

BRUNONIAN THERAPEUTICS: NEW WINE IN OLD BOTTLES?

by

GUENTER B. RISSE*

INTRODUCTION

Since John Brown's system of medicine encouraged the therapeutic use of substantial amounts of opium and alcohol,¹ it later became, during less permissive times, a typical illustration of the dangers of addiction and dissipation. Brunonian treatment was held up as a prime example of medical ignorance in the age of agony, a tragic case of what happens when impaired physicians go mad. Several historians have echoed such indictments, one even claiming that Brown's mode of treatment "sacrificed more human beings than the French revolution and the wars of Napoleon combined".² Another looked at Napoleon's adversaries, quoting a report that more than thirty per cent of the wounded Austrian soldiers died in a state of inebriation, felled by Brunonianism and its massive doses of Rhine wine.³ For Victorian sensibilities, the creator of these alcoholic cures had to be a coarse man of low habits, "morally deserving of the severest condemnation".⁴

Such criticisms fail to realize that the so-called Brunonian therapeutics were already practised well before John Brown decided to quit theology and devote himself to the study of medicine. For example, the 1769 edition of the *London practice of physick* described a type of medical treatment for certain debilitating types of fever termed "slow" or "nervous". Among the components of this regimen were beef tea, chicken broth, and light cordial liquors. In fact, during the height of the febrile delirium, the patient was to receive pure or diluted wine, the amounts to be administered determined by the level of the pulse rates which practitioners hoped to increase.⁵ The same therapy was recommended in another contemporary publication, which strongly advocated the employment of alcoholic beverages rather than bleeding, purging, and vomiting.⁶

* Guenter B. Risse, MD, PhD, Professor and Chair, Dept. of the History of Health Sciences, School of Medicine, University of California, San Francisco, San Francisco, CA 94143-0726, USA.

¹ For an overview consult G.B. Risse, 'The Brownian system of medicine: its theoretical and practical implications', *Clio Medica*, 1970, 5: 45–51.

² Johann H. Bass, *Outlines of the history of medicine and the medical profession*, trans. by H.E. Handerson, 2 vols. (1889), repr., Huntington NY, Krieger, 1970, vol. 2, p. 637.

³ Heinrich Haeser, *Lehrbuch der Geschichte der Medicin und der epidemischen Krankheiten*, 3rd ed., 3 vols., Jena, Fischer, 1881, vol. 2, p. 762. The original anonymous report was *Regulativ zur bessern Heilung der Krankheiten ueberhaupt, besonders der Nervenfeiber*, Heilbronn, 1796.

⁴ Baas, op. cit., note 2 above, p. 635.

⁵ *The London practice of physick*, London, W. Johnston, 1769, pp. 8–10. Such supportive therapy appeared virtually unchanged in the 1773 edition (pp. 9–13) and the 1779 edition (pp. 11–15). By 1797 the *London practice of physick* actually expanded this section but the treatment remained essentially the same (pp. 18–30).

⁶ *The practice of the British and French hospitals*, 2nd ed., London, Baldwin, 1775, p. v.

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Similarly, opium had occupied an important place in the therapeutic armamentarium since Sydenham's times. The English Hippocrates found it "so necessary an instrument in the hand of a skillful man, that medicine would be a cripple without it".⁷ His use of the "liquid laudanum" as a painkiller, antispasmodic, and restorative did much to popularize its use. A companion of Sydenham, Thomas Dover, launched his famous diaphoretic powder for fever in 1732; its formula contained opium, ipecac, saltpetre, tartar, and licorice.⁸

For its part, the genesis of Brown's therapeutic ideas was inextricably linked to his personal experiences with gout. As is known, he suffered a severe attack of the disease in 1771 at the age of thirty-six. By his own admission, Brown consulted an unnamed leader in the profession—in all probability his mentor, employer, and professor, William Cullen—who diagnosed a gouty plethora.⁹ Told to abstain from meat and alcohol, Brown allegedly went on a strict diet of porridge and vegetables and claimed to have drunk only water for the next twelve months. Whether he also received an opiate preparation for pain is probable, but went unrecorded. However, his apparent compliance with this regimen was not rewarded—in fact, Brown claimed to have suffered more painful bouts of the disease while following doctor's orders.¹⁰

Depressed, and increasingly sceptical about the treatment he was receiving, Brown conceived the idea that perhaps debility, not plethora, had been the cause of his gout. Perhaps Cullen's antiphlogistic regimen was the main reason for his further suffering. Eager to test this hypothesis so contrary to conventional clinical wisdom, Brown resumed his convivial drinking as well as hearty Scottish fare and was suprisingly rewarded with six years free from the symptoms of gout.

Unquestionably, Brown's personal experience with gout profoundly coloured his subsequent medical judgment. Because of his meagre clinical knowledge, the apparent "cure" planted in Brown's mind the seeds of scepticism regarding the soundness of such traditional antiphlogistic methods as strict diet, purging and bleeding, not to mention the veracity of its theoretical underpinnings. When the gouty attacks eventually resumed, Brown sought help in opium, especially the liquid laudanum or "wine of the Turks". His gradual addiction to the drug—he used and recommended single doses of 150 drops—only complicated his disabilities further and led him to mistrust the celebrated healing powers of nature, which he came to believe effective only for acute and self-limited ailments. "Perfect health in every aspect seldom happens to mortals", Brown admitted in his *Elements of medicine*, "only perfect acquaintance with the true nature of life can open the eyes of practitioners."¹¹ Instead of nature, physicians were called on to heal.

⁷ Thomas Sydenham, 'Medical observations concerning the history and cure of acute diseases', in *The works of Thomas Sydenham, M.D.*, trans. by R.G. Latham, 2 vols., London, Sydenham Society, 1848, vol. 1, p. 173.

⁸ For an overview see J.C. Kramer, 'Opium rampant: medical use, misuse and abuse in Britain and the West in the 17th and 18th centuries', *Br. J. Addic.*, 1979, 74: 377–89.

⁹ *The works of Dr. John Brown M.D. To which is prefixed a biographical account of the author*, by W.C. Brown, 3 vols., London, J. Johnson, 1804, vol. 2, pp. 114–15. This is the preface of Brown's English edition of the *Elementa medicinae*.

¹⁰ A detailed account of Brown's illness is also available in Robert Jones, *An inquiry into the state of medicine on the principles of inductive philosophy*, Edinburgh, T. Longman and T. Cadell, 1781, pp. 106–27.

¹¹ Brown, op. cit., note 9 above, vol. 2, p. 55.

