kentish 1806, p. 9).

By 1807, the fad of Perkinian tractoration was a matter of widespread ridicule and farce among British Romantic era poets and the general public (Alvarez Espriella 1807; Anonymous 1807; Byron 1809a; “K” 1809). For example, the English Romantic poet Robert Southey (1774–1843), writing as the fictitious Spaniard Don Manuel Alvarez Espriella in *Letters from England* (1807), concluded:

The credit for this invention is due to America; it must be admitted that the inventor [of the tractors] has the honour of having levied a heavier tax upon credulity than any of his predecessors ever dared attempt. . . . Many cures have certainly been performed by them, and how those cures are performed has been as certainly exemplified by some very ingenious experiments which were made at Bath and Bristol. Pieces of wood, and others of common iron, shaped and coloured like the tractors, were tried there upon, some paralytic patients in the Infirmary. The mode of operating consists in nothing more than in gently stroking the part affected with the point of the instrument, and so, according to the theory, conducting off into the atmosphere the galvanic matter of pain! It is impossible that where there is no sore this can give any pain whatever, yet the patients were in agonies. One of them declared that he had suffered less when pieces of the bone of his leg had been cut out,—and they were actually enabled to move limbs which before were dead with palsy.—False relics have wrought true miracles (Alvarez Espriella 1807, p. 233).

John Nichols (1745–1826), the editor of *The Gentleman’s Magazine: and Historical Chronicle*, under the pseudonym Sylvanus Urban,³⁶ suspected correctly that the supposed Spanish author was actually the contrivance of a British writer, but nevertheless noted the potential utility of the writer’s insights concerning quackery and, particularly, Perkins’ tractors (Urban 1808, p. 1172). Nichols concluded that the letter “is calculated to be of infinite service to those who are alive to the force of ridicule, and enjoy a very small portion of that universal blessing: common sense”—a blessing that could hardly be considered universal, as he felt it was present in only 10% of the population (Urban 1808, p. 1172). Nichols found it impossible to imagine that anyone reading Alvarez Espriella’s “satirical exposure of the tractors” would ever use the tractors again (Urban 1808, p. 1172).

Finally, the English Romantic poet Lord Byron (George Gordon Byron; 1788–1824), in his satirical poem *English Bards and Scotch Reviewers* (1809), written as a scornful literary “counter-attack” against a negative review of his first published volume of poetry, dismissed the “Tractors” as an outmoded fad along with galvanism of corpses as a means of resuscitation, with nitrous oxide “gas” in “laughing gas parties”, and erroneously with cowpox vaccination for smallpox (Byron 1809b; Galassi et al. 2022).³⁷

Thus saith the Preacher: “Nought beneath the sun
Is new”, yet still from change to change we run.
What varied wonders tempt us as they pass!
The Cow-pox, Tractors, Galvanism, and Gas,
In turns appear, to make the vulgar stare,
Till the swoln bubble bursts—and all is air!

(Byron 1809b, lines 123–128, pp. 9–10)

12. Discussion

Although the explanation of Perkinian acolytes regarding the “Metallic Practice” were vague, mystical, largely incomprehensible, and scientifically unsupportable, the father-and-son dynasty of quack-profiteers held tremendous influence over their patients and disciples with their empirically developed *psychotherapeutic* techniques. The specific therapy for which they advocated—even if lacking a supportable theoretical foundation or valid evidence of efficacy—was certainly *believed* to be extremely beneficial by numerous patients and carried little evident risk of physical harm.

Although one should not accept either such beliefs or the numerous collective anecdotes of (even sometimes dramatic or even miraculous) therapeutic benefit as being adequate evidence of efficacy of some aspect of global treatment, Haygarth and colleagues did not (as Fessenden charged with merit) sufficiently consider or address the potential intentional therapeutic potential of employing suggestion or the imagination in orthodox practice—an example of the “tomato effect”, whereby an efficacious treatment is rejected because it does not conform to prevailing concepts of disease pathogenesis.³⁸

Not all Perkinian quacks were of the same type (Jarvis 2001). Elisha and Benjamin Perkins were both probably charlatans (deliberate fakers), or at least health hucksters (entrepreneurs exploiting the gullible), as was Langworthy, while Fessenden was a misguided and deluded crank (i.e., an eccentric person who believes his own crackpot ideas).

13. Comparison with the Earlier Controversy over Mesmerism

The propaganda techniques employed by Perkinists were anticipated by advocates of Mesmerism in response to the clinical trials of that fraudulent therapy in 1784 (Franklin et al. [1784] 1997, Franklin et al. [1784] 2002a, Franklin et al. [1784] 2002b; Lanska and Lanska 2007, 2014).