This more interventionist therapeutic stance was probably uncommon among contemporary British practitioners. Greater caution prevailed at the bedside. Credit and reputation could be more easily garnered by those healers who allowed nature to take its course. However, if physicians such as Brown rebelled against this passive approach because they believed that the human organism had a natural “tendency towards disease and death”, then a more assertive role made sense. Indeed, Brown blasted all “alexipharmac” practitioners who primarily prescribed debilitating diets and evacuant remedies which, in his opinion, only exhausted the remaining vigour of patients such as himself, enfeebled by porridge and vegetables.¹²

Based on his personal experience and perhaps some selective clinical observations of others, Brown established the following therapeutic principles:

1. There is really no such thing as a healing power of nature purposefully acting within the human body; rather, the organism possesses a fair amount of natural energy or excitability capable of restoration to a healthy balance with the help of stimuli.¹³ If there is an excess, the condition is called *sthenia*; the opposite deficiency Brown named *asthenia*.
2. Thus, there are really no specific cures for particular diseases or parts of the body. Every medical treatment affects the whole body through changes in the excitability, thereby correcting the *sthenia* or *asthenia*.
3. There is only one form of treatment: the administration of stimulants. In *sthenic* diseases one employs weak stimulants to reduce the excessive excitement—namely blood-letting, vomiting, purging, sweating, cold applications, low watery diets, reduced physical activity, and mental rest. Conversely, in *asthenic* diseases, one uses an array of strong stimulants to increase deficient excitement, beginning with a solid diet containing meat, wines or spirits, gentle exercise, fresh air, increased mental activity, and four stimulating drugs: opium, camphor, musk and ether.¹⁴
4. Although physicians have gradually classified remedies according to some particular pharmacological action, in truth they all act in the same way, namely as stimulants of the human organism. The choice of which remedy to employ should be entirely predicated on its inherent capacity and speed in accomplishing the therapeutic goal: stimulation. Thus, drugs can be distinguished as moderately or quickly diffusible depending on the rapidity of their stimulating action.¹⁵
5. It follows, then, that dosage is quite important for achieving the desired excitement, especially if this bodily quality can be measured in degrees, as Brown insisted it could. If the practitioner was uncertain as to the actual state of excitement, a therapeutic trial with moderately diffusible stimulants was recommended to detect the true level.¹⁶

Consequently, it is apparent that Brown’s chief therapeutic rules, while shifting the emphasis of medical treatment from the traditional tempering of organic functions—notably in inflammation—to shoring them up via supportive measures, were clearly

¹² *Ibid.*, vol. 1, pp. 49–54.

¹³ *Ibid.*, vol. 2, p. 206.

¹⁴ *Ibid.*, vol. 3, pp. 6–17.

¹⁵ *Ibid.*, vol. 3, p. 290.

¹⁶ *Ibid.*, vol. 3, pp. 292–5.

grounded in conventional forms of doctoring. His recourse to alcohol as both a stimulant and restorative broke no new ground. In fact, alcoholic beverages became widely available to all classes of British society, especially after the gin craze of the 1730s.¹⁷ Brown himself was an active social drinker widely known in Edinburgh pubs where he fraternized with other students. Like many Scottish physicians, Brown used such establishments to see patients and make the contacts necessary to upward social mobility, especially membership in learned societies and perhaps a position at the local university.

Such a linkage between alcohol consumption, healing, and social acceptance is poignantly illustrated by an episode in Brown's life. Called to Inveraray in 1783 by members of the Campbell clan to attend their stricken leader, Brown arrived just in time to see the man dying. While announcing his inability to pull the patient from the throes of death, Brown, his daughter recalled, "dipped a quill in wine and water and moistened the [patient's] tongue [and he] at length was enabled to swallow wine." As on other occasions, "the Brunonian doctrine in all the nicety of its gradual advances was put to the test by its illustrious founder. He remained at this house for about three weeks where he was idolized more as a demigod than man, and Major Campbell was eating and drinking his wine with his physician until Brown left him", presumably recovered.¹⁸

A matching testimonial for the effectiveness of opium—albeit on a member of the animal kingdom—comes from the same source. As Brown was dining at a friend's house in Edinburgh, the host brought a dying turkey into the room. "By my father's desire, fifteen drops of laudanum were poured down its throat", the daughter recalled, "the season must have been winter for there was a great fire and the *patient* was laid on the rug before it." The bird, groggy from the medication, slumbered through the evening, recovered, and "grew up one of the finest turkeys of the gentleman's rearing", another triumph of Brunonian therapeutics.¹⁹

I

Was Brown's approach to treatment really different from that of his contemporary colleagues? Perhaps the hospital practice at the Royal Infirmary of Edinburgh, as illustrated in numerous casebooks, can provide some answers.²⁰ In 1771, the year of Brown's first attack of gout, John Gregory, professor of medical theory at Edinburgh University, took care of a number of patients hospitalized in the Infirmary's teaching ward. Among them was a 20-year-old female suffering from "slow fever" who was placed on a supportive regimen, including "half a pint of red wine/day on account of

¹⁷ For an overview, see R. Porter, 'The drinking man's disease: the pre-history of alcoholism in Georgian Britain', *Br. J. Addic.*, 1985, 80: 385–96.

¹⁸ 'Reminiscences of Dr. John Brown, founder of the Brunonian system of medicine, with a letter on the same subject, both addressed by his daughter, Elizabeth Cullen Brown to Thomas J. Pettigrew (1838)', National Library of Scotland ms 5173.

¹⁹ *Ibid.*

²⁰ For more details, consult Guenter B. Risse, *Hospital life in Enlightenment Scotland: care and teaching at the Royal Infirmary of Edinburgh*, New York and Cambridge, Cambridge University Press, 1986, especially appendices A and B, pp. 296–339.

faintness", common beer, and panada.²¹ Gregory followed the same approach in a smallpox case, a 48-year-old black servant who received generous doses of laudanum (25–40 drops) at bedtime and a routine of beef tea, port wine, and boiled barley.²² Laudanum was also prescribed in patients with diarrhoeas, as well as intestinal cramps, for cough suppression, and even hysteria.

His colleague William Cullen, Brown's mentor, although less generous with alcohol, liberally prescribed beer—generally about a quart per day—in fever cases. His wine orders usually called for a daily pint of diluted wine (two parts water for every part of wine). In one instance, Cullen even went so far as prescribing a spoonful of diluted brandy "at two different times and repeated so that he takes double this quantity in day" for a 36-year-old male suffering from a fever and sore on his leg.²³ In fact, Cullen was quite aware of the dangers posed by an aggressive therapy in so-called "nervous" fevers which, most practitioners conceded, arose out of weakness. In such instances, wine was one of the popular stimulants recommended to overcome the constitutional debility.²⁴

Like John Gregory, Cullen also employed opium preparations in a variety of ailments. As he explained to his students in 1772—perhaps Brown had sufficiently recovered from his gout to hear him—"opium with its narcotic quality is a stimulus that can be applied to the stomach for exciting vomiting, to the intestines for purging, to the kidneys as a diuretic, to the bronchia as a pectoral."²⁵ In spite of such a wide range of indications, a fierce debate continued about the nature of opium action. Did it impair nervous transmission? Was it ultimately a sedative with only a fleeting period of arousal? Questions remained about the actual potency and equivalency of available preparations. The issue of increasing "tolerance" to the drug—namely gradual addiction—did not perceptively engage the practitioners' concerns, perhaps because the existing opiates with their impurities were not as habit-forming as later refined products, notably morphine.

When, almost a decade later, Brown's disciple Robert Jones attempted to promote Brunonianism in Britain, he presented as number of clinical cases taken from the Edinburgh Infirmary to illustrate the deficiencies of the contemporary approach to treatment. Among them was a 28-year-old male admitted to the hospital in April 1781 with a tentative diagnosis of "typhus" fever. The patient, already nauseated and febrile, had received an emetic the day before admission, and presented himself with frequent vomiting and diarrhoea. During the next six days, hospital practitioners instituted a supportive regimen with Peruvian bark and red wine but to no avail: the patient's condition steadily deteriorated and after progressive weakness and fits, he

²¹ Case of Elizabeth Fraser, in John Gregory, *Clinical Cases of the Royal Infirmary of Edinburgh*, Edinburgh, 1771–1772, mss Collection, Medical Archives, University of Edinburgh.

²² *Ibid.*, case of David Rutherford.

²³ Case of Andrew Gray, in William Cullen, *Clinical cases and reports taken at the Royal Infirmary of Edinburgh*, by Richard W. Hall, Edinburgh, 1773–1774, mss Collection, National Library of Medicine, Bethesda, Maryland.

²⁴ For summary of alcohol consumption in the Infirmary, see Risse, 'Beer, wine and spirits', in *op. cit.*, note 20 above, pp. 224–7. A general reference on the subject is S.E. Williams, 'The use of beverage alcohol as medicine, 1790–1860', *J. Stud. Alcohol*, 1980, 41: 543–66.

²⁵ William Cullen, *Clinical lectures*, Edinburgh, 1772–1773, p. 79, mss Collection, Royal College of Physicians, Edinburgh.

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died.²⁶ As before, such treatments were designed to prop up the perceived weakness of this “typhus” patient—an approach on which physicians had already reached a consensus.²⁷ Although the procedures were essentially “Brunonian”, Jones severely criticized the repeated use of emetics and purgatives which were “undoing by one remedy the effects of another prescribed at the same time”.²⁸

A careful analysis of the management of fevers at the teaching ward of Edinburgh Infirmary in the decades between 1770 and 1800 discloses some remarkable changes. In the 1770s the attending professors used purgatives and emetics in virtually one out of every four cases, but analgesics (including opiates) only twelve per cent of the time, and actual stimulants (tonics and alcohol) with fewer than one in ten patients. If one checks for the 1790s, however, emetics had gradually fallen out of favour—used in fewer than eight per cent of cases—while the use of purgatives remained at twenty-five per cent, and that of analgesics nearly doubled, to twenty per cent. Whether such shifts can be attributed to Brunonianism remains unclear.²⁹

Jones, nevertheless, provided a case study from the Infirmary to confirm the changes that had occurred in that institution. The patient, a 25-year-old soldier, was seen by one of the attending physicians, James Hamilton, for a fever. After a somewhat stormy beginning, he gradually recovered and was discharged a week later as cured.³⁰ His clinical improvement coincided with the prescription of red wine and other spirits following an earlier administration of purgatives. Never at a loss for an explanation, Jones characterized the exemplary cure as “having introduced and seen carried into execution a complete revolution of the medical art in the chief nursery of its practical part in Scotland”.³¹ In truth, this regimen was identical to that prescribed by John Gregory a decade earlier in the same hospital.

Still, one can unquestionably detect some greater liberality in the use of wines and spirits during the 1780s and 1790s at the Edinburgh Infirmary. Francis Home, another professor, gave white wine as a diuretic and red wine mixed with water (one pint daily) in several fever cases. One typhus fever case managed to get 34 ounces of wine between physician’s visits (either a 24- or 48-hour period).³² James Gregory, for his part, showed a penchant for ordering alcohol, especially in the “typhus” fever variety. Six to eight ounces of red wine and two pints of white wine, beer *ad libitum*, and gin punch, usually reserved for patients suffering from amenorrhoea or generalized swelling, were common prescriptions.³³ Both, in turn, together with their

²⁶ Case of Bernard Steward, in Jones, *op. cit.*, note 10 above, pp. 225–42.

²⁷ See G. B. Risse, ‘Typhus fever in eighteenth-century hospitals: new approaches to medical treatment’, *Bull. Hist. Med.*, 1985, 59: 176–95.

²⁸ Jones, *op. cit.*, note 10 above, p. 242.

²⁹ These data were obtained by checking all cases listed as “fever” in the student notebooks and closely examining the various prescriptions.

³⁰ Jones, *op. cit.*, note 10 above, pp. 352–4.

³¹ *Ibid.*, p. 355.

³² Case of David McDonald, in Francis Home, *Clinical cases*, copied by John T. Shaaf, Edinburgh, 1788–1789, MSS Collection, National Library of Medicine, Bethesda.

³³ See Risse, *op. cit.*, note 27 above, and James Gregory, *Clinical cases of Dr. Gregory in the Royal Infirmary of Edinburgh*, taken by Nathan Thomas, Edinburgh, 1785–1786, MSS Collection, University of Edinburgh. Among Gregory’s 20 cases who received gin punch, more than half were females with menstrual or circulatory problems.

colleagues Andrew Duncan, Thomas C. Hope, and Daniel Rutherford, increased their daily use of analgesics in the treatment of fevers, including the use of opium preparations (see table).