Around 1775, German physician Franz Anton Mesmer (1734–1815) had begun promulgating “animal magnetism” as a pervasive property of nature that could be channeled as an effective therapy for a wide variety of conditions (Mesmer [1779] 1948, [1779] 1980, 1781; d’Eslon 1780; Lanska and Lanska 2007, 2014). Mesmer claimed that virtually any object could be magnetized and used therapeutically, for example by filling containers with this previously unrecognized magnetic material and then directing it at subjects (even through other people or walls) to produce seemingly miraculous cures for a wide range of conditions. His claims of dramatic therapeutic success with channeling “animal magnetism” to induce mesmeric crises were supported by glowing testimonials, in some cases obtaining endorsements from socially prominent individuals. However, mainstream medical practitioners, professional societies, and political bodies rejected Mesmer and his treatment, and ultimately moved to curtail or preclude Mesmer’s practice and that of his disciples. In frustration, Mesmer charged that if his techniques were disseminated among even a small group of physicians, the medical profession would be forced to see him and his disciples as dangerous enemies who threatened their profits, and in their greed would attempt to undermine and destroy his doctrine (Pattie 1994).

Mesmer was able to recruit only one disciple of high professional and social standing—Dr. Charles d’Eslon or Deslon (1750–1786). In 1780, to combat the lack of acceptance of animal electricity in professional circles, d’Eslon proposed to the Faculty of Medicine, on behalf of Mesmer, a comparative trial of animal magnetism versus conventional medical therapy. d’Eslon selected three physicians to observe Mesmer’s work every two weeks over a period of seven months; however, the doctors remained unconvinced of the benefit of animal magnetism and could not decide how many of the apparent cures could be attributed to treatment and how many resulted from spontaneous recoveries. When d’Eslon defended Mesmer to the Faculty of Medicine and wrote a book supporting Mesmer’s therapy (d’Eslon 1780), the Faculty became openly hostile and unanimously censured d’Eslon.

By the mid-1780s, the popularity of Mesmerism among the public alarmed physicians and the government (Lanska and Lanska 2007). By then, orthodox practitioners did indeed see Mesmer as an economic threat to their own practices. Moreover, the monarchy, nobility,

and police also began to see Mesmerism and its secret societies as a threat, especially as some revolutionary agitators among Mesmer's adherents opposed the established order of the *ancien régime* and helped to propagate subversive ideas (Darnton 1968). The controversy over animal magnetism escalated with open dissent among Mesmer's disciples and increasing hostility from academic and professional groups. Eventually, King Louis XVI (1754–1793), concerned with the intensifying controversy, established a Royal Commission of the Royal Academy of Sciences and the Faculty of Medicine to evaluate Mesmer's claims.

The Royal Commission, often designated the "Franklin Commission" because American diplomat and scientist Benjamin Franklin (1706–1790) was the first author of the report, ignored Mesmer's poorly formulated theory and focused instead on the observable immediate effects of animal magnetism on subject behavior (Franklin et al. [1784] 1997, Franklin et al. [1784] 2002a, Franklin et al. [1784] 2002b; Lanska and Lanska 2007, 2014). The Commission evaluated animal magnetism using carefully designed, controlled experiments, actively intervening to systematically isolate and independently vary possible explanatory factors while holding all other factors constant. The Commission's evidence supported their hypothesis that the effects attributed to animal magnetism were due to the subjects' own expectations of magnetization ("imagination"), and clearly refuted any independent effect of animal magnetism: subjects developed characteristic mesmeric crises *if and only if* they expected to be magnetized, regardless of whether they were actually magnetized. The scientific approach used by the Franklin Commission had never before been applied to the evaluation of a medical therapy and served to inaugurate a more critical approach to therapeutic assessment in the 19th century, as was the case with the controlled trials of Perkins' tractors by Haygarth and colleagues (Wilkinson 1799; Alderson 1800; Haygarth 1800a, 1800b, 1801; Thornton 1800; Richardson 1802; Lanska 2019b).

Proponents of animal magnetism mounted a counterattack to the Commission report using a barrage of hundreds of lay articles and pamphlets, including scornful critiques of the Commission report and compilations of testimonials (Lanska and Lanska 2007). Mesmer threatened to leave France to avoid the spreading conflicts but was persuaded by supporters to stay at least temporarily so his departure would not imply his acceptance of the Commission's findings. Despite the propaganda efforts of the adherents of Mesmerism, the Commission's report soon caused a marked decline in public interest in animal magnetism in Paris. Later satire and ridicule of animal magnetism further eroded support for Mesmer (Lanska and Lanska 2007, 2014). Nevertheless, Mesmer continued to practice animal magnetism there for a short time, in a greatly diminished capacity, while trying to arrange an alternative evaluation of his own patient outcomes (as opposed to those of his disciple, d'Eslon). On 29 April 1785, eight months after the Commission report was published, Franklin wrote a letter to his friend, Dutch-born British physician and scientist Jan Ingenhousz (1730–1799)³⁹:

Mesmer continues here and has still some Adherents and some Practice. It is surprising how much credulity still subsists in the World. I suppose all the Physicians in France put together have not made so much money, during the Time he has been here, as he alone has done! (Franklin 1818, p. 159; also quoted with a few discrepancies in Duveen and Klickstein 1955, p. 301; Pattie 1994, p. 229).

Soon thereafter, Mesmer left Paris and lived the rest of his life in relative obscurity.

14. Comparison with a Modern Controversy over an "Elaborate Placebo": Acupuncture

The same techniques used by Perkinists have frequently been employed up to the present to promote or defend illegitimate therapies (whether promoted through fraud or ignorance), as evidenced, for example, by the 21st-century controversy over acupuncture, another instrument-based therapy with remarkable parallels to the history of Perkins' tractors (National Center for Complementary and Integrative Health 2019). Acupuncture lacks a plausible mechanism other than the placebo effect (Novella 2010), as even most proponents acknowledge, and there is no convincing historical or experimental evidence

that either acupuncture “points” or “meridians” exist as discrete entities in humans or animals (Ramey 2000, 2001, 2005; Ramey and Buell 2004). Clinical trials (and meta-analyses focusing on trials with sham controls) have shown that “genuine” or “real” acupuncture is no more effective than sham acupuncture, yet *both* real acupuncture and sham acupuncture are apparently more effective than no treatment (Brinkhaus et al. 2006; Haake et al. 2007; Cherkin et al. 2009; Madsen et al. 2009; Berman et al. 2010). A specific therapeutic efficacy of acupuncture, if any, is not evident, while any clinically relevant benefits are “mostly attributable to contextual and psychosocial factors, such as patients’ beliefs and expectations, attention from the acupuncturist, and highly focused, spatially directed attention on the part of the patient” (Berman et al. 2010, p. 458)—or, in other words, the benefits of acupuncture are attributable to a placebo effect associated with the healing ritual, augmented by the novelty and exotic nature of the treatment (Kaptchuk 2002; Miller and Kaptchuk 2010).

At least in the modern era, physicians, governmental agencies (e.g., the U.S. Food and Drug Administration), and insurance programs (including governmental programs such as Medicare in the United States) have generally required evidence of specific efficacy for a treatment to be accepted and recommended, usually based on demonstrated superiority to placebo in double-blind, randomized controlled clinical trials. According to the results of various trials with sham controls, acupuncture has little or no specific *efficacy* (i.e., superiority over placebo controls), while it does have significant clinical *effectiveness* (i.e., apparent clinical benefits compared to established treatment under “real-world” practice conditions)—exactly the same situation as was presented with the induction of Mesmeric crises by Mesmer and his disciples beginning around 1775 (Mesmer [1779] 1948; [1779] 1980, 1781; d’Eslon 1780; Lanska and Lanska 2007, 2014), and, subsequently, the introduction of tractoration by Elisha Perkins beginning in 1795 (Lanska and Lanska 2007, 2014; Lanska 2019a, 2019b). However, because of an increasingly patient-centered focus on the *effectiveness* (rather than *efficacy*) of symptomatic treatment, acupuncture has garnered support from legislative bodies, healthcare-funding agencies, and professional organizations as a possible treatment option, even though it has demonstrated *no benefits beyond those of a placebo* (Berman et al. 2010; Li and Kaptchuk 2011). Frustrated critics have labeled support of this “elaborate placebo” as “credulity”, “nonsense”, “pseudoscience”, “quackademic medicine”, “legalized quackery”, “legislative alchemy”, and similar pejorative terms (Crislip 2010; Gorski 2010a, 2012; Novella 2010; Bellamy 2012, 2013).

At the same time, individuals who present scientific critiques of acupuncture and other alternative remedies have been subjected to recurrent ad hominem attacks (Gorski 2010b), just as occurred with Perkins’ tractors. Ad hominem attacks are a logical fallacy, but quacks and cranks use them because they work, readily swaying the views of the more credulous public and often intimidating critics into silence. Indeed, experimental evidence shows that attacking the motives of scientists is just as effective in undermining acceptance of their findings as an evidence-based attack that suggests the science itself is flawed (Barnes et al. 2018). Moreover, conflict-of-interest allegations may be just as influential in swaying public opinion as allegations of outright fraud (Barnes et al. 2018). Such propaganda considerations have notably recurred over legitimate prevention methods and illegitimate therapies during the COVID-19 pandemic (Freckelton 2020; Bramstedt 2021; Mackey et al. 2021).