Table: TREATMENT OF INFECTIOUS DISEASES AT THE ROYAL INFIRMARY OF EDINBURGH (PERCENTAGE OF CASES)

Drugs	Practitioners					Averages
	John Gregory 1771-2	William Cullen 1772-3	William Cullen 1773-4	James Gregory 1780-1	Francis Home 1780	
Anodynes	14.5	3.2	1.3	19.7	20.0	11.7
Purgatives	25.4	25.8	17.8	18.7	26.6	22.8
Emetics	30.9	19.3	31.5	15.5	26.6	24.7
Tonics	3.6	9.6	2.7	14.8	4.6	7.0

Drugs	Practitioners				Averages
	Andrew Duncan 1795	James Gregory 1795-6	Thomas C. Hope 1796-7	Daniel Rutherford 1799	
Anodynes	23.0	27.0	16.6	25.4	23.0
Purgatives	38.4	25.0	22.2	41.1	31.6
Emetics	7.6	10.4	11.1	1.9	7.7
Tonics	23.0	20.8	22.2	3.9	17.4

However, these near-Brunonian practices posed an increasing financial burden on the Edinburgh Infirmary. By 1790, the hospital managers acknowledged the greater in-house consumption of port wine, and practitioners in the institution were urged to restrain “the use of that article within proper bounds”.³⁴ By 1792, the authorities established a system of monthly reporting on the use of wine and porter beer hoping to curb their prescription. A year later, wine orders issued by hospital physicians had to be rewritten daily or the house apothecary would stop providing such alcoholic beverages.³⁵

At the bottom of such restrictions, of course, was the financial condition of the Infirmary, struggling to maintain its philanthropic services during the economic austerity of the Napoleonic war. However, an increasingly negative attitude toward the unbridled use of alcohol, so eloquently expressed by temperance advocates, also began to influence medical opinion. One famous London physician, John Lettsom, suspected that those patients demanding beer or wine at dispensaries were “at the brink of destruction”.³⁶ Some practitioners hesitated to continue generous

³⁴ Royal Infirmary of Edinburgh, Minute Books, vol. 6, meeting of 5 July 1790, p. 56.

³⁵ The monthly reports were instituted on 3 December 1792. By 4 February 1793 the apothecary was empowered to countermand old wine prescriptions written by the house physicians.

³⁶ As quoted by William Sandford, *A few practical remarks on the medicinal effects of wine and spirits*, Worcester, J. Tymbbs, 1799, pp. 85–6. Such demands for alcohol can also be seen in several case histories from Edinburgh. One of Cullen’s patients, a soldier with an eye infection, was noted to “relish the wine very much”. A subsequent progress note reads: “Very little complaints but from want of wine.” Case of John Davis, in William Cullen, *Clinical cases and reports taken at the Royal Infirmary of Edinburgh*, from Dr. Cullen, by Richard W. Hall, Edinburgh, 1773–1774, MSS Collection, National Library of Medicine, Bethesda.

prescriptions of alcohol “for medical purposes”, to the extent that some visitors smuggled such beverages into the Edinburgh Infirmary to sustain the patients’ habit.³⁷

Finally, with regard to diet in the management of patients, Brown vigorously argued for “solid animal food” in the form of beef broths or roasted meat.³⁸ This indication held true for all asthenic conditions, in which the individual was presumably debilitated. Again, following his personal experiences with gout, Brown criticized the “low”, watery, vegetable diets traditional in the management of fevers, and thought to be especially appropriate during the early stages when most patients felt nauseated or at least not eager to ingest substantial amounts of food. However, the use of emetics and other evil-tasting medicines often only perpetuated such lack of appetite, and seriously disturbed the stomach and bowels. When recovery began, such iatrogenic complications frequently hampered the healing process and led to other problems.

Not surprisingly, Brown attacked the dietary practices of the Edinburgh Infirmary, branding the institution as “subservient to the purposes of hunger and starving”. “The ordinary allowance of the house would hardly support the vital vigour of a kitten”, he wrote indignantly in an open letter to John Hope, one of the hospital’s attending physicians.³⁹ “Your broth”, Brown charged, “is commonly much better qualified to operate as an emetic than to nourish the system.”⁴⁰ Relatives of patients smuggled food into the house, even if they had to bribe the nurses. After publishing the “common fare” of the hospital, Brown challenged: “I defy the healthiest man in Edinburgh to preserve his health fourteen days on your beggarly pittance.”⁴¹

Again, a careful check of the Infirmary’s dietary indications reveals that such professors as John Gregory and William Cullen certainly ordered beef-tea or “household broths” for convalescent patients, but not until the 1780s can one observe an increase in full diets with meat dishes, primarily ordered by James Gregory for “typhus” fever cases.⁴² There are indeed accounts that nurses brought supplies of raw “undressed” meat directly to the teaching ward and allowed ambulatory patients to roast it in the fireplaces before eating the meat with potatoes and turnips—a practice that would have certainly sustained a number of Brunonian kittens.⁴³ Of course, just as in the case of wine and beer, such generous diets were formidable budget busters, and, in times of mounting institutional deficits during the 1790s, impossible to sustain.

³⁷ This was one of Andrew Duncan’s patients who had apparently suffered a stroke. Observed Duncan: “So much addicted was he to their use (spiritous liquours) that he could not live without them.” Clinical reports and commentaries, Feb.–Apr. 1795, presented by Alexander Blackhall Morison, Edinburgh, 1795, MSS Collection, Royal College of Physicians, Edinburgh.

³⁸ Brown, *op. cit.*, note 9 above, vol. 3, pp. 6–8.

³⁹ The letter was signed only “Veri Amicus” (friend of the truth) but can be ascribed to Brown or one of his closest adherents on the basis of style and content. *A letter to John Hope . . . of the Royal Infirmary: on the management of patients in that hospital . . .*, Edinburgh, 1782, p. 7.

⁴⁰ *Ibid.*, p. 11.

⁴¹ *Ibid.*, p. 12.

⁴² See Risse, ‘Dietetics’, in *op. cit.*, note 20 above, pp. 220–4.

⁴³ Royal Infirmary of Edinburgh, *Report of a Committee on the State of the Hospital*, Edinburgh, 1818, p. 64.

In summary, then, the influence of Brunonian ideas on the Edinburgh practice of medicine as exemplified by the management of hospital patients in the teaching ward is far from clear-cut. Under the direction of leading university professors, such patients certainly received full diets, alcoholic beverages, and opiates, sometimes typically “Brunonian” even before Brown had a chance to expound his system. The aforementioned shifts to a greater emphasis in restorative approaches owes, perhaps, more to patient selection rather than a generalized reversal in therapeutic rationale. James Gregory seemed especially keen on treating a kind of debilitating fever he called “typhus” and to this admission preference we owe some of the changes in medical prescribing. To call them specifically “Brunonian” would probably stretch the truth.