15. Conclusions

Advancing the armamentarium of efficacious and effective therapies is truly a Herculean task. Among the many challenges are countering the fallacy-ridden, but highly effective, methods quacks use to argue their cases in the court of public opinion, tactics that have persisted with remarkably little change for centuries, as demonstrated by the history of Perkins’ tractors. Perkinist charlatans and hucksters intentionally misled patients to accept an expensive quack therapy that acted solely by suggestion while failing to address their underlying pathologies. Perkinists promoted tractoration based on testimonials and deceptive marketing tactics, with dissemination facilitated by endorsements from promi-

nent physicians, politicians, and clergymen; by quasi-theoretical, handwaving explanations of efficacy; and by the apparent simplicity and safety of the procedure. In addition, in flowery prose or poetry, satirical caricatures, promotional literature employing a string of logical fallacies, a barrage of attention-seeking but conceptually weak arguments that failed to address the central point, and much hand-waving, Benjamin Perkins, Thomas Green Fessenden, Charles Langworthy, and other Perkinists sought to use propaganda to undermine the scientific evidence from placebo-controlled clinical trials that the tractors had no intrinsic beneficial properties.

Perkinists presented testimonials with the repetitive mantra that the treatment was applied, and the patient then got better; therefore, the treatment was the cause of the improvement (i.e., the post hoc ergo propter hoc fallacy). They itemized as many testimonials as possible, implying that these individuals could not *all* be wrong, and, therefore, that the “Metallic Practice” *must* be useful (i.e., the argumentum ad populum fallacy).

Perkinists selectively appealed to authority—professionals, ministers, and former soldiers who ascribed to the therapy—even though well-educated and presumably honest individuals can be misled into making silly mistakes. They further argued that the anecdotal testimony of such “learned and disinterested men” should be accepted over scientific trials performed on “ignorant and miserable paupers of an infirmary, whose credulity will assist very much in operations of this sort”—weighting collections of hand-picked opinions over the scientific method and strong beliefs over sound evidence (i.e., cherry-picking or card-stacking propaganda) (Fessenden 1803, p. 83; 1806a, p. 150).

Perkinists set up a false equivalency between the tractors and orthodox medical therapies (whose mechanisms were often not understood); the implication was that, since the mechanisms underlying orthodox therapies were incompletely understood and yet they were nevertheless accepted as efficacious, the tractors should similarly be accepted as efficacious.

In addition, the Perkinists propagated conspiracy theories that the powerful institution of orthodox medicine viewed them as a threat to physician autonomy, prestige, and income, and, therefore, wanted to suppress the miraculous remedy of tractoration to the immense detriment of the public.

Perkinists charged that orthodox medicine in that era was often unpleasant and harmful, while the tractors were well-tolerated and had little evident risk. While Perkinists were correct on this point, the real value of a treatment is not measured by its absolute risk, but by the balance between benefit and risk: a risky life-saving operation might still be worth the risk given the large potential benefit, while even a miniscule risk cannot justify a non-beneficial therapy.

Despite their valid approach to evaluating the intrinsic efficacy of a proposed treatment, the physician investigators of Perkins’ tractors were perhaps too ready to prove that Perkinism was misguided or fraudulent, and consequently missed an opportunity to consider whether and how suggestion and the placebo effect could be harnessed as a therapeutic tool in orthodox medical practice. Fessenden argued with merit that, since the anti-Perkinists had decided that suggestion and the imagination were responsible for the acknowledged effects of tractoration, the trialists were negligent in dismissing this means of helping their patients. Haygarth did appreciate the power of suggestion but saw its potential therapeutic use in orthodox medical practice mainly in the confidence physicians gave to the therapies they recommended (inspiring patients “with confidence in any remedy which is administered”). However, even this use of suggestion was uncomfortably close to the methods used by quacks to persuade orthodox practitioners to incorporate suggestion into their practices.

Regardless of the scientific evidence, patients who have continuing pain are “unlikely to care whether [pain relief] derives from the inherent ability of a treatment to modify pathophysiology or its propensity to promote a significant placebo response” (Miller and Kaptchuk 2010). Sometimes it is the ritual that matters.

The propaganda marketing tactics employed by quack Perkinists to defend their fraudulent practice against the onslaught of opposing clinical trials by physicians had antecedents in the propaganda employed by Mesmerists and their adherents in Paris, particularly in response to the French Royal Commission in 1784. Moreover, these propaganda tactics have not substantially changed in more than 200 years after the Perkinian controversy in Britain (1799–1806), as evidenced, for example, by the propaganda dispensed by adherents of acupuncture in response to negative clinical trials and adverse medical critiques (especially since 2000) and by supporters of untested, unsafe, and ineffective “therapies” promulgated during the COVID-19 pandemic (late 2019 to May 2023).