II

Let us next look at clinical experiences in prominent teaching hospitals on the Continent to detect signs of Brunonian practices. The first one is the Ospedale di San Matteo, affiliated with the University of Pavia. After the curriculum reforms of 1773, medical education began to flourish there, especially under the directions of Samuel Tissot (1781–3) and Johann P. Frank (1785–95). After his father’s departure for Vienna, Frank’s son Joseph, an assistant physician at the hospital since 1794, was appointed professor of medical practice at the university.⁴⁴

By this time Joseph Frank had become a strong supporter of John Brown’s system of medicine.⁴⁵ To illustrate his new approach, he published a number of clinical case studies of selected patients who had been seen in the 21-bed teaching ward of the Ospedale di San Matteo during the first six months of 1795.⁴⁶ In contrast to Edinburgh, here Frank tried to implement a specifically “Brunonian” plan of treatment closely linked to Brown’s two disease states: *asthenia* and *sthenia*.

“How could one distinguish clinically between them?” asked Frank. Unlike his Edinburgh colleagues, who continued to express clinical differences within traditional nosological entities, Frank wanted to accept Brown’s entire system of medicine and consequently follow its major theoretical premises. One logical approach was to take a careful history from the patient, not just ferret out key symptoms or previous ailments. The anamnesis was specifically designed to yield—à la Brown—an inventory of past stimuli which had affected the patient. Life-style, diet, home environment, perhaps polluted air, and psychological stress related to job or family

⁴⁴ Details can be found in G.B. Risse, ‘Clinical instruction in hospitals: the Boerhaavian tradition in Leyden, Edinburgh, Vienna, and Pavia’, *Clio Medica* (in press). See also L. Belloni, ‘Italian medical education after 1600’, in C.D. O’Malley (editor), *The history of medical education*, Berkeley, University of California Press, 1970, pp. 105–19.

⁴⁵ For details see Guenter B. Risse, ‘The history of John Brown’s medical system in Germany during the years 1790–1806’, PhD diss., University of Chicago, 1971, especially pp. 199–210. See also Ramunas A. Kondratas, ‘Joseph Frank (1771–1842) and the development of clinical medicine: a study of the transformation of medical thought and practice at the end of the 18th and beginning of the 19th centuries’, PhD diss., Harvard University, 1977, especially chapter 5, pp. 201–15; and Kondratas’s essay in this volume.

⁴⁶ *Ratio instituti clinici Ticinensis a mense Januario usque ad finem Junii 1795*, with a preface by J.P. Frank, Vienna, Camesina, 1797. In the same year appeared a German translation: *Heilart in der klinischen Lehranstalt zu Pavia*, trans. F. Schaeffer, Vienna, Camesina, 1797.

relationships: all were possible factors, potent stimuli which could, perhaps, be ascertained through a barrage of leading questions. Frank's goal was to determine the patient's diathesis or disease predisposition before becoming ill. Environmental factors, in turn, could be ascertained through careful weather charts available for Pavia and its environs, supplemented by data concerning current air temperature, barometric pressure, humidity, wind velocity, and rainfall.⁴⁷

One of Frank's clinical cases typically illustrates his new Brunonian approach. The patient, a 22-year-old male, was admitted to the university hospital on 11 May 1795 with complaints of generalized body swelling. Through careful questioning, Frank discovered that two months earlier the man had had an episode of nausea and vomiting, with pain over the left side of his abdomen. This had occurred during the pre-Lenten *carnevale*, which the patient celebrated by drinking copious amounts of wine and eating salted meat. For the next three weeks, the man had felt feverish on occasion and, after consulting a surgeon, had a phlebotomy. At that point swelling had begun in the face, abdomen, and legs, a condition diagnosed as dropsy and unsuccessfully treated by conventional methods. Given the history of the disease and the failure of such traditional therapies as blood-letting and purging, Frank immediately made a diagnosis of direct asthenia and ordered a regimen of strong stimulants which included Peruvian bark, squill, wine, and a full diet. An abdominal paracentesis removed twenty-three pounds of water from the patient's belly. However, all measures failed to improve the condition and the man died ten days later. A greatly swollen pericardium containing purulent material was discovered at autopsy.⁴⁸

While Frank considered the above case a pretty straightforward *asthenia*, too far advanced for Brunonian methods to reverse, other patients posed greater diagnostic challenges. For example, Frank admitted on 5 January 1795 a 19-year-old peasant girl from the nearby village of Trivolzio. She was breathing laboriously and coughing up some blood. Her problems were barely five days old and had begun with chills, fever, cough, and pain in the right side of the chest. Powders and wet cupping ordered by a private physician had not stemmed the complaints. Since her pulse was hard and fast, Frank hesitated. Both the gastrointestinal symptoms and pulse frequency suggested a Brownian asthenia, but the respiratory manifestations and pulse strength pointed towards a sthenic problem, especially a pneumonia.⁴⁹

What to do in such a quandary? How could one find out? Frank followed Brown's suggestions of carrying out a therapeutic trial. Perhaps the disease was sthenic after all. The patient was immediately bled—ten ounces of blood were removed—then placed on a strict vegetable diet and given laxatives. Unfortunately, the patient's symptoms failed to improve and she became delirious because of her high fever. Then Frank announced that he had been deceived. The symptoms, after all, denoted a generalized weakness, complicated by the bleeding and purging prior to admission, not to say additional in-house measures which only aggravated the condition. A

⁴⁷ See Fritz Aicher, 'Der Einfluss der Brownschen Lehre auf die Therapie, untersucht an der von Frank in Krankenhaus zu Pavia behandelten Krankheiten', diss., University of Munich, 1933.

⁴⁸ Case of Joseph Biroli, in Frank, *Heilart*, op. cit., note 46 above, pp. 336–41.