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Notes

- ¹ Dr. Elisha Perkins Sr. was born on 6 January 1741, in Norwich, New London, Connecticut Colony, British Colonial America to Joseph Perkins Jr. (1704–1794) and Mary Bushnell (1707–1795). His father, his older brother Joseph (1733–1775) of Lisbon, Connecticut Colony, and his maternal grandfather, Caleb Bushnell (1679–1723/1724) of Norwich, Connecticut Colony, were all physicians (Perkins 1860; Caulkins 1874). He married Sarah Douglas (1744–1795) on 23 September 1762, in Plainfield, Windham, Connecticut Colony, British Colonial America. They were the parents of at least eight sons and five daughters. Perkins served as a surgeon for the Continental Army during the Battle of Bunker Hill in the Siege of Boston during the American Revolution. Perkins was an orthodox physician until around 1795, when he shifted to promoting a quack therapy of his own invention (“metallick Tractors”) as a panacea. In 1798, after the fad for the tractors faded in the United States, Perkins claimed to have discovered a cure for yellow fever that combined his tractors with administration of an antiseptic, consisting of vinegar (acetic acid) with muriate of soda (i.e., sodium chloride or common salt). Perkins touted his yellow fever “cure” in New York City during an outbreak in 1799, but unsurprisingly, his treatment had no effect; instead, Perkins himself contracted yellow fever and died, despite his “cure”, on 6 September 1799, in Manhattan, New York, at age 58.
- ² A testimonial is a person’s written or spoken statement extolling the virtue of a product. The term “testimonial” applies to the sales-pitches targeted to ordinary citizens, whereas “endorsement” usually applies to pitches by celebrities, i.e., individuals with broad name recognition who are assumed to be knowledgeable and trustworthy authorities. Quacks also recognized the value of “plain folks” testimonials, i.e., using regular people to advertise a product, because this demonstrates that regular people use and value the treatment and encourages them to use their limited means to obtain such a valuable commodity.
- ³ Benjamin Douglas Perkins was born on 24 June 1774, in Plainfield, Windham, Connecticut Colony, British Colonial America to Dr. Elisha Perkins Sr. (1741–1799) and Sarah Douglas (1744–1795). He had at least three sons and one daughter with Mary Lindley Murray (b. 1784). He was a charlatan, responsible for bringing Perkins’ tractors to Great Britain in 1798, after the fad for their use had waned in the United States. He was only about 24 years old when he went to Britain, but within six years amassed a huge fortune. He returned to the United States in 1803 and died in New York City seven years later, on 13 October 1810, at age 36.
- ⁴ “Our ancestors were a nostrum-loving race from the king to the cottager, and the history of panaceas and specifics, in the form of elixirs, pills, powders, and waters, would form a large volume of humiliating memorials, of the credulity of the public who could swallow them, and the infatuation of the physician who could prescribe them” (Wadd 1827, pp. 151–52).
- ⁵ The guinea was the first English machine-struck gold coin, minted in Great Britain between 1663 and 1814. It contained approximately one-quarter of an ounce of gold, originally representing a value of 20 shillings in sterling specie, equal to one pound, but its value initially fluctuated with changes in the price of gold relative to silver. From 1717 to 1816, which includes the entire Perkinian era, its value was officially fixed at twenty-one shillings or GBP 1.05 (Hooker 1850, p. 18). Estimates of the cost in current pounds and dollars of a pair of tractors are based on annual estimates of the composite price index for Great Britain from the UK Office of National Statistics from 1803 to 1987, and the Office of National Statistics Consumer Price Index from 1988 to 2023. Source: Webster, Ian. UK Inflation Calculator. <https://www.officialdata.org/UK-inflation> (accessed 31 December 2023).
- ⁶ Two previous articles addressed the early history of Perkins’ Tractors in the United States and the controlled trials by John Haygarth and colleagues in Great Britain (Lanska 2019a, 2019b).
- ⁷ Latin for “to the man” or “to the person”, and meaning attacking the arguer rather than the argument.
- ⁸ Black propaganda seeks to create the impression that it was created by those it is supposed to discredit.
- ⁹ Apart from his involvement with Perkins, Langworthy is most notable as the proprietor of a notorious mental asylum at Kingsdown House in Box, England, about six miles from Bath. Langworthy began admitting patients there in 1798, the same year he became an agent for Perkins and took up the “Metallic Practice” in conjunction with his surgical practice. Langworthy ran this solely as an additional source of income without regard for the quality of life of the mentally ill patients admitted there (Select Committee of the House of Commons, on Madhouses in England 1815a, p. 21; 1815b, pp. 297–98; Metropolitan Commissioners in Lunacy 1844, pp. 46, 60, 67, 139, 288). For example, Edward Wakefield (1774–1854), a philanthropic reformer who combined his

travels as a land agent with the inspection of madhouses, visited Langworthy's madhouse on 28 September 1814 and gave a clear account of the atrocious conditions in which the patients were kept. On 3 May 1815, he testified to the House of Commons Committee on Madhouses in England that, at Langworthy's House, there were forty patients and nine servants. He did not see the men because it was a day when they were not allowed up, but he did see two women who were nearly naked on straw in a cellar and heard others confined in a completely dark room. When Wakefield inquired whether blanket gowns were used with the patients, Langworthy reported that in winter he "sowed them up in a blanket" (*Select Committee of the House of Commons, on Madhouses in England 1815a*, p. 21; *1815b*, p. 298). Wakefield concluded that, "I think in the course of my visiting these places I never recollect to have seen . . . living persons in so wretched a place" (*Select Committee of the House of Commons, on Madhouses in England 1815a*, p. 21; *1815b*, p. 297). Conditions there did not improve over time with Langworthy's continued proprietorship. With formal inspections in 1842 and 1844 (when there were 137 patients), the Metropolitan Commissioners in Lunacy and visiting justices found that restraint use had been "improper and unjustifiable", "excessive and highly censurable", and "harsh and cruel", with patients observed in strait waistcoats, iron frames, hand-locks, leg-locks, and chains (*Metropolitan Commissioners in Lunacy 1844*, pp. 60, 67, 139, 288). The Commissioners found Langworthy's madhouse "unfit for the proper care of the insane" and considered it one of eleven asylums and licensed madhouses that "deserve almost unqualified censure" (*Metropolitan Commissioners in Lunacy 1844*, pp. 46, 139).

- 10 A type of comic narrative poetry consisting of eight-syllable rhyming couplets. It is named after English author Samuel Butler's (1835–1902) satirical poem *Hudibras* (published in three parts in 1663, 1664 and 1678), which used deliberately absurd, iambic tetrameter couplets to ridicule and attack the Puritans.
- 11 Among his other satirical works was the alliteratively titled, *Pills, Poetical, Political, and Philosophical, Prescribed for the Purpose of Purging the Public of Piddling Philosophers, Penny Poetasters, of Paltry Politicians, and Petty Partisans*, by Peter Pepperbox, Poet and Physician (1809).
- 12 Phial—a glass vessel or bottle, especially a small bottle for medicines. Sconces—heads or skulls.
- 13 This foreshadowed the dubious 20th-century notion that "There is no such thing as bad publicity." While this expression is often attributed to 19th-century American showman and circus promoter P.T. Barnum (1810–1891), no documentary evidence exists to support this. The expression appears to have been introduced in the early 20th century under the influence of Edward Louis Bernays (1891–1995), an American pioneer in public relations and propaganda. Among his best-known campaigns was a 1929 effort to promote female smoking by branding cigarettes as feminist "Torches of Freedom." His books *Crystallizing Public Opinion* (1923) and *Propaganda* (1928) were important early efforts to define and theorize the field of public relations.
- 14 *The Whole Duty of Man* was an English high church devotional work, first published anonymously in 1658, that was popular and influential for two centuries in the Anglican tradition.
- 15 *Eloise de Montblanc* was a four-volume novel written by an anonymous author and published in 1796.
- 16 Paul Graham, Ph.D., is an English-born computer scientist, programmer, essayist, entrepreneur, and venture capitalist, with dual British and American citizenship. He has been dubbed "the hacker philosopher" (*Levy 2017*). His classic 2008 essay on "How to disagree" outlined a seven-point disagreement hierarchy that has found widespread application (*Graham 2008*).
- 17 Estimates of the cost in current pounds and dollars of a guinea are based on annual estimates of the composite price index for Great Britain from the UK Office of National Statistics from 1803 to 1987, and the Office of National Statistics Consumer Price Index from 1988 to 2023. Source: Webster, Ian. UK Inflation Calculator. <https://www.officialdata.org/UK-inflation> (accessed 31 December 2023).
- 18 *Quid non mortalia pectora cogis, Auri sacra fames?* (*Frieze 1877*, p. 52, lines 56–57). This is from book III of the *Aeneid*, a Latin epic poem written by Virgil (70 BCE–19 BCE) between 29 and 19 BCE. See also *Graham (1957)*. Here are two versions of that quotation from the *Aeneid* translated into English verse: (1) "O sacred hunger of pernicious gold!/What bands of faith can impious lucre hold?" (*Dryden 1819*, pp. 3–4); (2) Dire lust of gold! how mighty thy controll/To bend to crime man's impotence of soul! (*Symmons 1820*, p. 154).
- 19 "Bark" refers to the bark of *Cinchona*, a genus of flowering plants native to the tropical Andean forests of western South America. Trees in the genus were known as "fever trees" because of the antimalarial properties of preparations of their bark (due to their content of quinine). This were the only effective treatment against malaria until the mid-20th century, when the artificial synthesis of quinine (1944), an increase in quinine-resistant malaria, and the emergence of alternate therapies ended large-scale interest in *Cinchona* cultivation.
- 20 A straw-man fallacy occurs when someone distorts or exaggerates another person's argument, and then attacks the distorted version of the argument.
- 21 The bark of white willow contains salicin, which is a chemical similar to aspirin (acetylsalicylic acid).
- 22 A toxic purgative, considered by some early modern physicians as a nearly miraculous panacea and revered by alchemists for its ability to purify gold.
- 23 English physician Robert James (1703–1776) invented a popular "fever powder", which he patented in 1747 (*James 1778; Warbasse 1907; Stine 1941; Brack and Kaminski 1984*). James' fever powder was one of the most successful 18th-century patent medicines, taken to combat fevers and as a general tonic, although James "tarnished his image by patenting his powders, and falsifying their specification" (*Munk 1878b*, p. 269). James' falsification of the ingredients in the patent documentation was designed to prevent