⁴⁹ Case of Josepha Baruffi, in *ibid.*, pp. 192–7.

strengthening, stimulating regimen which included Peruvian bark, seneca root, meat soups, warm tea, and Malaga wine was immediately instituted. A bedtime narcotic draught containing opium was designed to check the restlessness and promote sleep. Within three weeks, this patient recovered fully, leading Frank to re-emphasize the dangerous effects of purging and bleeding which wasted vital forces necessary for achieving a cure.⁵⁰

Similar cases abound in Frank's hospital practice. In retrospect, it seems clear that his attempt to make Brunonian therapy workable at the bedside faced considerable odds but that he managed to achieve a certain number of successes. Frank's first and foremost problem was diagnostic uncertainty: asthenia or sthenia, that was the question. He used a number of "careful" trials to ascertain the nature of certain ailments, showing the same bias as Brown toward asthenic predispositions and conditions.⁵¹

Once embarked on a course of so-called stimulating drugs, Frank pondered their choice and above all, proper dosage. All his patients received some form of opium during their stay at the hospital, often as a bedtime drink, but also in the form of enemas containing laudanum or by mouth, thirty to sixty drops, to achieve higher "degrees" of excitability.⁵² At the same time Frank was surprised to find that many of his patients claimed to have seldom drunk wine before coming to the hospital, an oddity in such a wine-loving country. He was fond of prescribing such heavy wines as malaga—less frequently white or red wines, of which he ordered between half and one full quart daily. Up to four quarts could be consumed in the form of diluted "wine soups". Like other would-be Brunonian practitioners, Frank realized that wine therapy was expensive and a great burden on the hospital's budget. Thus, he invented his famous *potus excitans* (exciting drink) composed of one part of distilled alcohol to two of water and one part honey. Other liquids were also employed to mix the expensive wine with sugar, eggs and nutmeg.⁵³

A careful reading of Frank's work and an analysis of clinical cases at the Ospedale di San Matteo in Pavia inescapably leads to the conclusion that, like other so-called Brunonians, he treated his patients empirically although he repeatedly tried to justify his actions with reference to the Brunonian system. Like his father before him, Frank had moved away from indiscriminate purging and bleeding as well as the prescription of starvation diets in fevers. Brunonianism provided him with a welcome rationale with which to justify a supportive and strengthening regime more compatible with his own observations. Indeed, Frank considered the patient's clinical improvement sufficient proof that his regimen was correct, eschewing Brown's mathematical

⁵⁰ *Ibid.*, pp. 196–7.

⁵¹ For a discussion of Frank's ideas, see Joseph Frank, *Erläuterungen der Brownischen Arzneilehre*, Heilbronn, Class, 1797, especially pp. 96–8.

⁵² *Ibid.*, pp. 132–3. Unlike Brown, Frank advised extreme caution in the administration of opium, always pleading for small doses.

⁵³ A catalogue of the drugs employed by Frank at Pavia can be found in Verena Jantz, 'Pharmacologia Browniana, Pharmakotherapeutische Praxis des Brownianismus aufgezeigt und interpretiert an den Modellen von A.F. Marcus in Bamberg und J. Frank in Wien', diss., Philipps-Universität, Marburg, 1974, pp. 158–214. Her discussion of the *potus excitans* is contained on p. 185. Although restricted to Germany, this is a most valuable work on the history of Brunonian drug use.

calculations of the excitability.⁵⁴ His flexible interpretation of Brown's main principles brought Frank's therapy closer to the practices of many other European clinicians.

At exactly the same time, Brunonian therapeutics were subjected to similar trials at the bedside in Germany. These occurred in Bamberg, where the enlightened ruler of the Würzburg-Bamberg bishopric, Franz Ludwig von Erthal, had erected a new hospital.⁵⁵ The 120-bed institution opened its doors on 11 November 1787 as part of a comprehensive health care system for about 6,000 people, including 3,000 indigents as well as numerous servants and artisans, living in the vicinity. Linked to the university and its medical school, the Bamberg Hospital quickly became an exemplary training ground for medical students and surgeons. In fact, for the duration of Franz Ludwig's life, his personal physician Adalbert Marcus was able to persuade him to divert significant funds towards the operations of the hospital, making it a showcase and example to be imitated in other German lands.

With Marcus, a Göttingen graduate and highly respected practitioner, at the helm, the Bamberg Hospital established nearly ideal conditions for the care of its patients. There were nurses aplenty, one for every seven or eight patients. The institutional diet was varied and rich, eventually attracting middle-class patients to the ward. Most importantly, Marcus had *carte blanche* to order any expensive drugs required by Brunonian therapeutics. Indeed, the hospital pharmacist was so accommodating to Marcus' wishes that he went to great lengths in trying to minimize, through compounding, such unpleasant aspects of eighteenth-century drug therapy as the obnoxious odour of asafoetida, or the bitter tastes of Peruvian bark decoctions and opium powder preparations.⁵⁶

Marcus was thoroughly acquainted with the new ideas of neuropathology expressed by Haller, Cullen, and Brown, and was anxious to test their application at the bedside. As he declared, this was one of the crucial times in medical history when clinical trials and bedside observations were necessary and useful. "At a time when the Brunonian system is ready to accomplish a total revolution in medicine, its clinical confirmation or reputation may save the lives of thousands of patients", Marcus announced, concluding that "the task of proving the Brunonian principles is the duty of all physicians".⁵⁷

Although the Bamberg Hospital provided an ideal setting for Marcus' clinical experiments, like Frank he had to contend with the diagnostic difficulties surrounding Brown's two conditions: asthenia and sthenia. Without diagnosis, the practical application of Brunonian theoretical principles could not occur. Not surprisingly, emphasis was again placed on the clinical history as the most effective vehicle to establish an inventory of the patient's past stimuli. Perhaps even more than Frank, Marcus paid great attention to environmental factors and he collected extensive data

⁵⁴ Frank, *op. cit.*, note 51 above, p. 134.

⁵⁵ For a history of this hospital consult Christian Pfeufer, *Geschichte des allgemeinen Krankenhauses zu Bamberg*, Bamberg, Kunz, 1825.

⁵⁶ Adalbert F. Marcus, *Kurze Beschreibung des allgemeinen Krankenhauses zu Bamberg*, Weimar, Industrie Comptoir, 1797.

⁵⁷ Adalbert F. Marcus, *Prüfung des Brownschen Systems der Heilkunde durch Erfahrungen am Krankenbette*, vol. 1, Weimar, Industrie Comptoir, 1797, p. iv.

about Bamberg's geography and climate.⁵⁸ As Brown had before him, Marcus believed that the cold temperatures of the winter months provided insufficient stimuli and tended therefore to cause asthenic diseases.