others from replicating his formulation. He was also accused of having stolen the formula from a German chemist (Baker 1754). James' fever powder contained phosphate of lime (i.e., tricalcium phosphate) and antimony oxide to aid sweating.

24 The opposition to medical innovations, even those ultimately accepted as valuable, can be quite traumatic for innovators. A well-known example is the experience of Hungarian physician and scientist Ignaz Semmelweis (1818–1865), an early pioneer of antiseptic procedures to prevent childbed fever (an often-fatal postpartum bacterial infection of the reproductive tract caused by unsanitary obstetric practices in the 19th century). Semmelweis's empiric observations that hand washing with chlorinated lime solutions decreased maternal mortality from 18% to 2% on physician-run obstetric wards conflicted with established scientific and medical opinions, lacked a theoretical foundation, and offended his colleagues, who then rejected and ridiculed Semmelweis. In 1865, the increasingly outspoken Semmelweis suffered a nervous breakdown and was committed to an asylum where he was beaten by the guards; he died two weeks later from a gangrenous wound on his right hand likely caused by the beating. His findings earned widespread acceptance years after his death, when Louis Pasteur (1822–1895) confirmed the germ theory and provided a theoretical explanation for Semmelweis' observations.

25 "There is a kind of magic or sorcery, or what else you may please to call it, which, though unknown to us, is yet, it seems, still very much encouraged by the Devil; but this is a great way off, and in countries where the politer instruments which he finds here are not to be bad, namely, among the Indians of North-America. This is called *paw-wawing*; and they have their divines, who they call *paw-waws*, or wizards, who use strange gestures, distortions, horrid smokes, burnings and scents, and several such things, which the sorcerers in ancient times are said to have used in casting nativities, in philtres [i.e., a love potion], and in determining, or, as they pretended, directing the fate of persons,—by burning such and such herbs and roots, such as hellebore, wormwood, storax [a plant resin], devil-wort, mandrake, night-shade, and abundance more such, which are called noxious plants, or the product of noxious plants; also melting such and such minerals, gums, and poisonous things, and by several hellish mutterings and markings over them" (Defoe 1777).

26 "Card-stacking" advertising or propaganda intentionally accentuates one point or perspective while downplaying the others to create a blind spot. It prioritizes positive information supporting the product over negative information.

27 Based on annual estimates of the composite price index for Great Britain from the UK Office of National Statistics from 1803 to 1987, and the Office of National Statistics Consumer Price Index from 1988 to 2023. Source: Webster, Ian. UK Inflation Calculator. <https://www.officialdata.org/UK-inflation> [Accessed 31 December 2023]. During this time, "Metallic Tractors" and "Perkins's Metallic Tractors" were considered a "medicine" and as such were subject to stamp duties by the British government (Tomlins 1807, p. 207; Burn et al. 1810, p. 173).

28 There are multiple forms of fake news, including fabricated content, manipulated content (i.e., when genuine information is manipulated to deceive), and imposter content (with fabricated sources).

29 Fessenden presented the middle quatrain in all upper case. This was changed to sentence case to improve readability.

30 During the 1802 Preston Guild, "There was a grand masquerade, ball and banquet, tickets one guinea each, held in the large Guild-rooms, where many truly original, singular, odd, grotesque, and curious characters were personated by some of the first families of rank, with considerable ability" (Tuket 1822a, p. 327; 1822b, p. 407).

31 The "von" in this contrived Germanic-sounding name is intentionally misplaced. The "von" in some German and Austrian personal names was originally used to indicate place of origin and later to indicate nobility, but was always placed between the given name and the surname, not *preceding* the given name.

32 The seventh son of a seventh son is a belief from folklore that special powers are given to, or held by, such a son: To qualify, one must be the seventh male child born in an unbroken line with no intervening female siblings and have a father who himself is the seventh male child born in an unbroken line with no intervening female siblings.

33 Some quacks of the late 17th, 18th, and early 19th centuries advertised the particulars of their supposed cures by claiming to be the "seventh son of a seventh son", an "unborn doctor", or both (Anonymous 1690; Unborn Doctor, Seventh Son of the Seventh Son [pseudonym] 1690?; Anonymous 1873; Brewer 1910). An article attributed to English essayist, poet, playwright, and politician Joseph Addison (1672–1719) in *The Tatler*, on 21 October 1710, reported that "There are some who have gained themselves great reputation for Physic by their birth, as the "seventh son of a seventh son;" and others by not being born at all, as the unborn doctor, who, I hear, is lately gone the way of his patients" (Addison [1710] 1789, pp. 367–68); a footnote identifies the surname of the "unborn DOCTOR" as Kirleus: "Dr. Kirleus had probably a brisk trade and advanced prices in consideration of his being unborn" (Addison [1710] 1789, p. 368). An 18th-century quack who worked the Moorfields (i.e., a marshy open space adjacent to and outside the northern city wall of London) advertised himself as the "Unborn Doctor", but others of the time labeled him the "stuttering Unborn Doctor": when asked to explain his title, he replied, "Why, you s-s see sir, I w-was not b born a d-d-doctor, and s-s-so I am an u-u-u unborn doctor" (Anonymous 1873; Brewer 1910, p. 889). The etching "*The Compleat Auctioneer*" (circa 1700) shows a bespectacled bookseller displaying a "Choice Collection" from the library of "the late famous Unborn Doctor", containing pornographic titles and a work on syphilis, looked upon credulously by a gentleman and a commoner with two ladies looking at a distance; a notice attached to the branches of the tree announces a book auction the same day in the "Northwest Corner of Middle Moorfields" (Anonymous 1700). An 18th-century engraving of three dwarf quacks, "*Glysterpipe Fillpacket, Peregrino Mountebanko and Timothy Mouth: three itinerant medicine vendors selling their wares*" includes an image of "Peregrino Mountebanko the unborn Doctor", who proclaims: "I cure the itch, the gout, the stitch, the mulligrubs, the pox: great belly'd

maids, old founder'd jades, and all Pandora's box" (mulligrubs is a despondent, sullen, or ill-tempered mood, while "the stitch" refers to a sudden sharp pain in the side of the body, usually brought on by strenuous exercise) (Anonymous 1700–1799). The "Unborn Doctor" sobriquet was not limited to quacks, however. For example, the bigamist, conman, and fraudster John Payden (alias Thomas Lock) stood trial for bigamy in 1699 after having married two women and having reportedly tried to marry several other rich women using false identities (Anonymous 1699; Hug 2006, 2010): one witness reported that "he hath been called in this City by the Name of the Never-born or (Unborn) Doctor; and the Seventh Son of a Seventh Son" (Anonymous 1699).

- 34 Guild celebrations in Preston first came about in 1179 after King Henry II (1133–1189) granted the town its first royal charter. The purpose of the Guild was to license traders, craftsmen, and merchants so that only Guild members (or burgesses) were allowed to operate in the town. Gatherings for renewing Guild membership were infrequent, and from 1542 onward, the Preston Guild took place every 20 years. Large numbers of people congregated in Preston for these special occasions, making "the Guild" an opportunity for feasting, processions, and great social gatherings. As of 1790, there was freedom of trade in Preston, which abolished the need for a Guild, but Guild festivities continued as they had developed into prestigious social occasions. During "the Guild", the Guild Mayor presided over lavish entertainment, including masquerade balls and the great Mayoral banquet.
- 35 Pegu, Burma, was an archaic name for Bago, Myanmar. Until the Burmese government renamed English place names throughout the country in 1989, Bago was known as Pegu.
- 36 In Roman mythology, Sylvanus was the god of woods and fields and flocks; Pan is the Greek counterpart. Urban Sylvanus was originally the pseudonym of English printer, editor, and publisher Edward Cave (1691–1754), the founder of *The Gentleman's Magazine* in 1731. He coined the term "magazine" for a periodical and was the first publisher to successfully fashion a wide-ranging publication. Subsequent editors of *The Gentleman's Magazine* all used the same pseudonym. John Nichols was the third editor from 1792 until his death in 1826 (Hart 1962).
- 37 The first edition in 1809 was published anonymously and had no reference to Perkins' tractors. The reference to Perkins' tractors came in the second (not anonymous) edition, also in 1809.
- 38 Although tomatoes were introduced to Europe from South America in the 16th century, they were not cultivated in North America even through the 18th century, because they belong to the nightshade family and were presumed to be poisonous. This historical curiosity explains the derivation of the so-called "tomato effect" as applied to medical therapies (Goodwin and Goodwin 1984).
- 39 Jan Ingenhousz is best known for his discovery of the process of photosynthesis.

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