In 1797, Marcus began publishing a selection of clinical cases seen at the Bamberg Hospital and treated according to Brunonian principles. His findings seemingly confirmed Brown's own impression that, as a category, asthenic-type diseases constituted the overwhelming majority of sicknesses observed in medical practice. For the quarter April-June 1798, for example, Marcus admitted 136 patients to the hospital. Of these, 112 (eighty per cent) were found to have *asthenia*, 12 *sthenia*, and 12 local diseases. Of the so-called asthenic conditions, nearly half were labelled "nervous fevers" or "typhus"; among the others were cases of intermittent fevers termed "tertians" and "quartans".⁵⁹

An analysis of some clinical cases as reported by Marcus himself is quite revealing. One 17-year-old male, a carpenter's apprentice, was admitted to the hospital on 25 March 1797 with chills and heat, stabbing chest pains, and great thirst. On admission, the patient had a high fever, difficult respiration, and a soft, fast pulse. Marcus immediately suspected an asthenic condition since the young man worked very hard and lived frugally in a drafty attic. Besides, there was a virtual epidemic of nervous fevers going around Bamberg. Based on that assumption, Marcus prescribed a stimulating regimen of Peruvian bark and Virginia root decoctions, supplemented with meat broth and wine. Unfortunately, the patient failed to improve, complaining instead of more chest pain; his face was flushed and the pulse fuller and stronger.⁶⁰

At this point, Marcus quickly changed his mind about the diagnosis, now calling it a sthenic disease and blaming the shift to a recent change in the local weather with warmer temperatures, a westerly wind, and rising barometer. Cold fomentations were immediately applied to the patient, two four-ounce venesections ordered at one-hour intervals, a blister placed on the left side of his chest, and the drinking of cold water recommended. The temperature in the ward could not be lowered because other hospitalized patients suffered from asthenia and required a warmer environment. After several additional bleedings, the apprentice recovered and was discharged in two weeks. Marcus commented that although his management seemed to mirror the traditional antiphlogistic approach, he was still treating the whole organism in Brunonian fashion through a carefully tailored withdrawal of strong stimuli. Moreover, he conceded that even experienced physicians could be fooled by the patient's complaints and symptoms. Brunonianism in fact helped practitioners to focus attention on the potentially deceptive nature of symptoms and physical signs.

⁵⁸ This so-called "medicine of the environment" has been the focus of a recent review. See James C. Riley, *The eighteenth-century campaign to avoid disease*, New York, St. Martin's Press, 1987. For a brief analysis see L. J. Jordanova, 'Earth science and environmental medicine: the synthesis of late Enlightenment', in L. J. Jordanova and R. Porter (editors), *Images of the earth: essays in the history of the environmental sciences*, Chalfont St Giles, British Society for the History of Science, 1979.

⁵⁹ Marcus, *op. cit.*, note 57 above, vol. 2, (1798). More statistics and a useful discussion are contained in N. Tsouyopoulos, 'Reformen am Bamberger Krankenhaus—Theorie und Praxis der Medizin um 1800', *Hist. Hospitalium*, 1976, 11: 103–122.

⁶⁰ Case of Andreas Trunk, in Marcus, *op. cit.*, note 57 above, vol. 1, (1797), pp. 91–101.

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Old treatment routines, solely predicated on such external changes as responses of the body's healing powers, could be quite misleading.⁶¹

Another case illustrates Marcus' efforts to get away from what he perceived to be stereotyped responses to the appearance of symptoms, instead of a carefully-planned systematic therapy based on truly causal principles. On 15 January 1798, a 23-year-old cooper's apprentice from the city of Mainz came into the hospital displaying all signs of a fever. Again, Marcus confronted a hard-working young man frequently exposed to the wintry elements, and said to be suffering from a considerable amount of personal grief and trouble. Another asthenia? Indeed, the patient received a stimulating diet including meat broth and wine, together with liquid laudanum, and, strangely, cold water compresses to the forehead: the latter were usually part of a debilitating approach. Fortunately, the lad recovered within a week's time and Marcus was able again to sing the praises of Brunonian therapeutics.⁶²

According to his multiple reports, Marcus seems to have had similar successes with a number of intermittent fevers, bronchial and throat ailments, and gastrointestinal troubles. His opium dosages never rose much above forty drops of liquid laudanum—a moderate dose—and this remedy was credited with saving the lives of individuals affected during Bamberg's dysentery epidemic of 1798. However, the cost of such stimulating therapies was correspondingly high. In 1798 alone, Marcus admitted, the Bamberg Hospital used 44 pounds of Peruvian bark and 470 pounds of pure alcohol. The numerous pharmaceutical preparations attest to Marcus' ingenuity in expanding upon Brown's four original stimulants, as well as his ability to prescribe without budgetary restraints.⁶³

EPILOGUE

What then emerges from this analysis of Brunonian therapeutics? A well-known German contemporary, Franz Anton Mai, aptly summarized the advantages which Brown's concepts had brought to medical treatment. His remarks were anonymously published in 1798 as a pamphlet and widely circulated.⁶⁴ In the first place, Mai celebrated the Brunonian efforts to dismantle complex systems of disease classifications and avoid the usual pondering over what constituted precipitating or remote causes of disease. Next, he praised Brown's criticism of the tormenting methods of cupping, leeching, and blistering, as well as the endless prescriptions of emetics and purgatives which often only contributed to the patient's suffering. The fear that opium was a dangerous and sedative drug had finally given way to its more confident, and at times daring employment for the well-being of patients. Moreover, Mai explained, practitioners now seemed more aware

⁶¹ *Ibid.*, p. 101. This case finally listed as a "peripneumonia".

⁶² Case of Georg Leidecker, in *ibid.*, vol. 3, (1798), pp. 50–9.

⁶³ For details, see Jantz, *op. cit.*, note 53 above, pp. 77–145.

⁶⁴ Mai's work was titled *Stolpertus, ein junger Artz am Krankenbette* and published anonymously as simply "from a patriotic inhabitant of the Palatinate". The first two pamphlets, dealing with pre-Brunonian practice, were published in Mannheim in 1777 and 1778 respectively.

of the complementary role which dietary factors played in their healing strategies, and they now also carefully checked drug dosages and their effects.⁶⁵

Of course, no reforms could occur without some trade-offs. Mai was keenly aware of the pitfalls and serious shortcomings of Brunonian therapy. For a system to rely extensively on the patient's history could be dangerous. Patients often had no intention, or lacked the ability, to communicate their complaints in great detail. From those who would and could, a veritable flood of accounts of trivial and often imaginary symptoms could overwhelm the practitioner, then forced to select those which seemed significant for subsequent management. Social class differences between patient and healer created language barriers, misunderstanding, and suspicion.⁶⁶ There was always omissions of embarrassing facts, even when the social impediments were non-existent. If the clinical history alone provided the decisive inventory of past stimulants, physicians would inevitably err.⁶⁷

Assuming that such diagnostic difficulties could be mastered, and a clear plan of cure outlined, how could practitioners be successful? Given the unpredictable progress of the patient's sickness, Mai and others thought that Brunonianism could succeed only if close clinical supervision was maintained. This meant that the occasional visits to private patients and the routine ward rounds in the hospital were insufficient. As the choice of drugs and changes in dosages, closely tailored to the needs of individual patients, were crucial to the achievement of therapeutical effects, Brunonian practitioners needed to check their patients more often, in fact every three hours during critical stages of their illnesses.⁶⁸

In sum, Brunonian therapeutics, in so far as one can speak of a supportive plan of treatment de-emphasizing the traditional antiphlogistic interventions, became a rallying point for practitioners aware of the unfavourable side effects of purging, vomiting, and bleeding. It gave such physicians a justification to break openly with established practices in selected clinical instances for which their previous experience clearly led them to anticipate iatrogenic effects from specific approaches. In Britain, as noted, shifts in treatment occurred without the need to label them particularly "Brunonian". In all instances, however, both the depleting and stimulating regimens were components of traditional eighteenth-century therapeutics.

For others, Brunonianism provided the temporary illusion that contemporary medical principles could indeed be applied at the bedside. Instead of forcing practitioners to simply trust their instincts, an approach widely disparaged as blind empiricism and equated with quackery, healing measures could be explained and defended as logical consequences of laws explaining health and disease. This was certainly true for the treatment accorded to individuals at Pavia and Bamberg. Both

⁶⁵ Franz A. Mai, *Stolpertus, ein junger Brownianer am Krankenbette*, Mannheim, Schwan u. Goetz, 1798, p. 8. For a good summary of Mai's medical career see Eduard Seidler, *Lebensplan und Gesundheitsführung: Franz Anton Mai und die medizinische Aufklärung in Mannheim*, Mannheim, Boehringer, 1975.

⁶⁶ *Ibid.*, pp. 20–9.

⁶⁷ "Stolpertus, please do not be fashionable and arrive at a rather hasty, authoritative diagnosis of asthenia or sthenia when confronted with a patient", Mai advised. *Ibid.*, p. 31. The very name Stolpertus indicates "one who stumbles"—presumably at the bedside.

⁶⁸ *Ibid.*, p. 87.

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Joseph Frank and Adalbert Marcus were thoughtful physicians, eager to manage their patients according to rational therapeutic plans derived from Brown's chief postulates. To implement them, practitioners needed to acquire a more complete knowledge of their patients, including life-style, occupation, living conditions, diet, previous illnesses, and mental status, as part of a comprehensive inventory of previous stimuli which would help in distinguishing the Brunonian asthenia from sthenia.⁶⁹

In the final analysis, however, Brunonian therapeutics in the sense of a strict application of Brown's theoretical principles was doomed from the start. The impossibility of consistently judging the degree of bodily excitability exhibited by individual patients created confusion. As the above examples illustrate, the criteria for a clinical distinction between states of asthenia and sthenia remained fuzzy. Since there was no compass to chart a consistent healing plan, physicians vacillated between depletion and stimulation just as they had done before Brunonianism. Purging could certainly be harmful to a number of conditions, and a supportive regimen beneficial to weakened patients.

Even if such experienced practitioners as the Franks and Marcus were temporarily convinced that they could make diagnostic distinctions based on Brown's principles, they then encountered a formidable hurdle in designing their cures: lack of understanding concerning the effects of the drugs they sought to administer. Brunonian therapeutics called for a wholesale reclassification of the existing materia medica as well as a better distinction between the effects of disease and the remedies administered to counter its manifestations. Indeed, adherents of Brown's system demanded a more scientific knowledge of drugs and the principles of pharmacological action in human beings.⁷⁰

Finally, Brunonian therapeutics provided a brief moment of excitement for physicians who chafed at the shackles imposed on their treatments by the traditional belief in the healing forces of nature. Some of them were tired of simply being the man-servants of their patients' postulated ability eventually to overcome illness. Others became convinced that such a passive attitude led to many victories of disease over the sick. Professional caution and ignorance may have favoured the traditional expectant approach; but was it not time to seek actively an understanding of the bodily processes of disease, diagnose them, find their cause, and, armed with such insights, actually reverse them with the help of a carefully planned strategy of diet and drugs?⁷¹

Unfortunately, such knowledge was as yet unavailable, and the Brunonian effort, though boldly conceived and executed, failed. Looking at the balance in human lives affected by these treatments—as older historians have done—yields a mixed picture. Those individuals whose lives were saved because of less purging and bleeding can be matched with a perhaps equal number of others over-medicated with opium,

⁶⁹ Risse, *op. cit.*, note 45 above, pp. 324–35.

⁷⁰ See, for example, Johann J. Loos, *Entwurf einer medizinischen Pharmacologie nach den Principien der Erregungstheorie*, Erlangen, Walker, 1802.

⁷¹ For more details, G.B. Risse, 'Kant, Schelling, and the early search for a philosophical "science" of medicine in Germany', *J. Hist. Med.*, 1972, 27: 145–58.

camphor, and alcohol, of whom some, like Brown himself, became addicted in the process. Thus, the promise of a total revolution in clinical medicine was not fulfilled.⁷² Marcus' prospect of saving the lives of thousands of patients failed to materialize. In the end, even the Franks and Marcus abandoned Brunonianism.

However, every medical development has enduring effects. Besides the renewed emphasis on careful bedside observation, history-taking, diet, drug dosage, and perception of the effects which such foodstuffs and medications have on the human organism, Brunonian therapeutics achieved something of lasting importance: a popular awareness of our expendable energy levels and need to restore them with the help of hearty drink, food, and tonics. Here is the medical rationale for our cocktail hour or pub visit after a day of hard work!

⁷² For a brief overview of the use of alcohol see M. Keller, 'Alcohol in health and disease: some historical perspectives', *Ann. NY Acad. Sci.*, 1966, 133: 821–2. More detail is in, Chauncey D. Leake and Milton Silverman, *Alcoholic beverages in clinical medicine*, Chicago, Year Book Medical Publications, 1966. On nineteenth-century Britain see J.H. Warner, 'Physiological theory and therapeutic explanation in the 1860s: the British debate on the medical use of alcohol', *Bull. Hist. Med.*, 1980, 54: 235–57.